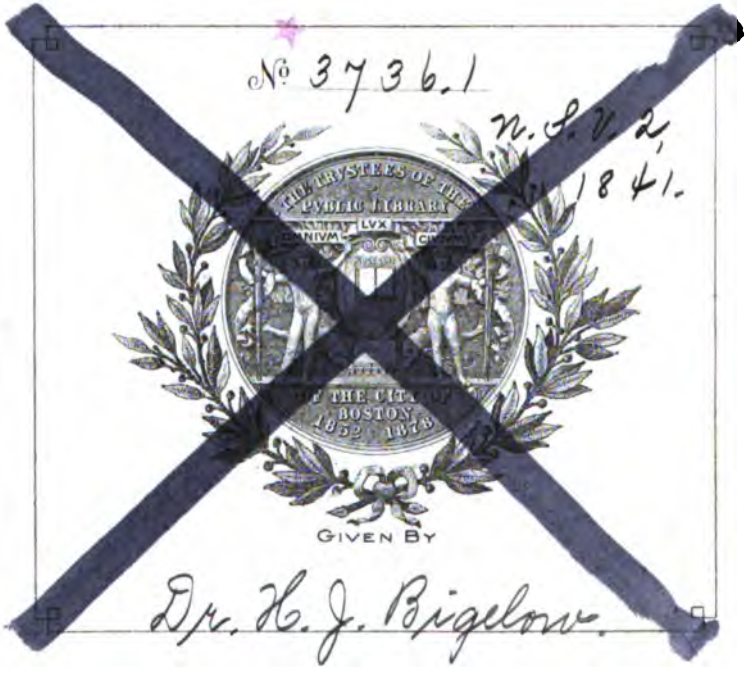
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EDITED BY

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# TO READERS AND CORRESPONDENTS.

The communications of Drs. Flint, Shipman, Zabriskie, and Davis shall have a place in our next Number.

The following works have been received:—

An Essay on the Connection of Mental Philosophy with Medicine. By NATHAN ALLEN, A. M., M. D., Editor of the American Phrenological Journal and Miscellany. Philada. 1841. [From the author.]

Lectures on Phrenology. By FRANK H. HAMILTON, M. D., Professor of the Theory and Practice of Surgery in Geneva Medical College and Vermont Academy of Medicine. Delivered before the Rochester Athenæum, February 9, 1841. By request. Rochester, 1841. [From the author.]

A Discourse on the Characters, Properties, and Importance to Man of the Natural Family of Plants, called Gramineæ or True Grasses. Delivered as a Lecture before the Class of the Chester County Cabinet of Natural Sciences, Feb. 19, 1841. By WM. DARLINGTON, M. D. West Chester, Penn. 1841. [From the author.]

Letters on the College of Physicians and Surgeons. By GRAVIORA MANENT. New York, 1841. [From the author.]

Transactions of the Medical Society of the State of New York, vol. 5, part I, 1841. [From the society.]

Boylston Prize Dissertations, for the years 1838 and 1839, on Scrofula, Rheumatism, and Erysipelatous Inflammation. By EDWARD WARREN, M. D., Fellow of the Massachusetts Medical Society. Philada. 1841. [From the author.]

A Practical Treatise on the Human Teeth—showing the causes of their destruction and the means of their preservation. By WM. ROBERTSON. With plates. First American, from the second London, edition. Philada. Lea & Blanchard, 1841. [From the publishers.]

Observations on Ergot. Read before the Medical Society of the State of New York, February, 1841. By JOHN B. BECK, M. D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of New York. Albany, 1841. [From the author.]

On the Medical and Prophylatic Treatment of Stone and Gravel, with a memoir on the Calculi of Cystine. By CIVIALE, M. D. Translat from the French, by H. H. SMITH, M. D., of Philadelphia. Philada. 1841. [From the author.]

State of the New York Hospital and Bloomingdale Asylum for the year 1840. [New York, 1841. [From Dr. JOHN B. BECK.]

Dissertations of Hemorrhages, Dropsy, Rheumatism, Gout, Scrofula, &c., &c., with a Formulary and General Index. Edited by ALEXANDER TWEEDIE, M. D., F. R. S., &c. With notes, by WM. W. GERHARD, M. D. Philada. 1841. [From the publishers.]

Outlines of a Course of Lectures on Medical Jurisprudence. By THOMAS STEWART TRAILL, M. D., F. R. S., &c., &c., Regius Professor of Medical Jurisprudence and Medical Police in the University of Edinburgh. First American, from the second Edinburgh edition. Revised, with numerous notes. Philada. 1841: Lea & Blanchard. [From the publishers.]

The Sanative Influence of Climate, with an account of the best places of resort for Invalids in England, the South of Europe, &c. By Sir JAMES CLARK, Bart., M. D., F. R. S., Physician in ordinary to the Queen and Prince Albert. Third edition. London, John Murray, 1841. [From the author.]

Das Hamburgische Collegium Medicum und der arztliche Berein in Hamburg. Im auftrage des Bereins zur 25jährigen Inbelfeier desselben am 2 Januar, 1841. Herausgegeben von F. N. SCHRADER, Dr. Med. and Chir. Hamburgh, 1840. [From Dr. ROTHENBURG, Sec. Med. Soc. Hamburg.]

Rede am 2 Januar, 1841, als dem 25jährigen Stiftungstage des a ..lichen Vereins in Hamburg, gehalten von D. SIEMERS, Vorsitz führendem Mitgliede der Direction des Vereins. [From Med. Soc. of Hamburg.]

The Seventeenth Annual Report of the Directors of the Retreat for the Insane, at Hartford. Hartford, 1841. [From Dr. BRIGHAM.]

Catalogue of Medical Graduates of the University of Pennsylvania, April 2, 1841. [From the faculty.]

Annual Report to the President and Trustees of the Medical College of the State of South Carolina, with the Valedictory Address to the Class. By SAMUEL HENRY DICKSON, M. D., Professor of the Institutes and Practice of Medicine. Published by the Faculty. Charleston, 1841. [From the author.]

Proceedings of the President and Fellows of the Connecticut Medical Society, in convention, May, 1841, with a list of the Members of the Society. Hartford, 1841. [From the secretary, Dr. WELCH.]

Zeitschrift für die gesammte Medicin, mit besonderer Rücksicht auf Hospitalpraxis und ausländische Literatur. Herausgegeben von J. C. G. FRICKE und F. W. OPPENHEIM. November and December, 1840; January, February, March, and April, 1841. [In exchange.]

Jahrbuch der gesammten Staatsarzneikunde. Herausgegeben von Dr. C. F. L. WILDBERG. Bd. VI, H. 1 and 2, 1840. [From Dr. OPPENHEIM.]

Wenken en Meeningen omtrent Geneeskundige Staatsregeling en Algemeene Geneeskunde, von J. P. Heije. Vol. I, Nos. 3 and 4; vol. II, Nos. 1 and 2. [From Dr. Oppenheim.]

Repertorisches Jahrbuch für die Leistungen der gesammte Heilkunde, im Jahre, 1838, von J. J. SACHS, M. D., &c., &c. Leipzig, 1839. [From Dr. Oppenheim.]

Journal des Connaissances Médico-Chirurgicales, November and December, 1840; January, February, and March, 1841. [In exchange.]

Revue Médicale Française et Etrangère, October, November, and December, 1840; January and February, 1841. [In exchange.]

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The Edinburgh Medical and Surgical Journal, for April, 1841. [In exchange.]

The British and Foreign Medical Review, or Quarterly Journal of Practical Medicine and Surgery, for April, 1841. [In exchange.]

The Medico-Chirurgical Review and Journal of Practical Medicine, for April, 1841. [In exchange.]

Provincial Medical and Surgical Journal, edited by HENNIS GREEN and Dr. STRETEN, April and May, 1841. [In exchange.]

The London Medical Gazette, for January, February, March, and April, 1841. [In exchange.]

The Boston Medical and Surgical Journal, April, May, and June, 1841. [In exchange.]

The American Medical Library and Intelligencer, February and March, 1841. [In exchange.]

The Select Medical Library and Bulletin of Medical Science, for April, 1841. [In exchange.]

The New York Journal of Medicine and Surgery, April, 1841. [In exchange.]

The Western Journal of Medicine and Surgery, April and May, 1841. [In exchange.]

The American Journal of Pharmacy, April, 1841. [In exchange.]

# CONTENTS

OF THE

# AMERICAN JOURNAL

OF THE

# MEDICAL SCIENCES.

No. III, NEW SERIES.

JULY, 1841.

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## ORIGINAL COMMUNICATIONS.

### MEMOIRS AND CASES.

ART. PAGE.

I. Statistical Researches elucidating the Climate of the United States and its relation with Diseases of Malarial Origin; based on the Records of the Medical Department and Adjutant General's Office. By Samuel Forry, M. D., of New York. - - - - - - - - 13

II. Notes of Observations in Obstetric Pathology. By Chandler R. Gilman, M. D., Professor of Obstetrics and the Diseases of Women and Children, in the College of Physicians and Surgeons, New York. - - 47

III. Observations on Congestive Fever. By Thomas Barbour, M. D., of Pulaski, Tennessee. - - - - - - - - - - 56

IV. Cases of Injury of the Head. By A. B. Shipman, M. D., President of the Cortland County, New York, Medical Society. - - - 66

V. Cases of Cleft Palate. By Thomas D. Mütter, M. D., Professor of the Institutes of Surgery in Jefferson Medical College. - - - 74

VI. Case of Congenital Tumour of the Eyeball. By W. T. Taliaferro, M. D., of Maysville, Ky. - - - - - - - - - 88

VII. An Examination of the Testimony relative to the Efficacy of the Hydrated Peroxide of Iron as an Antidote to Arsenic, with Directions for its Preparation and Exhibition. By T. Romeyn Beck, M. D. - - 90

VIII. Case of Nephritis. By A. B. Snow, M. D., of Boston, Mass. Read before the Boston Society for Medical Improvement, March 23, 1841. 95

IX. Report of Cases Treated in the Baltimore Alms-House Hospital. By Samuel Annan, M. D., Senior Physician to the Institution. - - 99

X. Obstetric Cases. By William Zollickoffer, M. D., Fellow of the College of Physicians and Surgeons of the University of the State of New York, &c. &c. - - - - - - - - - - 109

XI. Ligature of Subclavian Artery for the Cure of Axillary Aneurism caused by Gun-shot Wound. By Josiah C. Nott, M. D., Mobile, Alabama. 111

### MEDICAL EDUCATION AND INSTITUTIONS.

XII. The Royal College of Surgeons, in London, with an Abstract of the Case of Thomas Tripple. By Pliny Earle, M. D. - - - 113

### REVIEW.

XIII. The Library of Practical Medicine. A System of Practical Medicine, comprised in a series of original dissertations. Arranged and Edited by

ART. PAGE

Alexander Tweedie, M. D., F. R. S. &c. &c. Diseases of the Digestive, Urinary, and Uterine Organs. 8vo. pp. 516; Philadelphia: Lea & Blanchard, 1841. - - - - - - - - - - - -

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## RETROSPECTIVE REVIEW.

XIV. Theodori Kerckringii, Doctoris Medici, Commentarius in Currum Triumphalem Antimonii Bassillii Valentini, a se Latinitate donatum. Amstelodami, 1671: 12mo. pp. 342.
The Triumphal Chariot of Antimony, by Basil Valentine, translated into Latin, and enriched with a Commentary, by Theodore Kerckringius, M. D., Amsterdam, 1671. - - - - - - - - - - 136

## BIBLIOGRAPHICAL NOTICES.

XV. Récherches Anatomiques, Pathologiques, et Thérapeutiques sur la maladie connue sous les noms de Fièvre Typhoïde, &c. 2eme edition, considérablement augmentée. Par P. C. A. Louis, Paris, 1841.
Anatomical, Pathological, and Therapeutic Researches, concerning the disease known by the name of Typhoid Fever, &c. 2nd edition, consideraby enlarged. By P. C. A. Louis. Two vols., pp. 534, and 516. Paris, 1841. - - - - - - - - - - - - 150
XVI. Second Annual Report of the Registrar-General of Births, Deaths, and Marriages in England. London: 1840. 8vo. pp. 240. - - 155
XVI. Grundzüge zur Dipsobiostatik, order Politisch-Arithmetische, auf ärztliche Besbachtung gegründete Darstellung der Nachtheile, welche durch den Missbrauch der Geistigen Getränke in hinsicht auf Bevölkerung und Lebendauer sich Ergeben. Von Dr. Fr. Wilh. Lippich. Erstes und sweites hundert der Beobachtungsfäller, 8vo., pp. 150. Liabach, 1834.
Sketches of Dipsobiostatics, or a Politico-Arithmetical Exposition of the Prejudicial Influence Resulting from the Abuse of Intoxicating Drinks, in respect to Population and the Duration of Life, based upon Medical Observations. By Dr. F. W. Lippich. First and second century of observations. - - - - - - - - - - - - - 161
XVII. Manuel d'Hydrosudopathie, ou Triatement des Maladies per l'eau froide, la sueur, l'exercice, et le regime, suivant la methode employée par V. Priessnitz, a Græfenberg. Par le Docteur Bigel, Medecin, &c. &c. &c. &c. Suivi d'un Mémoire Physiologique sur la Chaleur Animale. Par M. Pelletan, Professeur, &c., a Paris. pp. 396, 12mo. Paris. Baillière: 1840. - - - - - - - - - - 168
XVIII. Die Lehre von der Zurechnungsfahigkeit bei sweifelhaften Gemuthszustanden. Fur Aartze und Juristen praktisch dargestellt. Von Dr. Adolph Schnitzer. Berlin: 1840.
The Doctrine of Responsibility in cases of doubtful State of Mind. - 171
XIX. A Practical Treatise on the Human Teeth: showing the causes of their Destruction, and the means of their Preservation. By Wm. Robertson. With plates. First American from the second London edition. Philadelphia: Lea & Blanchard, 1841. 8vo. pp. 229. Pl. VI. - 171
XX. An Essay on the connection of Mental Philosophy with Medicine. By Nathan Allen, A. M., M. D., editor of the American Phrenological Journal and Miscellany. Philadelphia: 1841. 8vo. pp. 32. - - 172
XXI. Boylston Prize Dissertation, for the years 1838 and 1839, on Scrofula, Rheumatism, and Erysipelatous Inflammation. By Edward Warren, M. D., Fellow of the Massachusetts Medical Society. Philadelphia: 1840. pp. 122. - - - - - - - - - - - 172

# SUMMARY

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OF THE

# IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

## FOREIGN INTELLIGENCE.

### Anatomy and Physiology.


1. Fibres in the Walls of the Gall-Bladder. By M. Barth. PAGE 173
2. On the varying Proportion of some of the Principles of the Blood in Diseases. By MM. Andral and Gavaret. - - 173
3. Existence of Fibrine in the Blood in the Shape of Globules. PAGE 174
4. The Physical and Moral Qualities observed in Adult Age are evinced at Birth. By M. Blanchet. - - - - - - 174


### Pathological Anatomy.


5. Acephalocysts in the Brain. By Dr. Michea. - - - 175
6. Rupture of the Fallopian Tube from accumulation of the Catamenial Fluid. By Dr. Munk. 175
7. Remarkable Spina Bifida. By Dr. Verrall. - - - - 176
8. On Sudden Death. By Mr. Winslow. - - - - 176
9. Obliteration of the Inferior Vena Cava. By Dr Gely. - 178


### Medical Pathology and Therapeutics and Practical Medicine.


10. Results of Re-vaccination in the Deaf and Dumb Institution of Paris. - - - - 179
11. General result of the Vaccinations and Re-vaccinations in France. By M. Villeneuve. - 180
12. Anatomico-Pathological Researches on Cirrhosis of the Liver. By Alfred Becquerel, of Paris. - - - - - . 181
13. Tubercle in the Cerebellum. By Mr. Long. - - - 184
14. A Peculiar Form of Infantile Convulsions. By Mr. J. W. West, of Tunbridge. - - 187
15. Treatment of Variola by the ectrotic method. By J. F. Olliffe, M. D. - - - - 188
16. Smallpox—Vaccination—Revaccination. By George Gregory, Esq. - - - - 191
17. On Gouty Concretions, with a new Method of Treatment. By Alexander Ure, Esq. - - 196
18. On a Sedative Lotion in Headaches, Congestions, and Cerebral Fevers. By Professor Raspail. 196
19. Sulphur ointment in Smallpox. By Dr. Midavaine. - 196
20. Treatment of Epilepsy by Cauterizations with Potash. By Dr. Fievee, de Jumond, - - 197

## Surgical Pathology and Therapeutics, and Operative Surgery.


21. Partial Injury of one of the Halves of the Spinal Marrow. By M. Begin. - - - 197
22. On the Removal of Foreign Bodies in the Joints by means of Subcutaneous Incisions. By Dr. Goyrand, of Aix. - - - 198
23. Successful Performance of Tracheotomy in a case of Croup. By M. Saussier. - - - 199
24. Chloride of Zinc in the Treatment of Acute and Chronic Gonorrhœa. By M. Gaudriot. - 199
25. Ligature of the common Carotid Artery, and Experiments on the Ligature of both Carotids in Animals. By M. Jobert, de Lamballe. - - - - 200
26. On Resection of the Elbow-Joint. By M. Roux. - - 201
27. Reduction of Hemorrhoidal Tumours. By Dr. Marshall Hall. 201
28. Wound of the Heart. By Professor Malle. - - - 201
29. Clinical Lecture on Fissure of the Anus. By M. Velpeau. 202
30. Case of Dislocation of the Cervical Vertebræ cured. By Dr. Schuk, of Vienna. - - 207
31. On the Auscultatory Phenomena in externally situated Aneurisms, and on the difference between an independent and a communicated pulsation in Tumours. By Dr. Schuk, of Vienna. - - - - - 208
32. On Pneumonia in connection with, or as a consequence of, Surgical Operations and Injuries. By Mr. J. E. Erichsen. - - 209
33. Operations for the cure of Stammering. - - - - 210


## Ophthalmology.


34. Cure of Myopia by division of the muscles of the Eye. By M. Jules Guerin and Bonnet. - 216
35. Partial Amaurosis cured by Division of the Recti Muscles. By Mr. James J. Adams, of London. - - - - - 218
36 Physiology of the Iris. By Mr. W. H. Brodribb. - - 219
37. Influence of Supra-orbital wounds in the production of amaurosis. By Dr. F. De Walther. - - - - - - 219
38. On the action of the Oblique Muscles of the Eye. By A. W. Volkman. - - - - 220


## Dental Surgery.


39. On the treatment of the milk teeth from their first appearance until they are shed. By M. Delmond. - - - - 221
40. On Plugging Teeth. By M. O. Taveau. - - - - 222


## Midwifery.


41. Case in which Six Pregnancies occurred during Amenorrhœa. By Dr. Flechner, of Vienna. - - - - - 225
42. Singular Case of Tumour in the Pelvis. By Professor von D'Outrepont, of Würzburg. - 226
43. On the best and surest way of inducing Premature Labour. Dr. Meissner, of Leipsic. - - 226
44. Compresson of the Aorta as a means of arresting Uterine Hemorrhage. Dr. Piedagnel. - 227

## Medical Jurisprudence and Toxicology.


45. Symptoms of Rupture of the Bowels. - - - 232
46. Remarkable effect upon the Human Gums, produced by the Absorption of Lead. By Henry Burton, M. D. - - - 232
47. Brucine. By Dr. Fuss. - 232
48. Detection of Arsenic. By Dr. Figuier. - - - - - 233
49. Healthy Appearance of the Internal Surface of the Stomach. 233
50. Peculiar Action of Sulphuric Acid on the Stomach. By Dr. Hodgkin. - - - - - 234
51. Laburnum Seeds. By M. Bonney. - - - - - 234
52. Salt of Platina. By Dr. Hoeffer. - - - - - - 234
53. Appearances on Dissection in persons hung. By Dr. Watson. 235
54. Protracted Gestation. - 235
55. Poisoning with Binoxalate of Potash. - - - - - - 236
56. Poisoning by Ammonia, in the state of Vapour. By Dr. Souchard, of Batignolies, - - 237
57. Fracture of the Skull occurring during Labour. By Dr. Schultzen, of Insterberg. - 238
58. On the Length and Strength of the Umbilical Cord at the full term of Pregnancy. By Dr. Negrier. - - - - - 238


## Medical Statistics.


59. Abstract of the Glasgow Mortality Bill for 1840. By Alexander Watt. - - - - - 239
60. Statistics for the Vienna Midwifery Institution. - - - 240


## Foreign Correspondence.


61. New operations for the radical cure of Stuttering—new operation for cure of Myopia—Sulphate of Quinine in large doses for the cure of Intermittent. By Dr. E. J. Lewis. - - - 240
62. Medical Schools of Berlin and Vienna. By Dr. T. H. Watts, of England. - - - - 241


## Miscellaneous.


Necrology. - - - - - 242
Biography of Dupuytren. - - 242
Hôpital de Charenton. - . 242


---

## AMERICAN INTELIGENCE.


Dysphagia from Scrofulous degeneration of the Œsophagus of five years standing, cured. By Ezra P. Bennett, M. D., of Danbury, Ct. - - - - - 243
Case of Congenital hypertrophy of the upper eyelids, and mucous membrane of the upper lip, with an inversion of the eyelashes. By. H. H. Toland, M. D., of Columbia, S. C. - - - 244
An Essay, on the beneficial results of Statistical Inquiries; in their application to Charleston, tracing the increased mortality to Quacks and Quackery. By Dr. Thos. Logan. - - - - - 245
Cathartics in Retention of the Pla-

PAGE

centa. By Dr. Thos. H. Todd, of Starkville, Miss. - - 248
Excision of the Elbow-joint. By Dr. Gordon Buck, of New York. 249
Rhatany in the Treatment of the Fissure of the Anus, Prolapsus Ani and Leucorrhœa. By Drs. W. P. Johnson & J. B. Biddle. 249
Case of Triplets. By Dr. A. H. Buchanan, of Columbia, Tenn. 250
Smallpox in Philadelphia—Ectrotic Treatment. - - - 250
Annual Report of the Governors of the New York Hospital, made to the Legislature, February 23, 1841. - - - - - - 251
Annual Report of the Inspectors of the Mount Pleasant State Prison (Sing Sing) to the Legislature of the State of New York, January 13, 1841. - - - - 251

PAGE

Annual Report of the Inspectors of the State Prison at Auburn, to the Legislature of the State of New York, January 13, 1841. 252
Fourth Annual Report of the Trustees of the Vermont Asylum for the Insane. Presented to the Legislature, October, 1840. By William H. Rockwell, M. D. 253
Convention of the Physicians of Kentucky. - - - - - 254
Jefferson Medical College. - 255
New York University. - - 255
Transylvania University. - - 255
Medical College of the State of South Carolina. - - - 255
Tweedie's Library of Practical Medicine. - - - - - - 255
Traill's Medical Jurisprudence. 255
Climate of the United States. - 256
Necrology. - - - - - 256

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# AMERICAN JOURNAL

OF THE

# MEDICAL SCIENCES.

JULY, 1841.

ARTICLE I.—*Statistical Researches elucidating the Climate of the United States and its relation with Diseases of Malarial Origin; based on the Records of the Medical Department and Adjutant General's Office.* By SAMUEL FORRY, M. D., of New York.

IN the investigation of that class of diseases generally imputed to sources of malarial origin, designed in the present paper, the same mode of classification, as respects particular systems of climate, will be followed, as that adopted in the article contained in the number of this Journal for January last, entitled "*Statistical Researches relative to the Etiology of Pulmonary and Rheumatic Diseases*," *&c.*

As the subject of climate in general is but little understood, and as that of the United States presents remarkable extremes, not only in different degrees of latitude but on the same parallels, it is proposed to elucidate still further the climatic peculiarities of the different regions of the United States in a series of condensed tabular results. The classification referred to above is the following:

| *General Divisions of the United States.* | | *Systems of Climate.* |
|---|---|---|
| 1. Northern. | 1 Class. | Posts on the coast of New England, extending as far south as the harbor of New York. |
| | 2 " | Posts on the northern chain of lakes. |
| | 3 " | Posts remote from the ocean and inland seas. |
| 2. Middle. | 1 Class. | Atlantic coast from Delaware Bay to Savannah. |
| | 2 " | Interior stations. |

3. Southern. { 1 Class. Posts on the lower Mississippi.
{ 2 " Posts in the peninsula of East Florida.

1. *The Northern Division* presents the greatest variety of climate on the same parallels of latitude. These diverse effects, as was demonstrated in the No. of this Journal for January last, are the result of the modifying agency of the ocean and the lakes. Thus on the seacoast of New England and on the great lakes of our northern frontier, the temperature is so modified that it pertains to the class of *mild* or *uniform* climates; whilst in the intervening region and in that beyond the modifying influence of these ocean-lakes, the range of the thermometer becomes so augmented and the opposite seasons so contrasted in their mean temperatures, that these climates are classified as emphatically *excessive*. These results, however, are clearly exhibited in the following tabular abstract:—

| *Posts on the Ocean and the Lakes, or Mild and Uniform Climates.* | No. of years of observation. | Latitude. | Mean Annual Temperature. | Mean Temp. Winter. | Mean Temp. Summer. | Difference of the Mean Temp. of Winter and Summer. | Difference of the Mean Temp. of Warmest & coldest Month. | Difference of the Mean Temp. of Winter and Spring. | Mean Annual Range. |
|---|---|---|---|---|---|---|---|---|---|
| Fort Brady, *Outlet of Lake Superior*, | 6 | 46°39′ | 41°.39 | 21°.07 | 63°.18 | 42° 11 | 47°.22 | 18°.42 | 110° |
| " Vancouver, *Oregon Territory*, | 1 | 45°37′ | 51 .75 | 41 .33 | 65 .00 | 23 .67 | 28 .00 | 6 .67 | 78 |
| " Sullivan, *Eastport, Maine*, | 5 | 44°44′ | 42 .95 | 22 .95 | 69 .10 | 39 .15 | 43 .87 | 17 .16 | 104 |
| " Preble, *Portland, Maine*, | 5 | 43°38′ | 46 .67 | 26 .03 | 67 .06 | 41 .03 | 47 .89 | 18 .42 | 99 |
| " Niagara, *Lake Ontario, N. Y.*, | 2 | 43°15′ | 51 .60 | 30 .46 | 72 .19 | 41 .73 | 49 .40 | 16 .77 | 92 |
| " Constitution, *Portsmouth, N. H.* | 4 | 43°04′ | 47 .21 | 28 39 | 65 .72 | 36 .33 | 43 .39 | 16 .83 | 97 |
| " Wolcott, *Newport, R. I.* | 9 | 41°30′ | 50 .61 | 32 .51 | 69 .06 | 36 .55 | 41 .52 | 14 .71 | 83 |
| " Trumbull, *New London, Conn.*, | 2 | 41°22′ | 55 .— | 39 .33 | 71 .89 | 32 .56 | 39 .37 | 11 .67 | 78 |
| " Columbus, *New York Harbour*, | 9 | 40°42′ | 53 .— | 32 .39 | 73 .76 | 41 .31 | 45 .92 | 17 .87 | 95 |
| *Posts remote from the Ocean and Lakes, or Excessive Climates.* | | | | | | | | | |
| Hancock Barracks, *Houlton, Maine*, | 2 | 46°10′ | 41°.21 | 16°.74 | 69°.93 | 46°.19 | 54°.70 | 24°.49 | 118° |
| Fort Snelling, *near the junct on of the St. Peter's and Mississippi*, | 8 | 44°53′ | 45 .83 | 15 .95 | 73 .75 | 56 .60 | 61 .86 | 30 .83 | 119 |
| " Howard, *Green Bay, Wisconsin*, | 9 | 44°46′ | 44 .92 | 19 .77 | 69 .82 | 50 .05 | 54 .11 | 24 .10 | 123 |
| " Crawford, *Prairie du Chien, Wn* | 2 | 43°03′ | 45 .52 | 19 .90 | 70 .79 | 50 .89 | 52 .68 | 25 .38 | 120 |
| Council Bluffs, *near the junction of the Platte and Missouri*. | 5 | 41°45′ | 51 .02 | 24 .47 | 75 .82 | 51.35 | 54 .77 | 27 .47 | 120 |
| Fort Armstrong, *Rock Island, Ill.* | 4 | 41°28′ | 51 .64 | 26 .86 | 75 .91 | 49 .05 | 54 .14 | 23 .99 | 106 |
| West Point, *New York*, | 4 | 41°22′ | 52 .47 | 32 11 | 72 .86 | 40 .75 | 46 .17 | 18 .89 | 91 |

Notwithstanding the posts on the same parallels exhibit in rapid succession four marked inflexions of the isotheral and isocheimal lines, (the mean summer and winter temperatures,) causing a marked diversity in the contrast of these opposite seasons, yet the mean annual temperature presents little variation. The difference of climate is, therefore, owing to the unequal distribution of heat among the seasons. A single glance at the table serves to show these various contrasts. It will be observed that at the posts on large bodies of water, the mean temperature of winter is higher and that of summer is lower than in the opposite localities; but these results are more satisfactorily perceived by comparing the difference between the mean temperature of winter and summer, and the warmest and coldest month, in each system of climate. Thus Fort Brady, at the outlet of Lake Superior, shows a difference of only 42°.11 between the mean temperature of winter and

summer, whilst Hancock Barracks, half a degree farther south, in the state of Maine, situated not more than 150 miles from the sea-coast, exhibit a disparity of 46°.19; and comparing the warmest and coldest month, the difference of the former is 47°.22, and that of the latter 54°.70. Again—Forts Sullivan and Snelling, in opposite systems of climate, are very nearly in the same latitude, the former at Eastport, Maine, and the latter at the junction of the St. Peter's and Mississippi, Iowa. At Fort Sullivan, the difference of winter and summer is 39°.15, and that of the warmest and coldest month, 43°.87; whilst at Fort Snelling, these ratios are respectively 56°.60 and 61°.86. Fort Howard is also in the same latitude, but as it is situated at the extreme point of one of the smaller lakes, (Green Bay, Wisconsin,) the temperature is partially modified, these averages being 50°.05 and 54°.11. Next come four posts, all of which are nearly on the same parallel, three being of the class of *uniform* climates and one of that of *excessive*. Of the former, two, Forts Preble and Constitution, are on the ocean, and the other, Fort Niagara, is on Lake Ontario. At these posts in the order just named, the difference between the mean temperature of winter and summer is respectively 41°.03, 36°.33, and 41°.73; whilst, on the other hand, at Fort Crawford, Wisconsin, a point a few minutes farther south than the three former, the difference is 50°.89. On reference to the table, it will be seen that the contrast in the difference between the mean temperature of the warmest and coldest month, is equally striking. The next points of comparison as lying on the same parallel, are Forts Wolcott and Trumbull on the Atlantic, and Council Bluffs, Fort Armstrong, and West Point in the opposite localities. The difference in the mean temperature of summer and winter at Fort Wolcott, Newport, R. I., is 36°.55, and at Fort Trumbull, New London, Conn., it is 32°.56; whilst at Council Bluffs, near the junction of the Platte and Missouri, it is 51°.35, at Fort Armstrong, Ill., 49°.05, and at West Point, N. Y., 40°.75. Between the two posts on the ocean and the two far in the interior, the difference between the mean temperature of summer and winter presents a disparity of from 15° to 17°; and as respects Fort Trumbull and West Point, which are precisely in the same latitude, the difference between these two opposite seasons, notwithstanding the latter is not more than fifty miles from the ocean, is 8°.19 less at the former post. As regards the difference between the mean temperature of the warmest and coldest month, these laws find confirmation in every instance. So remarkable is the influence of large bodies of water in modifying the range of the thermometer that although Fort Brady, at the Sault St. Marie, Mich., is nearly 7° north of Fort Mifflin, near Philadelphia, and notwithstanding the mean annual temperature is more than 14° less, yet the contrast in the seasons of winter and summer is not so great at the former as the latter. Fort Columbus, in the harbour of New York, it is seen, offers, in some respects, an exception to the laws just developed, the range of the thermometer being greater than at some points farther north. As the results, which are based

on nine years' observations, made on an island free from any agency which large towns may exercise, are doubtless correct, some causes of a local nature must exist to produce this effect. It is more than probable that this locality, in consequence of the configuration of the coast, does not lie in the direction of the most prevalent ocean winds, and that hence its temperature is only partially modified.

The climate of Fort Snelling, which is the most excessive among all the military posts of the United States, resembles that of Moscow in Russia, as regards the extremes of the opposite seasons, notwithstanding the latter is 11° farther north; but at Moscow, the mean temperature both of winter and of summer is lower, that of winter being as 10°.78 to 15°.95, and that of summer as 67°.10 to 72°.75. At Edinburgh, Scotland, in the same latitude as Moscow, the difference between the mean temperature of winter and summer is, on the other hand, not one third as great, being only 17°.90; and even at North Cape, on the island of Maggeroe, in lat. 71°, which is the most northern point of Europe, this difference in the two seasons, so great is the modifying influence of the ocean, is no more than 19°.62; whilst at Uleo in the interior of Lapland, the difference between the mean temperature of summer and winter is 45°.90.

In these comparisons, no reference has yet been made to the second post in the table, Fort Vancouver, in Oregon Territory, situated on the Columbia river, about seventy miles in a direct line from the Pacific ocean. This region bears the same climatic relation to our coast and to that of eastern Asia, as the western coast of Europe does. It is seen that the mean annual temperature is about 10° higher than that of the posts on the same parallel on our own coast. To attempt to explain these results would lead beyond the limits designed for this paper. Suffice it to say that they find a ready explanation in physical causes. So mild and uniform are the seasons at Fort Vancouver, that the difference between the mean temperature of winter and summer is only 23°.67—a mean which is less than that of Italy or southern France, and only about two fifths of that of Fort Snelling, notwithstanding the latter is nearly 1° farther south. This locality is even less contrasted in these opposite seasons than Cantonment Clinch near Pensacola or Petite Coquille near New Orleans. The mean temperature of spring, summer and autumn, are about the same as at Fort Wolcott, R. I., whilst the winter resembles that of Fort Gibson, Ark.

The next point demanding attention is the difference between the mean temperature of winter and spring. A glance at the table given above will show that this difference is much the greater in the *excessive* climates. Taking places in the same latitude and in opposite systems of climate, it is found at Fort Brady to be 18°.42, whilst at Hancock Barracks it is 24.°49; at Fort Sullivan it is 17°.16, whilst at Forts Snelling and Howard, it is respectively 30°.83 and 24°.10, the latter being partially modified by Green Bay; at Forts Preble, Niagara and Constitution, the ratios are 18°.42,

16°.77 and 16°.83, and at Fort Crawford, on the other hand, it is 25°.83; and lastly at Forts Wolcott and Trumbull, is 14°.71 and 11°.67, whilst at Council Bluffs, Fort Armstrong, and West Point, it is respectively 27°.47, 23°.99, and 18°.82. Fort Columbus, as in the preceding comparison, stands as an exception, its ratio, notwithstanding it is lower than any one in the opposite class, being the highest in its own with the exception of two posts. This peculiarity in the increase of the temperature of spring, as manifested in the vegetable kingdom, constitutes a feature which strongly characterizes excessive climates; for, as Baron Humboldt remarks—"a summer of uniform heat excites less the force of vegetation, than a great heat preceded by a cold season." Accordingly we find that in these excessive climates, (unlike the uniform ones on the ocean and lakes, in which the air is moist and the changes of the seasons slow and uncertain,) summer succeeds winter so rapidly that there is scarcely any spring, and vernal vegetation is developed with remarkable suddenness. At Fort Vancouver, the difference between the mean temperature of winter and spring is only 6°.67, which is about one third of the difference observed at the posts in our *modified* climates on the same parallel, and little more than one fifth of the difference exhibited in the *excessive* climate of Fort Snelling.

Another feature which characterizes these two systems of climate remains to be considered, viz., the mean annual range of the thermometer. On reference to the table, this striking peculiarity is at once apparent. On a comparison of the posts on the same parallel, the following relations are found:—At Fort Brady, on the one hand, the range is 110°, and at Hancock Barracks, on the other, it is 118°; at Fort Sullivan it is 104, whilst at Forts Snelling and Howard, it is 119° and 123°; at Forts Preble, Niagara and Constitution, it is respectively 99°, 92° and 97°, whilst at Fort Crawford, on the same parallel, it is 120°; and lastly at Forts Wolcott and Trumbull, it is 83° and 78°, whilst at Council Bluffs, Fort Armstrong and West Point, it is 120°, 106° and 91°. Fort Columbus, as before, presents an exception. These results, it may be necessary to add, exhibit the *average* range of a series of years. The *extreme* range, for example, at Fort Brady, during a period of eleven years, (from 1820 to 1830 inclusive,) is 130°, the mercury sinking in 1826 as low as −37°, and rising in 1830 to 93° Fahr. At Fort Snelling in 1821, the mercury sunk to −32°, and in 1827 rose to 96°, being a range of 128°. At Fort Howard, in 1823, it rose to 100° and sunk to −38°, being a range in the same year of 138°. At Fort Crawford we find the mercury in 1820 noted as high as 99°, and in 1821 as low as −36°, being a range of 135°; at Fort Armstrong, in 1821, as low as −28°, and in 1830 as high as 98°, being a range of 126°; and lastly at Council Bluffs as low, in 1820, as −22°, and in 1822 as high as 108°, being an extreme range of 130°. At the last named post, the thermometer rose every year above 100°. When the Southern Division of the United States comes under investigation, it will be seen that the mercury there seldom rises as high as in our northern regions.

2. *The Middle Division.*—The numerical results furnished by this Division are, as in the Northern, presented in the following condensed summary:

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| *Posts of the Middle Division.* | No. of years of observation. | Latitude. | Mean Annual Temperature. | Mean Temp. | | Difference of the Mean Temp. of | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Winter. | Summer. | Winter and Summer. | Warmest & coldest Month. | Winter and Spring. | Mean Annual Range. |
| Fort Mifflin, *near Philadelphia*, | 2 | 39°51′ | 55°.28 | 33°.11 | 77°.93 | 44°.82 | 48°.03 | 18°.33 | 87° |
| Washington City, D. C., | 8 | 38°53′ | 56 .57 | 37 .76 | 76 .74 | 38 .98 | 42 .40 | 18 .43 | 84 |
| Jefferson Barracks, *near St. Louis*, | 4 | 38°28′ | 58 .14 | 37 .67 | 78 .45 | 40 .78 | 45 .15 | 21 .08 | 89 |
| Fort Monroe, *Old Point Comfort, Va.* | 5 | 37°02′ | 61 .43 | 45 .17 | 78 .31 | 33 .14 | 36 .82 | 13 .74 | 73 |
| Fort Gibson, *Arkansas*, | 3 | 35°47′ | 62 .90 | 44 .31 | 81 .14 | 36 .83 | 42 .03 | 18 .38 | 89 |
| " Johnston, *Coast of N. Carolina*, | 5 | 34°00′ | 66 .06 | 52 .48 | 80 .31 | 27 .83 | 30 .15 | 14 .02 | 62 |
| Augusta Arsenal, *Ga.*, | 5 | 33°28′ | 66 .01 | 51 .43 | 81 .06 | 29 .63 | 32 .54 | 14 .46 | 73 |
| Fort Moultrie, *Charleston Harbour*, | 2 | 32°42′ | 65 .78 | 49 .93 | 80 .27 | 30 .34 | 35 .73 | 16 .35 | 69 |
| " Jesup, *near Sabine River, La.*, | 8 | 31°30′ | 68 .03 | 53 .19 | 82 .48 | 29 .29 | 31 .94 | 14 .74 | 77 |

It has not been deemed fitting to arrange these posts into the two classes of uniform and excessive climes, as the majority of them are of a mixed character. The first two are slightly under the influence of the Atlantic, whilst the south-western stations experience the powerful agency of the Gulf of Mexico. The laws of climate developed in the preceding Division, do not find so happy an illustration in this one; for as the physical causes act less prominently, the effects are less marked. As we proceed south, the seasons become, as a general rule, more uniform in proportion as the mean annual temperature increases. Fort Mifflin and Washington City do not properly pertain to either class, being in a measure under the influence of the ocean; but as we possess no thermometrical observations made directly on the Atlantic on the same parallel, we are unable to determine the difference of climate. Fort Mifflin shows a greater contrast in the opposite seasons than Forts Brady, Sullivan, Preble, Niagara, West Point, Constitution, Wolcott, and Trumbull; and Washington City exhibits greater extremes than the three last named. Although the results given at Washington City fairly place it in the class of excessive climes, yet on following the same parallel westward, a still greater contrast is exhibited. Thus the difference between the mean temperature of winter and summer at Jefferson Barracks near St. Louis, notwithstanding it is about half a degree farther south than Washington City, is 1°.80 greater; and on comparing Fort Gibson, Ark., with Fort Monroe, on the coast of Virginia, though the latter is 1°15′ north of the former, the difference at Fort Gibson, in the same respect, is 3°.69 greater. Fort Johnston, on the coast of North Carolina, which is 0°32′ north of Augusta Arsenal, Ga., also exhibits a less extreme in the opposite seasons.

In casting one's eye over the column showing the difference between the mean temperature of winter and spring, the general laws already revealed are apparent. Jefferson Barracks shows a greater inequality than Washington City, and Fort Gibson than Fort Monroe. Fort Jesup cannot be fairly compared, by way of contrast, with a position in the same latitude on the

Atlantic, as the warm atmospheric currents from the Gulf of Mexico exercise there a sensible influence.

As respects the mean annual range of the thermometer, it is found that the laws developed in the Northern Division are here corroborated. Washington City has a mean annual range of 84°, whilst that of Jefferson Barracks is 89°; the ratio of Fort Monroe, on the one hand, is 73°, and that of Fort Gibson, on the other, is 89°; and lastly the range at Fort Johnston is 62°, whilst that of Augusta Arsenal is 73°.

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3. The *Southern Division*, which is characterized by the predominance of high temperature, remains to be considered. The climate of this region is fully illustrated by the posts contained in the subjoined tabular abstract:—

| *Posts of the Southern Division.* | No. of years of observation. | Latitude. | Mean Annual Temperature. | Mean Temp. | | Difference of the Mean Temp. of | | | Mean Annual Range. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Winter. | Summer. | Winter and Summer. | Warmest & coldest Month. | Winter and Spring. | |
| Cantonment Clinch, *near Pensacola*, | 7 | 30°24′ | 69°.44′ | 56°.14 | 82°.24 | 26°.10 | 28°.60 | 13°.12 | 70° |
| Petite Coquille, *near New Orleans*, | 4 | 30°10′ | 71 .25 | 59 .26 | 83 .46 | 24 .20 | 27 .97 | 10 .71 | 64 |
| Fort Marion, *St. Augustine, Florida*, | 4 | 29°50′ | 72 .66 | 62 .21 | 82 .30 | 20 .09 | 22 .08 | 9 .29 | 53 |
| " King, *interior of East Florida*, | 3 | 29°12′ | 72 .66 | 61 .78 | 84 .20 | 22 .42 | 25 .69 | 10 .78 | 78 |
| " Brooke, *Tampa Bay, Florida*, | 5 | 27°57′ | 73 .42 | 64 .76 | 81 .25 | 16 .49 | 18 .66 | 8 .35 | 56 |
| Key West or Thompson's Island, | 3 | 24°33′ | 76 .09 | 70 .05 | 81 .39 | 11 .34 | 14 .66 | 5 .99 | 37 |

On approaching the southern coast, climate undergoes a marked modification. The seasons glide imperceptibly into each other, exhibiting no great extremes. This is strikingly illustrated on comparing the difference between the mean temperature of summer and winter at Fort Snelling, Iowa, and at Key West, at the southern point of Florida, the former being 56°.60, and the latter only 11°.34. The peculiar climatic character of the peninsula of Florida was, however, so fully considered in the number of this Journal for January last, that any additional remarks were supererogatory. The results given by Cantonment Clinch near Pensacola and by Petite Coquille near New Orleans, manifest strongly the modifying agency of the Gulf of Mexico, the latter post being also environed by large lakes.

The last four stations in the table may be considered as all belonging to the peninsula of East Florida, Key West being an island at the southern point. As Fort King is situated in the interior and the other three posts on the coast, we have an additional illustration, even in a climate characterized by very little distinction of the seasons, of the modifying agency of large bodies of water; for, the mean temperature of winter at Fort King is lower, and that of summer higher, than at the other three posts. Although Key West, which is 4°39′ south of Fort King, has a mean annual temperature 3°.43 higher, yet the mean summer temperatnre is 2°.81 lower. In the article to which reference is made above, the equalizing influence of the ocean was still further exhibited in the annual range of the thermometer, the mean of the monthly ranges, and the average difference of the successive

seasons. It was also shown that the peculiar climatic character of East Florida, as distinguished from that of more northern latitudes, consists less in the mean annual temperature than in the manner of its distribution among the seasons. At Fort Snelling, for example, the mean temperature of winter is 15°.95, and of summer 72°.75, whilst at Key West, the former is 70°.05 and the latter 81°.39. Thus, though the winter at Fort Snelling is 54°.10 colder than at Key West, yet the mean temperature of summer at the latter is only 8°.64 higher.

As the foregoing results are based on observations continued mostly from four to nine years, thus comprising from 4000 to 10,000 observations for each result, the average ratios may be depended upon as correct. Having also arranged in tabular abstracts for every post, the mean temperature of each month, the difference of each successive month, and the monthly ranges of temperature with the maximum and minimum degrees, (none of which tables is now given,) these preliminary remarks will be concluded with several general observations.

July, taking the mean of a series of years, is, throughout the United States, the hottest month in the year with scarcely an exception; and January, generally speaking, is the coldest month, but sometimes December or February gives a lower temperature. The least difference in the mean temperature of any two successive months, is that of July and August, and the next lowest is that between January and February. Between October and November, the difference is greatest at the southern posts; but at the northern on the ocean and the lakes, the difference between March and April, and between April and May, is about the same as that between October and November, whilst at the points remote from large bodies of water in these northern regions, the difference between October and November is generally less than that of either of the two former.

It has been seen that the extremes of heat and cold do not occur at our most northern and southern posts, as these are situated on large bodies of water; but that the western stations, Snelling, Gibson, Council Bluffs, &c., remote from inland seas, are remarkable for extremes of temperature. It is here that the mercury rises the highest and sinks the lowest, whilst Forts Brady and Mackinac, the most northern stations, as well as those on the southern coast, exhibit a less range of the thermometer; and in accordance with the same law, we find that the mean summer temperature is greater at Augusta, Ga., than along the coast of Florida. Whilst at Key West, during a period of six years, the thermometer never rose above 90°, it attained at Council Bluffs, a point 17°12′ north, every year, a height varying from 102° to 108°. The highest temperature in the shade noted at our various posts, was at Fort Gibson on the 15th August 1834, being 116°. Although the mean annual temperature, in proceeding from the equator towards the poles, gradually diminishes, yet the thermometer scarcely mounts higher at the

equinoctial line than under the polar circle. Hence it follows that the climate of the tropics is characterized much more by the duration of heat than its intensity.

The lowest temperature, taking the mean of a month, occurred at Forts Howard and Snelling. At the former, the mean of the month of February 1829 at 7 o'clock A. M. is −3°.17, and the mean of December 1822 at Fort Snelling is −3°.61. This, it is to be observed, is merely the average of the morning observations for the month. The extreme severity of the winters at the posts in the Northern Division, remote from large bodies of water, has been already fully illustrated. The following remark, made by Surgeon Beaumont when stationed in 1829 at Fort Crawford, Wisconsin, which is in the latitude of Fort Wolcott, R. I., may be given in elucidation:—"The month of January was remarkably mild and pleasant, the ground dry and free from snow, and the Mississippi unusually low and unfrozen. February was extremely cold, the weather clear and dry, and the thermometer ranging during the month from the freezing point to 23° below zero. From the 1st to the 16th, the mercury stood every morning, with the exception of three, (the 6th, 7th and 8th,) between −4° and −23°, and did not rise above 20° above zero during these days. On the 2d, 3d, 4th, 5th, 9th, 10th, 11th, 12th, 13th, 14th and 15th, the mercury at sunrise stood respectively at 14°, 16°, 4°, 16°, 23°, 18°, 20°, 18°, 10°, 6° and 4° below 0; and on the 9th and 11th, it continued under −8° during the twenty-four hours. During the month, the prevailing winds were northerly and dry, and the proportion of fair and cloudy weather was, clear 22 days, cloudy 3, variable 1, and snowy 2. The mean depth of snow was about 6 inches. The month of March has been unusually cold and dry, with one or two light falls of snow, which, with the previous coat, has just been dissolved by the warmth of the solar rays without any rain. The ice on the Mississippi, which broke yesterday, (March 30th,) is now moving off *en masse*."

In the winter of 1780, the temperature at the city of New York was so low that cannon were transported over the ice in the harbour to Staten Island. In the interior of the state, the cold was correspondingly intense. All streams were so completely locked up that no grain could be ground in grist mills, and the inhabitants were obliged to bruize it in mortars; the snow was so deep that no efforts were made for weeks to reclaim the roads; in narrow ravines, it became so drifted as to cover the tops of the highest trees; even many habitations were so buried that their inmates were obliged to tunnel their way to the light of heaven; and lastly, for the period of forty days, no water dropped from the eaves of houses. So say not only the chronicles of the day, but witnesses are yet living to testify to these facts. In the absence of the precise knowledge derived from thermometrical observations, we can at least infer that it was, even on our coast, a truly Russian winter; and the imagination is left to figure to itself the condition of things at the

present sites of Forts Snelling, Howard and Crawford. In this winter, as well as 1742, Long Island Sound was frozen over.

Scarcely does a winter elapse that the Hudson river is not frozen over even in the vicinity of the city of New York; whilst Philadelphia and even Baltimore, lying on the same parallels which in Europe produce the olive and the orange, have their commerce often interrupted from the same cause. The Delaware, which is in the latitude of Madrid and Naples, is generally frozen over five or six weeks each winter. Even the Potomac becomes so much obstructed by ice that all communication with the District of Columbia by this means, is suspended for weeks. Further north, the mouth of the St. Lawrence is shut up by ice during five months of the year; and Hudson's Bay, notwithstanding it is in the same latitude as the Baltic sea and of more than twice the extent, is so much obstructed by ice even in the summer months as to be comparatively of little value as a navigable basin.

But even in northern latitudes on our coast, we find climates comparatively mild. As Nova Scotia is perfectly insular with the exception of a neck of land eight miles wide, and is so much intersected by lakes and bays that nearly one third of its surface is under water, the mercury seldom rises above 88° in summer, or sinks lower than 6° or 8° below zero in winter. In addition to this, some influence must be exercised by the Gulf Stream, which strikes upon this part of the coast, "in tides of from sixty to seventy feet, overflows the country to the distance of several miles, and converts the mouths of streams, fordable at low water, into extensive arms of the sea where whole fleets might ride at anchor." On our western coast, the extremely modified climate of the region of Oregon, on a parallel five degrees north of the city of New York, has been already illustrated. During a year's observations at Fort Vancouver, the lowest point is 17°, and the whole number of days below the freezing point are only nine, all of which are noted in January. We are told by Mr. Ball of the state of New York, by whom these observations were made, that he commenced ploughing in January of the year 1833. "The vegetables of the preceding season," he says, "were still standing in gardens untouched by the frost. New grass had sprung up sufficiently for excellent pasture. Fruit trees were in full blossom. * * * Though the latitude is nearly that of Montreal, mowing and curing hay are unnecessary; for cattle graze on fresh growing grass through the winter. * * Winters on the Columbia river are remarkably mild, there being no snow, and the river being obstructed by ice but a few days during the first part of January. Grass remained in sufficient perfection to afford good feed; and garden vegetables, such as turnips and carrots, were not destroyed, but no trees blossomed till March, except willow, alders," &c.

As the geographical distribution of plants appears to be chiefly regulated by the temperature of the atmosphere, these investigations become the more interesting and important. Although, in considering the organic life of

plants, it is necessary to estimate the simultaneous influence of all physical causes—soil, heat, light, and the state of the atmosphere as regards its humidity and serenity; yet, among these the most important is the influence of heat, as exhibited in the extreme of temperature both in respect to heat and cold, and in the manner of its distribution among the different months of the year. Each plant has generally a particular climate in which it thrives best, and beyond certain limits it ceases to exist. Hence, having seen the great variations of summer and winter temperature on the same isothermal line, the absurdity of limiting a vegetable production to a certain latitude or mean annual temperature, is apparent. To say that the vine, the olive and the coffee tree, require, in order to be productive, annual temperatures of 53°.60, 60°.80, and 64°.40, is true only of the same system of climate. As the annual quantity of heat which any point of the globe receives, varies very little during a long series of years, the variable product of our harvests depends less on changes in the mean annual temperature, than in its distribution throughout the year. Thus, climates in regard to the geography of plants are strongly characterized by the variations which the temperature of months and seasons experiences. The cotton plant finds its most favourite climate between the equator and latitude 34°; but it succeeds with a mean summer temperature of 75° or 73°, if that of winter does not descend below 36° or 38°. In the United States, it is cultivated in latitude 37°, and in Europe in latitude 40°. Whilst the sugar-cane is cultivated in Europe as far north as latitude 36°, in a mean annual temperature of about 67°, its cultivation in the United States, on account of the low winter temperature, is prevented beyond latitude 31°; but it succeeds on the great table plain of Mexico and Guatemala, where an altitude of 6000 feet converts a tropical into a temperate climate. In Europe, the olive ranges between latitude 36° and 44°, that is, in a mean annual temperature from 66° down to 58°, provided the mean temperature of summer is not below 71°, nor that of the coldest month below 42°, which last excludes all the United States beyond latitude 35°. For the same reason, the date, palm and sweet oranges grow in Louisiana only to latitude 30°. In Europe, the favourite climate of the vine is between latitude 36° and 48°, that is, between the isothermal lines of 62° and 47°.50, provided the winter line is not below 33°, nor the summer under 66° or 68°. Such is the case in Europe to latitude 50°, and in the United States to latitude 40°; but on the Pacific coast of our territory, the requisite temperature is found at Fort Vancouver, which is in the latitude of Montreal. Indeed, we know that on our western coast the olive is cultivated in latitude 38°; and that cotton and sugar-cane would succeed on parallels corresponding to Europe, is an opinion that has for its basis the fundamental truth, that the laws of nature never vary.

The influence of the unequal distribution of heat upon vegetable geography, is beautifully illustrated in the four systems of climate demonstrated on the

same parallels in the Northern Division of the United States; and if we extend the comparison to the Pacific coast, a fifth system may be enumerated on the same latitude. Taking the coast of New England, the region of the Lakes and the Pacific coast, the difference between the mean temperature of winter and spring varies from 6°.67 to 18°.42; whilst in the excessive climate of the regions west of the lakes and intermediate to them and the Atlantic, this difference ranges from 18°.82 to 30°.83; and accordingly we find, as already explained, that spring and summer are confounded with each other, and that the sudden excess of heat renders the progress of vegetation almost perceptible. It is necessary, however, to add that the low ratio of 6°.67 occurs on the Pacific coast, the lowest average in the Northern Division of the United States being 11°.67. In the Middle and Southern Divisions, this vernal increase of temperature gradually diminishes, until finally at Key West it is only 5°.99. But there is another important feature to be observed. Not only is the vernal increase greater in excessive climates; but, as it supervenes upon a lower winter temperature, the effect produced on the development of vegetation is in an inverse ratio. The vernal increase of 30°.83 at Fort Snelling, for example, comes upon a mean winter temperature of 15°.95, whilst at Fort Sullivan, on the same parallel, the increase of only 17°.16 follows a winter temperature as high as 22°.95. Between northern and southern latitudes, this contrast is still more marked; for, whilst at Fort Snelling there is a difference of 13°.46 between the mean temperatures of February and March, and at Key West only 1°.56, the temperature of the month of February at the former is 18°.66, and at the latter 72°.15.

In every work professing to treat of the climate of the United States, the opinion of Jefferson and Volney that, in regard to the temperature of the regions lying east and west of the Alleghenies, "there is a general and uniform difference equivalent to 3° of latitude in favor of the basin of the Ohio and the Mississippi," is quoted as an established fact. This opinion arose from the fact demonstrated by us that the United States present on the same parallel different systems of climate, produced by the unequal distribution of heat among the seasons—causes upon which the geographical distribution of plants depend. Thus, as Volney and Jefferson discovered that the vegetation of Philadelphia is found in the modified climate of our northern lakes, whilst the same plants will not flourish on similar parallels in the interior of New York, Vermont, and New Hampshire, the theory in regard to the difference of temperature east and west of the Alleghenies was naturally suggested. In explanation of the supposed fact that the temperature of the western country is hotter by 3° of latitude than that of the Atlantic coast, M. Volney enters into a laboured and complex theory of the winds, forgetting that it is a good rule in philosophy to ascertain the truth of a fact before attempting its explanation. Now had Volney and Jefferson chanced to

observe the vegetation, by way of comparison along the coast of Rhode Island or Connecticut, and on the same parallels in Illinois or farther westward, instead of the lakes and Albany, the world would have been edified with the opposite theory, viz., that the climate east of the Alleghenies is milder by 3° of latitude than that west. Whilst at Fort Trumbull, Connecticut, the mean winter temperature is 39°.33, at Council Bluffs, near the junction of the Platte and Missouri, it is as low as 24° 47. Hence plants sensible to a low temperature, which flourish in the climate of the former, will perish in the latter; for whilst the mean temperature of the coldest month at Fort Trumbull is only 34°.50, at Council Bluffs it is 22°.61. This is also demonstrated by the average minimum temperature, that of the former being 9° above, and that of the latter 16° below zero; and equally so by the minimum temperature of the winter months, that of December, January, and February, being at Fort Trumbull respectively 20°, 10°, and 16°, and at Council Bluffs, −4°, −13°, and −11°. On the other hand, it will be found that the vegetables which can endure the rigorous climate of Council Bluffs, will flourish more vigorously than in the region of Connecticut; for at the former, the vernal increase is 27°.47, and at the latter only 11°.67. Moreover the latter increase is added to a winter temperature of 39°.33; whilst the former, added to 24°.47, more than doubles itself.

Having thus condensed some of the more important practical deductions afforded by the "Army Meteorological Register," I shall now enter upon the second branch of the subject.

In the investigation of those diseases which are generally ascribed to, or supposed to have some relation with, causes of malarial origin, the same arrangement of the subject, as regards the influence of climate, will be adopted as in the inquiry relative to pulmonary diseases. Although in this attempt to establish a relation between climate and malarial diseases, the writer may not prove so successful as in the essay in reference to pulmonic affections; yet he will at least determine the relative prevalence of these diseases in the different regions of the United States, and develope at the same time some of the laws, as regards season and climate, by which the diseases attributed to malarial origin are governed. As the etiology of pulmonic diseases is more especially connected with mere temperature, we are enabled to arrive at some positive knowledge; but as regards malaria—that mysterious agent which has hitherto remained inscrutable in its nature—all our knowledge is derived from its effects on the human frame. We know that terrestrial emanations dissolved in atmospheric moisture modify the constitution of climate, and that consequently the *nature of soil*, which consists of a stratum of comminuted mineral substances and organic remains upon which man is dependent for existence, constitutes one of the most important points in-

volved in the inquiry. Although malaria has hitherto defied the power of the chemical analyst, yet as caloric is the controlling element in the constitution of climate modifying its other properties, so it will be seen that the meteorology of heat is intimately connected with the laws of malarial diseases in the relation of cause and effect.

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Having said thus much in relation to the inherent difficulties of the subject, it may be well to refer to the doctrine of averages by which important relations in several sciences have been disclosed, discoverable in no other way. Applied to governmental objects, numerical analysis soon bestowed upon political economy the character of a science; and its application to the investigation of morbid actions, gives to medical inquiries the same character which pertains to statistical researches on other subjects. The success already realized bids fair in regard to the future; and as averages may be regarded in a great measure, as the mathematics of medical science, this method constitutes an unerring path in the region of its true philosophy. Instead of being bewildered by contradictory conclusions based on the few cases which fall under the observation of particular practitioners, we are enabled, by thus accumulating a vast aggregation of facts extending over thousands of individuals, to deduce the laws by which nature operates in inducing mortality by particular diseases.

The statistical data brought to bear upon the present subject have been furnished by official records in the Medical Department and Adjutant General's office. They extend over a period of ten years, comprise every portion of the United States and Territories, and are based on an aggregate mean strength of 47,219.

The following table presents in a condensed form the *Ratio of Intermittent Fever:*

| Divisions. | *Systems of Climate.* | Ratio of cases treated per 1000 of mean strength. | | | | |
|---|---|---|---|---|---|---|
| | | First Quarter. | Second Quarter. | Third Quarter. | Fourth Quarter. | Annual Result. |
| Northern | 1st Class. Posts on the coast of New England, | 2 | 15 | 11 | 9 | 36 |
| | 2d " Posts on Northern chain of Lakes, | 13 | 73 | 77 | 36 | 193 |
| | 3d " Posts north of latitude 39°, and remote from the ocean and inland seas, | 21 | 34 | 57 | 40 | 151 |
| Middle. | 1st Class. Coast from Delaware Bay to Savannah, | 41 | 71 | 158 | 101 | 370 |
| | 2d " Southwestern stations, | 101 | 129 | 305 | 197 | 747 |
| Southern. | 1st Class. Posts on Lower Mississippi.* | 62 | 77 | 170 | 90 | 385 |
| | 2d " Posts in the Peninsula of East Florida, | 52 | 105 | 244 | 138 | 520 |
| | Average. | 45 | 75 | 156 | 93 | 368 |

The low ratio of intermittent fever on the coast of New England compared with interior regions on the same parallels, is very surprising; but

* In default of a better arrangement, Augusta Arsenal, Georgia, and Fort Mitchell, Alabama, have been included in this class.

even the average given is entirely too high, inasmuch as by far the majority of cases arose among soldiers who had been exposed in malarial regions. Of the seven posts constituting this class, two-thirds of the cases were reported at Fort Columbus; and at this post, no case has ever been known to originate. Assistant Surgeon Sargent avers that in 33 years, during which period he was stationed at Fort Constitution, N. H., only one case, which he regarded as really of domestic origin, fell under his observation. The coast of New England may, indeed, be considered as exempt from this disease. The same contrast as regards the prevalence of intermittent fever, is shown, in the statistics of the British Army, to exist between Canada, on the one hand, and Nova Scotia and New Brunswick on the other. Whilst several thousand cases are annually reported in the former Command, the disease is so rare in the latter, that scarcely one indigenous case has ever been known to occur. Even in Lower Canada, intermittents are almost unknown, the proportion, compared with Upper Canada, being as 13 to 89; and these cases have in most instances been traced to soldiers, who had laboured under the disease or had acquired a predisposition to it in the Upper Provinces. The fact seems inexplicable, that this disease should prevail extensively along the shores of the lakes and the margins of streams in Upper Canada, whilst situations abounding in similar supposed sources of malaria in Nova Scotia, should be exempt. As the soil of Halifax is arid and rocky, this exemption would have been inferred *a priori;* but it is surprising that it should extend equally to the troops and inhabitants at Windsor, Annapolis, Fort Cumberland and Frederickton, notwithstanding their position at the embouchure of rivers, and exposure to the influence of that combination of mud and marsh, regarded as its prolific source in Upper Canada. This seems the more remarkable when it is considered that the climate of Upper Canada and that of Nova Scotia are very similar. As the latter is a peninsula so much intersected by lakes and bays, that nearly one third of its surface is under water, the temperature, it has been seen, is so much modified, that the mercury seldom rises above 88° in summer, or sinks lower than 6° or 8° below zero in winter.

The posts of the second class, like the British military stations in the same region, exhibit comparatively a high ratio of intermitting fever. The mean aggregate strength of this class of posts is 5975, and the total of cases of intermitting fever reported is 1150; and of these, 560 cases are reported at Fort Gratiot, in a strength of 782. At this post, situated at the outlet of Lake Huron, the disease is exceedingly rife both among the troops and the inhabitants. As the annual ratio of cases treated per 1000, is 715, this post presents an average nearly as high as the southwestern stations, and higher than that of East Florida. Unlike the class of posts on the coast of New England, at which the majority of cases are of foreign origin, the class on the Lakes strongly manifests the influence of the seasons in the causation of the disease. For example, if 1000 troops were stationed at these seven

posts, 13 would be attacked with intermitting fever during the first quarter of the year, 73 in the second, 77 in the third, and 36 in the fourth.

The average of the third class of the Northern Division is 151. Of the seven posts constituting this class, the occurrence of the disease is very unusual at Hancock Barracks, West Point, and Forts Snelling, Winnebago, and Armstrong, whilst at Forts Crawford and Leavenworth it is very prevalent. If the statistics of Fort Leavenworth on the Missouri, which is nearly as far South as 39°, is excluded from the calculation, the annual average of the class is reduced from 151 to 71 per 1000.

The average of the Northern Division, comprising the three classes just examined, is 143.

The *Middle Division*, which comes next under consideration, shows that in proportion as Southern latitudes are approached, diseases of malarial origin increase *pari passu*. The average of intermittents in the three classes composing the Northern Division, is not more than two-fifths as high as that of the class now under examination, embracing Forts Delaware, McHenry, Severn, Washington, Monroe, Johnson, Moultrie, Bellona Arsenal, and Oglethorpe Barracks. With the exception of Fort Moultrie, in Charleston harbour, none of these posts possesses an exemption from intermittent fever. At Fort McHenry, (Baltimore,) Fort Severn, (Annapolis,) and Fort Washington, (opposite Mount Vernon,) the disease has always been so rife, notwithstanding these garrisons generally formed summer encampments, that the average is higher than in Florida. The influence of the seasons in this class is very decidedly manifested, the ratio of the first quarter being 41, the second 71, the third 158, and the fourth 101.

The second class of this Division, consisting of the southwestern posts, viz., Jefferson Barracks, Forts Gibson, Smith and Coffee, Towson, and Jesup, presents an average twice as high as the last class, and higher than any other in the United States. With the exception of Fort Jesup, intermittents are very rife at all these stations. At Fort Gibson, for example, the average number of cases exceeds the mean strength nearly one fourth. This post is situated about three miles from the junction of three rivers—a spot originally formed by the rich alluvion of these streams; and as the solar heat is intense, and the quantity of rain, though adequate to the maintenance of a certain degree of moisture, not sufficient to overflow the surface, the circumstances most favourable to the evolution of malaria, obtain. The high ratio of this class of posts, compared with the class on the Atlantic in similar latitudes, is doubtless to be ascribed, in a great measure, to the great and long-continued summer heats. In the Northern Division, it is true, this law is not recognised; but there, notwithstanding the mercury rises very high, the period of this intense heat is very limited. In this class, the relative influence of the seasons in the production of intermittents is very apparent, the four quarters presenting the following ratios: 101, 129, 305, and 197 cases per 1000 of the mean strength.

The *Southern Division* remains to be considered. The first class, comprising Baton Rouge, New Orleans, and Forts Pike, Wood, and Jackson, all on the lower Mississippi, and Augusta Arsenal, (Georgia,) and Fort Mitchell, (Alabama,) gives an annual average of 385 per 1000, being scarcely more than one half as high as that of the southwestern stations; and the second class, embracing the posts in East Florida, both permanent and temporary, presents a ratio of 520, which, with the exception of the southwestern posts, is higher than that of any other class. In the first class, however, the troops were frequently removed to healthy summer encampments. As the troops in Florida are occasionally relieved, whilst those at the southwestern posts generally there serve out the whole period of their enlistment, it may be supposed that the extreme liability of this disease to recur, may swell the ratio of the latter comparatively. This rule, however, does not hold good; for, by a parity of reasoning, the class of posts on the lower Mississippi ought to give an average twice as high as its actual ratio. It is more than probable, as the summer temperature never rises so high in the two classes of the Southern Division, as well as the first of the Middle, as it does at the class of southwestern posts, that the causes productive of intermittent fever are not generated so abundantly at the former. As the ratio of the third quarter is three and four fold greater than that of the first, it may reasonably be inferred, all other causes being equal, that the higher the temperature of this season, the greater will be the proportion of cases of intermitting fever; and this deduction is corroborated by the fact, that as we proceed south, the ratio of intermittents augments with the increased summer temperature. On reference to the table, it will be seen that the striking distinction in the average of cases in the different seasons, is equally apparent in the two classes of the Southern Division. As regards the relative prevalence of this disease in our northern and southern regions, it is found that in the former, comprising the first three classes, the annnal ratio per 1000 is 143; whilst in the latter, embracing the Middle and Southern Divisions, the average is 568.

The average ratios of intermittent fever per 1000, among all the troops stationed throughout the United States, are as follows:

| 1st quarter. | 2d quarter. | 3d quarter. | 4th quarter. | Annual result. |
|---|---|---|---|---|
| 45 | 75 | 156 | 93 | 368 |

The ratio of mortality from this cause is very low. It is only in our southern latitudes, when violent congestions of internal organs occur, that death may be said to arise directly from intermittent fever. In the Northern Division, the total of cases reported is 3187, and one death; and in the Middle and Southern Divisions, 14,094 cases, and 13 deaths. The ratio of deaths from this disease, on an average of all the posts, is only 8 in every ten thousand cases. According to the British statistics, the annual ratio of cases, per 1000 of the strength in the West Indies, is 243, and the ratio of

mortality, 6 per 1000 cases; in the Mediterranean commands, the ratio of cases is 58, and that of deaths 5; among the troops on the home station, the disease is almost unknown; and among those stationed in Canada, New Brunswick, and Nova Scotia, the ratio of cases is 47 per 1000 of the strength, and the mortality 8 per 10,000 of the cases. In Nova Scotia and New Brunswick, however, there is almost an entire exemption from the disease.

Having completed the details relative to intermittent fever, the subject of remittent fever will be next investigated.

*Ratio of Remittent Fever.*

| Divisions. | *Systems of Climate.* | Ratio of cases treated per 1000 of mean strength. | | | | |
|---|---|---|---|---|---|---|
| | | First Quarter. | Second Quarter. | Third Quarter. | Fourth Quarter. | Annual Results. |
| Northern. | 1st Class. Posts on the coast of New England, | 3 | 9 | 8 | 6 | 26 |
| | 2d " Posts on Northern chain of Lakes, | 3 | 6 | 21 | 4 | 33 |
| | 3d " Posts north of latitude 39°, and remote from the ocean and inland seas, | 2 | 3 | 13 | 6 | 24 |
| Middle. | 1st Class. Coast from Delaware Bay to Savannah, | 3 | 20 | 110 | 48 | 181 |
| | 2d " Southwestern stations, | 12 | 19 | 104 | 38 | 180 |
| Southern. | 1st Class. Posts on Lower Mississippi, | 17 | 47 | 86 | 56 | 196 |
| | 2d " Posts in the Peninsula of East Florida, | 9 | 20 | 55 | 33 | 102 |
| | Average, | 7 | 15 | 58 | 22 | 101 |

In the three classes of the Northern Division, there is little difference in the annual ratios—a result which, as the coast of New England is exempt from intermittent fever, may be regarded as militating against the doctrine of their common origin. As remittent fever is much under the influence of the seasons, the ratio of the third quarter being more than eight times as high as that of the first in the general average of the United States, and as this inequality of the seasons is not manifested on the coast of New England, the ratio of the second quarter being higher than that of the third, it is more than probable that many of the cases reported as remittent were of the common continued type. In every other class, this preponderance of the third quarter over the first is very striking, being in the first class of the Middle Division as 110 to 3. Although there is no exact relation discoverable between these two forms of fever, yet the statistics of our troops prove, as a general rule, that where one is rife, the other is so too. In the British statistics, the same connection is established; for in the West Indies, and the Ionian Islands, both prevail extensively, whilst in England, Gibraltar, Malta, the Bermudas, and Nova Scotia and New Brunswick, the ratio of both is low. In Canada, as might be expected in a cold country, the average of intermittents is much higher than that of remittents. In the Middle Division, compared with the Northern, the ratio of remittents increases very rapidly, being more than six-fold greater. In the first class of the Southern Division, the ratio is still higher; and here, too, the mortality is greatest in consequence of the high

grade of intensity assumed by febrile action; but in the second class, comprising the posts in East Florida, the ratio is lower than that of any one of the three preceding classes. In the first class of the Middle and of the Southern Divisions, as for example, Charleston and New Orleans, the form of fever designated *febris icterodes* or *yellow fever*, appears annually; whilst in the second class of the Middle Division, it is perhaps unknown, and in the second class of the Southern appears very rarely. As to the proper distinction between the bilious remittent fever of warm climates and the genuine *febris icterodes*, an arbitrary classification has been pursued by our medical officers; the majority of them reporting all these cases under the common nosological term of "remittent fever." In the present state of our knowledge, we are not, however, warranted in admitting that the same miasm which causes common remittent fever can, in its more virulent form, induce yellow fever, or indeed that the latter is of paludal origin. To prove that the causes productive of intermittent fever were generated most abundantly under a high temperature, it was shown that the annual average increased with the decrease of latitude, and that the third quarter invariably presented the highest ratio; and in regard to remittent fever, a comparison of the tables will show that these facts are yet much more striking. In the three classes constituting the Northern Division, the annual ratio of cases of remitting fever per 1000 of the strength is 26, and in the four classes constituting the Middle and Southern Divisions, it is 168; whilst the ratio of all the classes is 191. In like manner, the ratio of mortality in the Northern Division is five tenths; and in the Southern regions, 6 per 1000 of the strength; but the proportion of deaths to the number of cases, owing to the greater prevalence of the disease in our southern latitudes, does not exhibit so great a contrast in the two Divisions, being 1 in 49 in the former and 1 in 29 in the latter. In the West Indies, the annual ratio of cases of remittent fever, including yellow fever, is, among the British troops, 413 per 1000 of the strength, and the mortality from the same cause is 54; but it is in the Jamaica Command that this disease prevails with its utmost virulence, the ratio of cases being 745 and of deaths 102 per 1000 men—an average furnished by the statistics of 20 years, and comprising an aggregate mean strength of 51,567; and during the same period, the average of cases among the black troops was only 85, and of deaths, less than 8 per 1000. Among the troops in the United Kingdom, the disease is almost unknown. In the Mediterranean stations, including the fatal epidemics of yellow fever at Gibraltar, the ratio of cases per 1000 is 53, and of mortality 6. And lastly, in British America, comprising the Commands of Canada and Nova Scotia and New Brunswick, the ratio of cases is less than 3 per 1000, and of deaths, less than 2 per 10,000.

As these statistical researches are intended to elucidate such diseases only as manifestly depend on malarial causes, the following table of *Synochal Fevers* would not be presented, were it not that the writer aims at giving a complete view of febrile affections. Under the term, *Synochal*, are con-

densed all the cases registered as synocha, synochus, common continued, ephemeral, and inflammatory fever; but a great majority of them are reported under the last name.

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*Ratio of Synochal Fevers.*

| Divisions. | *Systems of Climate.* | Ratio of cases treated per 1000 of mean strength. First Quarter. | Second Quarter. | Third Quarter. | Fourth Quarter. | Annual Results. |
|---|---|---|---|---|---|---|
| Northern. | 1st Class. Posts on the coast of New England, | 12 | 14 | 6 | 11 | 43 |
| | 2d " Posts on Northern chain of Lakes, | 4 | 5 | 4 | 3 | 16 |
| | 3d " Posts north of latitude 39°, and remote from the ocean and inland seas, | 11 | 13 | 16 | 6 | 45 |
| Middle. | 1st Class. Coast from Delaware Bay to Savannah, | 8 | 6 | 6 | 7 | 27 |
| | 2d " Southwestern stations, | 2 | 4 | 14 | 5 | 25 |
| Southern. | 1st Class. Posts on Lower Mississippi, | 25 | 15 | 3 | 14 | 60 |
| | 2d " Posts in the Peninsula of East Florida, | 2 | 2 | 5 | 10 | 18 |
| | Average, | 8 | 8 | 10 | 7 | 33 |

What strikes the mind at the first view of this tabular summary is, that the four seasons exert nearly the same influence upon this class of fevers, and that they are equally unaffected by difference of climate, and latitude. As these fevers are dependent neither on the exalted temperature of summer nor on that of southern latitudes, it follows that they arise from causes of a nature entirely distinct from those of intermittent and remittent fever. In the Northern Division, the ratio of cases per 1000 is 37, and the average of the Middle and Southern is 25, whilst the mean of the three is 33. The mortality, however, is greater in our southern than northern latitudes, the proportion of deaths to the number treated being in the former 1 in 65, and in the latter 1 in 412. Among all our troops, the annual ratio of mortality from synochal fevers is only 3 in 10,000. In Canada, Nova Scotia, and New Brunswick, the ratio of cases is 96 and of deaths $1\frac{1}{4}$ per 1000; in England, the ratio of the former is 71 and the latter 1; in the Mediterranean commands, these ratios are 174 and $2\frac{1}{2}$; in the Bermudas, 108 and 2; and in the West Indies, 139 and 6 per 1000.

Although *typhus fever* may be liable to the same objections as synochal, as regards its introduction into an article purporting to treat exclusively of diseases of malarial origin; yet to carry out the idea of presenting a complete view of febrile affections, its consideration becomes necessary in order to show what fevers are not of malarial origin. The following table exhibits the ratio of cases reported as *typhus* in each class of posts:—

*Ratio of Typhus Fevers.*

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| Divisions | Systems of Climate. | Ratio of cases treated per 1000 of mean strength. First Quarter. | Second Quarter. | Third Quarter. | Fourth Quarter. | Annual Results. |
|---|---|---|---|---|---|---|
| Northern. | 1st Class. Posts on the coast of New England, | " | 2 | 2 | 1 | 5 |
| | 2d " Posts on Northern chain of Lakes, | 1 | .5 | .7 | 1.8 | 4 |
| | 3d " Posts north of latitude 39°, and remote from the ocean and inland seas, | .3 | .1 | .4 | 08 | .9 |
| Middle. | 1st Class. Coast from Delaware Bay to Savannah, | .7 | 3 | 1.2 | 1 | 3 |
| | 2d " Southwestern stations, | .2 | 1 | 1.4 | 1.3 | 4 |
| Southern. | 1st Class. Posts on the Lower Mississippi, | 2 | 6 | 3 | 3 | 13 |
| | 2d " Posts in the Peninsula of East Florida, | .2 | " | " | .5 | .7 |
| | Average. | .5 | 1 | 1 | 1 | 3.5 |

Typhus fever is of comparative infrequency, and, according to the table, its prevalence is uninfluenced either by season or climate. As the term *typhus* is subject to vague and arbitrary application, it is no doubt often used to designate a *typhoid* state of fever—a supposition favoured by the fact that the ratio is higher in our southern than in our northern latitudes. That it is often caused by the same miasm which produces intermittent and remittent fever, is an opinion advanced by Armstrong—a doctrine which has found but few advocates. When these morbific agents act on a system depressed and debilitated from any cause, a low or typhoid state of fever will be developed; but the phenomena of these fevers do not accord with those which characterize genuine contagious typhus—a form generated by that species of miasmata which is evolved in crowded, ill-ventilated ships, jails, hospitals, and the sordid hovels of the poor, and which, when once developed elaborates, there is reason to believe, a peculiar virus communicable to those coming within the sphere of its activity. In our abundant country, real typhus is fortunately very unusual. In the Northern Division, there are reported 54 cases and 8 deaths, and in the Middle and Southern, 110 cases and 24 deaths. Among our troops, the annual mortality from this disease is one in 1476 of the strength; in Canada, 1 in 4944; in Nova Scotia and New Brunswick, 1 in 6635; in the Bermudas, 1 in 5860; in the West Indies, 1 in 12,644; in the United Kingdom, 1 in 1393; and in the Mediterranean Commands, comprising Gibraltar, Malta, and the Ionian Islands, the ratio is 1 in 10,712.

The average annual mortality from the class of fevers brought under investigation, is, among our troops, 4.6 per 1000 of the mean strength. Among the British troops it is as follows: Canada 2.3, Nova Scotia and New Brunswick 1.5, the United Kingdom 1.5, the Mediterranean stations 9, the Bermudas 11, and in the West Indies, the ratio of the Windward and Leeward Command is 37, and that of the Jamaica Command is 102 per 1000 of the strength. Among the white troops stationed at Jamaica, then, the ratio is 25 times higher than the average of our own forces; but the black

troops which serve on the Island enjoy comparative exemption, the ratio being only 8 per 1000.

The ratio of *Diarrhœa* and *Dysentery* is exhibited in the subjoined tabular abstract:—

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*Ratio of Diarrhœa and Dysentery.*

| Divisions. | Systems of Climate. | Ratio of cases treated per 1000 of mean strength. First Quarter. | Second Quarter | Third Quarter. | Fourth Quarter. | Annual Results. |
|---|---|---|---|---|---|---|
| Northern. | 1st Class. Posts on the coast of New England, | 14 | 26 | 108 | 22 | 170 |
| | 2d " Posts on Northern chain of Lakes, | 34 | 54 | 121 | 49 | 253 |
| | 3d " Posts north of latitude 39°, and remote from the ocean and inland seas, | 32 | 54 | 163 | 56 | 305 |
| Middle. | 1st Class. Coast from Delaware Bay to Savannah, | 41 | 133 | 204 | 65 | 455 |
| | 2d " Southwestern stations, | 62 | 185 | 223 | 121 | 597 |
| Southern. | 1st Class. Posts on the Lower Mississippi, | 126 | 135 | 117 | 78 | 456 |
| | 2d " Posts in the Peninsula of East Florida, | 111 | 136 | 125 | 124 | 495 |
| | Average, | 54 | 107 | 166 | 75 | 405 |

The influence of season and climate upon these affections is very apparent; for, in the general average of the United States, the ratio of the third quarter is more than three-fold higher than that of the first, and more than twice as high as that of the fourth quarter. Compared with the ratios of intermitting and remitting fever, the laws developed in both exhibit a striking analogy. The average of diarrhœa and dysentery, like that of intermitting fever, is the lowest on the coast of New England, and the highest at the southwestern stations; and, like intermitting and remitting fever, the ratio augments with the increasing temperature of season and the decrease of latitude. Even the *relative* influence of the seasons, taking the average of the United States, is exemplified in proportions nearly equal: thus—

| | 1st qr. | 2d qr. | 3d qr. | 4th qr. | Annual result. |
|---|---|---|---|---|---|
| Intermitting Fever, | 45 | 75 | 156 | 93 | 368 |
| Diarrhœa and Dysentery, | 54 | 107 | 166 | 75 | 405 |

In the Northern Division, the annual ratio of cases per 1000 is 269, and in the Middle and Southern, the mean is 526. In the former, the proportion of deaths to the number treated is 1 in 665, and in the latter 1 in 141. The mortality per 10,000 of the strength is respectively 4 and 37. In the Northern Division, no death from dysentery is reported, except at Forts Crawford and Leavenworth—two posts at which intermittents are very prevalent. In Florida, the statistics of our troops present a singular relation, on comparing the second and third quarters, between intermittent fever and the class of diseases of the digestive organs, which last comprises diarrhœa, dysentery, gastritis, enteritis, &c. In the second quarter, the ratio of intermitting fever

is 9, and that of diseases of the digestive organs is 23 *per cent.;* but in the third quarter, the ratio of the former is 19, whilst that of the latter is only 17. As the average of the former is more than doubled in the third quarter, whilst that of the latter is decreased, it would seem, assuming an identity of cause, that the same morbific agents operating in a less intense degree, produce in the second quarter diseases of the digestive organs, and when more concentrated in their action, as in the third quarter, intermittent fever. A reference to the table will show that, in East Florida, the ratio of diarrhœa and dysentery is nearly the same in each season—a result arising mainly from the great prevalence of chronic diarrhœa, which supervenes upon febrile affections, continues throughout the year, and ultimately in many cases proves fatal.

In the West Indies, diseases of the stomach and bowels are very prevalent and fatal. Among the white troops, the ratio of cases per 1000 is 351, and the deaths 15; and among the blacks, the former is 89 and the latter six. It is in the Windward and Leeward command, that this class of diseases prevails most fatally, the proportion attacked annually being 421 per 1000, whilst in England it is only 95; and in the former, the ratio of mortality from this source, which is 21 per 1000, is forty times higher. The much lower ratio of gastric and intestinal affections in the Jamaica Command, in which dysentery and diarrhœa in particular assume a mild and tractable form, is ascribed by the Reporter to the circumstance that instead of salt meat, much fresh provisions are supplied. The statistics of 20 years show that in one Command in which the diet, for five days in the week, consisted of salt provisions, the mortality from this class of diseases was nine times as high as among the officers; whilst in another, in which salt provisions were issued but two days in the week, the mortality of these two ranks was nearly alike. In the Mediterranean stations, it is farther asserted that at Gibraltar where much salt provisions are consumed, this class of diseases is both prevalent and fatal, whilst at Malta, where the troops enjoy the advantage of fresh provisions, the disease does not prevail in an aggravated form. Among our troops, as the same ration is issued everywhere, it is highly probable that a quantity of salted pork which may be eaten with impunity in our northern regions, will become, in our southern domains, the active source of disease. In Canada, Nova Scotia, and New Brunswick, the annual ratio of the class of diseases of the stomach and bowels, is only 123 per 1000, and the ratio of mortality, 2 per 3000 of the strength.

The opinion that *Colic* and *Cholera* are much dependent on exalted temperature is not corroborated by these statistical researches. In the Northern Division, the annual ratio of cases per 1000 is 145, and in the Middle and Southern 131. In the former, however, nearly one half of the cases (1445) are reported among the cadets at West Point in a mean aggregate strength of 3734. Excluding this post, the ratio of the Northern Division is reduced to 96. In the Northern Division, only two deaths in 3221 cases are reported; and in the Middle and Southern, seven in 3282.

Of *Epidemic* or *Asiatic Cholera*, there were reported in 1832-3 and 4, 686 cases, of which 191 proved fatal. This, however, does not include all, as many troops, in the campaign against Black Hawk in 1832, fell victims to the disease, of which no official returns were made. It is a singular fact that this epidemic exerted its fatal influence in nearly the same ratio among all the troops whose statistics have been investigated; for example—

| | | | |
|---|---|---|---|
| United Kingdom, . . . . | 1832-3-4 . . | 32 deaths per | 100 cases. |
| Gibraltar, . . . . . | 1834 . . | 30 " | " |
| Nova Scotia and New Brunswick, . | 1834 . . | 28 " | " |
| Canada, . . . . . | 1832 . . | 36 " | " |
| " . . . . . | 1834 . . | 34 " | " |
| Black troops at Honduras, . . | 1836 . . | 32 " | " |
| United States, . . . | 1832-3-4 . . | 28 " | " |

Among our troops, the disease proved more fatal in the Northern than in the Southern and Middle Divisions, the ratio of deaths being in the former one to three cases, and in the latter one to 4.3. It is not, however, to be inferred from this fact that Cholera Asphyxia causes greater mortality in cold than in warm countries; for it was in the summer of 1832, when the disease was producing its greatest havoc, that our northern troops encountered it on its first invasion by way of Quebec and the lakes, along which it travelled with post-like regularity. On the contrary, it is a well-established fact that this disease is, in a measure, controlled by exalted temperature, and consequently influenced by causes of malarious origin. This was, at the time of its prevalence, inferred from the circumstances that it prevailed mostly in the summer and followed the course of our rivers; but statistical facts among our troops, in reference to the influence of the seasons, places this opinion almost beyond a doubt. Thus, among the 191 deaths reported in 1832-3-4, there occurred in the first quarter four, in the second 22, in the third 153, and in the fourth 12.

Another class of diseases ascribable, in a great measure, to malarious causes, is that of *dropsies*. In the Northern Division of the United States, there are reported fifty cases and four deaths, and in the Middle and Southern, 206 cases and 19 deaths, the annual average of cases being in the former two, and in the latter eight per 1000. As these effusions are the result mostly of febrile affections, it follows that malaria is the indirect cause; but in our southern latitudes, much is also attributable to the deleterious effects induced by ebriety. In the West Indies, the ratio of admissions and deaths from these affections, which are mostly the sequences of fevers, is also very high. Compared with England, the ratio in the Windward and Leeward Command is nearly as eight to one.

*Hepatic affections*, including acute and chronic hepatitis and icterus. In the Northern Division, there are reported 98 cases and three deaths, and in the Southern and Middle, 166 cases and four deaths. As these diseases are

generally believed to have an intimate relation with tropical temperature and with causes of malarious origin, this comparative result is very surprising; and, indeed, were the result not confirmed by the British statistics, the writer would have suspected some error in his own calculations. The ratios of cases and of deaths per 1000 of the strength, given in different countries, are as follows:—

| | Cases. | Deaths. |
|---|---|---|
| United States, | 6 | ·2 |
| Canada, and Nova Scotia and New Brunswick, | 8 | ·2 |
| United Kingdom, | 8 | ·5 |
| Mediterranean Station, | 16 | ·7 |
| Bermudas, | 14 | ·5 |
| West Indies,—White troops, | 18 | 1·5 |
| " Black " | 6 | ·7 |

When we refer to the fact that the high ratios occur among troops from northern latitudes, in the Mediterranean stations, the Bermudas, and among the white troops of the West Indies, it may be fairly inferred that these diseases are little influenced by temperature. In the British army statistics, it is remarked that considering the high temperature of the island of Jamaica, it will seem strange that the ratio of admissions from diseases of the liver, compared with troops in Britain, is only as ten to eight, and the deaths as one to four-tenths. It is in the East Indies that hepatitis finds a climate peculiarly favourable to its development.

In reference to the ratio of mortality arising from specific diseases, it is necessary to add that as the causes of one-eighth part of the deaths among our troops are not designated in the returns, it follows that these averages are too low; but as a majority of these unspecified deaths belongs to the class of sudden or casualties, it may be fairly assumed that the ratio of mortality from each disease is a sixteenth or a twentieth below the actual result.

I shall conclude these statistical facts with a table exhibiting the relative monthly mortality in the northern and southern regions of the United States, based on the returns made by the commanding officer of each post, during a period of ten years.

| *Divisions.* | Mean aggregate strength. | Jan. | Feb. | March | April. | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Northern. | 22240 | 22 | 27 | 26 | 26 | 32 | 28 | 55 | 41 | 39 | 25 | 37 | 40 | 398 |
| Middle and Southern. | 24979 | 77 | 76 | 74 | 61 | 84 | 105 | 117 | 144 | 160 | 139 | 115 | 82 | 1234 |

In the Northern Division, there is little disparity in the relative mortality of each month, as the high ratio of July is caused by epidemic cholera; but in the Middle and Southern Divisions, the inequality is great in exact accordance with the increase and decrease of temperature. The lowest ratio (61) is in April, from which month it increases gradually until September (160),

and then it decreases in the same unvarying gradation, in proportion as the influence of the "sickly season" upon the animal economy subsides, until the re-appearance of April. In this gradation there is no exception, the increase and decrease being a regular progression step by step. The influence of causes of a malarial nature upon mortality in our southern latitudes is thus illustrated; but these effects are not manifested in our Northern Regions, owing to the circumstance that the diseases developed by malarious causes, such as intermittent fever, unlike the violent remittents of the south, do not exert a fatal tendency. In the Northern Division, according to the post returns given above, the annual ratio of mortality is 1.8 per cent., and in the Middle and Southern 4.9, whilst the mean of the three Divisions is 3.5 per cent. According to the regimental returns, the mortality for the same ten years, is 4.4 per cent. In the Middle and Southern Divisions, the ratio of cases under treatment is 50 per cent. higher than in the Northern; and the proportion of deaths to the number treated is nearly twice as high, the average being 1 in 75, and of the latter 1 in 144.

Having completed the investigation of the results afforded by the statistics of the United States troops, so far as diseases imputed to malarious sources are concerned, it remains to make some practical application of the laws developed. The subjoined classification of infectious agents, adopted in Copland's Dictionary of Practical Medicine, is presented merely as expressing the general sentiment of the profession upon the subject. Under the class of *ideo-infectants* or non-disseminating and non-perpetuating infections, his first order of agents, is, *Miasms or mephitic vapours*—endemic infection acting through the air.

| *Species of agents.* | *Diseases resulting therefrom.* |
|---|---|
| 1. Miasm from decayed vegetable matter aided by moisture, in temperate ranges of atmospheric heat. | Catarrhal fever. Rheumatic attacks. Intermittents. Enlargements of the spleen, and torpid states of the liver. |
| 2. Exhalations from absorbent, or deep exuberant, or marshy soils, suspended in atmospheric humidity at temperate grades of warmth. | Intermittents. Remittents. Simple Dysentery. Simple Cholera. Bilious fevers. Obstructions and other diseases of the liver and glandular organs. |
| 3. Miasms or vapours from decayed vegetable matter, or from marshes and rich, deep, and humid soils, at high ranges of temperature. | Inflammatory, bilious, and gastric fevers of both a remittent and continued type. Diseases chiefly of the abdominal viscera. |

Epidemic and exanthematic typhus and true yellow fever are put under the head of specific infections, which propagate their kind by a diffused and impalpable effluvium or vapour, emanating from the secretions, excretions, and surfaces of persons already affected. It need scarcely be added that the propriety of placing yellow fever in the same category with typhus, may be reasonably doubted. It is probable, however, that fevers which have, or are

supposed to have, their source in vegetable miasms, or at least in effluvia from marshes, may subsequently spread by contagion.

Upon what evidence it is asserted that "catarrhal fever" and "rheumatic attacks" arise from "miasm from decayed vegetable matter aided by moisture, in temperate ranges of atmospheric heat," it were no easy matter to determine. In medicine, we are too apt to revere the *verba magistri*, one teacher blindly repeating, and one writer blindly copying, the dicta of predecessors, as if oracular. That catarrhal fever has not the remotest connection with malarial causes, is demonstrated by the statistics of our troops. As the ratio of intermittent and remittent fever is about five times higher in our southern than in our northern latitudes, and as that of catarrhal affections is twice as high in the latter, it follows that as the results are in an *inverse* proportion, no relation of cause and effect is discoverable. As the classification, however, limits the production of catarrhal fever to "temperate ranges of atmospheric heat, aided by moisture," it may be said that it applies only to our northern regions. In diametrical opposition then to this view, it is found that in the winter, when no "miasm from decayed vegetable matter" arises, the ratio is twice as high as in summer; and that the annual ratio in the moist climate of the lakes and the coast of New England is not more than half as high as that of the dry climate of the regions remote from large bodies of water. In reference to Rheumatism, the same remarks are applicable, but in a less marked degree.

Thus far the writer has dealt pretty much in facts; but in entering upon the investigation of the essential nature of the effluvium from marshes, termed malaria, he feels that he has passed into the regions of speculation. The history of medical science shows that the subject of *Fever* has, at all times, been regarded as presenting the most extensive and inviting field for observation and the exercise of a philosophic mind. This arises from its paramount importance among the long list of human maladies. It is a subject, at the same time, eminently calculated to humble the pride of human reason; inasmuch as the mind of man, engaged upon it for near 3000 years, has failed to determine its essential nature or causes.

The causes of epidemic, endemic, and contagious diseases, have never received satisfactory elucidation. Notwithstanding we are acquainted with some of the laws which govern malaria, we can no more describe the *constitutio aëris*, which gives rise to endemico-epidemics, than we can define the inscrutable vapors which generate typhus fever or small-pox. In these researches, the object has been rather to point out effects than to speculate upon causes; and although some of the laws by which diseases of malarial origin are controlled in reference to the seasons and our systems of climate, have been developed, yet our knowledge of meteorology is wholly insufficient for the explanation of the precise nature or operation of such influences.

As endemic diseases are produced by a concurrence of causes acting constantly or periodically in certain localities, so it may be supposed that the diseases of each are no less dependent upon peculiar physical causes than its

animal, vegetable, or mineral productions. As the influence of a certain soil or climate gives an inexplicable peculiarity to vegetation, which we cannot imitate by artificial means, so certain diseases are confined to specific localities—some appear periodically in certain situations—whilst others are rife in particular seasons, influenced by the various causes which modify the constitution of climate. Difference of climate, as it regards its agency upon health and the organic modifications which the human frame experiences from this cause, depends no less upon certain emanations from the soil, which is composed of organic remains and comminuted mineral substances, than upon those other conditions of the atmosphere, arising from its hygrometrical, thermometrical, barometrical, and electrical states. Although the morbific cause may be general and widely diffused, yet it is mostly modified by local influences, constituting an *endemico-epidemic*. An example in point is presented in the history of epidemic cholera, the visitations of which, in the United States at least, were much favoured by the high temperature of summer and by the peculiar atmosphere of towns situated on seas and rivers. We sometimes see a district signalized for its salubrity, desolated by a malignant fever, the production of which required a combination of certain local and general causes; but as this precise concatenation of causes may never re-occur, so the inhabitants may remain exempt from a similar scourge. The occasional appearance of yellow fever in our northern cities may be thus explained. When, on the contrary, a particular disease appears every year in a certain locality, it may be presumed that the local causes, influenced by season alone, are always present, and that it requires but little change in the general atmospheric constitution to induce the necessary causation. We may thus account for the high ratio of intermittent fever in many parts of the United States and of remittent fever in the southern regions, and for the annual appearance in some of our southern sea-ports of yellow fever,—a disease which seems to be indissolubly connected with soil and climate. As an illustration of the remark that malaria sometimes makes its appearance in places which had previously enjoyed a complete exemption, I may mention that, at the Narrows near New York, intermittents and remittents appeared, in 1828, in their severest forms among the labourers employed in the erection of Fort Hamilton; and, at the same time, Staten Island and the elevated coast of Long Island in the vicinity of the Narrows, where a case of intermitting fever had been almost wholly unknown, became so subject to these febrile diseases, as to drive the inhabitants from their possessions. In like manner, on the elevated banks of the Schuylkill, villas were erected at a time when intermittents were scarcely known; but, in consequence of their great prevalence in late years, many of them have been abandoned.

The modifications of the atmosphere which give rise to epidemic, endemic, and contagious diseases, have proved totally inappreciable by endiometic researches. That the comparative unhealthiness of low, swampy situa-

tions, depends upon an admixture of terrestrial emanations with the common atmospheric elements, is obvious; but these agents, if we except the recent experiments of Majendie, have always escaped the researches of the chemical pathologist. As our *false* facts are numerous, the speculatist has consequently found, in the obscurity of this subject, ample scope for hypothesis.

Yet the unprejudiced mind, in viewing the whole question, notwithstanding the impracticability of demonstrating the precise nature of *marsh poison*, is inclined to adhere, satisfied to argue from effects, to the opinion sanctioned by the general consent of mankind, viz., that malaria has its source in organic remains. One fact is evident, viz., that a marshy soil, previously submerged, exposed to the action of solar heat, will develope that mysterious and subtle agent called *malaria;* and that this emanation is the result of the decomposition of dead organic substances, producing new compounds by the combination of their elements, is an opinion warranted by the strongest evidence short of demonstration. We know from experience that marshy districts in almost all countries are the *foyers* of disease, and that the deltas of large rivers are apt to teem with malarious exhalations. The *detritus* thus annually brought down rivers, no matter whether united with earths of a sandy, a calcareous, or an argillaceous nature, will give rise to these miasmata; but soils of a humid character are doubtless best calculated to maintain these organic remains in a condition favourable for solar action. It was remarked of old, that the inundations of the Nile, at the same time, scatter fertility over the valley of Egypt, and sow with a liberal hand the prolific seeds of disease. The knowledge that we possess on this subject would enable us, on viewing the climate and topography of the lower Mississippi, to pronounce at once upon the true character of the soil; and in surveying the locality of Fort Gibson, originally a cane-brake, formed of the alluvion of three streams, whilst the exhalations of miry lagoons are, during the extraordinary heats of summer, wafted over the fort by the prevailing winds, the presence of the physical conditions causing malarious diseases, would be immediately recognized.

One of the circumstances most essentially connected with the production of malaria, is heat; for, in proportion as the equatorial regions are approached, do febrile endemics become more rife and malignant—a remark which applies equally to the relative influence of the seasons. Heat alone is not, however, sufficient, inasmuch as the diseases of the Nile never extend into the neighboring desert; and in like manner, in our southern regions, whilst the margins of streams, lakes, and marshes are rife with malarial diseases, the sandy pine woods are exempt from them. As all those cities and military stations, which have been, in every quarter of the world, the graves of unnumbered thousands, have occupied the banks or deltas of rivers, in low flat countries, it would seem that moisture is also an essential ingredient in its production; but these two agents, heat and moisture, however requisite, are not in themselves adequate causes; for vessels at a small distance from the land, in the rainy season

of the hottest climate, will continue healthy, if proper police regulations are maintained. It appears then that heat and moisture, however essential, require the co-operation of other agents. What these conditions are, has been plainly indicated at all periods of the world. The same causes that were in action on the banks of the Nile, the Lernean marshes, and the Campania di Roma, are now found in operation in the rice swamps of our southern States and the marshy lowlands that skirt the coast and rivers from Delaware Bay southward, viz:, a soil abounding in organic remains. In the operation of heat and moisture, however, this striking distinction obtains, that heat acts in proportion to its intensity, whilst excess of moisture is no less inimical to the generation of malaria than its deficiency. Hence it is necessary in considering the conditions most favourable to the evolution of malaria, to distinguish between a moist and rainy season. To submerge completely marshy lands, it is well known, is one of the means of obviating their insalubrity. Animal and vegetable decomposition is regulated by the degree of heat and moisture combined. If moisture be increased until the air is excluded from the vegetable matter, decomposition is suspended; and the same effect is induced, if the temperature be reduced to the freezing point, or increased until all moisture is dissipated. The body of an animal is no less preserved in the arid deserts of Africa than in the frigid regions of the north. In the one case, the fluids are congealed, and in the other so quickly evaporated that it actually becomes a dried preparation.

Although the essential causes of malaria may remain forever involved in obscurity, yet the important agency of heat and moisture in its causation, as shown in the statistics of our troops in the fact that the annual ratio of intermittents and remittents is five-fold greater in our southern than northern latitudes, and that a contrast equally great is exhibited between the first and third quarter of the year, is satisfactorily demonstrated. These laws are confirmed by the results of the British statistics, which, as the average of each month is given, illustrate still more fully the influence of the seasons. As the sun proceeds northward in the ecliptic, bearing in his train heat and moisture, the northern colonies of the West Indies experience later than the southern ones, the period termed the unhealthy season. It has also been observed that in the Mediterranean stations, the ratio of admissions and deaths between July and October is nearly twice as high as at any other period of the year. The statistics of Canada lead to the same result, but in a less marked degree. The most striking exemplification of the law that the "sickly season" coincides with the time when the greatest degree of heat and moisture is combined, is afforded in the fact that positions north and south of the equator, in consequence of the seasons being reversed, become most insalubrious at periods precisely opposite.

In the ratio of diseases of malarial origin, there is great variation from year to year. At Fort Crawford, Wisconsin, Lat. 43° 03′, for example, there were reported, in the third quarter of 1830, 154 cases of intermittent and remit-

tent fever, and in the same quarter of 1836, there occurred but one case, notwithstanding the strength was greater. Believing that temperature had some relation with this wide disparity, I arranged the results as under:

| Years. | Mean temperature. | | | Highest Degree. | Quantity of rain in inches, in July and August. | Ratio of cases of intermittent and remittent fever, per 100 of str'gth. |
|---|---|---|---|---|---|---|
| | July. | August. | July and August. | | | |
| 1829 | 74.33 | 73 76 | 74.05 | 94 | | 3 |
| 1830 | 81.47 | 77.07 | 79.27 | 94 | | 72 |
| 1831 | 76.56 | 71.93 | 74 24 | 98 | | 33 |
| 1832 | 74.41 | 70.09 | 72.25 | 94 | | 1 |
| 1833 | 78.73 | 76.58 | 77.65 | 98 | | 8 |
| 1834 | 80.49 | 77.55 | 79.02 | 98 | | 14 |
| 1835 | 73.80 | 69.62 | 71.71 | 94 | | 3 |
| 1836 | 73 00 | 66.66 | 69 83 | 90 | 5.50 | .4 |
| 1837 | 73.83 | 70.87 | 72.35 | 95 | 5.48 | 17 |
| 1838 | 78 61 | 73.90 | 76.26 | 97 | 8.24 | 19 |

No Register.

As there are doubtless many modifying causes, the precise influence of elevated temperature cannot be determined; but it is seen in the above table that in 1830, when the mean temperature of July and August was highest, the ratio of intermitting and remitting fever was 72 cases per 100 men, and that in 1836, when the temperature was lowest, the average was only .4 per centum. The years 1835 and 1832 are the lowest next in order, both in regard to temperature and the prevalence of fevers. The observations on the pluviometer are too limited to afford data for comparison.

In elucidation of the influence of temperature, another example will be given. In the island of Jamaica, as the elevation of the lands in the interior causes a corresponding modification of temperature, almost every variety of climate is presented. At the height of 4,200 feet, the vegetation of the tropics gives place to that of temperate regions; and here the inhabitants enjoy a complete exemption from the violent bilious remittents which cut off thousands annually along the coast. In these elevated regions, we are told that the inhabitants, far from presenting the pallid and sickly aspect of those that dwell along the coast, exhibit that ruddy glow of health which tinges the countenance in northern climes. At Maroon Town, elevated more than 2000 feet above the level of the sea, the annual mortality of the troops is only 33 per 1000, notwithstanding many of the deaths originated from disease contracted at other stations; whilst at Montego Bay on the coast, the ratio rises to 179, and at Savannah La Mar, even to 200. That yellow fever is never found above the height of 2,500 feet, was long since determined by Humboldt.

In the production of malaria, there may be other agents at work equally essential with heat and moisture. As the developement of electric phenomena has an intimate connection with heat and moisture, electricity may also be an indispensable auxiliary. Between miasmata and mere effluvia, there is no doubt a wide distinction. The latter, which are nothing more than the elements of a compound body, are generally as innoxious as the compound itself; but the former may be new compounds, resulting from the play of affinities among these liberated atoms. As the ordinary operations of nature do not tend to her own destruction, so organic substances, it may be supposed, are

decomposed, and the atoms re-united in such combinations as generally prove harmless to man. The workshop of the "knacker," whose occupation is to convert dead animal matter to various useful purposes, though repulsively offensive, is not unwholesome; and the tainted atmosphere of the dissecting room, breathed month after month, generates no endemic fever. Morbid action seems, therefore, not to be induced by the mere decomposition of matter, but by the combinations which, under peculiar circumstances, result. Thus it is an ordinary law of nature that the human body, when life is extinguished, shall return to its original elements; but under certain modifying circumstances, it is converted into *adipocire.* The mere effluvia of dead animal or vegetable matter may differ as much from miasmata or malaria, as oxygen or hydrogen does from the various compounds of which it forms a component part. These miasmatic compounds, generated under different circumstances, or the same causes acting upon different constitutions or upon different states of the same constitution, produce, it may be assumed, in one case intermittent, in another remittent, and *perhaps* in a third, that higher grade known as yellow fever.

To prove that malaria is not the product of vegetable decomposition, frequent reference is made to the fact observed by Dr. Ferguson, that malarious fevers prevailed to a great extent among the British troops when encamped on the rocky and arid tracts near Lisbon in Spain. "In the month of June and July," he says, "the British army marched through the singularly dry, rocky, and elevated country on the confines of Portugal, the weather having been previously so hot, for several weeks, as to dry up the mountain-streams. In some of the hilly ravines, *that had lately been water-courses*, several regiments took up their bivouac, for the sake of being near the stagnant pools of water that were still left among the rocks. Many men were seized with intermittent fever." Notwithstanding a country may be arid and parched, the heavy dews at night, without reference to the moisture beneath the surface, may be sufficient in "*ravines that had lately been water-courses*," to cause the generation of miasmata. As every soil productive of vegetation contains organic remains, so it is impregnated with one at least of the elements of malaria. Should the temperature be low as in winter, no poison is generated. Should moisture be wanting or water superabound, the same result may be predicted. Even admitting that these "water courses" were rocky channels, enough of organic remains may have been deposited by the recent "mountain-streams" to produce, when acted upon by the moisture of dews, the results that followed.

In the recent statistical Reports of the British army, the Reporter arrives at the conclusion, from an examination of the subject in every quarter of the globe, that the prevalence of intermittent and remittent fever does not depend materially on the influence of moisture or high temperature; aye, and more than this, it is alleged "that though the vicinity of marshy or swampy ground *appears* to favor the developement of that agency [malaria], it does not necessarily prevail in such localities, nor are they *by any means essential*

either to its existence or operation." This opinion is based, among other facts, upon the circumstance that intermittents are very rife in Upper Canada, whilst in Nova Scotia, under circumstances apparently similar, the inhabitants enjoy an exemption; and that yellow fever frequently appears at Ireland island, one of the Bermudas, a rocky and barren spot, containing no marsh and little or no vegetation. In reply to this, it may be said that in reference to the cause of yellow fever, we know but little, and are wholly unauthorised to ascribe it positively to paludal origin; and as to the induction by which intermittent fever is traced to the agency of a marshy locality, notwithstanding the exceptions adduced in Nova Scotia, as well as the singular exemption on the coast of New England, the every day experience of our army surgeons and of the practitioners of our newly settled regions, confirms its truth.

In Canada and the United States, it is a fact well known from their earliest history, that although cultivation renders a climate more salubrious, yet its endemic diseases, for several years after the soil is cleared from its more bulky vegetable productions, often become more severe than previously, and not unfrequently assume an epidemic character. The surface of the earth exposed to the sun's rays, yields a more noxious effluvium than when protected from its action by a dense and exuberant vegetation. That a partially cultivated region is more sickly than a wilderness or country in the highest state of agricultural improvement, is a well known fact. The soldier, the hunter, and the wild borderer, suffer less from disease than the actual settler. The diseases of the former class are mostly of an inflammatory character resulting from fatigue and exposure; but as soon as the permanent settler begins to fell the forest, leaving the branches to undergo decomposition, and to turn up to the action of our intense summer heats the marshy ground, composed of the accumulated vegetable and animal deposition of years, deleterious agents are exhaled, giving rise to the most malignant endemics.

An example of this kind fell under the observation of the writer, when stationed at Fort King, in the interior of East Florida, in the summer of 1837. This post, the old Seminole agency, which had been maintained for some years prior to Indian hostilities, was always remarkable for its healthfulness; but in the latter part of the summer just mentioned, violent fevers of the remittent form and intermittents running into the same type, occurred, ascribable apparently to the circumstance of the smaller trees and undergrowth of a vicinal jungle, called a *hammock*, having been cut down as a precaution against Indian ambuscade. Much of the surface of this hammock consisted of a trembling soil, to many yards of which motion might be communicated by an effort simply of the foot. This crust which would bear the weight of a dog, would not sustain that of a horse, as was proved by several sad illustrations.

I may here allude to the recent experiments of Majendie, without attempting to base any argument upon them. He states that having condensed, by means of cold and other agents, a quantity of marsh atmosphere, a considera-

ble residuum of animal or vegetable matter was obtained, which had a tendency to run into putrefaction with the greatest rapidity. Having performed a series of experiments upon animals by injecting this matter into the veins, M. Majendie discovered that the lesions pathognominic of *yellow fever*, were induced. In an animal, which died two hours after the injection of a little putrid matter into the veins, autopsy revealed the following lesions:—The blood was liquefied, and the muscles exhibited a remarkable punctuated red colouration, caused by a vast number of petechiæ; and the mucous coat of the intestines was found raised by a deposition of blood in the subjacent cellular tissue, and the surface covered with large patches of albumen and mucus. The partizans of inflammation would, according to Majendie, regard this as a case of decided gastro-enteritis; but he can see nothing more in it than the distension of the capillary vessels with blackish fluid blood, which having become dissociated in its elements, partially transudes the intestinal tunics. These experiments oft repeated presented the same pathological phenomena, more or less marked in proportion to the duration of the disease before causing death.

That these disorders are not the result of a general cause is evident from the fact, that the injection of different substances will produce specific lesions of different organs. Thus subcarbonate of soda disorganizes the thoracic viscera; the lungs become distended with blood, which gushes out when an incision is made into their substance, and a bloody fluid is effused into the pleura, constituting, in the nomenclature of pathologists, a case of pleuro-pneumonia. The blood when liquefied by the subcarbonate of soda, exercises, indeed, a specific influence; for the various tissues and organs of the abdominal cavity are found in a normal condition.

In those cases in which death very quickly follows the introduction of a few drops of putrid water into the veins, causing the ejection by vomiting of blackish clammy liquid, like that in yellow fever, and the mucous membrane is found covered, throughout its whole extent, with extravasations of blood, Majendie attributes the result to a change in the constitution of the blood, and not to a modification in the properties of the walls of the vessels. This change in the properties of the blood, which is no longer adapted to that of the ducts in which it flows, he regards as the first link in the chain of abnormal actions, whilst the organic lesions are secondary phenomena.

These experiments afford corroborative evidence of the opinion that malaria has its source in organic remains. Heretofore, the etiologist could argue only from effects; and when he found that certain results always followed the conjoint operation of certain causes, he was justified, upon every principle of analogy, to assume the existence of the relation of cause and effect. Now, however, it may be said that malaria has, in a measure, been compelled to put on a tangible shape, and to confess its secret power, thus almost demonstrating its effects on the animal economy. The subject, however, is still enveloped in deep obscurity; and to him fortunate enough to enrich science by unravelling its mysteries, a proud immortality is destined.

ART. II.—*Notes of Observations in Obstetric Pathology.* By CHANDLER R. GILMAN, M. D., Professor of Obstetrics and the Diseases of Women and Children, in the College of Physicians and Surgeons, New York.

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I SUBMIT to the notice of the readers of the American Journal of the Medical Sciences, the following notes of some of the observations in Obstetric Pathology, made by me during the past winter. I am aware that detached observations of this sort, when merely noted down in their simplicity, and presented without any elaborate detail, have but little attraction for the generality of medical readers. Still, before pathology can become what we all desire to see it, a science of facts, many single observations must be added to the already accumulated store. In this state of the case, it seems to me that no one who will observe facts with care, and record them with fidelity, need fear that his labour should be entirely without value. I have another and a personal reason for offering these notes to the public. By the kindness of my medical friends, I have many opportunities of making autopsies and procuring preparations from cases which occur in their practice. It appears to me that I shall best show my sense of these acts of kindness, not only by striving to improve to the utmost the opportunities thus afforded me, but by disseminating as widely as I can the knowledge of the facts I thus collect.

CASE I. *Case of Tubal Pregnancy.*—I was requested by my friend Dr. Weeks, to assist him in the examination of the body of a female patient, about the nature of whose case there had been great difference of opinion among those medical gentlemen who had seen her. I had called on this patient once, with Dr. W., but she would not then submit to an examination, so that I had no knowledge of her case except from Dr. Weeks. From him I obtained the following history:—

Mrs. ———, ætat. 43, who had several times miscarried, but never had a living child, supposed herself pregnant in October, 1839. She passed the first months of gestation without accident, and quickened about 1st March, 1840. In April, she was taken with a flooding after an attempt to lift a heavy weight. Fearing a miscarriage, and being exceedingly anxious to have a living child, she immediately sent for Dr. W. The usual means were employed, and the symptoms gradually passed away. In the course of the next month or six weeks, she had two or three slighter attacks of the same sort, which readily yielded to rest and mild remedies. In May, being then between six and seven months, she had a violent attack—profuse hæmorrhage and very severe paroxysmal pain, a miscarriage was now deemed inevitable, and but little was done to prevent it. Nothing, however, except blood was discharged, and after several hours of suffering, the symptoms

abated and finally disappeared. To this time, the motion of the child had been felt distinctly, but after this, it ceased entirely. The patient kept about most of the time, but during the next three months, had several attacks of pain, tenderness in the belly, fever, and the other symptoms of peritonitis. She was treated by such antiphlogistic means as her state of general health permitted, leeches being frequently employed. From these repeated attacks, her health gradually failed; after one of more than ordinary severity in October, 1840, fluctuation was detected in that part of the tumour which occupied the right iliac region—the skin became red and thin, an abscess was evidently pointing; it was freely opened, and a very large quantity (the doctor thinks two gallons at least) of gray and very fœtid pus was discharged. A slight improvement of the general health followed, but it was only temporary—the patient soon began to sink, and died December 7, 1840.

Before death the abscess opened in the two other places in the right groin and pus was discharged from the bladder and the rectum.

*Post mortem examination*—20 hours after death. Body much emaciated. The abdomen was distended below the umbilicus by a tumour about the size of the uterus at six months. It did not present in the median line, but rather to the right of it. There were three openings in the right groin, one, the largest, from which the pus was first discharged—was oval, an inch in its greatest diameter, situated two inches inwards and downwards from the anterior superior iliac spine. The others were smaller and just below the first.

The abdomen was now laid open. The whole hypogastric region—the right iliac and a part of the left were occupied by a tumour which was embedded among the pelvic viscera and closely adherent to all the parts with which it was in contact, particularly to the bladder and the rectum. This tumour was a sac or cyst with thin walls, in which were three openings, answering to those in the skin. These openings were necessarily enlarged in removing the abdominal walls, to which they adhered intimately and extensively. In the cyst was a pultaceous mass of an ash gray colour and most abominable fœtor; in this mass the bones of a fœtus of about the sixth month were found, some quite detached, others, particularly those of the legs, adhering together and covered with shreds of decayed soft parts. These were removed and the sac cleared out; next it, together with the whole contents of the pelvis, was removed and taken to the college for examination.

The parts were so completely matted together, that it was only after considerable labour and great care that our demonstrator of anatomy, Dr. Quackenboss succeeded in unravelling them and making them out satisfactorily. The sac was found to consist of the left Fallopian tube largely dilated. This dilatation began about a half inch from the uterus to which point the tube was normal in external appearance, though not pervious. The sac had five openings, three answering to those in the skin as before noted and two into the bladder. Of these latter one would barely admit the tip of the finger, the

other was an inch in diameter. The coats of the bladder were thickened and its internal lining membrane very much corrugated. As this was the first case of tubal pregnancy I had ever seen, I took the opportunity to examine as carefully as I could, the intimate structure of the tube, as to its muscularity. The peritoneum was removed and muscular fibre was I think clearly made out—indeed it would not have been easy to distinguish between the tube at that point and any portion of a gravid uterus when uncontracted.

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The uterus was next examined; it had been crowded down into the cavity of the pelvis, on the right side, where it had contracted the most intimate adhesions with the sac above, the rectum and the pelvic paries. The right ovary, tube and broad ligament were all matted together, closely adherent to the uterus. When separated the uterus was found perfectly normal in appearance except that I think the walls were slightly hypertrophied. The cavity was quite empty.

There was no evidence that decidua had ever been formed in it; but of course this case will prove nothing, as to the now disputed point whether decidua does form in the cavity of the uterus in tubal pregnancies, as the membrane if formed may have been thrown off by the parturient efforts and escaped notice among the coagula. Thus far the examination had been satisfactory in every point except as to the pus which had passed per anum.

But the tubal cyst did not communicate with any part of the intestinal canal. On examining the rectum, the cavity of an abscess, large enough to hold a small orange, was found in the recto-vaginal septum pretty high up. This abscess communicated with the rectum by a minute opening, through which its contents had been evacuated, for it was nearly empty. Pus was therefore poured out in this case, from the sac through the openings in the abdominal walls and through the bladder; and from the abscess in the recto-vaginal septum through the rectum.

This case is interesting in a practical point of view, as proving how easily and how safely the Cæsarian section might have been performed. The sac was so extensively adherent to the peritoneum, that an incision might have been made into it, large enough to have delivered the child, without any danger of opening the cavity of the peritoneum. In this respect the state of the parts was exactly similar to that found by Michaelis, of Keil, in the patient on whom he operated in 1836 for the fourth time.

Case II. *Examination of the Uterus twenty-four hours after Delivery, with some Remarks on the Utero-Placental Circulation.*—I was requested by Dr. Archer, the coroner, to assist in the examination of the body of a young woman, who died, soon after delivery, at the house of a Mrs. Bird, a self-styled midwife. The examination was made by Drs. Kissam, Coolidge, and myself. The girl was said to have died of hemorrhage. The case was of no interest in a medico-legal point of view, and I shall only detail the appearances of the uterus, which I examined with great

care. Viewed externally, it was pale, and it felt flabby to the touch; on laying open its cavity the cervix and os were found very much ecchymosed, as was also the inferior portion of the vagina. I note this ecchymosis merely to say that it is normal, and will be found in most, if not in all cases; yet I have recently seen it noted as a pathological state, and characteristic of metritis. The placenta had been attached to the posterior wall, on the right side, its upper margin just overlapping the orifice of the tube. The place of attachment was indicated by many large openings in the internal lining membrane; these were evidently the orifices of the uterine sinuses; they were for the most part plugged up with pretty firm coagula, a few of them, however, were empty. The coagula were next carefully removed by subjecting the part to a stream of water for a long time. The openings into the sinuses were now examined. They varied in diameter from two to six lines; they were generally elliptical or semicircular in shape and the edges so arranged as to form either a single or a double valve. To comprehend this fully it is necessary to bear in mind that the inner layer of uterine structure, though at other parts imperforated by large vessels, is where the placenta is attached, traversed by so many and such large veins and curling arteries, that its whole texture is cribriform, and in many places the vessels are separated by a septum of uterine structure scarce thicker than membrane. Now when the large sinuses are about to terminate on the inner surface of the uterus, the orifice is diminished sometimes from one side and sometimes from both, by a flap of thin fibres which projects over it, in the one case leaving a semicircular, and in the other an elliptical opening always much smaller than the sinus just within. These thin flaps can be lifted up with the probe, and thus, without tearing any thing, the orifice be doubled in size. This valvular arrangement seems to me to obviate one of the objections to Lee's view of the utero-placental circulation, viz., that the decidua is not sufficiently strong to confine the blood in the sinuses. It would seem that these openings are for the most part closed, not by superimposed decidua, but by a valvular flap of true uterine structure. But I am digressing; the orifices of these sinuses were now examined with all the care possible under a microscope of high power. The margin was perfectly smooth, clean, regular in its minute structure, and every where well defined. I then examined the inner lining membrane of the sinus from the depth of a line or more to the orifice; it was smooth, regular, and terminated at the verge of the opening in a clean edge free from shreds or any other evidences of laceration.

This observation, though of infinitely less value than it would have been had the placenta still adhered, yet seems to me to be worth recording, as throwing some rays of light on the subject of the utero-placental circulation, a subject involved in great obscurity, and still made matter of many and pretty fierce disputes. The opinion of the Hunters that the uterine sinuses passed the decidua and terminate in the cellular structure of the placenta,

was, I believe, first controverted by Dr. Robert Lee of London. One of his strongest proofs is the fact which my observation confirms, viz., that the openings of the uterine sinuses have perfectly smooth, well defined and regular margins, which they certainly would not have if they were the torn extremities of vessels which passed through the decidua. That these margins were perfectly smooth in my case, I can prove by the testimony of Dr. Gray, whose researches in botany have made him for years familiar with the microscope. Now if we adopt the opinions of Hunter, as many of the English physiologists still seem inclined to do, how is it possible to explain this regular and clean state of the termination of the sinuses, since they must have been torn off when the placenta was removed. To my mind it appears purely impossible. By the January number of the *Edinburgh Medical and Surgical Journal*, I see that Professor Reid has advanced a new opinion on this subject. He believes that tufts composed of minute arteries and veins, continuous with the umbilical placental vessels, project into the uterine sinuses, and that the internal lining membrane of the uterine sinuses is reflected upon these tufts, sometimes at the point where they enter the sinus, and sometimes merely at their apices. Thus every one of the minute terminal vessels of the placenta "is closely ensheathed in prolongations of the inner coat of the vascular system of the mother, or at least in a membrane continuous with it."

"When the blood of the mother flows into the placenta, it passes into a large sac formed by the inner coat of the vascular system of the mother, which is intersected in many thousand different directions by the placental tufts projecting into it like fringes, and pushing its thin wall before them in the form of sheaths which closely envelope both the trunk and each individual branch composing these tufts." "From this sac the maternal blood is returned by the utero-placental veins, without having been extravasated and without having left her own system of vessels." Now, as to one part of this theory, and that its distinctive feature, viz., the prolongations of the fœtal placental vessels, into some of the uterine sinuses, my case does not authorise me to speak; but as to the other portion of it, the prolongation of the inner lining membrane of the sinuses into the placenta, it seems to me that the perfectly smooth margin that the orifices of these sinuses present, is as fatal to it as to the view of Hunter; indeed, I do not see that there is anything but a difference of phraseology to distinguish the view of Hunter from that of Reid. The sac which according to Reid, is formed by the prolongation of the inner coat of the vascular system of the mother, is, it appears to me, in every thing but name identical with the placental cells of Hunter, "in which the curling arteries terminate, and into which the venous sinuses are prolonged."

Case III. *Dissection of a case of Spina Bifida, with Remarks.*—It was very justly remarked by the editor of the Medico-Chirurgical Review, in a late number, that the exact nature of this malformation is by no means

accurately apprehended by the mass even of the surgical part of the profession. For many seem to regard it merely as an expansion of the dura mater, consequent upon the absence of that support which, in the normal state of the parts, the bony canal gives to it. The existence of this sac, its being filled with serum, constitutes the disease—and when mischief follows pressure upon this sac, it is generally referred with great confidence to the return of its fluid contents into the cavity of the spinal dura mater.

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This is the view of this malformation taken by Cooper in his Dictionary of Surgery; by Good, who calls the disease Hydrops Spinæ, and by most of the writers of text books of surgery and of obstetrics. The fact that the sac frequently, or indeed that it ever has any other contents than the serum that distends it, is never so much as hinted at by these authors. In this case, as in most others, mischievous plans of treatment have been the natural consequences of imperfect pathological knowledge. Hence we hear every now and then of the sac being tied—laid open, of pressure being applied—all remedies adopted to get rid of the fluid, and pursued under the impression that to evacuate the sac and prevent serum from again collecting in it, is all that is required to cure the disease, and that on doing this, little more care is necessary than in evacuating a psoas abscess or a hydrocele. It is true that a better notion of the nature of this malformation has been taught by some authors; but their views do not seem to me to have *fallen into the current* of medical literature, or to have been brought fairly and fully before the profession. In this state of things, I have thought it worth while, taking advantage of a very well marked case of this somewhat rare malformation, which has recently come under my notice, to describe as fully and accurately as I can, the exact morbid anatomy of this case. If by so doing, I succeed in preventing in any one case that rash and mischievous meddling which too often hurries these cases to the fatal issue, my labour will not be in vain.

Mrs. B———, ætat. 40, mother of six healthy children, was delivered March 7, of a dead child, after a labour of six hours. The child was above the average size, and very well nourished; limbs and body plump, features regular, nails and hair well grown, and in every respect fully developed. It was hydrocephalic and a tumour six inches in circumference projected from the spinal column, opposite the middle lumbar vertebra. The child had both feet clubbed and one knee was stiff—and I would here mention, as illustrating the well known law that several malformations often occur in the same individual, that in the subsequent examination we found that there was but one umbilical artery and that both ureters were double, the canals uniting just as they penetrated the coats of the bladder. These malformations follow the law laid down by St. Hilaire, who says that "spina bifida co-exists often with anomalies affecting the organs placed in front about the level of the loins." *Hist. des Anomalies*, &c., tome i, p. 435. The tumour was a thin semi-transparent bag, through which the reddish colour of the contained fluid could easily be distinguished.

The spinal canal was now laid open from the atlas to the second lumbar vertebra, at which latter, the opening through which the sack protruded, began. The upper portion of the medulla was normal in appearance, but about opposite the fourth dorsal vertebra, it suddenly diminished in size nearly one half. The spinous process of the last dorsal vertebra was completely ossified, its two lateral portions having united by bone; this union was not complete in the first lumbar, and in the second all was cartilage. In the third, fourth, aud fifth, this was wanting, and through the space thus left, the sac, which consisted only of the spinal meninges covered with epidermis, protruded. Before examining the sac farther, the sacral canal was laid open below the tumour, it did not contain any dura mater, but the nerves passed out as usual through the sacral foramina. It was now evident that the sac did not consist of a mere tumour in the course of the spinal dura mater and bearing the same relation to it that an aneurism does to its artery, but that it was the termination of that canal enlarged into a sort of bulb, and protruded through the space left open in the bony canal. The sac was now laid open and its contents made the subject of careful observation. The cauda equina passed in at the upper edge of the spinal opening and over the greater curvature of the sac. It adhered pretty firmly to the inner surface. Was it owing to these adhesions, that it had been protruded from the spinal canal? While passing over the great curve of the sac the cauda equina gave off two pair of lumbar nerves, which passed down the sides of the sac to which also they adhered at two or three points. The cauda equina thus diminished, having traversed the greater curvature of the sac, perforated it at its inferior margin and passed into the spinal and sacral canal to its usual distribution.

*Remarks.*—We have here a case in which the whole cauda equina passed into the sac of the spina bifida. To what extent this protrusion of the nerves was dependent on their being adherent to the inner surface of the sac, it will require farther observations to establish—in the meantime, the fact that such an adhesion did exist, is not without interest. Cases in which the posterior branches of the spinal nerves have passed into the sac are not very rare, and some, I am aware, have been recorded in which the whole cauda equina had passed from the spinal canal, constituting what Lecat (*Traité du Mouvement Musculaire*) calls hernia of the medulla: still it would seem from the manner in which the important variety yet remains unnoticed by the systematic writers, that something is yet wanting to bring the fact that the tumour of spina bifida frequently contains large nerves, and sometimes the whole cauda equina, fairly before the profession.

Case IV. *Corroding Ulcer, with complete destruction of all the internal organs of generation.—April 11th*, 1841. I was invited by Dr. James Kissam to assist in examining the body of a female patient who had died of corroding ulcer of the uterus. The history of the case as I obtained it from

the doctor, and from a gentleman who had previously attended her was as follows:—Mrs. F., ætat. 50, having frequently had leucorrhœa, began to have fœtid discharges from the vagina, attended with pain in the uterine region; under proper treatment the symptoms were mitigated, and the patient lost sight of. From this time to the fall of 1840, the state of health gradually became worse and worse, the vaginal discharge more profuse and constant. Advice was had from several gentlemen, but I cannot find *that either of them made any vaginal examination!* The patient now, October, 1840, came under the care of Dr. Kissam who was first consulted in the alarm consequent upon a profuse hemorrhage from the vagina. This he learned was the third of these hemorrhages, the first having occurred about a year before.

The immediate difficulties being relieved, Dr. K. made a careful vaginal examination; the patient did not complain of much pain; the state of parts could not be satisfactorily made out; the os and cervix uteri were evidently gone, and there was no morbid deposit; the cavity of the pelvis seemed unusually empty, the finger moving about from side to side very freely. Corroding ulcer, far advanced, was diagnosticated, and nothing done except to palliate the sufferings, which were very great, (the pain in the pelvis being often agonising), by opiates, by fomentations, and by hip baths. Under this treatment she lived on for several months, the strength gradually failing, the body emaciating, the discharge of a horrible fœtor continuing unabated. During the winter she had two attacks of hemorrhage, which reduced her very much; still she felt well enough to see company on New Year's day, and got up to have her bed made so lately as the last of March. In the afternoon of April 10th, she had a slight hemorrhage (a few ounces), but it prostrated her very much, and about 10 P. M. she died.

*Sectio Cadaveris.*—The body was emaciated to the last degree; I never saw a more perfect specimen of leanness. On dividing the paries of the abdomen, which was very thin, not over a quarter of an inch thick, the cavity of the abdomen was fairly exposed, the small intestines and stomach were normal, the sigmoid flexure of the colon was unfolded, and adhered by one edge to the bladder and to the margin of the superior strait, thus forming a sort of diaphragm, by which the cavity of the abdomen was separated from that of the pelvis; this diaphragm formed a complete septum except that at its posterior part it was traversed by the rectum. Having satisfied ourselves of this we next tore away the anterior edge of the colon from the bladder (the adhesion between the two was not very strong) and exposed the cavity of the pelvis. It was nearly filled by a gray semi-fluid mass, of the most horrible fœtor. This was carefully removed by the sponge and then the cavity examined. Here a most extraordinary state of parts was discovered. The whole cavity of the pelvis was *empty*, the superior and posterior wall of the bladder was eaten away, all that remained of that viscus being a cup about two inches in diameter, from the centre of which the urethra passed out. Behind the bladder the superior extremity

of the vagina was found eaten off by ulceration; *not the slightest vestige of uterus, ovaria, fallopian tube, broad or round ligament, could be seen.* The walls of the pelvis were coated every where with lymph and condensed cellular substance, which formed thus a limit for the vast abscess by which the cavity of the pelvis was occupied. There was an ulcerated opening half an inch in diameter, in the anterior wall of the rectum, about four inches from the anus, and just below this point the gut was so much strictured as scarcely to admit a quill. If my description has been intelligible, the reader will perceive that the cavity of the pelvis, in this case, formed a sort of cloaca, into which the urethra, the vagina, and the rectum opened. It is not a little curious that life should have been sufficiently prolonged to allow of so great a destruction of parts. Yet this woman sat up a portion of every day till the tenth, before her death.

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The other organs, except the brain, were carefully examined, to ascertain whether there had been, in any of them, any morbid deposit—cancerous—but nothing of the sort was found. The case illustrates very well the diagnostic mark between ulcerated cancer and corroding ulcer; deposit of morbid matter being in the former case made more rapidly than the ulcerative process can remove it, while in the latter this process goes on alone, no deposit taking place, but the original structures being gradually removed. In the great work of Cruveilhier, liv. 24, there are several cases given, which are strictly analogous to this; but Cruveilhier calls the disease gangrene of the uterus. This gangrene, he says, may be primitive or consecutive. On examining his cases they appear to be all gangrenous ulcerations rather than true gangrene. Those which he considers consecutive were cases of cancer in the progress of which, ulceration, with discharge of a horribly offensive detritus, occurred. To distinguish this from the ordinary cases of cancer in the ulcerative stage, Cruveilhier seems to rely mainly on "gangrenous fœtor *very distinct from the fœtor of cancer.*" This I confess seems to me rather a narrow basis on which to found a diagnosis. He distinguishes those cases which he calls primitive gangrene, by the gangrenous fetor, by the absence of all morbid deposit, by the absence also of fungous growths, and by the gangrenous aspect of the ulcerated surface. That these cases of primitive gangrene were not cancerous, no one can doubt,* and it appears nearly equally clear to me that they were of the same character as the one I have detailed, and of those to which Dr. John Clark gave the name Corroding Ulcer. Whether the disease should be called by the one or the other name, gangrene of the uterus or corroding ulcer, is of secondary importance, the main point being to establish the identity of the two affections.

* I find, however, that the two are confounded by Hemming, the translator of Boivin and Duges, who adds a note to the chapter on Cancerous Ulceration, to say, that the disease there spoken of, was probably the corroding ulcer of Clarke. That it was not, is evident from the facts that fungous growths are spoken of by the French authors as common, and cancerous deposit as occurring in some cases. Neither of these are ever seen in the true corroding ulcer.

ART. III.—*Observations on Congestive Fever.* By THOMAS BARBOUR, M. D., of Pulaski, Tennessee.

IN the brief investigation of the interesting subject of the present paper, it is not my intention to consider the accidental cases of congestive disease, dependent on sporadic causes; nor those congestive superventions which are incident to every form of fever, but to confine my observations to that peculiar modification of febrile disease which is characterised from its very incipiency, by strongly marked symptoms of deep internal congestion, and a great oppression of the powers of life; in other words, that affection which is denominated in the south, pure congestive fever. The frequency of its occurrence, and the fatality attending it in the southern portions of the United States, concur to render it worthy of the most serious consideration of the profession; and demand from every practitioner, who has had good opportunities for observation, the results of his experience, which may serve in some degree to lessen the fatality of this destructive malady, by contributing to the improvement of its treatment. Having had numerous opportunities during the last four years, of witnessing this disease, and in some instances, in its most malignant form, in what is called the Tennessee Valley, in North Alabama, I indulge the hope that a few observations, principally with the view of pointing out the best method of treatment, will not be altogether unacceptable to the profession, and especially to medical men residing in the south, whose painful duty it may often be to observe, and to treat it.

I will cursorily notice, 1st, the etiology—2d, the pathology—and 3d, the symptoms of genuine congestive fever; then detail the plan of treatment which I have found the most efficacious.

In regard to the *causes* of this form of fever, as indeed of all other forms of what is called essential fever, but little is certainly known. Its almost universal occurrence in localities which are favourable to the production of malaria; its co-existence with all the common varieties of miasmatic fever;—and all of its distinguishing phenomena clearly demonstrate the identity of cause, and that that cause must be some powerful and concentrated poison, generated by the decomposition of organic matter.

It requires but a superficial observation of the phenomena of this disease, to be convinced that this cause, whatever it may be, makes its primary impression upon the nervous system; and that all of its characteristic symptoms are the immediate sequences of diminished nervous sensibility. The suddenness of the attack, the numerous indications of nervous derangement, and the rapidly fatal tendency of the disease, conclusively show, that the brain and the whole nervous system, the main springs of life—are almost overwhelmed in the very first assault of the enemy.

The impression made upon the nervous system is proportionate to the intensity of the poison applied; and the effects on the constitution are vari-

ous according to the relative force of vital resistance; hence, whenever it prevails, there is every gradation of the disease from slight manifestations of congestion, to the most malignant cases, in which the vital forces are completely empowered. This leads me to the consideration of the *pathology* of congestive fever, which I will point out in a few words.

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The whole nervous system being oppressed by a powerful morbific poison. as necessary consequences, all of the vital functions over which it presides, as respiration, circulation, secretion, &c., become greatly impaired; the capillary circulation throughout the entire system becomes much impeded; and there is a centripetal movement in the circulating fluid, in consequence of which the pulse becomes weak, and the general surface cold and contracted; whilst the internal organs become gorged with blood.

The phenomena dependent upon internal engorgements, are various according to the seat and extent of the congestion. When the brain is the chief seat of congestion, the countenance appears contracted, oppressed, and besotted; there is pain or giddiness, or a sense of heaviness in the head; and there is a strong tendency to coma and insensibility. When the lungs and heart are principally congested, there is great præcordial oppression; the respiration is short, hurried, and oppressed; and there is generally a peculiar livid appearance in the face; the pulse is irregular and oppressed; and there is general coldness of the surface. When the abdominal viscera are the chief seats of congestion, there is a sense of great heat and oppression in the region of the stomach, attended with great thirst, and a constant disposition to retching and vomiting; there is also indescribable restlessness; sometimes the bowels are torpid; but most generally they are very loose—thin, serous discharges passing off in enormous quantities, which contribute rapidly to prostration and death. Autopsic examination usually reveals the true source of all the foregoing symptoms. The various organs are found more or less gorged with blood; which was the cause of their oppression and embarrassment during life.

With this brief view of the pathology, I pass on to the consideration or the *symptoms* of congestive fever. The premonitory symptoms, which are, generally, of short duration, are those which commonly precede other forms of fever, such as languor, and lassitude, a sense of weariness, and general uneasiness, loss of appetite, and disturbance of the stomach and bowels. Next to these succeed chilly sensations—alternated by flashes of heat, soon after which the patient has a regular paroxysm, characterised by a protracted cold stage—the system, most generally, being unable to recover its natural temperature before the occurrence of the second paroxysm.

The type of this fever corresponds with the double tertian of the old authors, being subject to quotidian paroxysms, but on each alternate day, to an increased aggravation of the symptoms. Thus on the third and the fifth days, the paroxysms are usually very severe, and followed by a protracted cold stage, from which the system reacts very feebly. The anxiously

looked for hot stage is rarely or never fully developed, even in what might be called mild cases. But instead of it, the temperature of the whole surface is greatly diminished and irregular—the extremities being much colder than the trunk. The pulse becomes exceedingly weak and quick; the respiration is short, hurried, and difficult; the patient complains of a painful sense of heat, and weight in the epigastrium, accompanied with insatiable thirst; there is uncontrollable restlessness; the patient tosses himself from side to side, and often rises up, as if to relieve the oppression of the lungs; there is either pain, or giddiness, or sense of weight in the head; and the countenance looks contracted, pale, anxious, and often livid; the tongue is generally moist; and the bowels in a large majority of cases are loose, and the dejections serous.

The above sketch presents a tolerably correct delineation of the symptoms of ordinary congestive fever, as they present themselves at an early period of the disease.

They are, however, subject to considerable modification, according as the brain and spinal marrow, the lungs, or the abdominal viscera are the chief seats of congestion; the most prominent symptoms in each case being particularly referable to the chiefly engorged organs.

If the condition above detailed is not soon removed by the recuperative efforts which nature makes to throw off the oppressive load under which she is labouring, aided by proper remedial agents, there is a rapid tendency to total collapse. This usually occurs either on the third or the fifth days, when, as has been remarked, the paroxysms are unusually severe. This condition is marked by all the symptoms, which indicate profound congestion. The extremities, and, indeed, the whole surface, become as cold as ice; the whole body is bathed with cold clammy sweat; the skin loses its elasticity, resuming, very slowly, its natural situation, when pinched up; the pulse is very quick, and scarcely perceptible; the thirst is insatiable; and there is uncontrollable anxiety and restlessness; the respiration becomes shorter, more hurried, and oppressed; and there are strong marks of diminished sensibility; as a disposition to lethargy, and even to coma, with great muscular prostration. If unchecked, these symptoms increase with a rapid pace, and soon terminate in death.

But congestive fever does not always follow the regular course above described. Sometimes, instead of suffocated excitement, after the first or second regular paroxysms, there is full and violent reaction, and the stage of excitement continues for twenty-four, thirty-six, or forty-eight hours, with little or no remission, when the system, seeming to be exhausted by the violence of the excitement, rapidly sinks into collapse.

This modification generally occurs when there are internal inflammations, as indicated by pressure over the epigastrium, the right hypochondriac region, or over some portion of the bowels.

In other instances, the first regular paroxysm is succeeded by the strongest mark of deep congestion, and complete collapse of the powers of nature.

So far as my observation has extended, this last modification almost universally occurs either in aged persons of feeble or broken down constitutions; or in those who have debilitated themselves by the use of harsh purgatives, or by the use of a too common remedy among southern planters, the emeto-cathartic, *salts and tartar*, which most generally causes great gastric and intestinal irritation, which induces a rapid fluxionary movement in the circulating fluid towards the chylopoietic viscera, which causes inequality of the circulation, and rapidly prostrates, by the copious serous discharges which ensue.

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We now come to the most important part of our subject—the *treatment* of the different modifications of congestive fever. What are the leading indications in the treatment of this disease, founded on the pathological views which have been taken of it? There is a perfect unanimity in the opinions of medical men, that the great objects at which we should aim in the use of therapeutic means, are—1st, to restore the lost balance of the circulation;—2d, to relieve the engorged organs; and 3d—to restore the suspended secretions.

How are we to attain these desirable objects? The discrepant views which have been entertained, and the great diversity of agents which have been applied to fulfil the plain indications of treatment, clearly show that, however well the pathology may have been understood, great uncertainty has existed in regard to the treatment. Under circumstances favourable to its adoption, reason as well as ample experience, points out the propriety of general, and topical bloodletting. This practice, I know, is strongly condemned by some; and others, who upon pathological grounds, approve it, adopt it with a trembling hand. Why? Because the patient may have a feeble, quick pulse, and a cold skin, and other marks of prostration. But if we reflect upon the important lesson taught by the pathology of this disease, we must be convinced that the above symptoms do not arise from actual debility, but only from engorgement of the internal organs, which, most generally, are not, at first, structurally diseased, but only oppressed by the undue quantity of blood forced into them. The cautious abstraction of blood under such circumstances, unquestionably promotes reaction, by diminishing the load under which the heart and other vital organs are labouring. General bloodletting is altogether inadmissible in some conditions;—for example, it would be highly detrimental in aged persons of feeble or broken down constitutions; in persons of very intemperate habits; also in the advanced periods of any cases,—because, in all of these, the powers of life are generally at a low ebb, and most probably, the loss of blood by venesection would preclude the possibility of reaction.

But suppose a practitioner is called, at an early period, to a patient of generally good constitution and health, and under the meridian of age, and finds him suffering with all the symptoms of suffocated excitement, already noticed, surely, if he had ever witnessed the good effects of bloodletting

under such circumstances, he would not hesitate to draw blood cautiously. Nor would he ever incur any risk if he follows this simple rule; open a good orifice, and keep the fingers carefully applied on the opposite pulse, and if the pulse becomes weaker, stop the operation instantly, and if necessary, administer some diffusible stimulant. If, however, the pulse rises, and becomes fuller and more regular, as it often does, continue the operation until the pulse becomes well developed. When this effect is produced by bloodletting, there generally ensues a rapid improvement in all the symptoms, in consequence of the reaction of the system.

Bloodletting is particularly indicated in those cases where high excitement continues for two or three days after the paroxysm, with little or no abatement. Under such circumstances, it is certainly one of the best means we possess to lower excitement, and cause a perfect remission, during which we can make use of such remedies as are calculated to prevent the recurrence of a severer paroxysm, which would, most probably, be followed by collapse.

When general bloodletting is considered inadvisable, free cupping should be substituted. Cups should be applied along the whole course of the spine, over the chest, over the epigastrium, over the right hypochondriac region, or over the bowels, according as the indications of internal congestion predominate in one or other of those situations. The revulsive influence exerted by this operation, often acts very beneficially. Having bled or cupped as circumstances indicated, it is important to attend to the condition of the alimentary canal. The stomach is, generally, very irritable, and the patient complains of great thirst, and heat in the epigastrium; to relieve which, a large sinapism should be applied over the stomach, and small portions of cold water, or iced lemonade, or small quantities of ice, should be given; these are exceedingly grateful; they lessen the burning heat and thirst; and often compose the stomach. If they fail, cups should be applied over the epigastrium, and if necessary a large blister should follow them. These combined means rarely fail to tranquillise the stomach. The bowels are sometimes torpid, when the evacuations are either clay-coloured, or of a muddy or tarry colour—conditions which indicate either a suspended, or a greatly vitiated secretion. Most frequently, however, the bowels are very loose, and the discharges serous, with a great quantity of small black particles in the bottom of the vessel containing them, resembling coffee grounds. This appearance is attributed by most southern practitioners to the oxydizement of the mercury which is so plentifully administered in the form of calomel. My own impression is that it is the result of morbid secretion from the liver and bowels. If the bowels are torpid, and the dejections are unnatural, the best combination I know of is, five grains of calomel, five grains of rhubarb, and one half grain of ipecacuanha, made into two or three pills, and given every four or six hours, so as gently to evacuate the intestines once or twice in the course of the day. Some prac-

titioners, in such cases, recommend pills of calomel, rhubarb, and aloes; but in a large majority of instances such a combination is too harsh, and calculated to excite great irritation in the mucous coat of the bowels. Others recommend enormous doses of calomel as 50 to 100 or even 200 grains, and repeat them often; and they assure us that they have done more good with it thus administered, than with all other remedies besides.

My own experience is opposed to the use of calomel in such large doses. I am convinced that small portions, say from five to ten grains, repeated every two, four, or six hours, according to circumstances, are better calculated to fulfil the indications for which it is administered. When given in very large doses, it often produces copious watery discharges; a consequence which might be very reasonably expected, when it is remembered that the liver and bowels are in an engorged condition, and of course not possessed of their natural susceptibility of impression; hence, I believe that such quantities of an agent like calomel become a great source of irritation.

It is extremely doubtful whether calomel, in any doses, is capable of producing its specific effect upon the liver, so long as it continues gorged with blood; and when reaction takes place, and this viscus becomes disburdened, small portions much more easily affect it, because they are much less apt to pass off by the bowels.

If the discharges are very thin, it is important to suppress them as soon as possible. For this purpose, I generally use the following combination: five grains of calomel, five grains of camphor, and from one half to one, or, if necessary, two grains of opium made into pills, and given every four or six hours, according to the copiousness and the frequency of the discharges. The above means, thus combined, are admirably calculated to restrain the bowels, to unlock the liver, and, at the same time, to determine to the surface. Having attended to the alimentary canal, the most important indication which demands our attention is to restore the lost balance of the circulation, by the adoption of every revulsive means in our power.

In the worst cases, the pulse is as small as a thread, sometimes imperceptible, and the whole surface is as cold as ice, attributable to a complete recession of the vital fluid from the extreme vessels, and to the engorgement, and consequent oppression of nature's calorificator, the lungs, and unless these conditions can be soon overcome by means calculated to equalise the circulation, nothing can effect any good.

What are the best means for accomplishing this paramount object? The views of authors, and practitioners in Europe and America are exceedingly discrepant in regard to this. We are informed by Armstrong, that the hot vapour bath, or the common hot bath, with bottles of hot water to the feet and hands, &c., together with hot ginger tea, pure dry brandy, and calomel and opium are incomparably superior to every other agent for the promotion of reaction.

With due deference to such distinguished authority, I would remark that

whilst I do not doubt the efficacy of the above treatment in the congestive diseases of the great metropolis of England, my experience convinces me that it is, in a large majority of cases, altogether inadequate to the removal of the genuine congestive fever which is incident to unhealthy localities in southern climates.

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In the first cases of congestive fever which I ever saw, I confidently relied on the treatment of Armstrong, because I knew of no better practice, and because it seemed to be altogether consonant with reason to give internal stimulants and apply external heat. The conclusion to which my observations have led me is, that this treatment is adequate to the restoration of the lost balance of the circulation, only in those cases which are occasioned by common causes; or in the *mildest* cases of pure congestive fever. In all the worst cases of this disease which have come under my notice, the hot bath and most diffusible stimulants have done injury rather than good, the patients appearing, generally, more relaxed and oppressed after they had been used. The remedy which I estimate above all others in the treatment of congestive fever is the affusion of cold water. My own comparatively limited experience, and the ample experience of many intelligent practitioners in the South, sustain me in the declaration that the affusion of cold water upon the naked body, is capable of producing the most beneficial effects; and in a large majority of even the most malignant cases, of inducing complete and permanent reaction. I acknowledge that when I first used this potent and novel agent, I rather distrusted its propriety, because I could not very well understand how cold applied to a surface, already as cold as ice, could effect any good purpose. But no sooner had I tried it and witnessed its effects, than I became convinced of the erroneous view which I had taken of its *modus operandi*, and which had deterred me from adopting it sooner. So well am I assured of its invaluable efficacy as a powerful excitant to the nervous system, that I now feel no more hesitation in its adoption, than I do in the use of the lancet in inflammatory affections; for the principle upon which it operates, is just as obvious to my mind.

Who would hesitate to dash cold water on a patient who was overwhelmed by the effects of opium? Surely no practical medical man would, if he knew its efficacy. Why? Because it is known to be capable of arousing and sustaining the oppressed nervous system by the stimulant impression which it makes upon it. Why then should there be a doubt about its applicability to a disease which we believe to be dependent upon a poison which oppresses and paralyzes the whole nervous system? The analogy as regards the condition in the two cases is perfectly just; and the principle on which the remedy acts is identical. That this is the fact, its almost universal effects abundantly testify.

The modes of application which I have adopted, are the following:—Have a broad plank placed upon two chairs, at a convenient distance apart, and place two vessels of hot water on each side, corresponding with the feet

and hands; then strip the patient and lay him on his back, on the plank, with his extremities in the hot water, and having at hand twenty or thirty gallons of spring water, or what would be better, water made colder by ice or salt, pour the water from a pitcher, in a full and rapid stream over the chest and abdomen. The advantage of this mode is, that the cold is directly applied over the most common seat of congestion, whilst the circulation is invited to the extremities by the hot water.

The second mode which I adopt, particularly in cases where the brain and spinal marrow are the chief seats of congestion, is to place the patient upon a blanket on the floor, and cause him to turn upon his side, and dash cold water as forcibly as possible over the head, and down the spinal column. This method is often the most effectual, because its influence is more immediately felt by the great nervous centres. Having applied the water, the patient should be quickly wiped and placed in bed, and be covered with two or three blankets. I have sometimes had the patient surrounded with hot stones, or bottles filled with hot water, after being placed in bed; but I am now satisfied that it is improper to do so, on account of the relaxing influence of the heat, and the debilitating effects of the copious perspiration induced by it. Instead of heating the patient, I cause him, as soon as he has received the cold dash, and is placed in bed, to be extensively and forcibly rubbed, either with dry mustard, flour, or salt, or with spirits of turpentine.

Under the combined influence of these agencies, reaction if at all possible, soon ensues; the surface rapidly recovers its natural temperature; the pulse from being quick and thready, becomes fuller, softer, and more regular; the respiration becomes easy and regular; the countenance becomes fuller, and more animated; and from insatiable thirst, and uncontrollable restlessness, the patient often experiences so much relief, that it is not uncommon for him to fall into a quiet and refreshing sleep, from which he awakes greatly improved.

The effects of the cold dash are, frequently, permanent, and complete reaction takes place, followed by rapid convalescence. In many instances, however, the effects of the first effusion subside, and the patient relapses into his former condition of coldness, restlessness, and insensibility. In such cases, it is proper to repeat the affusion, until complete and permanent reaction takes place, which may be confidently anticipated in a large majority of even the worst cases, provided it is applied sufficiently early.

Unfortunately for the reputation of this invaluable remedy, it is deferred too long, and most generally, resorted to only as a dernier resource; in consequence of which, the system loses all susceptibility of its impression; or some vital organ or organs become irreparably injured, and hence its use proves abortive.

There is no just reason why its adoption should be delayed. If it is capable of producing such salutary effects in the latter periods of the disease

when the vital principle is almost extinguished; how much more triumphant would be the success attending its use at an earlier period, when the vital organs, most generally, are not seriously injured, but only burdened with an undue quantity of blood, and when the susceptibility of impression is but little impaired?

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As auxiliaries to the cold affusion, I generally apply cups along the course of the spine, over the epigastrium, over the right hypochondriac region, or over the bowels, according to the indications: and at the same time have warm mustard plasters applied to the extremities, and over the different seats of congestion; or have the whole surface well rubbed with strong mustard flour. I have sometimes derived considerable benefit from the application of a narrow mustard plaster along the whole course of the spine.

When, however, there are strong marks of cerebral congestion, a blister to the back of the head, and over the cervical portion of the spine, is decidedly preferable. Diffusible stimulants seem to be indicated; and I usually indulge the patient with occasional portions of any of them which appear to agree best with the stomach. Brandy and almost all the common spirituous liquors, in most instances which have come under my observation, appear to increase the oppression and sickness of the stomach. Good porter is far preferable to all other internal stimulants, and patients are, generally, very fond of it.

If we succeed, by the above means, in producing complete reaction, what course of treatment should be afterwards pursued? If the reaction is moderate, which is most usually the case, all that will be necessary will be to administer mild aperient and alterant medicines in combination, in order t regulate the bowels, and restore the biliary and other secretions to a healthy condition; and at the same time remedies calculated to sustain the weakened powers of nature, and to prevent the recurrence of the paroxysm, to which there is always a great liability. The combination I use with the view to the fulfilment of the first indication is from three to five grains of blue mass, five grains of rhubarb, and a half grain to one grain of opium, every six or eight hours, until the secretions become of natural colour and consistence. To fulfil the second indication, I give from ten to twenty grains of quinine, combined with from five to ten grains of Dover's powder, every three or four hours. I generally confine the use of this combination to the forenoon, beginning with it at about four o'clock in the morning, and repeat it at eight and twelve; after which I substitute infusion of serpentaria, because there is commonly some tendency to excitement in the afternoon. For the same reason, if it is deemed necessary to administer aperient medicines, it should be given in the evening, as there is then much less liability to a depression of the system, from depletion in any form.

Sometimes, however, the reaction is violent, and unless it is moderated, the organs which have just been gorged with blood, and consequently weak-

ened and irritated, will rapidly become the seats of violent inflammation, which will be difficult of removal, on account of the inability of the system to bear depletion to any great extent. In such cases, it is necessary to apply cups over the various seats of congestion, administer calomel, and after it oil or infusion of senna with ginger, and repeatedly use either the cold or the tepid affusion. If these means fail, it may be proper to draw blood from the arm; but this should be done with great caution, as the power of resistance in these cases is generally so low, that not unfrequently high excitement is suddenly followed by symptoms of prostration. In cases where bloodletting seems to be demanded, the pulse should be very carefully watched, and upon the slightest manifestation of failure, the orifice should be closed; and, if necessary, a little wine, brandy, or porter should be given.

The above means are usually sufficient to reduce the excitement to a proper standard, when the alterant and aperient combination, together with quinine, can be administered, as above directed.

Suppose, however, that notwithstanding the diligent use of all the means which have been recommended for the purpose of arousing a patient from the collapse of congestive fever, he still continues for several days without any reaction, what should be done? I seriously apprehend that nothing can be effectual, as in such cases, generally, the injury done to the vital organs is irreparable. Still as we should never give up the ship until it sinks, and as sometimes patients recover contrary to all reasonable expectations of physicians and friends, it is our duty to continue, unremittingly, to apply every means which can possibly do good. Under such circumstances, I would chiefly rely upon the occasional use of the cold bath, large and numerous sinapisms, blisters, hot spirits of turpentine, calomel often repeated, large doses of quinine, and the free use of brandy or porter.

In conclusion, I will briefly notice the most appropriate regimen during the continuance of the disease, and in convalescence. It will be remembered that in congestive fever, the stomach and bowels are in an engorged and oppressed condition, and that of consequence, their important functions, digestion and chylification, are greatly impaired; hence it is very necessary to adapt the aliment to the weakened digestive organs; otherwise it is sure to become a source of increased irritation. Rice water, barley water, arrow root tea, well made gruel, or chicken water, are the best articles of diet, during the course of the disease, and also for several days after convalescence commences. After the strength of the digestive organs has somewhat improved, chicken broth, boiled milk, or milk and mush, would be altogether appropriate for a few days, after which the patient can return to his usual diet. For drink during convalescence, nothing is so good as old porter, as it is decidedly tonic, and as it generally serves to relieve the unpleasant sickness, and sense of sinking so often complained of by patients who have suffered from congestive fever.

ART. IV.—*Cases of Injury of the Head.* By A. B. SHIPMAN, M.D., President of the Cortland County, New York, Medical Society.

CASE I. *Fracture—Lesion of Brain—Death.*—FOX, ætat. 17, while riding a horse at a race in Homer, in this county, on the 20th of August, 1833, was thrown, and the left side of his head struck upon the hard road. He was taken up insensible, a surgeon sent for, Dr. Lewis Riggs of Homer, who bled him on the spot. There was a small wound in the scalp at the left side of the head, and an abrasion of the cuticle on the forehead, with extensive ecchymosis of the eyelids and around the eyes. He remained insensible for some hours; but in the evening he was rather restless with delirium.

I saw him on Friday evening, the 22d, the third day from the receipt of the injury, in consultation with Dr. John Lynds of Homer, who had bled him and given him a cathartic the day before. He had been restless most of the time with stupor; at this time he was rather comatose, but could be roused to take drinks and medicines; restlessness; occasionally stertorous breathing; involuntary stools and urine; pulse regular in strength and frequency; no paralysis or fever; skin cool and natural. The pupil of the left eye (the side injured) greatly dilated, yet slightly contracting on holding a lighted candle near; right eye pupil natural; eyelids closed and greatly distended by ecchymosis.

*23d.* I again visited him, found him apparently better. Cold applications had been kept to his head, and blisters to his legs and between his shoulders. His senses had returned so as to enable him to converse with his friends, who had been sent for from a distance, calmly and rationally; he recollects how his injury was received; complains of no pain; in the afternoon relapsed into a drowsy state, with incoherent talking.

*24th.* Symptoms more favourable; pretty rational; stood upon his feet; no fever or pain; slight delirium in the evening.

*25th.* Remains in nearly the same condition as yesterday.

*26th.* Was bled, when he became worse almost immediately; he sank into a comatose state; the surface became cold and the face sunken; the ecchymosis in great part disappeared from the eyelids; the breathing laborious. He continued gradually to sink, and expired at 5 P. M., on the 28th, just one week from the injury.

*Autopsy* 12 hours after death, in the presence of Drs. Boies, Lynds and Bradford. Very little blood was found in the scalp; the left temporal muscle was filled with a coagula of effused blood, and under the pericranium, near the seat of the wound, there was also suffused blood. On removing the skull cap, a fissure was discovered extending from the upper part of the frontal bone, on the left side, through the superciliary ridge and through the orbitar process, across the suture connecting the lesser wings of the sphenoid

bone, into the foramen lacerum of the orbit; another fissure extended across the orbitar process to the christi galli of the ethmoid bone, then downwards, terminating near the anterior clinoid process, in the foramen lacerum near the termination of the other fissure, leaving a triangular portion of bone entirely insulated and depressed about one-eighth of an inch. Corresponding to the perpendicular fissure, there was a laceration of the dura mater, two inches in length, and a wound of the brain of the same length and three-fourths of an inch in depth, in the anterior lobe of the left hemisphere, about an inch and a quarter from the falx, and parallel with it. On each side of the fracture the dura mater was separated from the bone with extravasation between it and the bone, to the amount, perhaps, of two ounces. There was also some extravasation in the middle fossa of the skull on the opposite side. The sockets of the eyes also were filled with extravasated blood. The wound in the brain was filled with coagula and disorganized brain broken down into a pulp. The laceration of the dura mater and lesion of the brain were produced by the fractured edge of the bone being driven inwards by the force of the fall, but springing back, by its elasticity, to near its natural state. There were no marks of inflammation to be discovered in any portion of the brain; the vessels of the pia mater slightly injected; no suppuration or coagulable lymph; the parts, on inspection, appeared like a wound of very recent occurrence.

The diagnosis in this case was not so perfectly clear as might have been supposed from the degree of injury discovered in the post mortem examination. The symptoms might have been the result of violent concussion, and when, on the fourth day, returning sense and consciousness took place and continued a portion of the time for three days, some hopes might have been reasonably indulged in that no fatal lesion had taken place. The extravasation most likely took place immediately after the injury, and it is rather surprising that so few symptoms of compression should have been present. The wound of the brain was enough, we should think, to have caused paralysis or some more disturbance of the functions of the optic nerve; but when he was rational, no such effect was discovered. The injury was of so grave a character as to prevent that degree of reaction necessary to the development of the inflammatory process. The last bleeding was unnecessary, and probably hastened the fatal termination of the case. No operation would have been of any service if the precise nature of the injury had been known.

Case II. *Fracture, with Depression—Recovery without an Operation.—October 15th*, 1833.—M. W., a young gentleman of the medical profession, was thrown from his horse during a violent shower of rain. He was but little stunned with the fall, remounted his horse and rode to this village, a distance of more than a mile. I saw him within a short time after the accident; found a wound on the left side of the forehead; the scalp was torn up in a triangular flap, extending to the cranium; the pericranium was also lacerated,

exposing the bone; a fracture was discovered, with depression to a small extent, as though made by coming in contact with a sharp stone; this was in the upper and left side of the frontal bone. He was able to sit up; while the wound was dressed, the hair shaved off, and the wound cleansed from the dirt and gravel, the flap laid down and retained with adhesive straps. There were no symptoms of concussion or compression, or any disturbance of the mental faculties; he rested well during the night, and in the morning, as his pulse was somewhat strong and full, he was bled, took a cathartic, and in three days rode four miles to his home, and recovered without any bad symptoms. The force which fractured the skull in this case was confined to a small point of the bone, and whatever injury there was, it was circumscribed; the depression was not sufficient to cause compression, and it is probable that there was not any effusion beneath the bone.

Case III. *Fracture, without Depression—Recovery without Operation.—September 15th*, 1836. George Martin, hostler, ætat. 21, was kicked by a horse upon the upper portion of the right side of the frontal bone; the scalp and pericranium was torn up from the bone the size of a crown piece, and also a piece of the external table of the bone the size of a shilling; a fracture of the bone also traversed the skull in a perpendicular direction and both above and below in the sound skin. He was at first insensible from the blow, but partially recovered his senses; was carried into the hotel and placed in bed. I saw him within an hour. He was drowsy and torpid, but could be roused to answer questions, quickly however relapsing into stupor; his extremities were cold; pulse slow; pupils dilated. Ordered bottles of hot water to his extremities, and a glass of warm brandy and water. In the evening, six hours from the time of the injury he was nearly in the same situation, except that he was rather warmer and the pulse somewhat more frequent. In the course of the night reaction took place with stertor and heat of the skin.

16*th*, 8 o'clock A. M. Bled him twenty ounces, which seemed to rouse him in some measure. Twelve o'clock, noon, as there was some stupor, with much reaction, he was bled again sixteen ounces; took a cathartic of jalap and calomel, which operated well by nine in the evening. He then became perfectly sensible, and the heat of skin and activity of the pulse subsided. The scalp which was torn had been placed back in its natural position, and the loose piece of bone removed, and the wound was now dressed with adhesive straps, with light dressings to the head; cold applications were also made use of, with sinapisms of mustard to the feet and arms.

17*th*. Got out of bed, dressed himself and walked down stairs. From this time he went on doing well, and resumed his labor without any unpleasant symptoms; the wound healed in a few days, and he never had any farther inconvenience while he remained under my observation for six months afterwards.

This was a strongly marked case of concussion, and from the length of time which it remained after reaction came on, must have led to the conclusion that extravasation had also taken place, demanding the operation of trephining. The promptly salutary effect of venesection was striking; had the trephine been resorted to the next morning after the hurt, and there were some symptoms indicating its employment, no cause of compression would have been discovered, and the danger would have been increased. The injury was probably done with the cork, and struck the bone in a glancing manner; which chipped off a piece of the outer table of the bone and caused the fracture. The force of the blow was confined to a small surface, or the result would probably have been more serious.

Case IV. *Fracture, without Depression—Recovery without Operation.* —*November 28th*, 1836. Mrs. Stafford, of Virgil, ætat. 50, was thrown from a wagon upon the frozen ground. She was taken up insensible, and carried home, the distance of a mile. I saw her in the evening four hours after the accident. She had partially regained her senses, and complained of violent pain in her head and jaws. Her friends stated that she was very cold when they first got home, and they had but partially succeeded in getting her warm when I arrived. The eyes were both closed by the ecchymosis, and on examining the head a small wound was found in the scalp on the left side of the frontal bone, which would admit the point of the finger; at the bottom of this wound a fracture was distinctly felt, which separated so as readily to admit the finger-nail; the scalp was much bruised, and infiltrated with blood over the left side of the head; pupils much dilated; pulse slow and feeble; complains of difficulty of swallowing; she can be easily roused, and answers questions rationally. Ordered her warm sling, with bottles of hot water to the extremities. In about two hours she became warm, with a stronger pulse. Venesection to eight ounces, when she fainted; gave a cathartic of calomel and jalap; cold applications to the head. During the night she was restless with slight delirium.

*29th.* Cathartic operated well; is stupid most of the time, but answers questions rationally when roused; no fever; complains of severe headache, and is very restless a portion of the time; starts frequently in her sleep; moans and grinds her teeth; face and scalp much swollen, and dark colored; pulse slow and full; skin and extremities warm; venesection, twelve ounces, after which she became faint.

*30th.* Considerable febrile action; had chills in the morning; pulse quick; skin hot; restlessness, and delirium; complains of no pain, but starts at noises, and moans; pupils of the eyes much contracted. Venesection twelve ounces; calomel to be followed by senna and salts; blister to each arm; ordered the head to be kept elevated, with cold iced water to be applied.

*December 2d.* Febrile action less than on the 30th, but still considerable; pulse more full and less frequent; bowels have kept acting for the last

thirty hours; is rational, but her friends say she was delirious most of the night; complains of pain in the head, neck, and jaws; pupils still contracted. Blister to the back of the neck and calves of the legs; cold applications to the head continued.

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*4th.* Found she had been feverish and delirious through the night with starting and picking at the bed-clothes; but is more calm in the day time; blisters drew well; less fever; pulse more natural; swelling of the face and eyes subsiding; pupils more dilated; but not more so than would be natural; has had strangury in a slight degree. Ordered the blisters to be dressed with epispastic ointment and lard. Continue the cold applications, and the general antiphlogistic regimen.

*6th.* Symptoms improved; less fever; no delirium since the 4th; some pain in the head; begins to call for more substantial food; has had strangury most of the time since the 4th, which she complains of more than anything else; blisters discharge freely. From this time she gradually improved without any alarming symptoms, and without any other treatment than a mild antiphlogistic course; the blisters were kept running for ten days longer; a low diet with an occasional laxative to obviate costiveness was all she required.

She has enjoyed her usual health since that time, with the exception of occasional attacks of headache—for which it has been necessary to resort to venesection and active cathartics. The dilated pupils at first, and the stupor and general torpor of the system, might have led to the fear that extravasation had taken place; and the early development of fever and inflammation which followed was of an alarming character; but the happy termination of the case renders it probable that no effusion of blood, at least of any consequence took place; but cerebral inflammation was unquestionably present to a certain degree. The strangury I hailed as a favorable omen, as I always do in cases of cerebral disease, having frequently seen most striking benefits immediately follow its appearance.

Case V. *Fracture—Trephining.—Death.*—David Robinson, of Virgil, in this county, ætat. 73, while in the woods felling timber, February 25th, 1835, received a blow from the fall of a tree upon the left side of the head. When picked up he was totally insensible; nor did he exhibit any signs of returning sense until he had been conveyed to his house, which occupied perhaps half an hour. Dr. Bronson was called, and on his arrival opened a vein, but obtained little blood. Soon after the patient regained his senses, was able to converse three quarters of an hour, when he relapsed into insensibility. I saw him 11 A. M. four hours after the accident; he was then comatose; could not be roused; breathing stertorous; pupils dilated and insensible to light; writhing of the body from side to side; slow feeble pulse; cold extremities; oozing of blood from mouth, ears, and nostrils. He had swallowed some warm sling before I arrived; on examining the head the scalp

was found detached from the left parietal protuberance, and the bone completely denuded to the size of the palm of the hand; on cleaning the wound with a sponge and warm water, and closely inspecting the bone, a small capillary fissure was found running across the bone in a perpendicular direction, and a little posterior to the middle of the bone. The ends of hairs which had been caught in the fissure, made it evident that the bones had been separated by the force which produced the fissure; there was a slight oozing of blood from this, but it could not be opened with the point of a knife. From the symptoms it was evident that extravasation had taken place, and that the operation of trephining was indicated, but from the size of the body which produced the injury, and the force with which it struck —the age of the patient, the probability that the fracture extended into the base of the cranium, and the injury, consequently, most extensive, all led me to give an unfavorable prognosis.

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It was finally decided to use the trephine which was applied to the upper point of the fracture and a piece of bone removed, when a coagula of blood was found beneath; as the opening was so small it was applied three times, and a large quantity of coagula removed. The dura mater was found widely separated and all the space filled with coagulated blood. I removed as much as possible, but it was found to extend down as low as the petrous portion of the temporal bone; and how much farther, I did not think it expedient to explore. After removing the coagula, the brain was observed to be collapsed; it did not fill the cranium by more than an inch upon the upper surface of the dura mater. The pulsations of the brain were very feeble and slow; the hemorrhage was profuse, probably from the rupture of the meningeal artery; and the cavity soon filled with blood of an arterial colour; the bone was very thick, nearly one-fourth of an inch. After the operation, the patient appeared more sensible, opened his eyes when spoken to, and answered some questions. He was placed in bed; bottles of hot water were applied to his extremities; a dose of croton oil was administered. The scalp was laid down over the opening, and loose dressings applied; the hemorrhage continued through the night pretty profuse; he never became perfectly conscious, but remained insensible most of the time until he died which took place the next day towards evening. As it was some distance from my residence, I was not able to make an autopsic examination. I think the hemorrhage in this case would have proved fatal independent of the extravasation; by appropriate dressing the blood could have been confined in the cavity of the cranium, and there suffered to form coagula, when compression would have been the result, either of which would have been fatal. The stages of concussion and compression were distinctly marked in this case: the first went off within three quarters of an hour, and was succeeded by an interval of consciousness, which lasted three quarters of an hour, then the extravasation took place as soon as sufficient reaction was present to throw out blood from the ruptured vessels.

Case VI. *Compound Fracture with Depression—Operation.—Recovery.*—On the 5th of December, 1837, I was requested to visit George Ochs, of Virgil, in this county. The messenger informed me that in a quarrel with his brother the day before, he had been struck a blow on his head, but for certain reasons best known to his friends, the accident had been kept secret from the neighbours up to that time. On arriving there at 3 P. M., twenty-five hours after the injury, I found the patient a strong, athletic man, ætat. 29, in bed, with a handkerchief over his head. He was labouring under headache, confusion of ideas, restlessness, writhing of the body, and scowling of the countenance; he was able to converse a little, but has no distinct recollection of being injured. On questioning the family, it was ascertained that the blow was given with a heavy mallet. The first blow was on the forehead which knocked him down, when another was given on the side of the head which rendered him insensible for a few minutes, when he recovered so as to be able to walk from the barn to the house with some assistance; he had been restless during the night; had slept but little, and was delirious a portion of the time. On examining the head, two wounds were found, one on the forehead which penetrated to the bone, and one on the left side, over the superior and posterior angle of the parietal bone. This wound was two inches long, and was widely open, and on passing the finger into the bottom of it a fracture with great depression was discovered. After shaving the scalp, the wound was enlarged to ascertain the extent and situation of the fracture. I found the depression corresponding with the sharp corner of the mallet, depressing the bone to the depth of three-fourths of an inch at least. It being decided best to raise the depressed portions of bone, with the assistance of my brother, Dr. J. A. Shipman, the crown of a small trephine was applied, and a portion of bone removed from the edge of the depression; then with the help of the elevator and forceps, ten pieces of bone were removed from their wedging position, and one sharp spicula from the inner table of the skull was driven through the dura mater into the substance of the brain to the depth of half an inch; this was also carefully removed with the forceps. There was much hemorrhage from an artery within the cranium to the extent of at least three pints. The patient made no complaint during the operation, except when the incision was made in the scalp, when he struggled and cried out. The wound was next sponged, and the flaps of the scalp laid down and dressed with adhesive plaster, a night cap put on, the head elevated, and a cathartic of calomel and jalap administered with directions to apply cold to the head if heat followed.

*6th.* Found that he had rested but little through the night; complained of pain in the head and frequent startings; pulse regular and full; considerable heat of skin; intellect clear; bowels not yet moved; gave ol. ricini; ordered cold to the head; room darkened, and head elevated.

*7th.* Cathartic operated freely last night; fever, headache, thirst, and foul

tongue; pulse strong and full. Bled him twenty ounces, and ordered antimonials with cream of tartar; low diet of gruel; blister to nape of the neck; sinapisms to feet and ankles; cold applications of iced water and spirits to head.

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*8th.* Better; headache less; fever gone; tongue clean; wound suppurating profusely. Directed cathartic pills; continue the cold applications and antimonials.

*10th.* Still improving; wound suppurating copiously; still kept him on low diet; is very clamorous for food; wants meat. From this time he improved daily; and in four weeks from the time of the injury, he rode eight miles to visit me. The wound was nearly healed; he had nearly recovered his flesh and strength, and his health was good as before the injury. He has continued to enjoy his usual robust health ever since.

From the extent of the depression and the actual presence of a foreign body in the substance of the brain, compression in this case might have been expected to a much greater degree than was actually present. There was no stertor; no coma; no paralysis; the patient was able to converse most of the time before the operation. To the mildness of the symptoms from the time of the injury may be attributed the neglect of the friends in calling medical aid sooner, hoping that no public exposure of a disgraceful family quarrel would be necessary.

The use of the trephine here might fall under the ban of censure, perhaps, from that class of surgeons who are great sticklers for restricting its use to such cases only as present strongly marked symptoms of compression, without regard to the strict situation of the parts injured; severe inflammation of the brain and its coverings in all probability would have supervened, and the fragment of bone in the substance of the brain entirely detached from its connections, acting as a foreign body, would have produced great irritation, if not suppuration or ramollissement, ending in certain death. Inflammation to a certain extent, I think, came on, but it was local, and confined to a small extent of surface, and promptly subdued by the early measures adopted to arrest its progress.

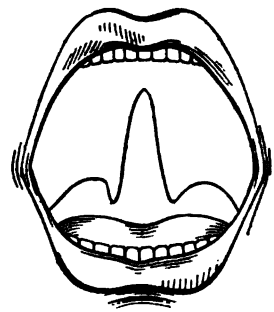
Cortlandville, *February* 10, 1841.

ART. V.—*Cases of Cleft Palate.* By THOMAS D. MÜTTER, M. D., Professor of the Institutes of Surgery in Jefferson Medical College.

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CASE I. In the spring of 1840, I was requested to attend Mr. Nathaniel L. Dickey, of Philadelphia, who was desirous of having an operation performed for a congenital division of the velum palati and posterior third of the palatine processes of the palate bones. The appearance presented by the parts involved in the deformity is shown in the annexed cut. (Fig 1.)

Fig. 1.

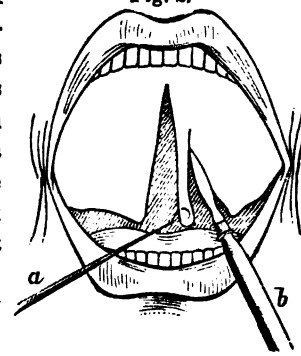


The age of the patient, 25 years, his excellent general health, the favorable season of the year, his intelligence, and, above all his anxiety to be relieved of the distressing accompaniments of the defect, determined me to perform the operation of velosynthesis or staphyloraphy at once. He was accordingly placed upon a preparatory treatment, (that is, so far as accustoming the parts by frequent touching to the presence of foreign bodies,) and after this end was accomplished, which required some days, a mild purgative was administered, and the next morning the operation was performed, in the presence, and with the assistance of Drs. J. Randolph, Norris, and Anderson, and several of my private pupils. The patient was placed in a chair of the ordinary height, and his head firmly supported against the chest of an assistant. The upper portion of the trunk was also enveloped in a sheet by which his arms were secured, and his dress protected from the hemorrhage.

Placing myself in front, a little to one side of the patient, so as to offer as little obstruction to the entrance of light into the mouth as possible, and the head being thrown back to favor the same object, he was requested to open his mouth and keep it in this position as long as he was able.

The first step in the operation was then commenced by Dr. Randolph, (who stood on my left), inserting a sharp hook (see Fig. 2, *a*,) into the most dependent angle of the left margin of the cleft, by means of which, with a slight tractive effort, he was enabled to make the whole line of margin tense. I then inserted the point of a *thin double-edged knife*, (see Fig. 2, *b*,) (the blade of which was one inch, and the handle six inches in length,) in the most dependent part of the margin, about a line from its free edge, and cut rapidly from *below, upwards*, inclining the knife so as to reach the apex of the cleft.

Fig. 2.



When the apex was reached, the knife was changed from the right hand to the left, and Dr. Randolph passing the hand which held the hook, across and a little above the face of the patient, made pretty firm traction upon the slip of mucous membrane previously separated by the first cut, and which still remained transfixed by the hook; by this means the right margin was made tense. I then completed the denudation by cutting rapidly from above, downwards. The denudation of the margins, occupied about a minute and the patient was then allowed to rest. The hemorrhage was slight and easily controlled by gargling with cold water, and after the lapse of a few minutes, the second step of the operation was commenced, and it was in this the most difficult of the three, that we found the vast superiority of a simple contrivance over all the complicated "*portes*" with which I came prepared. Great convenience was also derived at this period of the operation from having small pieces of fine sponge firmly tied upon long probes, with which the fauces were readily reached, and the clotted blood mopped away.

The head being placed and firmly supported as before, and the mouth held open by the volition only of the patient, I passed a small curved needle, armed with a well waxed double silk ligature, and firmly held in the grasp of Physick's forceps, through the most dependent part of the left margin of the cleft, carrying the needle from before backwards, and inclining my hand to the left of the mouth, so as to throw the point of the needle, after it had transfixed the tissues, into the middle of the cleft, (see Fig. 3, *a*.) As soon as it was visible, Dr. Randolph seized it with a pair of long forceps, (see Fig. 3, *b*,) and the clamp of the porte being at the same time relaxed, by which the grasp upon the needle was kept up, the latter was loosened, and at once withdrawn from the mouth. The same needle was immediately replaced in the porte, and the latter being held in the right hand, instead of the left, I introduced the needle on the right margin of the fissure, at a point as nearly opposite as possible the little wound in the left, passing it from behind, forward, (see Fig. 4, *a*.) As soon as its point was visible, it was seized and drawn through, and thus the first ligature was passed. The patient was then allowed to rest for a few minutes, and then the second

Fig. 3.

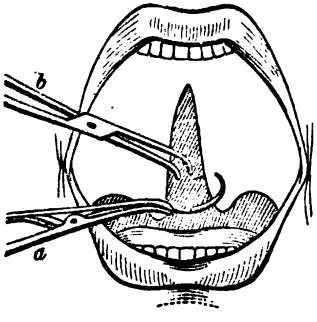
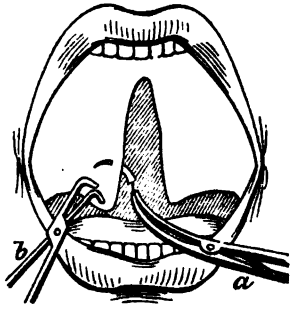



Fig. 4.



ligature was passed in the same manner; a third and a fourth were also required, and between the introduction of each, there was a respite of a few minutes allowed, during which the patient gargled with cold water, took a little wine and water, and had the blood mopped away. The whole were passed in about fifteen minutes, and as the needles were detached from each, their extremities were carried out at each corner of the mouth, and held separate by assistants.

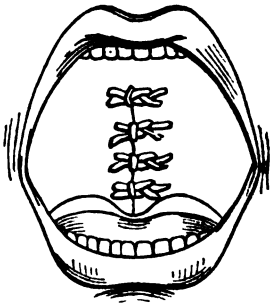
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Fig. 5.



The needles were all introduced from two to three lines from the margins. (See Fig. 5.) The third and last step was then undertaken, and we commenced it by tying the ligature first introduced, or that nearest the uvula. The first knot was easily made by crossing the ends of the ligature, wrapping them around the ends of the forefingers of each hand, and then passing the fingers as far back as possible. The edges came together beautifully, and with but little strain, by slowly carrying the fingers outward, and then the second knot was made. While the ends were crossing for this knot, Dr. Randolph grasped the first with a pair of forceps, and held it until the second was completed. Lastly, the ends of the ligatures were cut off close, and the patient allowed to rest for a few minutes. (See Fig. 6.) The others were knotted in the same manner, and in thirty-five minutes from the commencement of the operation, the patient was in bed.

Fig. 6.

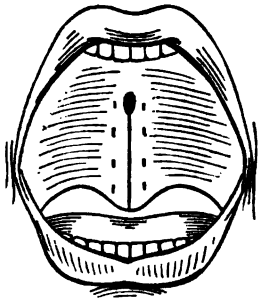


It will be seen from this report, that the operation of staphyloraphy, under ordinary circumstances, requires for its performance merely a knife, a hook, a pair of long forceps, a simple porte and needles, with waxed ligatures, scissors, sponges on handles, wine and water, cold water, towels, and two or three assistants. Other aids are occasionally employed, some of which will be referred to directly.

The subsequent treatment was such as is usually recommended in similar cases. For example, the patient was ordered not to speak, cough, sneeze, &c., and to take no nourishment except a little whey or barley water, a few drops at a time. On the fourth morning, it was found that one of the ligatures had given way, and that there was some disposition to slough. This was arrested by touching the part with solutions of argent. nit., grs. ij; aq. font. ℥j; of chloridi calcis, ʒj; aq. font. ℥iv; and of kreosote, gtt. vi; aq. font. ℥j. The other ligatures were taken away on the 5th, 6th, and 7th days, and in three weeks time, the cure was complete, with the exception of a small open-

ing at the upper part of the wound, caused by the separation of the ligature, but this opening, from the use of argent. nit., and the efforts of nature, is now not larger than the head of a pin.

Fig. 7.



*Remarks.*—The operation of staphyloraphy, uranoraphy, velosynthesis, kyonoraphy, uraniskoraphy, (for all these terms have been applied to the operation in question,) has been so frequently performed in Europe, and this country, (with varying success, it is true,) that the report of another successful case will be received by the profession as a matter of not much interest. When we recollect, however, that the operation is considered by all, as one of the most delicate in surgery, rarely succeeding perfectly, and occasionally causing the death of the patient, every thing calculated to simplify its details or ensure success should be considered of importance and arrest the attention of the operative surgeon. Nothing proves more conclusively the delicacy and difficulty of the operation than the immense variety of instruments invented for its performance. Ever since the period when the dentist Le Monnier first essayed to close "a congenital deficiency of the palate from the veil to the incisors," surgeons have been occupied in devising methods by which the operation might be performed with ease to the surgeon and with comparative ease to the patient, and yet it must be confessed that up to the present moment no one plan of operating can be said to accomplish these ends much better than another; and obviously because nearly every one requires for its performance instruments exceedingly complicated and often but illy adapted to the purpose for which they were invented. We will not waste time in enumerating, much less in describing the various instruments, and refer all who wish information upon the subject to the works of Velpeau and Froriep and the American Journal of the Medical Sciences, in which nearly all of importance are described or figured. It appears to me that the first thing to be done in our attempts to simplify the operation is to show by positive results that it may be performed with more rapidity and a greater prospect of success by instruments such as I have described, which are always at haud, or even by others more simple, than with the assistance of all the special and complicated ones that have ever been invented. As a case in point I may remark that Mr. D—— was but thirty-five minutes in the operating chair, and at least one half of this time he was resting, which proves that all the steps of the operation may be completed in from fifteen to twenty minutes. Now I have seen the best operators from one hour and a half to two hours and a half in effecting the same thing, and the delay was chiefly to be attributed to the instruments employed. All the clamps to seize and hold the edges of the fissure, the crooked scissors to pare away the edges, the complicated "portes" for the needles, and "serre

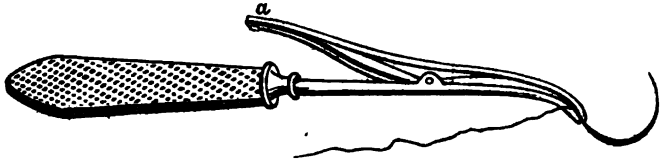
nœuds" for tightening the knots of the ligatures, corks to hold open the mouth, &c., &c., may, in most cases at least, be dispensed with, and not only this, but dispensed with to advantage.

Dr. N. R. Smith of Baltimore has performed this operation with a long lance-shaped needle, furnished with a notch for the reception of the ligature, a common bistoury, and a pair of forceps. The only objections to the needle in question are first, its being mounted on a straight handle, which renders it more difficult to introduce its point at the proper places; and secondly, the difficulty of disengaging the thread, which may be drawn back along with the needle in the attempts of the surgeon to disengage the latter from the margin of the palate. Notwithstanding these objections, however, it served an excellent purpose in the hands of the skilful surgeon by whom it was invented.

In using the forceps and needle of Dr. Physick I would suggest an alteration in the shape of the needle generally employed, which is not sufficiently curved for the operation of staphyloraphy, and presenting sharp edges is apt to turn in the forceps used to disengage it from the pair in which it is held.

The needle I now use is more curved, half an inch in length, and mounted on a cylindrical neck, a portion of which is held in the grasp of the porte, and the other part made rough is intended to be grasped by the forceps of the assistant. The cutting edge of the needle being wider than the diameter of its neck, will make an opening large enough for the easy transmission of the ligature.

The forceps too may be improved by causing them to close with a spring instead of a catch, such as they are usually furnished with. The "porte" of Schwerdt, of which the accompanying cut conveys a very good idea, and




which is figured in the large work of Froriep, answers a better purpose than Physick's forceps, (to which it bears a strong resemblance in principle at least,) in consequence of the facility with which the needle may be disengaged. By simply depressing the branch *a*, the blades open, and the needle falls out. The spring should be strong so that some force will be required to depress it. If too weak, the needle is held so loosely, that it will be almost impossible to make it pass promptly through the yielding edges of the velum.* The forceps to be used by the assistants, should be made

* When the porte of Schwerdt is not at hand, Physick's forceps, or the porte of Roux, or better still, the porte of Professor Gibson may be employed. The latter instrument is very simple, and well calculated for the operation in question. If I am not mistaken, Dr. Wells, of Columbia, S. C., a most excellent surgeon, was the first to employ Physick's

with a curve, and have their blades narrow, so that the needle may be grasped by its neck with facility.

Dieffenbach, who certainly deserves more credit than any other surgeon for his success in this operation, not even excepting Græffe and Roux, its accredited originators, prefers lead to silk ligatures, and assigns some very plausible reasons for the preference, but the difficulty of obtaining good ones, the irritation which their sharp extremities keep up upon the tongue, thus exciting cough, and the success which has attended the use of the silk, all lead me to prefer the latter. Most surgeons, and all who know much about the operation in question, have laid down a series of rules, by which we are to be governed in its performance. As reports of rare and successful cases, are intended more for the benefit and instruction of the very young, than for the information of the older surgeons, we will conclude this section with a résumé of the rules referred to.

*First*, The operation should be divided into three stages—

1. The denudation of the edges of the fissure.
2. The introduction of the ligatures.
3. The approximation of the edges, and tying the ligatures.

With reference to the first of these stages, I may remark, that some prefer introducing the ligatures before the incisions are made, as the blood prevents, to a certain degree, our ascertaining precisely the spot at which the needle enters, but in all the cases which I have seen, the slight hemorrhage which follows the section of the edges, is readily checked by causing the patient to gargle with a little cold water. Mr. Alcock attributes the partial failure in one of his cases, to the denudation of the edges before the passage of the ligatures, in consequence of which some moments elapsed between the denudation and approximation of the margins of the fissure. This short interval could not, however, exert any influence upon the tendency to re-unite, which all denuded tissues possess, when they are closely approximated. Many examples of union by the first intention, even when several minutes have elapsed before the adjustment of the separated tissues could be accomplished, might be cited, were it necessary to prove the assertion just made.

When the ligatures are introduced before the edges are denuded, there is always danger of cutting them while this is being done, and should this occur, the operation will of course be rendered more tedious, and necessarily more painful.

Again, when the edges are previously denuded, the sutures may be inserted more readily at the proper distances from the margins, and thus the liability to "cut out" be much diminished.

forceps in an operation upon the palate. In his case the opening was made by a reed being thrust forcibly through the roof of the mouth. The edges of the wound were brought together immediately after the reception of the injury, and reunion by the first intention readily took place.

In freshening the edges, we should always commence at the most dependent point. By making the section from below upwards, the blood will not obscure the parts, and we are thus enabled to see the tissue through which the knife has to pass, in its natural state.

In the introduction of the sutures, we must always, for obvious reasons, commence at the inferior portion of the wound, and be very careful to cause the points of entrance on one side, and exit on the other, to correspond as nearly as possible. Attention to this will prevent a puckering of the wound, and, as a consequence, its irregular union. All the sutures must be passed before we attempt to close the fissure; and in tying them, it is unnecessary to use any instrument for tightening the knots; the surgeon's fingers being all that is required. After the first knot is made, the surgeon passes his forefingers out towards the cheeks, and this tightens the ligature previously wrapped around each; the assistant then may seize the knot in a pair of common strait forceps, and hold it firmly until the second be tied. Both ends of the ligature are then cut off close, so as to prevent their irritating the fauces, and causing cough. Caution must be observed in this part of the operation, not to tie them too tightly, lest they produce ulceration, or "cut out."

*Age.*—Surgeons, with but few exceptions, have come to the conclusion, that the operation should never be attempted until the individual is old enough to appreciate its difficulties and dangers, as well as the benefits likely to ensue from it when success attends our efforts. It is hardly safe to undertake it before the sixteenth or eighteenth year.

*Health.*—The state of the general health should always be taken into account before the operation is decided upon. If the patient be feverish or too much debilitated, troubled with a cough or sore throat, or enlarged tonsils, or suffering from derangement of any of the important chylopoietic viscera, nothing should be attempted until these difficulties are removed. It is supposed by some that fluor albus, chronic ulcers, and strumous inflammations, from their debilitating influence by which the adhesive process is materially interfered with, particularly contraindicate the performance of an operation the success of which so essentially depends upon the speedy union of the surfaces in apposition.

*Season.*—Although the operation may be performed at any season of the year, yet, when we have it in our power to select the period, we should always decide upon that least liable to atmospheric vicissitudes. *Mid-winter* or *late spring* probably answer best. When the weather is very warm the patient bears confinement badly, and there is of course more risk of inflammation. In early spring or autumn the changes are so rapid and occasionally so severe as to cause colds and cough, the occurrence of which in the patient would effectually prevent the success of the operation.

*Preparation of the Patient.*—Some surgeons lay much stress upon the preparation by medicine, diet, &c., of the patient, but unless there exist some

positive indication for the employment of such measures, they are for the most part useless. If he be in good health, the administration of a purge the day before the operation is to be performed will be all that is required. Much benefit, however, will result from frequent introduction into the fauces and between the edges of the cleft—the instrument to be used, or the finger of the surgeon or of the patient himself, by which the parts become, as it were, *familiarised* to the presence of foreign bodies. Unless this be attended to, much difficulty will be experienced during the operation from the efforts of the patient at retching or even vomiting occasioned by the irritation of the fauces. When the parts have been daily accustomed to some similar impressions, they soon become so insensible as to bear being touched without much inconvenience.

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*Difficulties.*—The difficulties accompanying the performance of this operation have been, as I have already hinted, vastly magnified. But under the most favorable circumstances and with the most simple instruments, it is one not to be entered upon lightly, as presenting *no difficulty*, and requiring but little skill for its successful performance. Not the least annoying circumstance connected with its performance is the constant disposition on the part of the patient to *close his mouth.* To obviate this, some surgeons employ bits of *wood* or *cork*, grooved above and below, so as to admit the upper and lower teeth and hold them steadily. These are placed between the last molars, and when the patient is restive serve a very good purpose; but it seems to me, like most of the "apparatus major" with which the operation is burthened, they in most cases at least may be dispensed with, and as they occupy a considerable space where room is much wanted, it will be well whenever the patient is trustworthy, to discard them entirely.

*Motion of the Tongue.*—Another difficulty is the motion of the tongue. As it is impossible to perform the different steps of the operation unless the cleft is readily reached, and as the constant motion of the tongue, uncontrollable in some cases, by any voluntary effort of the patient, effectually prevents this, surgeons have contrived a variety of instruments for keeping it out of the way. An oval plate mounted on a handle, so curved as to avoid pressure upon the teeth, has been used by Professor Gibson, and serves a very good purpose when such a thing is required. But when the patient has been accustomed by repeated trials to keep the tongue quiet while the mouth is held open this difficulty may be considerably diminished. In the three operations upon the palate now reported, it was unnecessary to use any thing to fix the tongue, the patients having been previously prepared for the operations by the efforts already referred to.

*Breaking of Needles.*—When the needles employed are badly tempered it may happen that the pressure of the forceps will cause them to snap. This happened to a distinguished surgeon who recently attempted the operation upon a very unruly patient. The needles in consequence of the fracture

were swallowed and some difficulty occurred in their removal from the œsophagus, although this was ultimately accomplished.

*Hemorrhage.*—Some have expressed much dread of the hemorrhage occasioned by the freshening of the edges of the cleft, and many dwell upon the annoyance experienced during the introduction of the ligatures, from the blood covering the parts and thus preventing to a certain degree the proper location of the needles. So far as I have been able to judge from my own cases, and from those of some of my friends, this difficulty is one of minor importance and the oozing of the blood may be readily checked by cold and astringent gargles.

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*Difficulties after the Operation.*—In order that reunion by the first intention may be accomplished it is absolutely necessary that the edges of the wound be kept in a state of rest. This can only be effected by cautioning the patient against speaking, coughing, sneezing, clearing the throat and swallowing too frequently, but notwithstanding every precaution it sometimes happens that our efforts are frustrated by wilfulness on the part of the individual, or by accident.

For example, in the case of Mr. D——, who in every way was a most excellent patient, talking during sleep caused the detachment of one of the ligatures on the second night after the operation was performed. From the irritation of the fauces, patients are very apt to "clear the throat," and by this effort the ligatures may be detached, and the same cause may occasion uncontrollable cough. In either case injections of laudanum repeated until the system is fully under the influence of the anodyne, answer a better purpose than any other remedy.

*Thirst.*—Thirst is a very troublesome circumstance, against the indulgence of which all the philosophy of the patient must be brought to bear. Great relief, however, will be experienced from wetting the roof of the mouth with some demulcent liquid. A small piece of sponge attached to a quill or stick will be found useful for the application of the liquid employed. The patient on no account should be allowed to swallow a large mouthful of water or any thing else; a teaspoonful of water may be allowed occasionally to trickle down the throat.

*Hunger.*—Some patients are very restive under the rigid abstinence from food to which for some days they must be subjected. The best article of nourishment is thin calf's-foot jelly, or what is known as "cold custard" or "slip." Either of these articles may be given after the second day, but it is best to prohibit any thing until after the third.

*Griping.*—From the quantity of blood usually swallowed during the operation, patients are often severely griped. For this symptom the best remedy is an enema, repeated every hour until the blood is brought away. Should it continue for any length of time or be exceedingly severe, an anodyne injection must be employed.

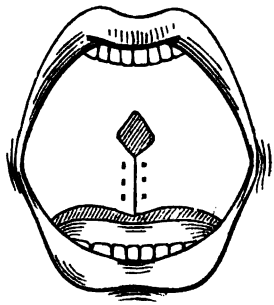
*Inflammation of the Fauces.*—It not unfrequently happens that inflammation follows the performance of this operation, and may be so severe as to cause great pain, or extending down into the lungs occasion the death of the patient, as was the case with the daughter of Lord Lyndhurst, operated upon by M. Roux in 1836. Should this unfortunate complication make its appearance it must be controlled by the most active antiphlogistic means, such as venesection, leeches to throat, blisters to the same part, and purgative enemata.

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It would not of course be proper to administer cathartics; should cough accompany the inflammation it must be kept down by opiates.

*Sloughing.*—When the inflammation runs high sloughing is almost sure to take place, the ligatures cut out, and the operation almost to a certainty fails, either entirely or in part. As soon as the slough is perceived it should be vigorously attacked by all the remedies calculated to arrest this action. I know of no better agents, however, than a solution of argent. nit. grs. ij; aq. font. ℥i; or a mixture of kreosote gtt. vi; aq. font. ℥ij, applied by a camel's-hair pencil three or four times a day.

Fig. 9.



*Failing to Unite throughout.*—From sloughing, cutting out of ligatures, or a want of proper action in the edges, the fissure may be but partially closed, as is seen in the accompanying figure. When such a termination of the operation occurs, our work is but half finished, and the holes must be patched or healed by processes hereafter to be described.

*Parts too Tight.*—It occasionally happens that the union may be perfect, but in consequence of the tissue in the vicinity being more firm than usual, and consequently less yielding, or owing to the large size of the fissure, which requires for its occlusion more membrane than the adjacent parts could well supply, the new velum is so rigid and tense as scarcely to possess motion, and hence hardly participates in the various attempts of the patient at swallowing or speech. When such is the case the operation is but partially successful, and before our patient is relieved we must make an incision on each side parallel to the teeth and half way between the latter and the cleft, by which the tension of the palate is removed and it is rendered subservient to the influence of the muscles in its vicinity. These incisions have sometimes to be made at the time the operation is performed in order to take off the strain from the ligatures. Dieffenbach was the first to propose this, although the credit of the suggestion is claimed by several.

*Dangers.*—This operation has been repeatedly performed by surgeons both in Europe and in this country, and so far at least the number of deaths resulting from its performance has been comparatively small. Some however have certainly lost their lives, and as it is nearly always an "operation

of choice," no surgeon would be justified in performing it until he had stated fully to the patient and his friends the possibility of a fatal result.

*Results of the Operation.*—Those not familiar with the operation and its results are very apt to promise a too speedy relief of the defects for which it was performed. For instance, it is often stated that if the adhesions are perfect, the voice will be *immediately rendered natural.* Now so far from this being the case, it requires weeks or even months for it to take place, and unless the patient is aware of the fact he will be greatly disappointed when he first "essays his voice" after it becomes safe for him to do so. The experience of surgeons all goes to prove, however, that the voice *in time* is rendered nearly if not entirely natural, and with this assurance our patient must rest satisfied. Deglutition is at once improved, although even in this respect there may be some disappointment, for if the velum be tight, as is sometimes the case, there will be more or less difficulty in swallowing, which can only be overcome by time or the performance of the lateral incisions already referred to. The distressing inconvenience of food and drink passing through the nose during the attempts at deglutition is however relieved from the moment adhesion is accomplished, and in this respect at least the patient is at once rendered more comfortable. The *durability* of the adhesions has also been made a question; but as far as I have been able to learn, there is no instance of their giving way after the period when inflammation and its results are to be apprehended. The velum made by the surgeon is in every sense as strong and as useful as the natural one.

When the adhesions are imperfect and holes of different shapes and sizes are left, it may be requisite to repeat the operation in part, or resort to other measures for their closure. When not very large I have succeeded in some cases with the aid of the argent. nit. repeatedly applied to the edges of the opening, and a well made obturator either of gold, silver or ivory. The shape of the obturator as well as its size must of course depend upon the nature of the opening, and may be held in its place by wires passed around the teeth, or by a sponge, or it may be made to resemble a common shirt stud, one plate of which rests upon the floor of the nostril, while the other forms a part of the roof of the mouth.

From the imperfect mastication and insalivation of the food persons labouring under cleft palate are very apt to suffer from dyspeptic symptoms. Those are of course relieved as soon as the causes producing them are removed.

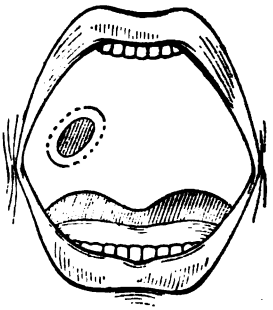
Case II. In the month of June 1840, I was requested to attend Mr. J. W. Richards, who had suffered for a long time from chronic mercurial disease, and who in consequence of this affection had lost a considerable portion of his palate. When I saw him the ulcerative process had ceased, although there existed chronic inflammation of the mucous membrane of the mouth and fauces. In addition to this there was an oval opening, three-fourths of

an inch in length by nearly half an inch in breadth, on the right side of the roof of the mouth, through which the finger might be readily passed into the nostril of the same side. The velum palati was barely involved in this opening, the ulceration having been confined almost exclusively to the hard palate. The margins of the opening were sharp and rigid while the adjacent mucous membrane, in consequence of the previous inflammation, was more closely attached than usual to the osseous portions of the palate. His speech as well as deglutition were much impaired and he experienced great mental distress from the observations of those by whom these defects were noticed. He had already consulted several gentlemen of the profession, one of whom had applied an obturator, from the employment of which instrument slight relief was derived. Caustics had also been employed and every effort made to cause the margin of the wound to granulate, but without the slightest benefit. His general health was such as to contraindicate any immediate attempt by surgical means to remedy the defect, and I therefore put him at once on a treatment for the mercurial disease, promising that as soon as this was cured to do something for the deformity for the relief of which I had been consulted. The remedies prescribed were those usually employed in similar cases, and after the lapse of twelve weeks I had the satisfaction of finding the disease entirely eradicated and my patient in an excellent condition for the operation. From the rigidity of the margins of the wound it was obvious that an attempt to cause them to approximate by the ordinary operation of staphyloraphy would prove utterly useless, and it became necessary for me to devise some other plan of procedure. The size of the opening induced me to abandon the attempt to close it by "two flaps detached from the adjacent soft parts, inverted upon themselves and united to each other in the centre of the wound," as recommended by Krimer; and also deterred me from resorting to the plan of Velpeau and others, in which one or more flaps are made by dissecting up the mucous membrane on each side and then sliding it over the opening, uniting the flaps either at the median line or carrying (when but one is made) the free margin entirely across and stitching it to the adjacent membrane, first made *fresh* by scarification.* The operation of "sliding the flap," modified so as to embrace the operation by "granulation" of Mettauer was finally decided upon and performed in the following manner:—Placing my patient in a good light and having the head firmly supported against the chest of an assistant, he was requested to hold his mouth open as long as possible, all artificial means for accomplishing this object being dispensed with. I then with a small thin convex edged bistoury

* Dr. J. M. Warren of Boston, to whom the profession is indebted for many valuable improvements in operative surgery, and whose success in the autoplastic operations has been very great, recently succeeded in closing a deficiency in the upper part of a palatine cleft, or that portion which extended into the hard palate, by detaching the mucous membrane and sliding it from each side to the median line, uniting the flaps by two or three sutures.

made a crescentric incision through the mucous membrane, and down in fact to the bone, commencing the incision nearly opposite the superior extremity of the opening and continuing it until it reached a point nearly opposite its inferior. A strip of mucous membrane about three lines and a half in breadth, was thus separated except at its extremities from the adjacent parts. A similar incision was then made on the opposite side, (see dotted lines, Fig. 10.) The lips of the little wound were next detached from the subjacent bone to the extent of one line on each side, and then folded, as it were, upon themselves, thus leaving a gutter into which I inserted a small cylinder of soft buckskin. Making the incisions, detaching the lips of the wound and introducing the buckskin occupied but a minute or two, giving the patient little or no pain, and causing no hemorrhage worth mentioning. The first step of the operation was thus completed and the patient ordered to keep perfectly silent. Fearing that the motion of the tongue might displace the buckskin I had prepared a sort of flat obturator mounted upon a piece of elastic wire, the end of which I intended to wrap round a tooth, and by this means keep the plate firmly applied over the wound and thus prevent the escape of the buckskin cylinder; but I found this instrument unnecessary inasmuch as the swelling of the wound was sufficient to accomplish the object in view. Inflammation followed by suppuration speedily supervened, and on the removal of the cylinder seventy-two hours after its introduction a fine crop of healthy granulations was discovered at the bottom of the wound; these rapidly increased in size and soon filled up the space between the lips of the incisions, rendering the introduction of any foreign body for the accomplishment of this object needless.

Fig. 10.

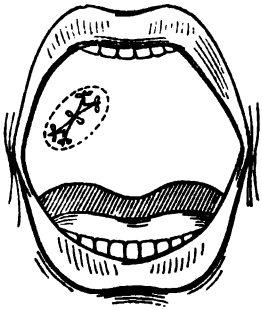


In six days after the first operation and when the granulations were in full vigour, I performed the second series of incisions, which were carried between the extremities of the other two, and treated in precisely the same manner. (See Fig. 10.) In six days from the execution of this second operation I found the opening in the palate surrounded by a strip of granulations, and in a proper condition for the last and by far the most difficult step of the whole attempt, the detachment and approximation of the flaps. Having provided myself with two scalpels, half an inch in length by two lines in breadth, cutting on both sides and slightly curved near the points, several very small and nearly crescentric needles, a delicate pair of Physick's forceps, two or three delicate hooks, small dressing forceps, and well waxed ligatures of silk of one thread, with sponges, &c. &c., I proceeded to the performance of the operation. The head being properly placed, I commenced by detaching the mucous membrane all around, dissecting from the margins out to the granulations, which being very yielding, allowed me without difficulty to bring the flaps together, at or near the centre of the opening. To accom-

plish this, a pair of small forceps was employed, and while the flap was held tense by an assistant, I passed the ligature first through the flap on the left side, at its centre and about a line from its edge, and then allowing that to escape from the forceps, the opposite one was made tense and the ligature passed through it at a point directly opposite the little wound in the other; the ligature was then tied, and the flap above, or that next the anterior portion of the mouth brought into the concavity formed by the approximation of the two lateral flaps and attached by a ligature on each side. The lower was next brought to its proper position and there held by similar stitches. The opening in the palate was thus completely "covered in," and presented the appearance seen in Fig. 11.

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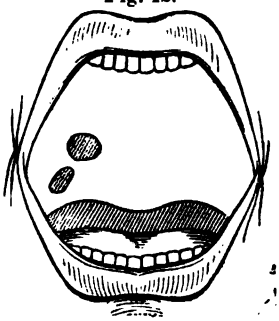
Fig. 11.



The usual after treatment was pursued and in three weeks from the date of the last operation my patient was perfectly relieved of every vestige of his deformity. The ligatures were cut away on the fourth, fifth and sixth day and nothing of consequence occurred during the period of confinement.

This operation, though tedious, is nevertheless a very useful modification of staphyloplasty and may be resorted to in almost all those cases in which the wound fails to unite throughout, after the usual operation of staphylorapphy; and too much credit cannot be ascribed to Dr. Mettauer for the suggestion of the operation by granulation.* I believe, however, that the case just reported is the first example of the combination of the operation "par glissement du lambeau," and that by granulation. My reason for not making all the granulating wounds at one operation was the fear of cutting off an adequate supply of blood to the margins intended for flaps. By postponing the second operation until the first wound was filled up with granulations and the circulation between them and the adjacent flaps firmly established, I avoided all danger of sloughing from a want of blood. Time, in such cases, being a matter of minor consideration, I did not think myself warranted in running any risk of failing in the operation by an attempt to economise it.

Fig. 12.



Case III. James Williams, a young man 18 years of age, applied to me in December 1840 for the purpose of having an operation performed for the closure of two openings, (the result of previous inflammation and sloughing,) one of which was situated entirely within the velum, and the other just above it, but located in the hard palate. Both openings were on the right side and separated from each other by a narrow strip of mucous membrane and bone, and pre-

* Amer. Journ. Med. Sci., Feb. 1838, p. 325.

sented each one a callous margin. That in the velum readily admitted the extremity of the forefinger and was ovoid in shape, the other was larger and nearly round. The usual accompaniments of such defects were present, and for the relief of these an operation was desired.

The common operation by interrupted suture was practised on the opening in the soft palate, which united perfectly in about two weeks, and as soon as this was accomplished and the patient had rallied from the effects of the operation I commenced the treatment of the other, the method employed being that described in the report of the case of Mr. Richards. The result was most fortunate and fully justified the confidence placed in this novel operation.

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ART. VI.—*Case of Congenital Tumour of the Eye Ball.* By W. T. TALIAFERRO, M. D., of Maysville, Ky.

MISS N. H., aged 15 years, delicate frame, florid complexion, chestnut hair, and blue eyes, visited me in May, 1838, for advice, with a congenital tumour on each eye arising from the sub-conjunctival coat. The tumours were of a delicate pink at their base, becoming brownish at their apices. They were discovered immediately after birth, and had had a steady gradual growth. At the time she visited me, the tumour of the left eye (see accompanying figure,) covered an oval base, about five lines in its long, and three and a half in its short diameter, and rose in a flattened conoidal shape to about six lines in height. Its long diameter ran nearly parallel with a line drawn from the inner to the outer canthus of the eye. It covered nearly the lower two-thirds of the pupil in a pleasantly shaded light. From the apex grew some ten or twelve hairs, about sixteen lines in length, a shade darker than the cilia.



As the tumour grew from the outer and lower part of the cornea perpendicular to the globe, it bore the lower lid far downward and outward. The upper lid was drawn down and could be elevated but very slightly; the cilia of the upper lid came in contact with the globe and the tumour. Exposure to the wind or light, produced a free and slightly purulent discharge, rendering her situation exceedingly distressing. The tumour occupying the two lower thirds, and the superior lid the upper

third of the pupil, she could distinguish no object clearly with this eye. The tumour of the right eye, (see figure,) in shape and situation, relative to the globe, was like to the left; its size about half that of the left, covering about the lower sixth of the pupil. The vision of this eye was good on a horizontal line and upward. The pupils of both eyes were larger than natural; the left about a third larger than the right. Her education had been impossible, and her situation altogether was most deplorable. "Always advised never to disturb the tumour, or the eyes would be inevitably destroyed."



After having greatly reduced the activity of the circulation by medicine and diet, I removed the tumour of the left eye on the 1st of June, assisted by my talented friend and partner, Dr. E. D. Pickett, now of Mississippi. Present Drs. Duke, Marshall, Henry, Fox and Taylor. The dissection was made with *Charrere's* delicate cornea knife, curved scissors and hooked forceps. The operation was rendered tedious from the exceeding vascularity of that portion of the conjunctiva reflected over the tumour, which was supplied with numerous large tortuous vessels converging from either canthus. In its texture the tumour seemed as if composed of lamina, far separated by spongy cellular substance. It was very tough. From the pressure, probably, the external lamina of the cornea were almost entirely absorbed at the lower part, and greatly thinned and softened throughout the extent occupied by the tumour. In fact it was quite impossible to distinguish where the tumour ended and the cornea began; of course, therefore, the corneal texture was much encroached on. The treatment was a dressing of light pledgets, kept constantly wet with cold water, to the eye; aperients, and a gruel diet, &c. &c. In eight or ten days, an evident discharge was begun from the wound, as if for a reproduction of the tumour. This was again dissected off; cold applications made as before growth began again: argent, nitrat. two grs., aq. distillat. ℥j, M. was used. Growth not checked; the solution of nitrate of silver was increased in strength to twenty grains to the ounce with little improvement; the solid argent. nit. was resorted to, and sulphate of cuper alternated; healthful healing began and continued steadily till the wound was well. In the latter part of June, the tumour of the right eye was removed, assisted by Dr. G. W. Bayless, Demonstrator of Anatomy in the Louisville Institute. Present Drs. Duke, Pickett and Marshall. Treated for a few days with pledgets wetted with cold water, and followed by the application of the solid nitrate of silver. Not a single bad symptom supervened. An opacity is left on each eye equal in extent to the

bases of the tumours. The patient was kept in a pleasantly shaded chamber for about eight weeks, and restricted to a vegetable diet. One or two drops of a solution of ten grains of nitrate of silver in one ounce of water was daily applied to each eye. At the termination of the period just named, the sight of both eyes was perfect. The opacity in the right eye is scarcely perceptible, and in the left is only visible when the eye is turned upwards. The lids have resumed their normal position.

In February last Miss H. was in excellent health, and most happy in acquiring an education.

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ART. VII.—*An Examination of the Testimony relative to the Efficacy of the Hydrated Peroxide of Iron as an Antidote to Arsenic, with Directions for its Preparation and Exhibition.* By T. ROMEYN BECK, M. D.

IT is now about six years since the use of the peroxide of iron was introduced to the notice of the public. It has been made the subject of numerous, and for the most part satisfactory, experiments on animals; it has been frequently exhibited to persons poisoned with arsenic, and in many instances with success; it is also a substance very easily prepared, and one that can always be kept on hand either by the physician or druggist.

These circumstances might be supposed sufficient to establish firmly the character of any antidote, and I do not doubt but that it is thus viewed by those who have from time to time noticed the testimony adduced in its favour. But this has, in many instances, consisted of brief notices of successful cases or experiments, scattered through the selections and summaries of Medical Journals, and hence has possibly not made that impression which a collection of the whole would produce. With a view to promote that desirable object, and at the same time to urge an early exhibition of this substance in all cases of poisoning by arsenic, I have ventured to prepare the following observations. I propose to follow the following order. 1. A notice of the discovery. 2. The results of experiments on animals. 3. The efficacy of its exhibition on man. 4. The mode of its preparation and exhibition.

I. The earliest notice that I have seen of the efficacy of peroxide of iron as an antidote, is contained in a letter addressed to M. Poggendorf, the editor of a German Scientific Journal by Dr. Bunsen, bearing date Gottingen, May 1, 1834.* In the same year Drs. Bunsen and Berthold jointly addressed a communication on the same subject to the Academy of Sciences at Paris.† It had been previously established by the experiments of Renault and others,

* London and Edinburgh Philosophical Magazine, vol. vi, p. 237.

† Lancet, Oct. 18th, 1834, and American Journal Med. Sci., Feb. 1835, p. 537.

that the native arsenite of iron (mispickel) is nearly innocuous to animals, and on this fact, the investigations of Drs. Bunsen and Berthold seem to have been founded. They also ascertained that "a solution of arsenious acid is so completely precipitated by pure hydrate of iron recently precipitated and suspended in water, that a current of sulphurated hydrogen gas passed into the liquor after filtration, and the addition of a small quantity of muriatic acid, does not indicate the presence of the smallest quantity of arsenious acid." Again, if a few drops of ammonia be added to the peroxide, and it be digested in a gentle heat, with arsenious acid, reduced to fine powder, a sub-perarsenite of iron is formed, which is perfectly insoluble. Encouraged by these results, they proceeded to perform

II. *Experiments on Animals.* From four to eight grains of arsenic were given to two young dogs, and the œsophagus was tied to prevent vomiting, and the peroxide was then exhibited. They lived more than a week without manifesting any of the symptoms of poisoning. A quantity equal to four or six drachms of the peroxide was deemed sufficient to transform in the stomach eight or ten grains of arsenious acid into insoluble arsenite. As however the hydrated oxide is innocuous, they advise its use in much larger quantity. Rabbits also which are destroyed by very small doses of arsenic, were saved by the antidote.

Orfila and Le Sueur repeated these experiments on animals, and generally with favourable results. They found, however, that if the administration of the antidote was delayed beyond half an hour, all the symptoms of poisoning occurred, and death was the termination.* M. Bouley, Jun., of Alfort made an elaborate series of experiments on horses, and which were published in 1835. He ascertained, in the first place, that the peroxide was totally inefficacious in poisoning by arseniate of potash, (Fowler's solution,) and for a manifest reason—the iron cannot overcome the affinity existing between its constituents. But when he gave white arsenic in doses of two ounces and upwards, and followed it by sixty-four ounces of the hydrated oxide, the animals survived. In several instances, the horses thus treated were killed at the end of nine days, and the stomach and intestines bore the marks of the action of the poison, but evidently in a mitigated degree, and sufficient to show that it had been promptly counteracted. In one case, the antidote was delayed twenty-five hours, and the consequence was, the death of the animal twenty-four hours thereafter, and the stomach, intestines and heart bore marks of the violence of the poison.†

M. M. Miguel and Soubeiran of Paris were probably the next experimenters. They found that if a large dose of arsenic was given to dogs, and they were allowed to vomit, it produced no effect, and it was therefore necessary to tie the œsophagus. But this in itself is a fatal operation, and the time that the animal could survive required to be ascertained. A dog

* American Journal of Medical Sciences, vol. xvi, 239.

† Annales D'Hygiene, vol. xii, p. 134; American Journal, August, 1835, p. 518.

whose œsophagus was tied, died in seventy-eight hours, but if nine or ten grains of arsenic were given, and the œsophagus then tied, death followed in two or two and a half hours. In their experiments they used the recently prepared peroxide of hydrated iron mixed with water, in the proportion of twelve parts, to one of white arsenic.

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In several instances of dogs thus treated, they survived from seventy-eight hours to six days. But if the exhibition of the antidote was delayed, the animals perished, and the time of death appeared to be hastened exactly in proportion to the delay.*

Again, Drs. Borelli and Demaria of Turin performed experiments also on dogs with even more favourable results. They consider that four and a half parts by weight of the peroxide are required to neutralise one of arsenious acid.†

Dr. Van Specz of Vienna had similar success. He gave arsenic both in powder and in solution, and though in the last the symptoms were more violent, yet in all the animals recovered. He even exhibited the rust of iron successfully.‡

Dr. Donald Mackenzie of Edinburgh has related a number of successful experiments on dogs, with arsenic in the solid form, followed by the antidote in the proportion of from twelve to thirty parts. They were killed, either on the first, third or sixth day after, and the stomach and intestines were found but slightly reddened.§

Lastly I may mention the result obtained by a committee of the Academy of Medicine at Paris, in which not only the hydrated peroxide was found efficient on dogs, but also the common subcarbonate of iron largely suspended in water, four ounces in twenty-four of water. The committee advise that at least half an ounce of peroxide should be taken for each grain of arsenious acid supposed to remain in the stomach.‖

To all this mass of favourable testimony, there can only be opposed the unfavourable results obtained by Mr. Brett and Mr. Orton, (*London Medical Gazette*, vol. xv, p. 220, *Lancet*, November 8, 1834.) But it must be remembered that their investigations were made at an early period of the inquiry; and I may further adopt the remarks of Dr. Maclagan of Edinburgh concerning them. "With respect to the former, it may be observed, that he appears uniformly to have used too small quantities of the oxide, and the experiments of the latter hardly seem to have been made with sufficient care, as appears in one instance, at least from his having injected both poison and antidote into the lungs, instead of the stomach of the rabbit.¶

* British and Foreign Medical Review, vol. i, p. 594.

† British and Foreign Medical Review, vol. i, p. 595.

‡ American Journ. Med. Sci., February, 1838, p. 519.

§ Lancet, April 4, 1840. Amer. Journ. Med. Sci., August, 1840, p. 497.

‖ American Journ. Med. Sci., February, 1838, p. 519.

¶ *On the Action of the Hydrated Sesquioxide of Iron on Arsenic*, by Douglass Maclagan

III. *Its Efficacy as an Antidote on Man.*—In referring to these, I must be brief, indicating merely the leading points worthy of notice.

1. The first case on record is probably that of M. Leger. A child eighteen months old, drank a solution of fly poison, (probably a variable combination of black oxide of arsenic and oxide of cobalt,) and was immediately seized with symptoms of violent colic. The accident was soon discovered, and the hydrated peroxide was instantly given. Its effects were completely successful within a few hours. *American Journal of the Medical Sciences*, vol. xvi, p. 239.

2. M. Geoffroy of Paris gave it in twenty minutes after arsenic, stirred about in water, had been swallowed by a man aged 36. Four or five pints of water, charged with it, were given in a quarter of an hour. Vomiting ensued; but the patient suffered none of the ordinary symptoms of arsenic. He had taken a drachm and a half of arsenic. The next morning he was well. *British and Foreign Medical Review*, vol. i, p. 572. *American Journ. Med. Sci.*, February, 1836, p. 501.

3. Drs. Bineau and Majesté of Saumur, in France, relate five cases that occurred in 1835. As many little girls aged from five to nine years, on leaving school, ate part of a cake, containing one fifth of its weight of white arsenic which had been prepared to kill rats. They all were affected violently with the early symptoms of poisoning, and were not seen until two hours or more after the accident, yet all recovered by the free use of the antidote. *B. and F. Med. Rev.*, vol. i, p. 573.

4. Dr. Buzorini relates in *La Lancette Francaise*, November 17, 1835, two cases successfully treated. *American Journ.*, August, 1836, p. 504.

5. Dr. Chilton of New York, in the United States, *Med. and Surg. Journal*, vol. iii, p. 54, also relates a successful case.

6. Mr. Robson, of Warrington, administered with success first, the subcarbonate of iron, in doses of six drachms, two hours after the poison had been taken, and afterwards the prepared oxide. Nearly three drachms of arsenic had been swallowed. *American Journ. Med. Sci.*, May, 1837, p. 222.

7. Dr. Thomas, of Baltimore, in a case where twenty grains of arsenic in powder had been given, gave the peroxide with success. *American Med. Intelligencer*, vol. ii, p. 117.

8. Dr. Macdonald—a successful case in *New York Journal of Medicine and Surgery*, vol. ii, p. 205.

M. D., Lecturer on Materia Medica. *Edinburgh Medical and Surgical Journal*, vol. liv, p. 106. This is a valuable paper in reference to the chemical action of these substances on each other. I have only space to notice the conclusion to which he arrives, and which is, that "the hydrated oxide of iron is a real chemical antidote to arsenious acid, and that when it removes arsenic from solution and soluble combinations, it acts by chemically uniting with it." The large quantities which have been found necessary, are required, not to protect the stomach mechanically, but to render the poison chemically inert.

9. Dr. Gerhard—a successful case in the *Philadelphia Medical Examiner*, vol. iii, p. 250.

10. Drs. Smiley and Wallace in the *Philadelphia Medical Examiner*, vol. iii, p. 679, out of a family of eight persons poisoned by a pudding of Indian meal, prepared for rats, death followed in two cases in seven and nine hours. They could not retain the antidote, but immediately rejected it. The symptoms of all the others were immediately mitigated by its use, and they all recovered.

11. Dr. Murray, of India, successful. *Amer. Journ. Med. Sci.*, Feb., 1839, p. 503, from the *Calcutta Medical Journal*, December, 1837.

12. Mr. Deville, of Paris, successful. *American Journ. Med. Sci.*, May, 1839, p. 243.

13. Dr. Puchelt, Jun., seven cases of recovery. *Edinburgh Medical and Surgical Journal*, vol. liv, p. 263.

It would not be difficult to add considerably to this list. But I have adduced enough to warrant a belief in the efficacy of the antidote. I trust, however, that none of my readers will be led to suppose, that in cases of poisoning by arsenic, they are to depend *solely* on it. Vomiting should be promoted as early as possible, and indeed every mode now in use for the speedy evacuation of the poison. The antidote will find sufficient to operate on what still remains and cannot be removed.

4. *The Mode of its Preparation and Exhibition.* Lassaigne had recommended the following process. Take iron turnings, pour on them four times their weight of the nitric acid of commerce gradually, so as to avoid too rapid an action. A portion of the nitric acid will yield its oxygen to the iron, and change it to a peroxide, which unites with the undecomposed nitric acid, and forms pernitrate of iron. As soon as the action of the nitrous vapour has ceased, add ten or twelve parts of water to dissolve the pernitrate and to precipitate the undissolved turnings. Decant and filter the solution, and add aqua ammonia, until litmus paper becomes blue. A yellowish brown precipitate is formed, which is the hydrate, and which should be washed with boiling water, to free it from the remains of the acid.

Drs. Bunsen and Berthold, however, prefer that preparation obtained by taking a pure solution of the sub-sulphate of iron, increasing its dose of oxygen by heating it with nitric acid, and then pouring into the solution an excess of caustic ammonia. The hydrated oxide is now obtained by decantation. They advise that the nitric acid be added in small portions at a time, otherwise a quantity of the neutral sulphate of the sesquioxide is separated in the form of a yellow powder, which is but slightly soluble. They also insist on the danger of using any other alkali than ammonia.

The Edinburgh college has introduced it into its pharmacopœia, with nearly identical directions, which I copy from Dr. Maclagan's paper, already referred to. "Dissolve sulphate of iron in water, with a little sulphuric acid, adding nitric acid by degrees till it is thus fully oxygenated, and then

precipitating the hydrated sesquioxide from this solution by an excess of ammonia. The product thus obtained is of a deep reddish brown." It should be carefully washed, to remove the ammonia; but this can hardly be completely effected without the application of heat; and I apprehend that this last is not to be recommended.

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*The dry hydrated oxide is inert.* It is therefore necessary to keep the antidote, when prepared, under water. It may thus be preserved uninjured in its qualities for a length of time. Professor Fisher, of Maryland, has shown this conclusively in an elaborate paper in the twelfth volume of the *American Journal of Pharmacy.* "In the moist state, it is in the finest possible state of division, and hence best adapted as an antidote."

It is not necessary therefore to have it *freshly prepared* for every case, and the practitioner has only to keep a quantity on hand in closely stopped bottles, remembering to shake it well before administration.

As to the quantity necessary to be given, I will again quote Dr. Maclagan. "As far as chemical evidence goes, at least twelve parts of oxide, prepared by ammonia, and moist, are required for each part of arsenic, and this same proportion has been indicated by several of the French experimentalists as being required to insure its antidotal effects."

But it may be said that in some instances we cannot ascertain how much arsenic has been taken, and the inquiry may be renewed, how are we then to act. To this, I reply, by recommending that to an adult, a tablespoonful, and for children a desert spoonful, should be given every five or ten minutes until relief from the urgent symptoms is obtained.

Albany, *May* 19, 1841.

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Art. VIII.—*Case of Nephritis.* By A. B. Snow, M.D., of Boston, Mass. Read before the Boston Society for Medical Improvement, March 23, 1841.

But few unequivocal cases of acute nephritis have been recorded in the medical annals of this country; not because the disease is of unfrequent occurrence, but because the symptoms indicating it so often resemble those of other affections, that it is not recognised; and when suspected, the opportunities for post mortem examinations are so restricted, that its existence cannot be verified; and consequently, many practitioners actually deny that it ever obtains. The following case will be interesting to the profession, inasmuch as it demonstrates that the disease does occur as idiopathic, and also that it is a disease of very great severity, and that its symptoms are peculiar and in some respects specific.

*March* 4, 1841. Mrs. T., ætat. 61, had led a very regular, industrious

and rather active life, and for the last forty years had enjoyed good health, with the exception of an occasional sickness of a few days merely. This day she complained of a troublesome diarrhœa and great pain in the abdomen. At night she took a dose of Brandreth's pills, and went to bed. She did not get much sleep. The pills operated as a cathartic, as she supposed, and rather aggravated the pain.

*5th.* Her diarrhœa continued, though her evacuations were small. She had chills, but no heats nor sweats; very great nausea, but no vomiting; she passed a restless night.

*6th.* I was called to attend her. I found her with a pain in the right iliac region, extending backwards to the spine and forwards to the umbilicus; diarrhœa; no straining; chills and heats; dry skin; tongue natural; pulse ninety-six, soft and regular. I did not suspect nephritis at the time, consequently she was not examined with a view of detecting it. Prescribed opium and the submurias hydrargyri in small doses, alternated with the mistura calcis carbonatis; applied external warmth to the body, and recommended abstinence from food and drinks.

*7th.* She passed an uncomfortable night, the pain being more severe; her other symptoms the same as the day before. The former prescription was continued, with the addition of strong counter-irritants over the region of pain, and an increase of opium. About the middle of the afternoon the diarrhœa ceased; the nausea then became very great, and towards night she vomited several times.

*8th.* She passed another restless night; the pain is more circumscribed and more severe; pulse, skin and tongue, remain much as they were on Saturday. Strong irritants were continued over the seat of pain, and tepid bath to the feet. In the afternoon nausea and vomiting became constant, with tenesmus; learned that she had passed no urine during the day, and probably not since she became sick; the nausea was so great as to forbid the administration of diuretics. A large dose of submurias hydrargyri was retained upon the stomach, and she was put upon the use of the hydrocyanic acid, hot mustard poultices were applied to the side, fomentations to the abdomen, &c.

*9th.* She is somewhat relieved of the pain, but there is very great tenderness in the iliac region, and to a considerable extent over the whole abdomen; pulse, skin and tongue, the same as yesterday; the vomiting has ceased, but the nausea and tenesmus continue; great thirst, but avoids drinks lest she should immediately eject them; restless; no secretion of urine; no cathartic operation from the medicine. Prescribed a saline purgative, and she afterwards took freely of the spirit of nitric ether; external applications as usual.

*10th.* There is a general aggravation of all the symptoms; the vomiting has returned with great violence; pulse, skin, and tongue, however, remain unaffected; no cathartic operation from the medicine and no secretion of

urine. Applied leeches over the region of the right kidney, frictions to the abdomen, with a mixture of olive and Croton oil, and repeated the enema; fomentations, &c., continued.

11*th*. No alterations of the symptoms, excepting a diminution of pain and tenderness over the kidney and in the abdomen; no cathartic operation; the injections are all retained; no tenesmus; no urine. Advised a discontinuance of all medicine except the hydro-cyanic acid, and an occasional enema; the frictions to the abdomen were also continued.

12*th*. There is a little improvement in the symptoms; she has passed a comfortable night; has had a small alvine evacuation; the vomiting, however, continues; pulse, skin and tongue unaltered; thirst great; no urine. A catheter was introduced into the bladder, and about a tablespoonful of chocolate-colored liquid was drawn off. Some purgative pills were administered which were retained *on the stomach*, and towards night a free evacuation of the bowels took place, after which the vomiting ceased during the night.

13*th*. She has slept all night; has no pain, but great tenderness upon pressure over the region of the kidney and abdomen; no more evacuations from the bowels, and no urine; respiration twenty-two in a minute; other appearances, the same as yesterday; vomiting returns this morning with great frequency. Gave her a small dose of ipecacuanha, which vomited her gently and afforded considerable relief for a few hours. Then the vomiting returned with increasing violence; she continued exceedingly sleepy, but not comatose. Administered soda, &c. &c.; applied blisters to the epigastrium.

14*th*. No pain, and the tenderness diminishes; sleeps all the time; vomiting almost constantly, but it scarcely rouses her from her sleep; no evacuations from her bowels, and no urine; no change in the pulse, skin and tongue. An occasional enema only was advised; she was allowed to take freely of wine, brandy, gin, &c.

15*th*. She has not vomited through the night, and had no cathartic movement; she is comatose; thirst great; pulse and tongue the same as formerly, but the skin has become white and emits a most decided smell of urine; respiration sixteen in a minute and extremely offensive; a very striking efflorescence or concretion now made its appearance over the whole surface of the body. It was perfectly white, and thickest upon the face. The particles were globular and oblong, and varied in size from that of a pin's head to a kernel of wheat. They were dry and friable, and if wiped off, would reappear in the course of a very few minutes.

16*th*. No change in the general symptoms, excepting that they all take on the appearance of a more speedy and fatal termination; it is difficult to rouse her, or to cause her to swallow; permanent contractions of the pupils; the tenderness in the abdomen and side has subsided, or else she is not conscious of it; the efflorescence is diminished, and the breath is not offensive.

17*th*. She has involuntary discharges from the bowels, but they are not offensive; tongue has become dry, brown and crusty; tympanitis; stertorous breathing; all other functions remain suspended; she continued in this state through the day and night.

18*th*. She died this morning without spasms or any apparent suffering.

*Autopsy* by Dr. Charles Ware, in presence of Drs. J. B. S. Jackson, Jacob Bigelow and John Ware. There was recent pneumonia of the lower lobe of the left lung; no other traces of disease were found, excepting in the urinary organs. The right kidney showed decided marks of acute inflammation; the tubular portion was healthy. About one-half of the cortical portion was opaque, whitish, and seemed infiltrated with lymph. A little serum oozing out upon pressure, but no pus; the remainder was red, and in no way remarkable, the outlines of the two colours being distinct, and as much so on the external as the internal surface. White deposit in diffused patches and a few small scattered spots over the whole cortical portion. The organ was rather flaccid and friable, but no where broken down; strong urinous odour; size and form natural. A few small bloodvessels in the substance, obstructed by a mixture of fibrine and coagulated blood, evidently from inflammation; but it was not ascertained whether they were arteries or veins; some dirty, thick, brownish liquid was found in the pelvis. The external tunic was healthy.

The left kidney was remarkably atrophied; in its substance were found cavities of the size of large peas, evidently formed by the infundibula. They were filled with a clear liquid which had no urinous odour. The inner surface was smooth and polished, and lined with a thin pellicle, which could be removed, and which had a most remarkably pearly lustre and whiteness. The remainder of the organ formed a sort of cyst investing the cavities, and was generally about two lines in thickness. The situation of the pelvis filled up with fat. Ureter impervious. The bladder contained about a tablespoonful of thick, brown liquid, similar to that found in the pelvis of the right kidney. There were also marks of slight inflammation in the neck of the bladder.

*Remarks.*—It will be seen by the foregoing case that the most prominent symptoms, and those which appear to be to a great extent specific, are suppression of urine, an acute pain in the region of the kidney, extreme irritability of the stomach, obstinate constipation of the bowels, and at times a strong urinous odour, with a comparatively healthy pulse, skin and tongue, and little febrile action. Whether the efflorescence upon the skin was a specific symptom of this disease, or an accidental occurrence, is a matter of conjecture, and whether all these symptoms might not occur from some other cause, will perhaps be questioned by some. To my mind it is very satisfactory that they would not, especially in the order in which they appeared in this case. The suppression of urine, though not discovered till it had existed some days, undoubtedly took place at the commencement of

the disease. The irritable state of the stomach, and the great pain in the region of the kidney, which immediately followed, did not materially disturb the healthy condition of the pulse, skin and tongue; even coma, attended with stertorous breathing did not affect them. I can think of no other disease that would produce a similar set of symptoms. Hence their importance and their specific character.

There are other facts and views connected with this case, which give to it additional interest. It will be seen that the left kidney remained unaffected during the process of the destruction of the other, and on post mortem examination, was found atrophied, and of course its function destroyed. I have since learned, that about forty years ago, this patient was sick for a long time, and the urinary organs were the parts affected. Her particular symptoms, the friends now living cannot recollect. The probability is, that the left kidney was destroyed at that time. Whether the right kidney sympathised with it then, I cannot learn, but its function was continued; therefore we may infer that, had the left kidney been in a healthy condition at the time of her last sickness, it would have performed the function of secretion, and the patient would have survived the existence of the disease. We also infer that acute nephritis of one kidney may, and does often occur, and even destroy the function of the organ, without exhibiting any fatal symptoms, not even enough to lead to the detection of the disease. Suppression would not take place, so long as one kidney performed its function. Coma, which we suppose is induced by impure quality rather than an undue quantity of the blood, and which depends on suppression, would not supervene. The urinous odour would be wanting, and the irritable stomach and the constipation would indicate various diseases, while the pulse, skin, and tongue would be no direct guide. Hence it will appear that it is only complete, or nearly complete suppression that would lead to the suspicion of the existence of the disease. It will appear also, that when the disease is sufficiently developed to be detected, the prognosis must be unfavourable.

Is it not an interesting fact, that in the foregoing case, the right kidney should perform double the secretion it was intended by nature to perform, and continue it for forty years without becoming diseased?

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## Art. IX.—*Report of Cases Treated in the Baltimore Alms-House Hospital.*

By Samuel Annan, M. D., Senior Physician to the Institution.

Case I. *Hypertrophy and Dilatation of the Heart—Valvular Disease.*—R. A., ætat. 68, admitted April 23, 1840. Her health for the most part has been good. When she caught cold she was afflicted with slight rheumatic pains, ever since she was eighteen years of age. Eight or nine years

ago had something of the dropsy. Her abdomen, feet and legs were swelled, but she was soon cured. During seven years past has observed that on walking fast up stairs, or up a hill, her breathing became laborious. In March, 1839, her respirations became constantly difficult. Last autumn was first troubled with a short, hacking cough, which still continues. She now expectorates a little viscid mucus; respiration forty-four in the minute; countenance anxious; lies and sits with her mouth open, and her tongue projecting forwards between her teeth and lips, and pressing upon the lower lip, which it pushes outwards considerably; abdomen, arms and legs are swelled from dropsical effusion; restless at night, except when she takes opium; cannot lie in the horizontal posture, but has to be supported by pillows almost erect; appetite good; bowels regular. On examination by percussion, the left side of the chest was found to be dull over the lower half; this was when she was in the semi-erect position; with the stethoscope, the impulse of the heart was observed to be not increased; both the normal sounds were entirely obscured by a loud saw murmur, which had taken their place, and for the most part but one sound could be heard. Every four or five beats, however, there was an interval, during which one small and feeble stroke, and occasionally two, having no murmur connected with them, could be perceived; there were sixty-three of the first kind, and twelve of the latter, in the minute; the pulsations of the artery at the wrist, corresponded exactly with the beats of the heart; there was low and indistinct bronchial respiration at the middle and lower parts of the left lung; at the top the respiratory murmur was loud and clear; all over the right side, and at the top of the left there was sibilus, which could be heard only during expiration; the expirators were loud and very protracted; the inspirations were very short, and much less audible; the saw murmur of the heart could be heard over all the space which was dull on percussion, and also at the top of the sternum. On the morning of the 19th of May, the nurse of the ward observed that her difficulty of breathing was greatly increased; she was forced to sit on the side of the bed, and lean forward on a small table; she expired on the following morning.

*Post mortem* examination eight hours after death. *Exterior.*—Universal Anasarca.—*Thorax.*—Both sides of the chest were filled with serum. The heart was more than twice the ordinary size. It was the left ventricle that was hypertrophied, the walls being double the usual thickness. It was also dilated. All the other cavities were dilated to at least twice the natural dimensions. Both auriculo-ventricular orifices were enlarged. The mitral valve was very much thickened and indurated, and there was considerable ossific deposit at the base of the posterior division. The sigmoid valves of the aorta were thickened and ossified, and the one adjacent to the mitral valve, to the extent of being immovable. The aorta was greatly dilated, and nearly the entire inner surface of the ascending aorta and the arch was rendered rough by large and small plates of bone. The opening

from the heart was very large. The lungs were compressed and the larger bronchial tubes were red.

*Abdomen.*—There was a large quantity of serum in the sac of the peritoneum. The mucous coat of the stomach and small intestines was red, from congestion of the large veins. The liver and kidneys were black with accumulation of venous blood; and from the former it could be squeezed as from a sponge.

*Remarks.*—The case which I have given confirms the views of Hope, Williams, and Elliotson, relating to the physical signs of valvular disease. Both sounds of the heart were obscured by the saw murmur. The rough surface of the semilunar valves of the aorta, over which the blood passed during the ventricular systole, produced that part of the murmur which had taken the place of the first sound; and the regurgitation from the aorta, the opening being enlarged, and the valves nearly incapable of action, caused that which had destroyed the second sound. The thickening, induration, and ossification of the mitral valve, doubtless assisted, in some degree, in augmenting the loudness of the unnatural murmur. The auriculo-ventricular orifice being enlarged, and consequently not obstructing the blood in its passage from the auricle to the ventricle, there could not be much, if any, addition to the murmur accompanying the ventricular diastole. But the regurgitation which occurred during the systole, from the ventricle into the auricle, must have rendered the first part of the murmur more audible. The anormal murmurs produced in these two modes, were so blended as to cause but one continuous sound. The roughness of the inner surface of the aorta must have increased the murmur along the sternum.

Disease of the aortic valves, we may safely suppose was the primary change. Regurgitation into the ventricle would produce dilatation and hypertrophy; while the same cause would produce dilatation of the left auricle. The obstruction to the passage of the blood from the lungs to the left side of the heart, must necessarily dilate the right ventricle and auricle. Congestion of the viscera would ensue; and we thus have explained the venous engorgement of the mucous membrane of the lungs, stomach, and intestines, and also of the liver and kidneys. The dropsical effusion was brought on by the same obstruction of the circulation, causing congestion of the capillary system. This effusion must have been greatly increased in quantity during the night preceding that of her death. This is shown by the embarrassment of the respiration having become so great that she was compelled to sit on the side of the bed and lean forward on a table. In this position the abdominal muscles were greatly relaxed, and the diaphragm was allowed to descend to its utmost limit; of course followed by the fluid in the thorax; by which means the upper part of both lungs was freed from compression, and the air suffered freely to enter.

Case II. *Dilatation of the Heart.—Valvular Disease.*—J. C., ætat. 55,

admitted March 2, 1840. Habits somewhat irregular; caught cold about Christmas, and ever since has had a cough, with copious expectoration of a thick, yellow matter. His breathing became short and laborious about the last of January, and is getting worse; chest dull on percussion over the upper half of the right side, and under the clavicles on the left side; bronchial respiration and bronchophony at the same parts; better marked under the clavicles, and especially on the left side; pectoriloquy at the top of the scapula on the right side; impulse of the heart somewhat increased, and a loud saw murmur can be heard, accompanying or rather taking the place of the second sound, which it entirely obscures. The pulse is a little accelerated and feeble; tongue pretty clean; emaciation considerable; face pale; has been treated with palliatives. On the evening of April 13th, was seized with great difficulty of breathing, became rapidly worse, there being great prostration, and a very small, feeble pulse, and he died on the morning of the 14th.

*Post-Mortem, 24 hours after death. Thorax.*—The heart was enlarged to double the ordinary size. This arose chiefly from dilatation of the left ventricle. Its walls were but slightly thickened. The right auricle was greatly distended by a coagulum of blood. The ventricle of the same side was nearly empty. The pericardium contained about four ounces of serum. The anterior division of the mitral valve was very much thickened, and indurated; and at its base, where it is attached to the heart, there were a few spiculæ of bone. The posterior division was slightly thickened. The left auriculo-ventricular opening was somewhat enlarged. The sigmoid valves of the aorta were ossified so as to be immovable. Their whole substance was filled with osseous matter which projected in rough points on both sides. The orifice of the aorta was contracted so that the forefinger filled it. The aorta was a little rough in a few places at its beginning. The right side of the heart was normal, with the exception of a slight thickening of the edge of one of the divisions of the tricuspid valve.

The right sac of the pleura contained a quart of serum; the left half a pint. There were a few old adhesions on the right side. The upper and middle lobes of the right lung were filled with small tubercles, and these lobes were as solid as liver. At the posterior part of the apex of the upper lobe, there was a cavity of the size of a large walnut. Three or four other small cavities were seen at the same part. The left lung contained a few tubercles. The top of the upper lobe was pretty solid, and was in a state approaching to carnification. This part was filled with serum. The lower lobe of the right side was tolerably healthy; as were also the lower parts of the left lung. The bronchial tubes over a considerable part of both lungs were of a dark red color; more generally through the right than through the left lung. There was a good deal of yellow mucus in the tubes, and considerable congestion of both lungs.

*Abdomen.*—The mucous coat of the stomach was mamillated over its entire surface; except about the cardiac orifice. The colour was normal.

The liver was rather darker than is natural. Other viscera normal. There was ossific deposit under the inner coat of the arteries, in various parts.

*Remarks.*—The murmur in this case must have been compound. There was, first, the direct murmur produced by the passage of the blood over the thickened and indurated mitral valve; and, second, the regurgitant murmur, from the return of the blood through the aortic orifice. Both of these murmurs are always associated with the second sound of the heart. What is remarkable, however, is, that the exit of the blood from the ventricle did not cause a murmur corresponding with the first sound of the heart. The blood passed over the same rough surface, going as returning, and we would look for an unnatural sound in the one case as well as in the other. It is true that in going out of the ventricle, the obstruction was not so great as in returning. In the passage out, there was no projecting ridge, against which the blood impinged; the base of the valves being attached to the heart, there was a continuity of surface. Whereas in returning, the margins of the three valves being raised out of the sinuses of Valsalva, and presenting an elevated and immovable ridge, the obstruction must necessarily have been very great.

Case III. *Laryngitis.—Œdema of the Lungs.*—S. H., ætat. 33, negro, admitted March 7th—died March 17th, 1840. This man had been hostler at a tavern, was much exposed to cold and rain, and was in the habit of using ardent spirit freely. When admitted, he had a large foul ulcer on the inside of the left foot, at the root of the great toe; his left leg and thigh were œdematous, and enormously swelled, especially the leg. His breathing was quick and laborious, and he could articulate only in a hoarse whisper; his cough was not very distressing; his countenance expressed great anxiety; the pulse varied from 120 to 130 in the minute, and was full and rather firm; the tongue was dry, red, and cracked; the chest was generally dull on percussion, and the respiration was scarcely audible; there was a slight crepitation. He was bled to twelve or sixteen ounces, was moderately purged with salts and antimony, in divided doses, and then took five grains of blue mass, night and morning, with one grain of digitalis, and ten of nitre, three times a day. Fomentations, a blister, and emollient poultices were applied to the throat, and the mouth and fauces were frequently gargled with warm water; the free use of diluents was also enjoined. Under this treatment, the swelling of the thigh entirely disappeared, and that of the leg diminished considerably; the oppression of the breathing, however, was but little, if at all lessened; and the hoarseness continued to increase; he sank gradually, without any very perceptible aggravation of the symptoms.

*Post-mortem, 24 hours after death.—Thorax.*—There was serum in both of the pleural cavities;—about three pints in the left, and one pint in the right. There was slight redness of the pleuræ, with a small portion of lymph effused. The cellular tissue of both lungs was filled with serum,

which could be squeezed out as from a sponge. There was also a considerable quantity of serum in the bronchial tubes. The mucous coat of a few of the tubes was of a dark red colour; but in most of them it was but slightly reddened. The inner surface of the larynx was coated with mucopurulent matter, somewhat flaky, but of soft consistence. The epiglottis was of a dark red colour, and very much swelled, chiefly from effusion of serum in the sub-mucous coat. The vocal cords were also considerably swelled from the same cause; and the whole surface of the larynx was red and rough. The trachea was of a deep red color, down to the bronchial divisions, but was not coated either with mucus or pus.

*Abdomen.*—The mucous coat of the stomach was of a light slate color, over nearly its entire surface. Three patches of considerable size, were reddened, by congestion of the veins, and effusion of blood forming spots of ecchymosis. The mucous coat at these red places was softened. At the other parts it was thickened and hardened. The liver was somewhat enlarged, and of a greyish, yellow color, both externally and internally.

*Remarks.*—Laryngitis and bronchitis were unquestionably the beginning of the attack; the former was severe; the latter was mild. There was neither much cough nor expectoration; this proves that the bronchitis was not severe. The post mortem appearance of the bronchial membrane, shows the same state of things. It was but slightly reddened through the greater part of the tubes. The serous diathesis was strongly marked, and as a consequence, effusion of serum took place, before the inflammation ran high. The light slate colour of the mucous coat of the stomach, the ecchymosis, and red softening of some parts, the thickening and induration of other parts, and the enlargement and yellowness of the liver, were all the effects of habitual drunkenness. By the same cause, the strong predisposition to hydropic effusion was produced. As soon, therefore, as inflammation was set up, the congested capillary arteries and veins poured out serum; and long before the inflammation reached the point when lymph would be secreted. As regards the treatment of the foregoing case, although the hydropic diathesis was strongly marked, in which condition bloodletting is contra-indicated, yet as the laryngitis was considered so important a part of the disease, and as the pulse, notwithstanding its frequency, was full and pretty firm, a moderate bleeding was thought to be advisable. The diuretics and mercurials acted well, as was shown by the disappearance of the swelling of the thigh, and the diminution of that of the leg; and if there had not been so much derangement of the stomach and liver, accompanied by so great a degree of the serous diathesis, the laryngitis and bronchitis might have been cured, and the effused fluid, both in the lungs and lower extremity have been made to disappear. If the œdema of the lungs had not been associated with laryngitis, a complication very uncommon, inasmuch as bronchitis seldom or never occurs at the same time with laryngitis, the case

would have been much less difficult of management, and the probability of a favourable termination much greater. As it was, the prognosis was as unfavourable as could be given.

Case IV. *Paralysis of the Left Side of the Trunk and Extremities, and of the Right Side of the Face.*—S. G., ætat. 28, negro, admitted April 7th, died June 5, 1840. She had followed the business of a washerwoman, and her health, previous to this attack, was good. On the 14th of May, 1839, while engaged in washing, was suddenly seized with an acute pain of the right side of the head, and fell down in a state of insensibility, in which state she remained during twenty-four hours. When she recovered her senses, she found she had entirely lost the power of moving her left arm, and in a great degree that of moving the leg of the same side. The right side was unaffected, with the exception of the face, the muscles of which had become paralyzed; those of the left side of the face still retained their accustomed power of motion; when her tongue was thrust out, it inclined very much to the right side; the sensibility of the left side was destroyed, and likewise that of the right side of the face; she could not hear with the right ear. The right eye became inflamed several weeks before her death, and the cornea was slightly ulcerated; the upper eyelid was constantly raised. When she attempted to speak her muttering was scarcely intelligible; paralysis of all the parts affected was complete; deglutition and mastication were performed with great difficulty.

*Post mortem* examination twelve hours after death. *Brain.*—There was venous congestion of the surface, and of the medullary centres of the hemispheres of the cerebrum. There was a fibrous, semi-cartilaginous tumour on the right side of the tuber annulare and medulla oblongata, seated in the substance of the dura mater, arachnoid membranes and the pia mater. It extended from the point where the fifth pair of nerves arises from the tuber annulare, covered the origin of this nerve and the whole of the right side of the tuber below this, and passed down along two-thirds of the medulla oblongata, and adhered to the right side of the basilar artery. The right vertebral artery was enclosed in the substance of the tumour. It was about two inches long. The surface of the root of the right crus cerebelli, on which it pressed, was softened, as was also that part of the tuber annulare, on which it lay. It was incorporated with the substance of the right side of the medulla oblongata, and had produced softening as far as it reached. This softening extended through the posterior tract, but became less as it approached the posterior surface. The anterior tract was a pulpy mass. Neither the anterior nor the posterior tract of the left side was perceptibly affected. The tumour pressed upon, and had caused softening of the roots of the fifth, seventh, eighth and ninth pairs of nerves. The bone was rough about the foramen lacerum posterius, and the condyloideum anterius.

The viscera of the thorax and abdomen were sound, with the exception of the liver, which was of a yellow colour.

*Remarks.*—The symptoms, in the case given above, corresponded very exactly with the seat and extent of the disease. The right side of the medulla oblongata was softened to the extent of complete disorganization. There was complete paralysis of both motion and sensation on the left side. The decussation of the fibres of the corpora pyramidalia, explains the loss of motion of the opposite side; but as we have no facts proving a similar interlacement of the fibres of the posterior or sensory tract, it is not so easy to discover how it happened that the right side was not deprived of sensation. Motion and sensation were unimpaired in the extremities of the side diseased; they were both destroyed in the same parts of the opposite or left side. Are we not justified, from this, in making the inference, that there is a decussation of the filaments of sensation, as well as those of motion?

The fifth pair of nerves is formed, on each side, of two sets of filaments, viz., one for motion, the other for sensation. The former take their origin from the intercerebral commissure, which lies between the cerebrum and cerebellum, and is composed, in part, of the valve of Vieussens; while the latter can be traced down the posterior columns of the spinal cord, about an inch and a half below the tuber annulare. They were both pressed upon, by the upper part of the tumour, at the point of their emergence from the tuber, and the sensory portion, was involved in the general destruction of the texture of the medulla oblongata. The motory filaments being distributed to the muscles concerned in the motions of mastication, viz., the masseter, temporal, pterygoid, and buccinator, and those of the right side being paralyzed, the power of masticating food, was consequently rendered imperfect. The sensory portion, distributing its filaments to the mucous membrane of the nose, of the palate, the pulpy structure of the teeth in both jaws, the papillæ of the tongue, many parts contained within the orbit, the lachrymal apparatus, the conjunctiva &c., and the skin covering the face, all these parts were necessarily deprived of sensibility. The seventh pair, formed under the old division of the facial and auditory nerves, or of the portio dura and portio mollis, is attached to the medulla oblongata, between the corpus pyramidale and olivare, just below the pons Varolii, and was involved in the disorganized mass. The facial nerve supplies the muscles of the face, including the orbicularis palpebrarum. The paralysis of this muscle prevented the closure of the eyelids; and the consequent exposure of the eye to particles of dust contained in the air, with the diminished sensibility of the conjunctiva, from the paralysis of the sensory portion of the fifth pair, the eye not feeling the irritation, of course no tears were secreted to wash out the irritating matter, explains the inflammation of the conjunctiva with ulceration of the cornea. The auditory nerve being destroyed,

there was deafness of that ear. The glosso-pharyngeal, par vagum, and spinal accessory nerves, were all destroyed. The first supplies the muscles of the pharynx and tongue; the second distributes motor filaments to the larynx, furnishing the muscles concerned in the production of vocal sounds, with motory power. The ninth, or lingual nerve, was likewise included in the disorganised mass. It goes to the muscles of the tongue, and also to those of the os hyoides. The muscles of the larynx and tongue of one side, having thus lost their power of motion, speech and deglutition were rendered imperfect. The genio-hyo-glossus of the opposite side, retaining its power of acting under the will, pushed the tongue to the right side when it was thrust out. We thus have a satisfactory explanation of the whole extent of the paralytic affection.

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Case VI. *Pleuræ Pneumonia.—Pneumo-Thorax.—Gangrene of the Lungs.*—M. R., ætat. 19, admitted May 2d—died May 3d, 1840. This girl was a prostitute, and the persons who brought her to the institution, said she had been ill two weeks; she was delirious, and incapable of giving any account of herself; she had been attended by a physician, but no information as to the treatment adopted could be procured; she was very restless, and was constantly talking and groaning; the skin and white of the eyes were of a bright yellow colour; tongue dry, and coated with a yellowish brown fur; teeth covered with dark brown sordes; respiration frequent, but not laborious; pulse 120, and of tolerable strength; there was general dulness of the chest, on percussion, with feeble respiration. Eight ounces of blood were taken from her arm, and she was ordered two grains of calomel every two hours until it purged. Early the next morning, her breathing suddenly became very laborious, and in the afternoon was extremely so, accompanied by great heaving of the chest; pulse 120, full, but compressible. She was ordered infusion of serpentaria, with camphor julep; she died that night.

*Post-mortem, 12 hours after death.—Brain.*—There was great congestion of the large veins of the surface of the hemispheres, and numerous, and large red points were visible, on slicing the medullary substance. *Thorax.*—On cutting into the left cavity of the chest, air rushed out with a whizzing noise. The left lung was pressed close to the spine, and was of a dark brown, and in spots, of a black colour, and had a coating of dark brown lymph, tinged with yellow, over nearly its whole surface. Eight or ten spots, some as large as a walnut, were in a state of sphacelus; and were reduced to a black, soft, pulpy mass. These, when cut into, gave out a very fœtid gas. The pleura had given way over one of them, and air had escaped; the larger part of this lung was hepatized. The bronchial tubes were of a dark red color. The right lung presented the same appearances, but in a less degree. Only two or three spots were gangrenous, and hepatization had not advanced so far. *Abdomen.*—The mucous coat of the stomach was considerably congested. That of the small intestines in a slight degree; the other viscera were normal.

*Remarks.*—This case which I have just narrated, is remarkable for the extent of the disease, and the occurrence of hepatization between the gangrenous spots. Both lungs would appear to have been very generally affected with pneumonic inflammation; which being improperly treated, and the constitution having been greatly debilitated by previous excesses, it passed rapidly into gangrene. Hepatization took place over all the spaces between the gangrenous spots. If the vital powers had not been so greatly impaired by a long course of dissipation, the pneumonia would have passed on to its ordinary third stage, viz., purulent infiltration. There would appear not to have been sufficient energy to elaborate pus. It is surprising, too, that there was neither cough nor expectoration. The delirium was the prominent symptom, which made me suppose that the brain was the organ chiefly implicated. Dissection showed congestion of the brain, but not in sufficient degree to have proved fatal. If, instead of exhibiting incoherent muttering and groaning as the prominent symptoms, she had been harassed with incessant cough, accompanied by fœtid expectoration, the case would have been plain enough. As it was, the attention was drawn off from the lungs to the brain. It should, however, be remembered, that fœtor of the sputa alone, is not pathognomic of gangrene of the lungs. It is true, that the breath and sputa, are, in this disease, from the first, nearly as offensive as when the fœtor becomes of the true gangrenous character. This is owing to the depraved condition, both of the fluids and solids. But it is well known, that this state of things often occurs where gangrene of the lungs does not exist. Dr. Elliotson says that the fœtor of the breath and of the sputa, are not to be depended upon. He has seen other diseases attended with extreme fœtor, but without gangrene; and he has seen extreme fœtor of the breath and sputa without any danger whatever. Sometimes in bronchitis, the fœtor both of the breath and sputa will be very great. He mentions the case of a young lady, who was in tolerably good health, except that she spit up a little; and this expectoration was horribly offensive; so that to stand near her was extremely unpleasant; yet she was walking about, and looking well. He saw a case of this fœtor of the sputa, and smelling of the breath, in a person who died of phthisis; and in this disease, the matter formed occasionally has the fœtor of fæces. Dr. Elliotson is of opinion, that there is no danger, necessarily from the extreme fœtor of the sputa; neither is there necessarily gangrene. But if, conjoined with this, the sputa are observed to be bloody, brownish, or greenish—something like the discharge from a sloughing part; and when any thing like green fragments of lymph are seen, together with a weak pulse, an elongated countenance, and a cadaverous aspect; in short, when the patient is in the state in which we see people when they are sinking from mortification of any other part; there can be no doubt of the nature of the disease. It is to be apprehended, that too great importance has been attached to the fœtor of the sputa; and that cases have been pronounced gangrene of the lungs, when in reality this disease was not present.

ART. X.—*Obstetric Cases.* By WILLIAM ZOLLICKOFFER, M.D., Fellow of the College of Physicians and Surgeons of the University of the State of New York, &c. &c.

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THE following cases, being of rare occurrence, may not be unacceptable to the medical public. They are not communicated so much on the account of their singularity, as they are to prove that the fœtus in utero may exist and continue in a healthy condition, under circumstances which would readily lead to the conclusion, that death would result from an interruption of the circulation in the umbilical cord, as a consequence of the knots and noose to which it seems occasionally subject, from the motions and convolutions of the child during utero-gestation.

Whether the conditions of the funis, in connection with the following cases, occurred during the first months of pregnancy, and the circulation in the umbilical cord, under such an apparently unfavourable state of things, could have existed for several months, it is difficult to determine. It is, however, evident that neither the children nor mothers seemed to be affected, either in the labours of the latter, or the presentations or health of the former, by these contingencies. They may have existed for some time before the birth of the children, and might have occurred but a short time previous.

The next question which presents itself is, as to the manner in which these anomalies are caused. From the circumstance of the umbilical cords, in *both* of the cases I have witnessed, being *unusually* long, may it not be inferred that, under such a contingency, the ordinary motions of the fœtus in utero could very readily be productive of, or give rise to the knots and noose upon them, at any period of pregnancy?

CASE I. When our sixth son, Spurzheim, was born, the umbilical cord was *unusually* long. It was wrapped around his neck and chest, with a perfectly defined knot upon it. The presentation was natural, and from the commencement to the end of labour the parturient efforts were marked by an unusual degree of regularity. The labour lasted one hour and twenty minutes. The child was rather above the ordinary size; enjoyed good health; is now ten years of age. The circulation in the funis was not interrupted, the pulsations being equally as distinct and uniform as is usual under ordinary circumstances.

CASE II. My esteemed and learned friend, John W. Gloninger, M.D., of Lebanon, Pa., has very recently communicated to me a case that came under his immediate notice, strikingly analogous to the one just mentioned. He attended Mrs. B., who was taken in labour on the 5th of February. "Her labour," says the doctor, "being natural, only lasted about three hours; the funis was around the neck and chest, with *a complete knot upon*

*it.*" And he furthermore remarks, in relation to the case at the time he wrote to me on the subject, "the mother and child are doing well."

Case III. On the 23d of December, 1840, I was called to visit the wife of a poor man; the husband requested me to be in a hurry, as his wife, as he said, "is in labour, and wants you to come directly." I repaired to the house as soon as practicable; found the woman suffering from violent labour pains; proceeded to an examination; ascertained that there was considerable rigidity of the os uteri; took from her twenty-four ounces of blood; made a second examination, when the dilatation had considerably increased, and the os uteri in that state of flaccidity that indicated a favourable and speedy termination of the labour. The presentation was natural, and in forty minutes after venesection, this poor sufferer was delivered of a son. After the head had passed into the world, I found the funis around the neck, and adopted my usual plan to bring it over the head before the labour progressed any further; but in this attempt I was unsuccessful. Neither the child, nor the mother, however, sustained any inconvenience from my not being able to effect my object. After the birth of the child I asked permission to raise the bed-clothes, in order to satisfy myself of the cause that prevented my passing the cord over the head, when I found it also around the chest, and instead of a knot upon it, the funis had formed a complete noose around the left forearm. I tied the cord, divided it, and slipped the noose over the hand of the child.

Middleburg, Md., *May* 25, 1841.

[Examples of knots upon the umbilical cord have been recorded by Delius, (*Diss. de Nodis Veris in Funiculo Umbilicali*, Goett. 1805.) Henckel, (*Medicinische und Chirurg. Beobachtungen und Abhandlungen, &c.*) Mauriceau, (*Obs.* II, 106, 401, 470, *et seq.*) Osiander, (*Beobachtungen über Krankheiten der Frauenzimmer und Kinder*, p. 211, and *Uebersichte, &c., v. Salzb. Medic. Chir. Zeitung.* 1809, i, p. 414.) Riolanus, (*Anthopograph*, l. vi, cap. 5.) Ruysch, (*Observat.* No. 11.) Sandifort, (*Observat. Anat. Path.* l. ii, No. 4, and *Mus. Anat.* i, p. 972.) Saxtorph, (*De Funiculis Umbilicalibus Infantum Vivorum Nodosè Complicatis*, in *Collect. Soc. Med. Havn*, vol. i, No. 2.) Schurig, (*Embyologia*, p. 91.) Solingen, (*Anmerkungen*, p. 733.) Schneider, (*Allgem. Medic. Annalen.* April, 1811, p. 308.) Stuart, (*Diss. de Secundinis, &c.*, 1735.) Tiedemann, (in *v. Siebold, Lucina*, iii, book i, p. 19.) Van Swieten, (*Comment.* vol. xiii, § 1306.) Baudelocque, Smellie, &c. &c.

Dr. Blundel (*Principles and Pract. of Obstetrics*, p. 108) states, on the authority of Mr. Rodgers, that a case occurred in New York, where there were three knots on the funis, and yet injection could be thrown from one end of the cord to the other without difficulty.

Dr. Rigby, in his recent admirable work, (*System of Midwifery*, p. 183,) observes that "*Knots upon the cord* have been mentioned by some authors as a cause of danger to the child shortly before and especially during labour; for the circulation in the umbilical vessels being more or less compressed, the child would either be born dead or in a very weakly state. Experience has however shown that these effects have been much overrated, and that these knots are seldom injurious to the child.* Baudelocque has not only met with single, but even triple and very com-

* In a case of this sort Mariceau says, "Ce nœud étoit extrémement serré; mais cela ne

plicated knots tied tightly upon the cord, and yet the child was not only born alive but remarkably robust and healthy. Circumstances, however, may occur by which the knot is gradually drawn so tight as to destroy the child. Smellie has given a case of this kind; but it is to the late Matthew Saxtorph of Copenhagen that we are indebted for an admirable essay on this subject. The result of his observations coincides with those of Baudelocque, viz., that it rarely proves fatal to the child. The manner in which these knots are formed may be easily imagined; when by chance the cord lies in the form of a ring, and the fœtus happens to float through it, a noose is made, which, when drawn tight by accident, forms a knot."

"The most favourable time for the formation of such knots is in the earlier months of pregnancy, when the quantity of liquor amnii, in proportion to the bulk of the fœtus, is so much greater than at an after period, and when its movements are consequently less impeded. The circulation in the knot will be obstructed in proportion as the knot is drawn closer; if it be merely somewhat impeded, the vessels on each side of the knot will be distended and varicose, and the cord itself, where it forms the knot, from the constant gradual pressure of one fold against the other, will become more or less flattened."*—Editor.]

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Art. XI.—*Ligature of Subclavian Artery for the Cure of Axillary Aneurism caused by Gun-shot Wound.* By Josiah C. Nott, M.D., Mobile, Alabama.

The following case contains several practical facts of some value, and may not be uninteresting to surgeons who are called upon to operate for aneurism.

The subject, Mr. Christopher L. Clausel, ætat. 30, is a very respectable gentleman of good constitution and good habits, of Claiborne, Alabama. On the 27th August, 1838, while hunting, he was holding his gun (charged with small shot) by the muzzle; the gun went off accidentally, and the whole load, after passing through the wrist, lodged in the axilla; considerable hemorrhage ensued, both from the wrist and axilla. Dr. Watkins, who was in attendance, found it necessary to amputate the arm above the wrist, three hours after the accident; no artery required ligature, and this fact, with the hemorrhage from the axilla, induced the belief that the axillary artery was injured by the shot.

s'etoit fait seulement que dans la sortie de l'enfant; car s'il eût été long-temps serré de la sorte dans le ventre de la mère, l'enfant auroit certainement peri; à cause que le mouvement due sang que lui étoit nécessaire, auroit été entièrement intercepté dans ce cordon. J'ai encore accouché depuis ce temps là, sept autres femmes, dont les enfans qui étoient tous vivans, avoient pareillement le cordon noüé d'un semblable nœud, qui s'étoit fait de la méme manière, par l'extraordinaire longueur de leur cordon." (*Obs.* 133.)

* Van Swieten, in his Commentaries on Boerhaave, gives a remarkable instance of its occurring twice in the same patient, so as to destroy the child. "I had occasion to see two instances of the birth of a child in one lady of distinction, where every thing was exactly and rightly formed, only the navel string was, towards the middle, twisted into a firm knot, so that all communication between the mother and fœtus had been intercepted. The umbilical rope seems to have formed by chance a link, through which the whole body of the fœtus passed, and afterwards, by its motion and weight, had drawn the knot, already formed, into such a degree of tightness, that the umbilical vessels were entirely compressed; for when the knot was loosened out, all that part of the navel string which was taken into the knot was quite flattened."—(Vol. xiii, § 1306.)

A slough formed in the axilla, which commenced separating in four or five days. On the twelfth day a hemorrhage occurred from the axilla, and about a quart of blood was lost; it was commanded by compress on the wound. On the next day a hemorrhage again occurred to about the same extent. On the sixteenth day a third and most alarming hemorrhage took place, completely exhausting the patient; a compress was again applied, and the hemorrhage did not return.

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On the eighteenth day the slough separated, leaving a cavity as large as an egg, and exposing the ribs; the artery could neither be seen nor felt; the healing process soon commenced, went on rapidly, and by the middle of October it was filled up, leaving only a narrow ulcer an inch long. About this time the aneurismal tumour commenced in the axilla and increased rapidly.

Mr. C. came down to Mobile to consult me, and I saw him for the first time on the 3d of November. On examination I found a large aneurism, filling up the axilla and extending nearly to the clavicle; pulsations strong and aneurismal thrill distinct. I advised tying of the subclavian artery above the clavicle, and performed the operation on the 27th of November, in the presence of Drs. Fearn, Woodcock, and Crawford. No difficulty occurred during or after the operation, and every thing went on favourably. On the twenty-sixth day after the operation, the ligature still remaining firm, I attached to the end of it a gum-elastic thread, laid a small compress on the clavicle, drew the thread over this, and fixed it to the chest by an adhesive strip; it was thus made to exert a constant and gentle force upon the ligature. On the thirty-first day the ligature came away, and had it not been for this contrivance it would probably have remained a considerable time longer; although the ligature was tied so tight around the artery that I could scarcely pass an ordinary sized pin through the loop after it came away.

At the end of forty days the patient returned home with the wound healed, the tumour much diminished, but the pulsation, which returned two days after the operation, was still strong and *purr* distinct.

I saw the patient five months after the operation, and though diminished, there was still so much pulsation in the aneurism, and the *purr* so distinct as to alarm the patient.

I lost sight of the patient until April, 1841, more than two years after the operation, when I had the gratification to see him perfectly well in every respect.

*Remarks.*—This case proves that the return of pulsation, though strong, and continuing for months, is not necessarily a cause of just alarm. The use of the gum-elastic thread to facilitate the removal of the ligature after a reasonable time is allowed, I think is also important; for the ligature keeps the wound suppurating, and there is always danger of the pus burrowing into parts where it would do mischief. There is a case recorded in the *Medico-Chirurgical Review*, where the ligature remained eighty days.

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# MEDICAL EDUCATION AND INSTITUTIONS.

ART. XII.—*The Royal College of Surgeons, in London, with an Abstract of the Case of Thomas Tipple.* By PLINY EARLE, M.D.

THE Institution of the Royal College of Surgeons, in London, is probably more extensive and complete than that of any other association of the kind in the world. Their building is situated upon the southerly side of Lincoln's Inn Fields, and its front is decorated with an imposing Corinthian portico. Exclusive of the very extensive museum, the building contains a large lecture-room, a library of many thousands of volumes, and various rooms for the accommodation of the members.

The lectures delivered in the college are conducted with a degree of ceremony which savours of a monarchical government, and which, in the time of Molière, would have brought like a lava torrent upon itself, and upon the profession, the burning satire of his powerful pen. The president of the association enters the hall, preceded by a man bearing a long gilded mace and a rich velvet cushion. The lecturer follows, clad in a richly wrought black silk robe, and having entered, mounts the rostrum. The cushion, with the mace upon it, is placed upon his desk, and the president takes a seat directly in front of him, in a chair specially devoted to the presiding officer. Things being thus arranged, the lecture proceeds as at other places, the lecturer, like the professors in the United States, but unlike those of France, standing while he addresses the audience.

The museum, which is still called the "Hunterian Museum," in honour of the distinguished surgeon who collected the greater part of the specimens therein contained, acknowledges no rival, and indeed no equal. Those of the Royal Colleges of Surgeons in Edinburgh, Glasgow and Dublin, are fine collections, as are those of the Universities of Edinburgh and Leyden, and that of the *Musée Dupuytren* of Paris; whilst the unique and splendid museum of wax casts of the human anatomy, at Florence, far outrival any other in that specific department;—but having reference to the subjects of natural history, physiology, and comparative and pathological anatomy, the Hunterian collection must be acknowledged as pre-eminent above all others.

Having letters to William Clift, the learned and affable conservator of this museum, I went to the college, delivered them, and was invited into his study, where he was engaged in painting a sketch of the skeleton of a fossil animal. He accompanied me through the museum, at this and at subsequent times, and placed my name upon the books, which entitled me to visit it whenever I pleased, while in the city. He also showed me some animalculæ, which have made much noise in the learned world, those which Mr. Crosse pretends to have developed by the action of the galvanic fluid upon a solution of the silicate of potassa. Among things existent, the Museum of the Royal College of Surgeons is, nearer than

any other object, the idol of William Clift; and of beings non-existent, John Hunter, the chief contributor to that museum, possesses the largest share of his affections. He is never weary of conversing upon either the former or the latter. He assisted that eminent surgeon, for years, in the preparation of his specimens, and testifies to the unparalleled industry with which his "master" labored in their accumulation and preservation. He related many anecdotes, illustrative of his habits and of his character.

Hunter was remarkably fond of domesticated animals, and tried a vast number of experiments upon them. Especially was he attached to bees of which he kept some in his garden. He would play with these, and take them up and handle them with impunity, talking to them like children to their dolls, as if they were able to comprehend every syllable that was spoken. Those of which he was most particularly fond, and wished to remember, he marked with paint, upon the wings. He was a stern and unyielding disbeliever in the power and efficacy of animal magnetism. Willing, however, to have its potency tested upon himself, he once submitted to the infliction of the magic "passes" of one of the sapient professors of that wonder-working art. What, under other circumstances, might have been the success of the experiment, we are unable to decide, being prevented from knowing, by certain significant twinges in the great toe of the surgeon, which gave ominous indications of an attack of the gout. These so tortured his body, racked his nerves and engaged his attention, that the potent quietus of the professor became absolutely nullified.

But let us turn from the man, to the monument which he has left behind him. The principal hall of the museum is eighty-six feet long, forty feet wide, and three stories high. It is lighted, exclusively, from the roof. Around the second and third stories there are narrow galleries, four or five feet in width, protected by a balustrade. These are sufficiently wide to accommodate visitors, or others, in examining or arranging the specimens, while, being so narrow in comparison with the hall, they leave the view comparatively unobstructed. The *coup d'œil* of the vast multitude of preparations, most of which are enclosed in glass jars, is probably finer than that of any other museum of the kind.

In the first story, the cases around the sides of the room are devoted to natural history and comparative anatomy, the specimens being arranged according to the classes reptilia, pisces and mammalia, and the several orders which these include. Placed lengthwise of the room, so as to leave a broad aisle in the middle, and a narrower one upon either side, are table-like cases, with glass covers, and drawers underneath the upper compartment. These contain a great variety of dried anatomical preparations, fossils, bones, shells, zoophytes, and miscellaneous curiosities. Between the entrance-door and the last-mentioned cases, stand, on the left, a skeleton of the hippopotamus amphibius, and, on the right, the pelvis, part of the vertebræ of the tail, and the bones of one leg of the Megatherium Cuvieri. Half-way down the hall, and in range with the cases between the aisles, stands, on the right, the skeleton of O'Byrne, the Irish giant, and, opposite to it, on the left, a plaster cast of an Ethiopian. At the lower end of the room, directly in front of the entrance, and facing it, is the skeleton of the elephant that formerly belonged to the menagerie at Exeter Change. These preparations are all elevated upon pedestals from three to five feet in height.

The second story is occupied by a series of preparations illustrative of physiology. The number of these specimens is two thousand two hundred and twenty-three. They are described in three large quarto catalogues, comprising several hundred pages.

In the third story, the first series, which includes six hundred and fourteen preparations, are illustrative of natural history. The series commences with a germinated pea, and extends, from gradation to gradation, through vegetable existence, and, subsequently, through the polypi, echinodermatæ, tunicatæ, acephalæ, gasteropodæ, pteropodæ, cephalopodæ, entozoæ, annelidæ, cirripedæ, crustaceæ, myria-podæ, arachnidiæ, and insectæ. Next follows a series including fish, reptiles, birds and quadrupeds, of which the number exceeds that of the last-mentioned department. These two series occupy one side of the hall. On the other are pathological specimens and preparations of monsters. Of the pathological series, one thousand and eighty-four are numbered and described in catalogues, but a large number remain unmarked. The series of monsters contains between three and four hundred preparations. They are arranged under four divisions—viz: 1st, preternatural situation of parts; 2d, addition of parts; 3d, deficiency of parts; and 4, hermaphrodites. The first of these is subdivided into, (*a*) "without deficiency," and (*b*) "with deficiency."

Besides this principal hall, there are two or three small adjacent rooms, which contain such a number of preparations that, in many places, it would be considered a large collection.

The elephant, the skeleton of which has been mentioned, was killed by musket balls, no less than eighty of which were shot into his head. A caries in his right tusk had, for a long time, subjected him to a periodical pain in the face, which, driving him to madness, rendered him wholly unmanageable. William Clift saw him but a few minutes before he was shot; he was at that time raving from the effects of the periodical pain, and his eyes were red and flashing with fury. In relation to the skeleton of the Irish giant, we may introduce the following extract from the "*Annual Register Chronicle*" for June, 1783.

"Died, in Cockspur Street, Charing Cross, aged only 22, Mr. Charles Byrne, the famous Irish giant, whose death is said to have been precipitated by excessive drinking, to which he was always addicted, but more particularly, since his late loss of all his property, which he had simply invested in a single bank-note of 700 pounds (sterling.) Our philosophical readers may not be displeased to know, on the credit of an ingenious correspondent, who had an opportunity of informing himself, that Mr. B., in August, 1780, measured 8 feet; that, in 1782, he had gained two inches, and, after he was dead, he measured 8 feet 4 inches."

No other member of the family of this remarkable man was of an extraordinary size. The skeleton measures upwards of eight feet in height, the tibia alone being twenty-one and a half inches in length. By the side of this *lusus naturæ*, and upon the same pedestal, is another equally remarkable for the opposite extreme of development. It is the skeleton of a dwarf female, named Crachami, who was born near Palermo, in Sicily, in 1814, and subsequently exhibited in London and other places. She died in 1824. Sir Everard Home, in his lectures on comparative anatomy, holds the following language in reference to this extraordinary girl:

"An Italian woman, twenty years of age, when, by her reckoning, three months gone with her fourth child, was travelling in a carriage, with

the baggage of the Duke of Wellington's army, on the continent. In the middle of the night, in a violent storm, when she had fallen fast asleep, a monkey that had been chained on the *top* of the caravan, in its fright, found its way *into* it, and, as the warmest berth it could find, got under her loins. Half asleep, she put her hand down to scratch herself: but, scratching the monkey, it bit her fingers, and threw her into fits. She did not miscarry, but went her full time. The child, when born, only weighed *one pound*, and measured *seven inches* in length. It was reared with difficulty, and was carried by its parents to Ireland, where it became consumptive. It was brought to London and shown as a curiosity, and died just after it completed its ninth year. I saw it several times while alive, and it came into my possession after death. Its skeleton is preserved in the museum of the College of Surgeons, in London, and measures 21 inches (in height).

"Upon examination of the body after death, the fontanelle was found closed. There was no fat in any part, but in the sockets of the eyes, behind the balls. The uterus had not been developed beyond that contained in a fœtus of four months; the bladder was distended with urine, to the size of a hen's egg. As the child had never made water freely from its birth, the bladder had probably been injured at the time the monkey alarmed the mother.

"On comparing the ovaria with those of an abortion at three months, they were nearly of the same size. The child, when I saw it, could walk alone, but with no confidence. Its sight was very quick, (it was) much attracted by bright objects, delighted with every thing that glittered, mightily pleased with fine clothes; had a shrill voice, and spoke in a low tone; had some taste for music, but could speak few words of English; was very sensible of kindness, and quickly recognized any person who had treated it kindly. The mother has had a fifth child in Ireland, which, like her first three children, is naturally formed."

The thoracic duct was comparatively large, and contained no obstruction. Hence, the deficiency of growth could not have arisen from an impossibility of the chyle to pass into the circulation. It is suggested that the distension of the bladder might have been caused by the irritation of a large blister which had been placed upon the abdomen. Neither the carpal bones, nor the patellæ present any traces of ossification, and the calcis, astragalus, and cuboides are the only bones of the tarsi which are ossified. The cartilages still exist between the several portions of the sternum, and of the pelvis. All the epiphyses remain unossified. The teeth and the bones of the cranium are perfect.

Under a large bell-glass standing upon the same pedestal with the skeleton of the elephant, is a dry preparation of a remarkable case of exostosis, or osteo-sarcoma, of the tibia. This was presented to the College in 1807, by William Long, Esq., and, according to his account, consists of "the original bones described in Cheselden's *Osteographia*, and figured in table 53, figures 1, 2, and 3." The amputation was performed by Jeremiah Pierce, a surgeon of Bath, in 1745, and a history of the case is recorded in the Philosophical Transactions, No. 452, p. 56. "Upon taking off the limb," says the surgeon, "I found it weighed, with the leg and foot, sixty-nine pounds, which, to the best of my remembrance, is twenty-seven pounds more than the leg, some years since taken off at St. Bartholomew's Hospital, by Mr. Gay, for the like disorder." The substance

of the tibia is nearly destroyed by the exostosis, and the fibula is altered in shape by the pressure of the tumour of the other bone. The tumour, or the osseous part of it, which alone remains, presents the porous, spongy, honeycomb-like appearance peculiar to tumours of this description. Its diameter is, perpendicularly, ten inches, laterally twelve inches, and antero-posteriorly nine inches.

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Upon the same pedestal there is a frame enclosing a picture of the anterior and of the posterior portions of the body of a patient who recovered from a wound of such severity as, *à priori*, would have been believed to be fatal. The following is a brief history of the case.

John Taylor, a Prussian, aged 20, in May, 1831, was employed in the early part of that year, on board the brig Jane, of Scarborough. On Saturday, February 6th, the vessel lying at the time in the London docks, he was at work on board, and, while guiding the pivot of the trysail mast into the main boom, the tackle gave way, the pivot struck and penetrated his breast, traversed the body in an oblique direction, and coming out behind, entered the deck. The trysail mast which drove this pivot through his body, was thirty-nine feet long, and weighed about six hundred pounds. The pivot, which is still preserved in the museum, is blunt, one inch in diameter, and but five inches in length. This entered the thorax on the left side, near the sternum, in the region of the cartilages of the third and the fourth ribs, and came out at a point between the tenth and eleventh ribs, a little anterior to a perpendicular drawn from the lower angle of the scapula. Upon comparing the distance between these two points, it will easily be perceived that the body must have been compressed to an inordinate degree to permit the iron to pass through, and even to enter the plank of the deck. The patient received several other injuries at the same time. His scalp was laid open, and his lower jaw and four ribs fractured. He was carried to the London Hospital, where, under the care of John Andrews, he was so nearly cured, in the course of five months, that he walked from the Hospital to the College of Surgeons and back again. He ultimately returned to his occupation as seaman. During his confinement, portions of the fractured ribs and jaw exfoliated.

In June, 1837, a few days previous to my first visit to the College of Surgeons, Taylor, being in port, called upon William Clift to let him know that he enjoyed perfect health.

Another preparation upon the pedestal, with the skeleton of the elephant, is that of the anterior parietes of the thorax of a man, whose case, being one of the most remarkable upon record, I shall give somewhat in detail, though very much abridged from the original, which was drawn up by J. W. Parkinson.

Thomas Tipple, arriving at the house of John Overton, at Stratford, near London, on the evening of the 13th of June, 1812, and the groom being absent, took off his coat and began to unharness the horse. Being undoubtedly not very well versed in the trade of an ostler, he commenced by taking off the bridle. This being removed, the horse sprang forwards, and the end of one of the shafts of the gig struck Tipple upon the left breast, pierced the parietes, traversed a portion of the thorax, came out upon the right side, and penetrated the sheathing of the house. The first persons who arrived upon the spot, after the accident, were Edward and Henry Lawrence. They testify that they found him standing upon

tiptoe, with both his arms extended. Although thus completely impaled, he was able to put his hand upon the end of the shaft and assist in drawing himself off. Being released, he respired two or three times without difficulty, and there was no inordinate agitation of the body. The wound did not bleed very freely, and the patient went into the house, took off his vest and walked up two flights of stairs. He was undressed, when there was a tendency to syncope, and "the trickling of blood upon the lungs" caused a difficulty of respiration. He sat in his bed until, upon being bled, that difficulty was relieved. The venesection was prescribed by William Maiden, a surgeon, who was called about nine o'clock. He found a hemorrhage from the wound on the left side of the thorax, made by the iron on the under side of the shaft of the gig. Air was also issuing from the wound, indicating a severe lesion of the vesicles of the lungs. The quantity of blood taken from the vein was about four pounds avoirdupois. The patient was permitted to drink a little cold water. At eleven o'clock, Sir William Blizzard arrived, and upon an examination of the patient, found the wounds to be each about four inches in length, while the left shoulder and chest were slightly emphysematous. Anticipating a reaction of the circulation, which he presumed would be hastened by the venesection, and which might occasion a profuse hemorrhage from the wounds, he prognosticated a fatal termination before morning.

*June* 14, eight o'clock, A.M. The patient was in nearly the same condition as when left on the previous evening. He obtained some sleep, and cold water was given to prevent hemorrhage. At noon on this day, Sir William Blizzard ordered an infusion of roses, with one drachm of the sulphate of magnesia, to be taken at intervals of six hours.

15*th*. Eight o'clock, A.M. Dyspnœa increased; considerable pain, and a sensation of weight and of soreness about the thorax. Venesection to the extent of thirty ounces produced much relief. Later in the day, there was some nausea and a sensation of fulness of the stomach and bowels. An enema and castor oil were administered in the evening, and five grains of calomel at bedtime.

16*th*. Eight o'clock, A.M. The calomel operated gently two or three times. The patient restless, and vomiting frequently; a pain in the region of the diaphragm; soreness of the chest, and difficult respiration. Eighteen ounces of blood were taken from the arm, and the enema repeated. In the afternoon the emesis continued, but the dyspnœa was relieved; hiccups had commenced, and these, with the vomiting, were overcome by the effervescing draught; at night the patient appeared to be very near the close of life.

17*th*. He passed a better night, obtaining more sleep than heretofore. The soreness and dyspnœa having increased, they were mitigated by the abstraction of seventeen ounces of blood from the arm.

18*th*. The breathing very laborious, but it was made easier by another depletion of twenty ounces of blood. Still, however, a tenderness of the chest and epigastrium remained. Calomel had been administered every evening hitherto, and had operated freely; it was ordered to be continued, with the occasional addition of Epsom salts and senna, and a large blister was placed upon the sternum.

19*th*. The aperient was continued.

20*th*—*Evening*. The dyspnœa was so great as to induce a resort to vene-

section; nineteen ounces of blood were taken. This day several threads of flannel were seen in the wound under the right arm. They remained there several days afterwards.

21*st*. The aperient was continued, and the patient permitted to eat a small quantity of broth.

22*d*. The pain and difficulty of respiration were less than at any previous time, but there was a "peculiar sensation" about the chest. "Sir William Blizzard advised the abstraction of more blood," but we are not informed how much was taken, or, indeed, whether the advice was followed by the abstraction of any. The patient sat up in his bed for the first time, and his shirt and flannel waistcoat, which had become offensive, were removed. The wounds were examined, and it was found that there was no injury of the back, not even to a discoloration of the skin. The physicians were now convinced that the spine had escaped unharmed, yet they thought the internal injury so extensive that the patient could not recover. It was impossible to conceive how the lungs had escaped. At this time a sensation of smarting was felt along the course of the wound. A blister larger than that previously applied, was placed upon the sternum; the bowels were frequently moved by purgatives, and fourteen ounces of blood were taken from the arm; this was the last resort to venesection.

28*th*. There appeared to be a reasonable hope of recovery.

Subsequently to this date, the aperients were continued, and the blister kept open several days. For eight or ten days there were indications of inflammation of the liver, and insomnia at night, to which there was a tendency, was prevented by opiates. At the end of nine weeks the wounds were nearly closed.

After the cure was effected, there was a depression of two or three of the costal cartilages of the left side, causing a concave cicatrix near the fifth rib. The cicatrix of the right side was somewhat lower.

Sir William Blizzard commends Mr. Maiden for forbearing to use either a probe or his finger, in the examination of the wounds, and adds: "Many lives have been sacrificed to the gratification of curiosity, by researches into the direction and extent of wounds in the body."

Tipple was thirty-four years of age when he received this remarkable wound. His digestion, at the time, was impaired, but it was much improved after his recovery. His general physical strength was less after the accident, and there remained a soreness of the chest and a liability to difficult respiration upon making any inordinate exertion. During the first five years immediately following his recovery, it required less exercise than formerly to put him "out of breath." His health, however, became impaired by gout and rheumatism, and near the termination of this period, J. W. Parkinson was called to him. He found him suffering from dyspnœa; his countenance expressed anxiety; pulse irregular; heart struggling. A copious venesection produced relief. On the next morning there was a recurrence of the same symptoms, which were again met by depletion from the circulation. The patient improved immediately, and soon attended to his customary occupation. At subsequent periods, however, he had other attacks, which were generally induced by bodily or mental exertion, irregularity of diet, or exposure. He was treated by bleeding, purgatives, digitalis, blisters, low diet and rest. These attacks became more frequent during the last two years of his life. In one of them mercury was employed until it produced a slight ptyalism, and this

remedial agent, with digitalis and bleeding, was the only curative means resorted to in several of the last attacks.

About six weeks before his death, having been exposed to the night air he was attacked with inflammation of the mucous membrane of the lungs, accompanied by dyspnœa, uneasiness of the upper portion of the thorax, cough and expectoration of a glairy mucus. Ten days before his death, his legs and thighs, which had been œdematous, became suddenly reduced, by an absorption of the liquid. He lost his strength, became pallid, and suffered so much from dyspnœa that he was bled about a week previous to his decease. Relief was obtained, but the action of the heart became feeble, and great distress was depicted in his countenance.

*Sunday, March* 2, 1823. He was assisted in going down stairs, when, upon attempting to speak, his voice failed and he suddenly expired.

*Autopsy*, March 4. *Thorax* distorted anteriorly. There is an angular projection at the union of the superior and middle portions of the sternum, and a depression upon either side of that bone. That on the left is the larger; it commences four and a half inches from the middle of the sternum, and extends forwards in the intercostal space between the second and third rib, the distance of three inches. That on the right begins three inches from the middle of the sternum, and extends backwards two inches between the second and the third rib. On the left side, behind the margin of the pectoralis major muscle, are two cicatrices, the larger of which is one and a half inches in diameter. Between the third and the fourth rib of the same side, and adjacent to the place at which the tug iron probably entered, there is an external depression, as if made with the end of the finger. The integuments being removed, there appears to be no injury except on the anterior surface. The pectoralis major and minor muscles are both atrophied. The latter covers and adheres to a membranous substance one and a half inches long and one inch wide, occupying the space between the second and the third rib on either side. In these spaces there are no vestiges of the intercostal muscles. The lung is visible through the membrane, which is composed of two laminæ surrounded by condensed cellular tissue. This tissue is connected, by fascia-like bands, to the surrounding intercostal muscles.

The cartilage of the second rib is fractured in the middle, and the ends of the two portions are a quarter of an inch asunder, but connected by an intervening ligament. The rib, also, has been fractured two and a half inches posterior to the division in the cartilage. This piece of rib is turned upon its axis, so that the inferior edge is inward and upward, and has become similar to the inner and superior edge of the posterior portion of the rib. It thus forms a projection of half an inch in the interior of the thorax. The external depression is three-eighths of an inch in depth. The cartilage of the third and of the fourth rib are fractured and united by ossification. That of the third is a little curved. *The space closed by a membrane*, and one inch in diameter upon the right side, is circular. The third rib is fractured, its sternal portion is diminished, and its superior edge is one-eighth of an inch lower than that of the spinal portion. The angular projection, near the upper part of the sternum, is caused by the first and second divisions of the bone being severed and turned outwards, so as to form an obtuse angle, at a point between the cartilages of the first and the second rib. The disunited ends are enlarged and connected, externally, by a ligament which admits of a slight motion.

The lungs adhere to the pleura posteriorly. On the right side there is more than an ounce of serum in the cells of the adhesion. On the left side, anteriorly, the lung adheres to the inferior part of the displaced portion of the second rib, and to the internal surface of the membrane which encloses the space devoid of muscular fibre.

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The lungs are dense and of a deep livid color. A small part of the lower lobe of the left lung is entirely normal. The right lung adheres to the membrane heretofore mentioned, as well as to the surrounding parts, to an extent of one and a half inches in diameter. The rest of the anterior portion presents no pathological appearance.

The pericardium is attached to the heart throughout nearly the whole of its surface. The adhesions are easily broken. There is nearly a teaspoonful of fluid in the cavity and near the apex of the heart.

The heart is augmented in volume, the right auricle being more so than either of the other cavities.

The abdominal and pelvic viscera are normal. It is found that the wounds in the integuments do not precisely correspond with those of the parietes. This position of things undoubtedly facilitated a cure, and was probably owing to the fact, that the arms were raised at the moment of the occurrence of the accident.

The preparation now preserved in the museum consists of the anterior parietes of the thorax, including the sternum and the sternal half of the first five ribs. The whole of the cicatrices and other deformities are thus exhibited. The extremity of the shaft which inflicted the wound is also preserved in the museum. It penetrated the body to the distance of twenty-one inches. The portion of that length is five inches in circumference, in the middle, and six at the larger extremity. The tag-iron underneath is three and a half inches in length. This undoubtedly entered the lungs.

The autopsy was performed under the direction of Sir William Blizzard by W. B. Harkness and William Clift, assisted by J. W. Parkinson.

# REVIEW.

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ART. XIII.—*The Library of Practical Medicine. A System of Practical Medicine, comprised in a series of original dissertations.* Arranged and edited by ALEXANDER TWEEDIE, M. D., F. R. S. &c. &c. *Diseases of the Digestive, Urinary, and Uterine Organs.* 8vo. pp. 516, Philadelphia: Lea & Blanchard, 1841.

THE pages of the present volume are devoted to the consideration of several classes of diseases, which have received very unequal attention from those who were engaged in the investigation of the laws of the economy in health and in a morbid condition. While some of them have been the subjects of study and inquiry from the earliest times, others, as those of the urinary and uterine organs, are indebted almost exclusively to the patient research of medical men during the last few years, for the advanced state in which their history has been placed, and which the dissertations we are about to examine, fully manifest. At the same time, the new facts which have thus been brought to light, are scattered through so many treatises, and are encumbered with so much foreign matter, that it is impossible for the student, or for those engaged in the full practice of their profession, to trace their relations, or even, in many instances, to inform themselves of their existence. We cannot, therefore, but welcome with satisfaction, a work in which they are grouped together in a clear and perspicuous manner, and which places before us under the sanction of distinguished names, as concisely as is consistent with distinctness, the exact state of knowledge in the matters treated of.

In the previous volume, the history of the diseases of the organs of circulation was commenced by Dr. Joy, but the examination extended to those only involving the heart and its investing membrane. The subject is here resumed, and the volume opens with several chapters relating to the diseases of the arteries and veins, thus completing the series of able papers upon the affections of the circulatory organs.

In the first chapter we are presented with an account of the functional disorder of the arteries, namely, neuralgia, and inordinate abdominal pulsation: which last, in the very great majority of cases, is altogether independent of organic disease in the aorta or large trunks proceeding from it, but is rather a symptom of disease in the neighbouring organs, and is, therefore, to be treated as such.

The history of arteritis follows, with a careful exposition of what may be considered its anatomical characters, and a caution against confounding the cadaveric redness so often met with in the arteries, with that resulting from disease. Other morbid appearances are noted, though it is doubtful whether they are all the results of acute or chronic inflammation; such as white cartilaginous patches, proved by M. Bizot to originate from the albuminous concretions of acute arteritis, and finally to supplant the membrane upon which they were at first placed; the yellowish atheromatous patches in the aorta and larger vessels, at first minute granules between the middle

and inner coats, gradually increasing and coalescing, finally ending in ulceration or ossification, thus weakening the coats, and causing rupture or aneurism; and a species of chronic softening of the inner coat, which may end in its laceration, rolling up, and consequent obliteration of the calibre of the vessel. The diagnosis of arteritis cannot be unequivocally established, and it is only by negative signs that we can for the most part arrive at any probable suspicion of its existence when it occupies the interior of the body.

The subject of the next chapter is aneurism of the aorta, which is introduced by a concise and perspicuous account of aneurisms in general, their nature, causes, symptoms, and results. Among "the predisposing causes," says Dr. Joy, "one of the most influential, as has been remarked by Mr. Guthrie, (and our own experience is quite in unison with the observation,) is the inordinate use of spirituous liquors, by which apparently a sub-inflammatory condition of the coats of the vessel is induced, leading to their gradual softening and disorganization, whilst at the same time the force of the heart's contractions is inordinately increased to such a degree, that the weakened artery is no longer capable of sustaining them with impunity."

Aneurism of the aorta is then considered with reference to its situation within the thorax and within the abdomen. The means of determining its existence, and of distinguishing it from other affections, and more particularly, from affections of the heart, are very carefully and fully examined, while it is confessed that there is no positive evidence upon which we can rely until the disease has progressed so far as to have given rise to a tumour of considerable size:

"As regards the treatment of this affection, it is remarked that 'the voice of the judicious part of the profession, and of nearly all those who have of late devoted their attention more particularly to the treatment of cases of internal aneurism on a large scale, is, we think, at present, decidedly adverse to the propriety of enforcing the rigid plan of treatment practised by Valsalva and Albertini, except, perhaps, in individuals of a very robust constitution.' 'In aneurism of the aorta, an extremely lowering system is generally found to do more harm than good, by inducing arterial reaction, or a nervous and irritable state of the constitution incompatible with healthy reparatory action in any part of the system, by weakening the coats of the artery, as well as by giving rise to a thin watery condition of the blood, by which even the existing laminated concretions, so far from being augmented and consolidated by plastic lymph, are apt to get detached and washed away, one great bulwark against fatal rupture being thus speedily removed.' 'It appears incontestable, from several cases recently published by the most competent observers, that a tonic treatment, along with a reparative and rather generous diet, is in many instances much more applicable than the opposite.'"

Having examined all the diseases of the arteries, which belong properly to medicine, Dr. J. next proceeds to a consideration of the veins. After a few short preliminary observations on their general character, and the functional disorders of the veins, the subject of phlebitis is taken up and a condensed and rapid sketch of all the facts connected with this inflammation, either as the cause or consequence of disease in other organs, its anatomical characters, its connection with phlegmasia alba dolens and its treatment, is presented to the reader, who will be more inclined to regret its brevity than to find fault with its matter. As regards phlegmasia dolens, Dr. J. is inclined not to ascribe an exclusive influence to the veins in producing this disease, and believes that they are only implicated in com-

mon with or even subsequently to several other tissues, more especially the subcutaneous cellular tissue, the inferior surface of the cutis vera, and the superficial nerves: and for this he assigns several reasons, such as the mode of origin of the affection; beginning always in the upper part of the limb, the neuralgic tenderness of the surface, the tense and elastic swelling, the type of fever so dissimilar to that in indisputable phlebitis, and the lower rate of mortality compared with that in the last.

Two short chapters, one on varicose veins, and the other on miscellaneous affections of the veins, such as their spontaneous perforation and laceration of their valves, obliteration of their cavity, &c., terminate this portion of the volume before us, and complete the history of the diseases of the organs of circulation.

The diseases of the organs of digestion are next considered, and occupy a space of 254 pages. The account of those relating to the mouth, throat, and alimentary canal generally, is from the pen of Dr. Symonds, of the Bristol General Hospital, with the exception of one chapter on diarrhœa, by Dr. George Budd: that part which treats of the organs external to the alimentary canal, but concerned in the process of digestion, and a chapter relating to the disease of the spleen, are the work of Dr. Wm. Thomson.

These different classes of disorders are examined in the order in which they are mentioned, and a concise and compendious account of these very interesting and important complaints is given.

Beginning with the affections of the mouth, we have presented to us an account of its different forms of inflammation, the aphthous, mercurial and ulcerous: this last is distinguished from a peculiar malignant disease, called gangrene of the mouth, which is considered by the author as an idiopathic affection, arising in young children of a debilitated habit, and living in unhealthy or crowded situations, or as one of the sequelæ of exanthematous diseases, and "gangrenous *ab origine*, any inflammation that may be found about the part is secondary only, bearing no causative relation to the gangrene." Both Dr. S. and the American editor agree that it cannot be attributed to the special action of mercury, though this may favour its development, especially when there is an epidemic tendency to the affection.

The diseases incident to the process of dentition are next briefly described under the heads of local symptoms, and remote affections, among which are included the derangements of the mucous membranes, of the skin, of the nervous system and febrile affections.

Inflammation of the tongue, the specific and common inflammation of the parotids, and angina, or inflammation of the throat are appropriately noticed in the three next chapters. Of these, the angina membranacea, or the *diphtherite* of Bretonneau, is more particularly dwelt upon, and attention is directed to that form, which beginning insidiously and rapidly extending its false membranes over the fauces, and into the air passages, is attended with a low and malignant type of fever, and would appear to be contagious in its nature. Its peculiar and fatal character, and the fact "that there is frequently observed an erythematous or papular eruption on different parts of the body," cause "little difficulty in arriving at the conclusion that it is a variety of scarlatina maligna." We quite "coincide with Dr. Tweedie, in the *Cyclopedia of Practical Medicine*, art. SCARLATINA. 'We are inclined,' he observes, 'to affirm that the scarlatina simplex, scarlatina angina, and the scarlatina or angina maligna, and the sore-throat without efflorescence on the skin, are merely varieties of one and

the same disease.' It is scarcely necessary to add that the *sore-throat* here alluded to, is that which presents the same characters as are observed in cases where there is also the cutaneous affection."

A short chapter on the diseases of the œsophagus, which are generally of a chronic character, leads to the consideration of that important and much vexed subject, gastritis. After a condensed, but very clear description of the anatomical characters of congestion and inflammation of the gastro-enteric mucous membrane generally, and of the means of distinguishing these appearances from that of a physiological or cadaveric nature, an excellent detail is given of the symptoms, peculiar anatomical character, cause and treatment of the acute, sub-acute and chronic forms of inflammation. The last we are cautioned against mistaking for dyspepsia, which is considered as a purely functional disorder, and the mode of distinguishing the two is briefly pointed out. Much space is given to the consideration of the treatment, particularly of the chronic form, and the following, as it appears to us, very judicious language, is used respecting leeching.

"We are persuaded that one of the most frequent mistakes in practice is to apply leeches in too large a number in cases of gastritis; the consequence of which treatment is to exhaust the strength of the patient by the quantity of blood lost, before there has been time for reducing the morbid action in the stomach by the revulsive agency of the remedy, as well as to prevent its repetition. We believe that it is seldom necessary to apply more than six at a time, and sometimes three or four suffice. They may be applied daily for three or four days, or even a week, according to the strength and the degree of pain; and afterwards twice or thrice in a week."

Carcinoma, softening, ulceration and perforation of the stomach are each concisely treated in the next four chapters, and we then come to a consideration of the functional derangements of this important organ, viz., dyspepsia, gastralgia and gastrorrhœa. Preliminary to the account given of dyspepsia, are some excellent general observations on the sources of the functional disorders of the stomach, which are traced to the large quantity of blood distributed to it, and its intimate sympathy with other organs, for which it is indebted for its liberal endowment of nerves, and in consequence of which it is believed that it receives scarcely less injury than it distributes. The increasing prevalence of gastric complaints is, as it appears to us, justly attributed to the condition of the "nervous system, which, in the respective classes of the community, the unnatural hours, the enfeebling luxuries, the toil and excitement of the intellect, the commercial anxieties, the struggles of men, *solicitè ambientes, callidè litigantes*, or of others who, in a redundant population, subsist only by the most ardent and emulous exercise of their inventive faculties, are constantly perturbing and paralyzing."

Dyspepsia is then considered under these forms; two acute, the *embarras gastrique* of French authors, and the other under the name of *bilious seizure*, occasioned by the regurgitation of bile from the duodenum into the stomach; and a third, a chronic attack, and by far the most important.

This last, as was before mentioned, is considered as a purely functional disorder, uncomplicated with any structural alteration, or with appreciable permanent disease of the capillary circulation. The following is considered to be the pathology of the affection.

"We may reasonably infer that the fault is due, either to an insufficiency or

to an impairment of the gastric juice, with or without an atonic condition of the muscular fibres of the stomach; gentle agitation of the food, its easy solution and gradual propulsion towards the pylorus, are the chief requisites for healthy digestion; and it is therefore obvious that changes in the gastric secretion, and irregular contraction or weakness of the muscular coat, may, together or singly, so disturb the process as to give rise to the symptoms of dyspepsia." "An anemial condition of the mucous membrane may cause this deficiency of the gastric juice, or even a state of congestion may be suspected." "The physiology of the nerves of the stomach is not in a settled state, but there is every reason to believe that disordered innervation of this organ plays a very important part in the pathology of dyspepsia."

To this view of the pathology, follows an elaborate and excellent account of the proper medical and dietetic treatment, and the chapter is ended by a notice of the influence of gastric disorders upon other organs. Gastralgia and gastrorrhœa, or those cases of functional derangement of the stomach, in which ejection of the mucus or other secretion by vomiting or eructation is the predominant symptom, are next briefly studied, and close the account of the diseases of the stomach, which are throughout carefully and adequately described.

Descending along the alimentary canal, the next disease presented to the reader is inflammation of the duodenum; which, whether in its acute or chronic form, is very difficult of diagnosis, its symptoms being almost entirely referrible to those of affections of the stomach or liver. It is remarked by Dr. Gerhard, that no portion of the alimentary canal is so frequently in a sound condition on post mortem examinations. A form of duodenal dyspepsia, described by Dr. W. Philip and Dr. Todd, is also noticed briefly, and seems to answer to what is commonly called hepatic derangement, bilious disorders, &c.

"The jejunum," it is remarked, "is not, so far as we know, liable to primary disease, and even enjoys a singular degree of immunity from secondary complications." Inflammation of the ileum and colon are treated of under one head, ileo-colitis, because inflammation rarely attacks the former without extending to the latter, though the converse is not equally true. It is the enteritis of many authors. The acute form is very rarely observed, except as complicated with the follicular inflammation of typhoid fever, and indeed as is remarked in a note by Dr. Gerhard: "Acute ileo colitis hardly occurs as a primitive disease. It is true that in severe cases of dysentery, the inflammation extends from the colon, which is the primitive seat of it, to the lower portion of the ileum, and involves both the follicles and the surrounding membrane. But the ordinary cause of ileo-colitis is typhoid fever, and in that case the follicles are primitively attacked, and the intervening membrane escapes entirely, or at least is but slightly inflamed. Hence we rarely see the acute form of the disease, except under these two forms." Such being the case, in severe forms it is difficult to say whether we have before us an attack of ileo-colitis or of typhoid fever, to judge by the symptoms, and indeed it is not very important in practice, for the treatment would be the same. The chronic form, of which diarrhœa is the most prominent symptom, is often complicated with phthisis and carcinoma of the pelvic organs, though it may be simple and the result of an acute attack. Indeed it appears very difficult to draw the line in this affection on the one hand, between it and typhoid fever, or chronic dysentery—and on the other, or when the disease is light in its nature, between it and simple diarrhœa, yet our author does make the distinction, though perhaps not very clearly.

Colitis or dysentery is the subject of the next chapter, a full and sufficient account being given of its ordinary forms, while the reader is referred to the works of authors who have written on the disease of tropical climates for its more serious and malignant nature, when met with in malarious districts. Such is very generally its character in many portions of the United States, and the omission has been supplied by a description of its anatomical characters and symptoms, and by a detail of the principle that should govern its treatment when met with in such districts, from the pen of Dr. Gerhard, which greatly enhances the value of the account.

A short notice of inflammation of the cœcum, is followed by a chapter on diarrhœa, in which its various forms are separately alluded to and their appropriate treatment pointed out. Cholera, under its two heads, sporadic and malignant, is next presented in a clear and extended account. The malignant or Asiatic variety is traced through all its wanderings from India in 1817, throughout the world, and nothing is left out that could tend to elucidate its history, nature or treatment. It is one of the most elaborate and interesting chapters in the volume, and is compiled from the works of the best authors on the subject.

Organic diseases of the intestines come next into consideration, though no extended notice of them is given. These are tuberculous disease and carcinoma of the intestines, and a non-malignant stricture of the colon, of which several forms are described. Alvine concretions and fatty discharges from the intestines to which, of late, attention has been attracted by Drs. Bright, Elliotson, and Mr. Lloyd, are the subjects of two short chapters.

An excellent description of hæmorrhois, including the hemorrhage, which occurs at the termination of the rectum, and the tumours on which it frequently depends, but which may exist without causing discharge of blood, is followed by a comprehensive and perspicuous account of spasmodic stricture of the rectum, which, from the constipation and extreme difficulty in passing the evacuations attending it, is liable to be mistaken for a permanent stricture of the part. The symptoms, method of diagnosis, and plan of treatment, are each examined with some care.

As to the pathology of colic, our author maintains the opinion that, setting aside the cases in which mechanical obstruction has been ascertained, the disease is occasioned by a combination of two causes, namely, a spasmodic contraction of the muscular fibres in one part so as to resist the passage of the contents, and a loss of muscular power in another part, which prevents it from taking a share in the propulsive action. In this he differs from Dr. Abercrombie, who conceives that the latter condition alone is the efficient cause of ileus; rejecting altogether the idea of spasm, which is not of course observed after death. The probability is, that the former opinion is the correct one, and that the true pathology of colic embraces both spasm and paralysis. Several forms of this disease are mentioned, and more particularly lead colic, to which a chapter is devoted. The prominent symptoms of this latter affection, namely, intense pain in the abdomen and obstinate constipation, certainly ally it strongly with colic generally; but its pathology is very uncertain.

"The prevalent opinion of the present day is that the disease is of a neuralgic nature. The wandering pains, and impaired action of the voluntary muscles, the occasional spasm of the organs of respiration, and the termination of the disease in convulsions and apoplexy and palsy, intimate that the poison acts directly upon the nervous system, and more especially upon the spinal marrow."

Tórpor of the colon, and tympanitis, are both described in separate chapters, and the subject of diseases affecting the alimentary canal, is closed by a long and elaborate account of peritonitis, and a short chapter on enteralgia. The different forms of peritonitis, such as simple, erythematic, puerperal, &c., are separately described, the reader being referred to the article on PUERPERAL FEVERS, for an account of the latter form. We have only room to advert to the point in the treatment of acute peritonitis, upon which Dr. S. lays much stress; that is upon the use of mercury as an adjuvant to antiphlogistic measures.

"From the time," he observes, "the case comes under treatment, mercury should be exhibited in such quantities, as will bring the system under the influence of this agent, should it become necessary to do so. We have often had reason to regret that the decisive administration of this remedy had been deferred until the treatment by bloodletting and other means had proved unsuccessful, and that in this way much valuable time had been lost, whereas, if the mercury had been given at regular intervals from the commencement, a comparatively slight increase of the doses, or their more frequent repetition, could have effected our purpose, and, on the other hand, if the disease had yielded to other measures, we might have discontinued the use of it before the specific effects were developed. *Experience, therefore, has long taught us to begin at once the employment of mercury in every case of acute inflammation, which may in its course require the operation of this remedy, and not to wait until the necessity for it becomes manifest.*"

To such a doctrine as that contained in the words we have italicised above, we conceive that at the present day there would be few consenting voices. In the disease under consideration, running on so rapidly as it sometimes does to a fatal termination, it may be, and, no doubt, is very proper to act upon this suggestion. But it can hardly be deemed right, to commence the treatment of an acute pneumonic or pleuritic attack, for instance, with mercury, before we had ascertained whether it was not susceptible of relief from the use of other means, simply because it *may* be required. The plea, "that if it does no good, it cannot do any harm," would hardly authorize, we conceive, such a course;—indeed the general experience now is, that all simple uncomplicated attacks of acute inflammatory disorders, in previously healthy individuals, are amenable to very simple treatment, and it would certainly, as a general rule, be, at least, unwise, to complicate this by introducing remedies, which at best should be used only when the more ordinary means have failed.

We now come to the diseases of the glandular structures connected with the digestive functions, which are all thoroughly and carefully examined by Dr. Wm. Thomson, in the pages before us.

Of these, the diseases of the mesenteric glands are first described, under the head of simple acute inflammation, met with in certain forms of fever, and corresponding with disorder of the glandular follicles in the intestine, of their tubercular, calcareous and osseous degeneration, and of induration. Of these, the scrofulous or tubercular affection is the most common and important, and is commonly known under the name of *tabes mesenterica*, and in French treatises, of *carreau*, of which an admirable account is given by M. Guersant, in the *Dictionaire de Médecine*, from which Dr. Thomson acknowledges his having freely borrowed. The account before us is one of the most perspicuous chapters in the volume, and it affords an excellent monograph of the disease under consideration.

Before entering upon a study of the diseases of the biliary organs, seve-

ral pages are devoted by our author to a general view of the causes in which they are known to originate; these are classed and amply discussed under the heads of atmospheric heat, rich and stimulating diet, bodily inactivity, external injuries, alcoholic liquors, (of whose influence some doubt is expressed,) the use of mercury, foreign matters circulating in the blood, mental emotions, and the diseases of other organs; which last is treated at some length.

To this follows a chapter on the functional derangements of the biliary organs, which are obviously referrible to an "increased, a diminished, or a vitiated secretion of the bile, or to its impeded, altered or deranged excretion." A few words explain the pathological conditions that may determine this morbid secretion and deranged excretion, and the rest of the chapter is devoted to a full consideration of all the circumstances connected with these derangements, and to an extended account of biliary concretions, their nature, symptoms, and the mode of facilitating their passage along the ducts into the intestines.

The biliary passages are also liable to diseases, which we find described, as they affect the glands of the ducts and the mucous membranes of the gall bladder, biliary ducts and tubuli: of which the treatment is much the same as that of the inflammation of the liver.

The parenchymatous substance of the liver, and its investing membrane, are both liable to attacks of inflammation, which may be either acute or chronic: a form of hepatic congestion, too, is treated of by our author, which arising from a mechanical obstruction to the passage of the blood through either of its venous systems, may terminate in hemorrhage. The account given of the nature, symptoms, and terminations of hepatic inflammation, ending often in the formation of abscesses, as well as that of the proper treatment of the disease by antiphlogistic remedies, and not by specific measures alone, is very ably and clearly drawn up. Mercury has long been used and advised in hepatitis, and particularly among the practitioners in India, who at one time relied upon it almost entirely in their treatment of this affection; but later experience, and the almost universal testimony of authorities of the present day, makes it altogether secondary to the antiphlogistic measures. Dr. T. is decidedly opposed to its administration, even in chronic cases, and with the intention of promoting the absorption of morbid deposites.

"Of the power of mercury," he observes, "in stimulating the absorbent system, many familiar illustrations might be quoted, as the disappearance of dropsical effusions, under its administration alone, or in combination with diuretic medicines; the removal of the lymph effused in iritis, * * * * but these are salutary changes which nature frequently accomplishes for herself, or with but little assistance; and it may be fairly questioned, whether any of the structural alterations of the liver, not of an inflammatory character, which do not undergo spontaneous resolution, ever disappear under, or in consequence of the administration of mercury. At all events, the prejudicial operation of mercury in the chronic structural affections of the liver, is recognised by a number of high authorities."

On the other hand he speaks highly of the use of nitro-muriatic acid in these affections.

Structural diseases of the liver are the subjects of the concluding chapter of the affections of the biliary organs, and are classed under the names of serous cysts and hydatids, to the development of which last this organ is

particularly subject, adipose degenerations, tubercles or cirrhosis, and malignant formations, which, with very few exceptions, are posterior in their development in the liver to their appearance in other parts.

The pancreas is well known to enjoy no immunity from the operation of causes which occasion disease in other organs, and our author therefore treats as fully of its affections as our comparative ignorance respecting them will permit. In a practical point of view their consideration might almost be omitted, for, as the American editor very justly remarks,

"We have never seen a case in which disease of the prancreas was diagnosticated on rational grounds: this result is derived from a very large number of pathological examinations. We do not, of course, allude to our own experience only, but to that of many others. We cannot, therefore, avoid regarding the diseases of the pancreas as matter of little else than simple anatomical curiosity. The lesions of this organ, as found after death, are quite rare, with the exception of chronic hardening, which appears to result from previous inflammation."

The last chapter of this division of the work, is upon the diseases of the spleen, which, from it situation, are usually examined in this connection with the digestive organs. From our entire ignorance of the functions of the spleen, its functional derangements cannot be considered, and our author passes directly to an examination of its structural affections, which are studied under the forms of congestion and inflammation, purulent formations, hypertrophy, &c. Among the causes of splenic disease, its connection with intermittent fever, and its prevalence in malarious districts is adverted to; and it is remarked, that much division exists in the opinions of pathologists, upon the question, "Whether the splenic enlargement occurs as a consequence of morbid action taking place during the progress of the fever, or whether the fever occurs as the consequence of a previous change in the condition of the spleen." Without pretending to solve this question, he glances at the other sources of this disease, and with a very judicious account of their treatment, closes the consideration of the subject.

The next 118 pages are occupied with an examination of the diseases of the urinary organs, among which are comprised those only which come under the cognizance of the physician. The whole subject of the diseases of the kidneys is therefore treated of in detail, while those of the bladder, urethra, and neighbouring glands are more generally touched upon, the two latter in particular, which are merely considered in their relations to the diagnosis of the diseases of the kidneys and bladder.

Much attention has of late years been paid to the investigation of the morbid condition of the urinary organs and their secretions, by Drs. Bright and Christison, M. Rayer and others, which, while it has greatly increased our knowledge, has given new impulse to the researches of others; and as a natural consequence, many of the errors and vague belief which had crept into their history, have been discarded, and a degree of method and precision has been imparted to the subject, which promises yet further to enrich the science. Dr. Christison has taken charge of this portion of the work before us, and has furnished a complete summary of all that is interesting or important in the present state of our knowledge on the subject.

Before entering upon the inquiry into the diseases of the organs, Dr. C. lays before the reader a short, but valuable statement of the properties of

healthy urine, with the remarks, "that it is scarcely possible to take a single step in confidence in the diagnosis or treatment of diseases of the urinary organs without attentively studying the deranged states of the urine; and in order to appreciate correctly the inference to be founded upon these states, it is indispensable that a correct knowledge be formed of its healthy condition." We are soon made aware of the importance of this preliminary investigation, for the next chapter, on the functional diseases of the kidneys, is based upon the modifications impressed upon this healthy urine, the result of morbid action, either primarily excited in the kidneys themselves, or induced secondarily by diseases in other organs of the body. The most important of these modifications are the increased or diminished quantity of urine discharged; the changes in its density and in the quantity or quality of its solid contents, and the introduction of a great variety of morbid ingredients, derived either from the animal system itself, or of materials from without, and through the medium of food taken. Of the morbid or preternatural contents of the urine, Dr. C. observes,

"It is particularly worthy of remark, that all those which are organic in their nature have an intimate relation to one another, as well as to the natural constituents of the urine, urea and lithic acid, in their elementary constitution. Urea, lithic acid, oxalic acid, albumen, sugar, cystic oxide, carbonate of ammonia, are so related in their atomic constitutions, that simple changes will convert them into one another. Hence the facility, otherwise incomprehensible, with which the urine furnishes so great a variety of morbid products."

Among other morbid affections of the urine, the first which claims attention, are the calculous diseases, or gravel and urinary calculus. Of the former, which belongs more especially to the province of medicine, we have a full and comprehensive history. Its symptoms are clearly detailed as they vary with the different kinds of gravel met with in the urine, and its causes and pathology are investigated together, and it would appear from the examination, "that however efficacious the dietetic and other causes mentioned, often prove in their operation, they nevertheless do not often give rise to an outbreak of the disease, unless under the co-operation of certain predisposing circumstances; occasionally, indeed, cases will seem to arise under full, luxurious, intemperate living, where no predisposition can be traced. But on considering how vast a number of people, in the middle station of society, live in that manner to an advanced age, without showing any tendency to gravel, some reason will appear for doubting whether a predisposition may not be indispensable in all instances." The treatment of this affection is admirably explained, and the principles upon which it is to be conducted are laid down *in extenso.*

The same course, to a certain extent, is to be applied to the relief of those suffering from urinary calculus. As far as the aid of the physician can be of advantage to the patient, full directions are given for its administration; and the reader is referred to the works on surgery for a more general exposition of the whole subject, of which a condensed view only is given.

The next functional disorder is treated of in two distinct chapters, under the designation of diabetes insipidus, and diabetes mellitus. The former includes several distinct affections, which have been named by Dr. Willis, *hydruria*, *anazoturia*, and *azoturia*, that is watery, deazotised and hyperazotised urine. In the first the urine is simply diluted, and in the two others the quantity of urea is changed relatively to the other ingredi-

ents of urine. The nature and treatment of each of these varieties is briefly examined, and the author then proceeds to consider the more important subject of diabetes mellitus or the saccharine form of the disease.

Adopting the definition that diabetes mellitus consists in "a discharge of saccharine urine, with a great tendency to emaciation and suppressed transpiration," as probably least objectionable, Dr. C. passes in review the history and symptoms of the disease, and examines in detail the character of the urine, which "is increased in quantity both absolutely, and likewise for the most part relatively to the fluid contained in the drink and food; it is also commonly increased in density in its proportion of solid contents and in the amount of solids daily discharged by it; and further, it is essentially altered in its sensible qualities and chemical constitution," containing, besides its usual constituents, a large quantity of saccharine matter. An interesting account is presented of the condition of the other functions of the body in connection with this matter, and a most important fact is noticed relative to the state of the alimentary canal, namely, the discovery by Mr. Macgregor, that sugar is abundantly formed in the stomach by the process of digestion.

"Mr. Macgregor states that he has repeatedly found sugar, by the process of fermentation, in the contents of the stomach, vomited after digestion had begun, and that he has likewise detected it in abundance in the fæces, both by fermentation and by crystallization. He further adds, that sugar may even be found in the half digested food when no aliment had been taken for some time before, except of an animal nature; that the quantity, however, is much increased under a vegetable diet, and that in some circumstances he has detected the same principle in the saliva. These are the most valuable and important of all the facts which have been for some years contributed to the pathology of saccharine diabetes, and it is therefore much to be desired that their accuracy were put to the test of further observation by others."

Ambrosiani of Milan, Dr. Charles Maitland, and more recently also Dr. Macgregor, have discovered sugar also in the serum of the blood, which fact is greatly enhanced by its detection in the alimentary canal. As pathological anatomy throws no positive light upon the nature of this strange disease, as it is now ascertained that diabetic urine "is substantially natural urine, *plus* so much sugar," and the experiments of Ambrosiani, Maitland and Macgregor, prove that sugar is found in the alimentary canal and in the blood, it would seem "that no further difficulty would exist in accounting for the peculiar condition of the urine, without the necessity of assuming the concurrence of some peculiar irritation or modification of the renal function," the kidneys being solely required to exercise their natural function of discharging a foreign substance from the blood.

We have delayed rather long upon these facts, but their practical importance must be our excuse, and we would refer all to this truly excellent chapter for a fuller development of the case, and for a detail of the mode of treatment, which is now pretty well established.

Two short chapters, one on diabetes chylosus, a very rare affection, and the other on suppression of urine, or the *ischuria renalis* of most nosographists, lead us to the consideration of the organic diseases of the kidneys, of which it is remarked "few organs in the body are subject to so great a variety; most of them, however, are of rare occurrence; and those which are frequent have been discovered to be so only within a few

years. * * * The general result of inquiries is, that the kidneys are more or less liable to all the alterations of structure which are observed in the great viscera generally, and to certain peculiar affections which bear reference to their peculiar functions."

Errors in position and conformation, and hypertrophy of the kidneys are described in two short chapters, which are immediately followed by one on their inflammation. This has been proved by the researches of Rayer to be infinitely more common than had hitherto been supposed, and is divided into several diseases, according as it attacks different structures, which are all considered by Dr. C. under the two heads of simple acute and chronic nephritis, reserving the subject of granular deposition, or the albuminous nephritis of Rayer for another chapter; for as Dr. C. remarks, "the connection of that disease with inflammation has not been established."

This chapter on inflammation is a condensed account of the disease, taken from the great work of Rayer,* now in course of publication, and the history of its symptoms, complications, causes, and anatomical characters is detailed in a masterly manner. The prognosis and treatment conclude the article, which, as it appears to us, contains all that is necessary to know, in order to form a clear and thorough idea of the affection under consideration.

Granular disease of the kidneys is next taken up. It was first noticed by Dr. Bright in 1827, who pointed out "the frequent connection of anasarca and other dropsical affections, with a peculiar disease of the kidneys, the leading character of which is the deposition of a yellowish granular matter in its substance, together with the gradual atrophy of its cortical and tubular structure." The concurrent testimony of numerous observers, of whom our author was not the least distinguished, has settled that "granular degeneration of the kidneys is one of the most common of organic disorders; that it is intimately connected with a great variety of both chronic and acute diseases, which it either exasperates as a complication, or favours by establishing a predisposition; and that although often obscure in its characters, it may almost always be successfully recognized, if skilfully sought for." This chapter is chiefly an abstract of the author's previously published opinions, a work already too well known to render an analysis of this necessary.

One chapter more upon the other organic diseases, as hyperæmia, anæmia, atrophy, &c. concludes the subject of diseases of the kidneys, and we cannot close our notice of this part of the work before, without saying in the words of the American editor, that "the excellent memoirs of Dr. Christison on the affections of the urinary organs leave little to be desired." A few pages are added on the diseases of the bladder and urethra, and their diagnosis pointed out; for the history of these affections, the reader is referred to the works on surgery, to which department of knowledge they properly belong.

The last eighty-four pages of this volume are occupied with the history of the diseases of the uterine organs, of which the functional derangements, or those connected with menstruation, are furnished by Dr. Robert Ferguson, of King's College, and those depending upon organic disease of the uterus and ovaria are from the pen of Dr. Simpson, of the Edinburgh University.

* Traité des Maladies des Reins.

A concise account of the function of menstruation, with a full and sufficient examination of the various circumstances connected with its aberrations and derangements, is presented in a series of chapters on imperfect puberty, arising from precocious or tardy menstruation, or dependent upon faulty development; on suspended menstruation or amenorrhœa, which may be the result of physiological causes, or of morbid conditions of the reproductive function, as manifested in a state of constitutional debility or with an appearance of superabundant circulation; on vicarious menstruation; on painful menstruation or dysmenorrhœa, which is independent of defect or organic lesion even in the most severe cases, and on excessive menstruation or menorrhagia, including only these uterine hemorrhages which are directly or indirectly connected with the periodical flux, and omitting such as arise as a symptom of uterine structural disease. On hysteralgia or irritable uterus, a painful affection, first described by Dr. Gooch, an abstract of his admirable essay, to which the reader is referred, is presented; for subsequent observations have added little or nothing to his statements, which they have fully confirmed. A chapter on leucorrhœa follows, in which this is treated as in most cases the result of functional derangement, though occasionally evidently a consequence of an inflammatory condition of the vagina.

Of the various organic diseases of the uterus, its congestion and inflammation are first investigated. The former of these conditions derives its chief interest and importance from the fact, that recurring at every monthly period, it may aggravate any chronic form of disease already existing in the organ, or may rekindle an acute attack which was nearly subdued, thus, perhaps, producing a chronic affection. Means must therefore be resorted to, to prevent these baneful effects, and to moderate the influence of this physiological condition, thus converted into a source of irritation and morbid action.

"Rest, in the supine posture, is one of the most important of the measures which we should adopt. It is not, however, to be regarded alone as a direct and effectual means of treatment, but without it all our other resources will in general fail. Its importance we can easily understand when we reflect how readily blood gravitates to the more dependent parts of the body, more especially if the general system happens at the time to be debilitated, or if the vascular system of any dependent organ is in so weak a state as to admit of congestion occurring in its vessels with more than usual facility. We assume, in fact, the supine posture here as one element in the treatment, for the same important reason as the surgeon insists upon it in the treatment of an injured, inflamed, or ulcerated limb; and we look upon it as an indispensable measure, during the period of menstrual congestion, as well as in the course of the active treatment of all uterine affections. It is sufficient, in many cases, to cancel the bad effects of the temporary uterine congestion, but where it is not, the detraction of blood either generally or locally becomes indispensable. The selection of local or general blood-letting must necessarily depend upon individual peculiarities, such as the state of general plethora and the strength of the patient's constitution. We have seen excellent effects from small venesections from the arm (to the extent of six or eight ounces) immediately before or at the commencement of the menstrual period, in cases where it was our object to avert the dangers of the accompanying congestion; and we have known similar good effects result from the application of a few leeches to the cervix uteri at the same period.

"In constitutions so reduced or anæmic as not to justify the detraction of blood, dry cupping, or slight counter-irritants to the lumbar and dorsal regions may be employed with a similar indication, with such other means as keep the general circulation as much as possible equalized."

The author next passes to a consideration of metritis. The acute form of this disease, "which is rare in the unimpregnated state," should be at once vigorously attacked by antiphlogistic remedies, in order to prevent it from running into some one of the chronic forms, which it is particularly liable to do. These are in themselves so painful and distressing, as well as so frequent, that they constitute the most important structural diseases of the uterus; they are, therefore, studied with care in the pages before us; and the means of detecting their existence by the touch and the speculum besides the rational symptoms, with the proper method of treatment, are well laid down.

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In the following chapters, fibrous tumours, polypus, the cauliflower excrescence, carcinoma and corroding ulcer of the uterus, each receive an appropriate notice and description, containing a summary of all the facts connected with them. These, with the concluding chapter on other morbid degenerations of the structure of the uterus, such as its cartilaginous and osseous transformation, hypertrophy and atrophy, &c., complete the history of the diseases of the uterus.

Inflammation and dropsy are by far the most important structural diseases of the ovaries, and are presented in detail in two excellent chapters, to which succeeds one containing an enumeration of the other organic diseases of a less frequent and less practical nature which invade these organs, and terminating the volume before us.

We have thus endeavoured to present a general idea of the interesting matters contained in this portion of the Library of Practical Medicine, which comprises all the affections which are incident to the organs within the abdomen. Like the other portions of this valuable series, its great merit is, that while it forms one of the best text books, which can be placed in the hands of the student, its pages may be consulted with decided advantage by those who have passed through the early routine of study, and are now actively engaged in the practice of their profession; and the universal satisfaction with which the different volumes have been received is in itself an evidence of the necessity of such a publication, while it evinces also the great ability with which the contributors to the series have executed the tasks assigned to them. We have had occasion several times to allude to the additions and remarks of the American editor, who has contributed valuable information respecting the modifications of disease in this country, which must enhance the value of the work in the estimation of the American practitioner. C. R. K.

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# RETROSPECTIVE REVIEW.

ART. XIV.—THEODORI KERCKRINGII, *Doctoris Medici, Commentarius in Currum Triumphalem Antimonii* BASILII VALENTINI, *a se Latinitate donatum.* Amstelodami, 1671: 12mo. pp. 342.

*The Triumphal Chariot of Antimony, by* BASIL VALENTINE, *translated into Latin, and enriched with a Commentary, by* THEODORE KERCKRINGIUS, M.D. Amsterdam, 1671.

AMONG the many reflections afforded by observation to humble and mortify human vanity, there is none which comes home so directly to the business and bosom of the student, as that suggested by the decayed reputation of works of learning and science which once enjoyed the most eminent renown, and appeared certain to descend to posterity with unabated lustre. The productions of the mind are found, with some few exceptions, to be almost as perishable as those of the body. Authors depart, and rest from their labours, and their works follow them. The volumes which in their day commanded unlimited admiration, and seemed secured by the magic of genius and wisdom against the attacks of time, are superseded by productions more suitable to the advanced intelligence, or more agreeable to the improved taste or increased frivolity of a new generation, and are suffered to sink into neglect and oblivion. *Debemur morti nos nostraque.* Works which were once esteemed, like the pages of Thucydides, *an estate for ever*, to be inherited by the wise and learned of all coming ages, are often rejected by those fastidious legatees with profound indifference, and suffered to repose in dust and obscurity, or to be measured, examined, and scrutinized only by the silent and unflattering criticism of mathematic spiders.

In no department of learning is this instability of reputation more conspicuous than in medicine. The average duration of systems of medical doctrines and practices is briefer than that of their authors. Opinions promulgated with zeal and abilities, and received with universal favour, have been quickly rejected with equal unanimity; and the tomes which at one period were reverenced as the repositories of the *omne scibile* of the healing art, have at no distant day come to be neglected with contempt for their dulness, or denounced with indignation for their pernicious errors. Whether such fluctuations depend upon the essential difficulty of medical inquiries, or the limited capacity of the human mind, or the neglect of the just rules of philosophizing, or upon some other more latent causes by which the attainment of scientific truth has been prevented or delayed, we shall not now pause to investigate. Nor shall we on this occasion attempt to decide whether the wreaths which crown the present leaders of the medical ranks are more permanently fixed than those which have fallen or been torn from the brows of their predecessors. We are told by the admirers of the present day that the age of system-makers has passed away, and

that medical philosophers have at length derived wisdom from the mistakes and failures of those who went before them, and are directing their researches in such a manner that they cannot fail to add materially to the stock of true knowledge. This may all be very true, and we heartily hope, and partly believe, that it is so. We should recollect, however, that similar condemnation of all preceding speculators, and equal complacency respecting their own achievements and prospects have been avowed by the physicians of almost every age. And though we entertain all becoming reverence for our excellent contemporaries, we are still of opinion that they and their productions are in some slight particulars not entirely dissimilar to what the world has seen before; and that the medical works of past ages are at least so far akin to those of our own day that even amidst the refulgence of modern improvements their wrecks and remnants may yet be examined with some degree of interest and advantage. This is more especially true with regard to the writings of those authors who contributed materially to the advancement of science, and whose labours and discoveries have consequently continued to be referred to long after the volumes in which they are recorded have, from a variety of causes, ceased to be generally read. In examining such works, we indulge a species of curiosity, not unlike that which impelled Lucian's Menippus, upon his descent to the lower regions, to inquire for Leda, Helen, and the other renowned beauties of antiquity, in order that he might ascertain whether their charms were in reality as wonderful as they were considered by their contemporaries; and if we are occasionally like the Cynic philosopher, surprised at the nakedness and deformity of the dry bones that are presented to our inspection, we may also, like him, find such a spectacle not without its use as a subject for profitable reflection.

One of the most remarkable works of the kind referred to is the treatise of Basil Valentine, the title of which we have placed at the head of this article. To this publication has been commonly ascribed the introduction into general use of the preparations of Antimony, an addition to the resources of the practitioner of medicine second to but few others that have ever been made. Besides the strong claim upon the attention and gratitude of physicians which its author might hence advance, the work itself is interesting for the opinions which it contains on various subjects connected with medicine and other departments of philosophy, and also for the indications it affords of the state of feeling excited by the memorable contest between the chemists on the one side, and the Galenists or regular physicians on the other. The condition of science at the epoch of the revival of letters in the fifteenth and sixteenth centuries, and its disenchantment from the potent spells of Aristotle and Galen, are subjects so curious and important, that a work by a contemporary author which throws any light upon them, or gives any information respecting the doctrines generally received at that period, and the changes which were then in progress can scarcely fail to be interesting to scientific readers, and to those who wish to investigate the history of the human mind. It is from this consideration that, although our pages are for the most part devoted exclusively to the medical tenets of our own living and breathing nineteenth century, we are yet disposed, on the present occasion, to cast a retrospective glance upon the old Benedictine alchymist, who three hundred years ago, was fully persuaded that by his labours of the furnace and alembic he had unravelled all the mysteries of medicine, advanced that

science to its ultimate point of perfection, and acquired for himself a character which would cause all the coming generations of mankind to reverence him as the most illustrious of their benefactors.

The *Triumphal Chariot of Antimony*, like all the other works of its author, was written originally in High Dutch. For the advantage of being rendered accessible to the learned world by means of a Latin version, it is indebted to Dr. Kerckringius, a scholar whose profound veneration for Basil Valentine, and implicit faith in his dogmas, must have made the task of translating and expounding his writings, a labour of pleasure and love. "I am convinced," he says, "that of all chemists, Basil is the most excellent as well as the most distinguished and illustrious. When you have read and understood his productions, you have acquired everything that can ever be hoped for from the art of chymistry. Of this fact I am perfectly assured, and in support of its truth I am ready to stake my credit and reputation. His various processes I have fully tried, and in doing so often have I erred, and many needless expenses have I encountered; not, however, from any fault of Basil, but, to confess the truth, simply from my own. That you may avoid such evils, I have added to the work a commentary, which it would not become me to commend, but of which I will merely say, that though it may appear to be of but small importance, it yet contains many things, from my former ignorance of which, I was subjected to immense expense. If you dread not this danger, you have no need of my assistance; go forward by yourself. But, on the contrary, if you desire to attain your goal with fewer errors, less loss, and less delay, you will find me a useful guide, or at least a safe and convenient index, through the manifold windings and intricacies of the road upon which you are entering."*

Of the life of Basil Valentine, whose labours Dr. Kerckringius, with that excess of zeal so common among editors has thus strongly eulogized, there is but little related, and of that little some of the particulars are evidently erroneous. That he was a monk of the order of St. Benedict, we learn from himself; and that the city of Erfurt, in Saxony, was the place of his abode, we are told by others. With regard to the period at which he flourished, there is a diversity of statements. His true date may, however, be ascertained with sufficient exactness from several passages of the work before us, in which he mentions the syphilis as a new and unknown malady which had been shortly before introduced into Germany by the military expeditions of the French.† This disease, if previously known at all in Europe, which is wholly improbable, had certainly neither excited public attention nor attracted the notice of physicians before the return of Columbus and his companions from America in 1492. The present work was therefore probably written in the early part of the sixteenth century. Of the character of its author we know very little, except what he has himself thought proper to communicate, and what we may readily infer from his writings. That he was a man of the strictest morals and most ardent piety, we are assured by his own unexceptionable testimony. There are, it must be confessed, indications throughout this work, of an angry vehemence of temper not easily reconcilable with his professions of sublimated purity; and his denunciations of avarice and exhortations to contempt of wealth, are occasionally brought into rather

* Epistle to the Reader. † Page 52, &c.

too close proximity to certain complacent allusions to his own opulence. Yet he appears to have been satisfied that piety was the most prominent feature of his moral physiognomy. He both begins and ends his book with earnest assertions of his personal holiness and sanctity, and makes the same subject the burden of his song through many of its intermediate pages. Like Joseph Surface, he is a man of *admirable sentiments.* He is bound, he says, by holy vows, requiring a mode of life widely different from that of ordinary mortals.* He is a religious man, incorporated into a sacred order, in which he is resolved to continue as long as it shall please the Almighty to animate his miserable body with vital breath.† From the horrid and unnatural passion of love, the evils of which he inveighs against with all the fervour and acrimony with which the same subject was wont to inspire Mr. Shandy, he declares that he had always been exempt, and would forever remain so.‡ He exhorts his disciples if they would imitate him to take up their cross and suffer as he had suffered, to endure persecution as he had endured it, to labour as he and his great predecessors had laboured before them, and to offer up continual prayers, with a full assurance that their devotions would be as successful as his own.§ If his manner of speech be of a simple cast, he begs that it may be remembered that he is a religious man, unaccustomed to secular concerns and worldly eloquence; he hopes that this defect will be forgiven him; and to all good Christians who shall grant him their pardon, he offers the remuneration of his daily and nightly services in prayer and intercession.‖ It is certainly not easy to read those and many parallel passages without concluding with Benedict that, "knavery cannot, sure, hide himself in such reverence;" the very conclusion, no doubt, to which they were intended to conduct us. The only personal adventures which he refers to are, that in early life he had travelled in England and Belgium,¶ and that at a late period, after having accomplished the great object of his chemical researches, he had performed a laborious pilgrimage to the shrine of St. James.** In the two countries which he visited nothing pleased him so much as their excellent beer, and he consequently paid particular attention to the genial art of brewing, and has given a minute detail of its processes. His studies were diligent, and his writings are said to have been numerous and highly esteemed. He concludes the *Triumphal Chariot* by declaring his intention of confining himself to his monastery for the purpose of investigating the more recondite questions of philosophy, and of writing on the subject of vitriol, sulphur, and the magnet.

The present work is interspersed with frequent ethic and theologic discussions, from the length and discursive character of which we should be apt to infer that it was by no means one of its author's juvenile performances. With these discourses we shall not detain the reader, for however edifying they may have been in the original High Dutch, they have certainly waxed somewhat pointless in undergoing the progress of transmutation into the Latin of Kerckringius, and appear indeed to have contracted a good deal of that antique mellowness of complexion which among the uncharitable might perhaps subject their author to suspicion of having been *an old man* in even the emphatic sense of Dogberry.†† Com-

* Page 1. † Page 101. ‡ Pages 322, 327. § Page 197.
‖ Page 266. ¶ Page 52. ** Page 274.

†† "The pious reflections of the author," says Dr. Kerckringius, "I neither praise nor condemn. Let each one estimate them according to his own judgment, and the

mending, therefore, these portions of the treatise to the consideration of the *serious*, we shall proceed to notice such of its topics as may be of more general interest.

One of the subjects which occurs most frequently, and is most apt to attract the attention of the medical reader, is the author's strenuous expression of contempt for the physicians of his day, and reprobation of their prejudices, ignorance, and imbecility. After a formal apology for the liberty he was about to use, he informs them, that the amount of their science in medicine and surgery is precisely equal to that which is contained in the brains of those cocks' heads which the younger sort of school-boys are wont to scribble on the blank leaves of their primers.* He expresses his determination to hold them up to lasting infamy as fools and idiots.† His indignation is not satisfied with their punishment in this world; it extends beyond the bounds of life; and for their neglect and ignorance of their profession, he denounces against them the horrors of eternal misery and everlasting burning.‡ These are hard words, and it would be hard to discover where Basil's vaunted sanctity and charity were slumbering when they were written. Yet though his violence and rancour must be condemned, we should recollect, however, that medical science was in his day at an exceedingly low ebb, and its professors as little worthy of the name of physicians as any who have ever borne that most honourable title. They appear to have been well described in the gloomy representation of the learned world, or rather of the unlearned pretenders to learning, which was drawn by Friar Bacon in the thirteenth century: "The mass of students," says that great philosopher, "are languidly and stupidly consuming their time, labour, and means in poring over wretched translations of the ancients. They regard nothing but appearances; they seek not for knowledge, but only for the reputation of knowledge with the ignorant rabble. Never was there so much ostentation of wisdom, and never so much real error and ignorance."§ The lapse of three hundred years from the time of Bacon, whatever beneficial changes it might have effected in the other departments of science, had made but little improve-

doctrines with which his mind may have been imbued in infancy. My part was barely to translate them into Latin in such a manner as would occasion the reader as little sick stomach as possible—*minimam delicato lectoris stomacho allatura nauseam.*"—P. 8, *note*. The Doctor's charitable offorts have not been very successful.

* Page 25. † Page 36.

‡ We can offer no apology for these and numerous other eruptions of spleen and petulance which disfigure the work, except the one suggested by the Rev. Tribulation Wholesome, for the similar outbreaks of another renowned alchymist—

> ——"We should give somewhat to man's nature,
> The place he lives in, still about the fire,
> And fume of metalls that intoxicate
> The braine of man, and make him prone to passion.
> What makes the Devill so devillish I would aske you,
> Sathan, our common enemie, but his being
> Perpetually about the fire, and boyling
> Brimstone and arsnike?"—Ben Jonson, *The Alchemist*, Act 3, sc. 1.

§ Vulgus studentium languet et asininat circa male translata, et tempus et studium amittit in omnibus et expensas. Apparentia quidem sola tenet eos, et non curant quid sciant, sed quid videantur scire coram multitudine insensata. Nunquam fuit tanta apparentia sapientiæ, cum tamen nunquam fuit tanta ignorantia, tantus error. Quoted by Jebb, in his preface to Roger Bacon's *Opus Majus*.

ment in the character of medicine. Physicians at the close of the fifteenth and beginning of the sixteenth centuries were still blindly devoted to the doctrines of Galen. Giving their whole attention to his works, neglecting the observation of nature, their prescriptions an immense farrago of feeble or useless articles, their practice ill-directed, irrational and inert, they were but little entitled to respect, and in no way qualified to excite in their successors of the present day any emotions of fraternal sympathy.

But however much they may have deserved reprehension, or needed reformation, it may be questioned whether Basil Valentine was the most proper person to inflict the one, or the best qualified to accomplish the other. Of his moral fitness for such tasks those who value his own assertions will of course think favourably; but it cannot be denied that respecting the strength and integrity of his judgment, his writings afford a testimony that is far from satisfactory. Antimony, he says, is, like the other metals, a mineral vapour or smoke, extracted by the stars from the earth, by a kind of sidereal sublimation, and afterwards coagulated, concocted, and matured by the elements.* Like the other metals, it consists of salt, mercury, and sulphur, its principal ingredient being sulphur, its second mercury, its third and least salt. There is a better kind, however, that has more mercury than sulphur,† &c. &c. Admirable philosophy for one assuming to be the reformer of errors, the guide to truth, and the author of the only perfect system of medical science! His whole work abounds with similar gratuitous and absurd doctrines. How far he was superior as a practitioner of medicine to those whom he reprobates, it would be not very easy to determine. The timid and inefficient practice of the Galenists was strongly contrasted by the vigour and temerity of his chemical brethren. The use of the metallic preparations, which the latter had introduced, and of the most powerful remedies of other kinds, afforded them the means of often effecting splendid results, and was also, as their adversaries assert, frequently the occasion of deplorable and fatal catastrophes to their patients. The propriety of using metallic medicines was one of the subjects of most passionate dispute between the two parties, and our author alludes to it with characteristic warmth. "There are numerous fools in our time," he says, "who are continually exclaiming, *crucify them, crucify them*, against all who prepare medicine from poisons, as from mercury, arsenic, and antimony. These persons would do well to consider how extremely incapable they are of forming any just idea of the difference between a medicine and a poison; and that though they are doubtless wholly unable to divest a dangerous article of its malignity, and convert it into a salutary medicine, it by no means follows that such a power may not be possessed by wiser men."‡ Besides the three great medicines which he thus refers to, there are but few others mentioned in

* Pages 103, 107, 111, 311. † Pages 111, 37.

‡ This clamour against the use of poisonous drugs, so often raised by charlatans, is frequently heard at present. Mr. John Thomson, of Albany, in his report to the Legislature of New York, in the beginning of the last year, stated as the most prominent of his objections to the various evil arts and practices of the Medical faculty that, "they use the same articles to restore the sick to health, that a well person would take to destroy life, if he wished to commit suicide." "Now we can never," says this sage personage, "subscribe to the doctrine that what will kill in the hands of an assassin or suicide will prove a balm to heal the sick and restore consolation to the afflicted, because the hands are changed that administer the article." Follies and absurdities are valetudinarians, sickly and frail, but very long-lived.

the present work. Nitric æther, of which he is said to have been the inventor, he recommends as highly valuable.* The *sperma ranarum*, powder of toads, and horn of the true unicorn, constitute the residue of his materia medica.† Of his skill and success in the use of medicines, he makes frequent asseverations, and with some of the principles of therapeutics he was certainly acquainted. For example, he speaks in a manner which would have given satisfaction to Mr. Abernethy himself, of the impossibility of curing certain external local affections without using internal and constitutional remedies.‡ There is but little, however, in the present work of a character to exalt our ideas of his medical abilities. He enjoins upon his pupils to consider carefully and deliberately *after* they have administered a medicine whether it be likely to benefit the patient or aggravate the disease:§ had a Galenist given such a precept, his preposterous caution would scarcely have escaped our author's censure.

His theory of the *modus operandi* of medicines is derived from the doctrines of the Rosicrucians, or Brothers of the Rosy Cross, a sect of hermetical philosophers, who were first noticed in Germany, about the beginning of the fourteenth century.‖ In accordance with the dreamy notions of these mystics or impostors, from whom many other of his tenets are borrowed—he teaches that the elements, minerals, vegetables, the bodies of men and brutes, all parts and all objects in short of the visible universe, are crowded with myriads of spirits. These are sentient, intelligent, ingenious, skilful in the arts, and permitted by Providence to exercise for a season extensive influence over the affairs of our world. To the agency of such of them as chance to be connected with metals, minerals, and plants is owing the medicinal virtue of those substances. The great object of medical science is to discover the characters of the spiritual tenants of various articles, to prepare them to be extricated from their connection with matter, and to compel them by force of art to penetrate the recesses of the body, and to exert their salutary influence in counteracting disease, restoring health, and producing all other effects that may be desired.¶

The extravagance of this doctrine is sufficiently evident. It is, however, not at all more absurd or less supported by proof than many theories which have been advanced in both ancient and modern times by wiser and more sober men than Basil Valentine, who have stood at the head of

* Page 97.

† Of the first two of these elegant articles, the reputation had been established before his time; they have since been commended by Lord Bacon and Mr. Boyle, and are still in good account with domestic practitioners. Respecting the unicorn's horn, which was long a most celebrated alexipharmic, the reader may consult the learned labours of Sir Thomas Brown, *Pseudodoxia Epidemica*, B. 3, c. 23, with certainty of being entertained and instructed.

‡ Page 271.

§ *Postquam* medicamentum corpore receptum est, seque per omnia membra, diffudit, ut perquirat eos defectus contra quos adhibetur, animadvertenda utilitas; potest enim fieri ut medicamentum præparatum diligenter, et pondere debito exhibitum, morbis quibusdam obsit potius quam prosit, et potius venenum videatur quam medicamentum.—P. 18.

‖ For a brief, but sufficient account of the Rosicrucians, see Mosheim's *Ecclesiastical History*, vol. v, p. 78, English edition of 1782. The doctrines of this sect, which are of Eastern origin, and may be traced to the Arabian alchymists, suggested to Pope the machinery of the most elegant of his works.

¶ Page 30—34.

the medical profession, and whose opinions have been received by physicians with zealous approbation.

With Basil Valentine is said to have originated the famous chemical hypothesis of the three principles or elements, salt, sulphur, and mercury; a doctrine referred to in the present work,* which was subsequently stolen, or borrowed without acknowledgment, by his celebrated successor, Paracelsus, and at a still later period attacked and confuted by the illustrious Mr. Boyle.† It was the first germ of opposition to the Peripatetic division of all things into four elements, a dogma which was otherwise scarcely called in question before the beginning of the eighteenth century.

All of our author's writings are tinctured, more or less, with the opinions and phrases of the alchymists. That he belonged to this visionary sect will excite no prejudice against him, when we consider the age in which he lived, and the wide prevalence of the error which he adopted;—an error which was shared by some with whom it could discredit no man to be associated. "The folly of a projector," says the Rambler, "is rarely the folly of a fool;" the folly of the alchymists, it may be added, has been the folly of some of the wisest and best of men. It is a folly, too, which has been perpetuated even into our own days of boasted light and intelligence; we ourselves formerly knew an ingenious gentleman, who consumed the greater part of his life, and the whole of his fortune, in the pursuit of the grand *arcanum*, which he was persuaded that nothing would have prevented him from attaining, had he not been unfortunately arrested in his labours by the premature exhaustion of his funds. The alchymists were, in the days of Basil Valentine, a very numerous body of men, and among them there existed, of course, a great diversity of character. Some of them were undoubtedly sincere and honest in their views, and actuated by noble and philanthropic motives; the philosopher's stone which they sought was the *medicina hominum et metallorum*, capable not only of perfecting the baser metals, but also of preventing or healing all diseases, and of prolonging indefinitely the period of human life, or, at least of vastly extending its duration. Others may have commenced their career with fraudulent purposes, and without the least faith in the art which they professed, and subsequently, by their efforts to convince the world of its truth have succeeded in convincing themselves. *Fingunt simul creduntque;* the guilt of imposture is often transmuted into the madness of fanatic credulity. But besides these two classes, there was another division of alchymists, and it was probably much the largest proportion of their body, who were thoroughly dishonest, profligate, and abandoned from the beginning to the end of their course, and who have generally, but not justly, been considered the proper representatives of their whole fraternity.‡ It is great injustice to the better part of the hermetic professors

* Page 104.

† See Boyle's Works, vol. iii, *The Sceptical Chymist.*

‡ All of this class professed to be *vere adepti*, and fully acquainted with the method of effecting the *great transmutation*. Persons possessed of this gold-making art would, of course, be at once the masters of incalculable wealth, and the alchymists being generally in widely different circumstances were often taunted with their poverty as evincing the vanity of their science, and the falsehood of their pretences. Thus Ben Jonson tells them in one of his epigrams—

> "If all you boast of your great art be true,
> Sure willing poverty lives most in you."

to confound them with these reprobate impostors, or to forget that their studies, however ill-directed, were blessed by Providence to be eminently useful, and that medicine was armed from their laboratories, with many of her most potent and valuable agents.*

According to Basil Valentine's theory, the effect of the philosopher's stone upon the inferior metals, was to vary the proportions and arrangements of their three elements in such a manner as to bring them exactly to that condition of quantity and combination which is found to exist in gold.† Admit his postulates, that the metals are compound bodies, and that they all consist of the same ingredients, and there is no reason to think that it would be more difficult to change one metal into another than it is now to convert linen rags into sugar. In common with the other alchymists, our author sinned against right reason, when he assumed as true what he was not able to prove; and he appears to have sinned still more grievously against honesty, when he pretended to have attained the great object of his labours. But before we condemn him, we should recollect, that it is possible for a wise man to become an enthusiast and to deceive himself, and for a good man, if an enthusiast, to endeavour to deceive others; and that so distinguished a benefactor of science is well entitled to the utmost benefit of this consideration.

The cant and jargon of alchymy, as we said before, pervade the whole of his work. For the unintelligible and unmeaning gabble with which it abounds, the commentator apologises by informing us that it was not intended to be understood except by those who are thoroughly devoted to

A similar consideration convinced old Ennius of the profligacy of the numerous pretenders to secret arts who abounded in his day;—

> "Quibus divitias pollicentur, ab iis drachmani ipsi petunt,
> De his divitiis sibi deducant drachmani, reddant cætera."*

It was probably to evade this obvious censure that Basil Valentine so frequently alludes to his own wealth. P. 102, &c. Various excuses were devised by other alchymists to explain the incongruity of their boasts with their visible circumstances. One which appears to have been common among them is stated by Chaucer in his *Chanones Yemannes Tale*—

> ——"by their thred-bare array,
> If that men list, this folk they knowen may,
> And if a man wol axe hem prively,
> Why they be clothed so unthriftily,
> They right anon wol rounent† in his ere,
> And saien, if that they espied were,
> Men wolde hem slc, because of hir science:
> Lo, thus thise folk betraien innocence."

* Lord Bacon, after ranking alchymy among those arts "quæ plus habent ex phantasia et fide, quam ex ratione et demonstrationibus," remarks with his usual felicity of illustration, "Chemicæ tamen hor certe debetur, quod vere comparari possit Agricolæ apud Æsopum, qui, e vita exiturus, dixit filiis, *Se illis vim magnam auri in vinea, nec tatis meminisse quo loco, defossam reliquisse:* qui cum vineam diligenter ligonibus ubique invertissent, aurum quidem repererunt nullum, sed tamen vindemiam insequentis anni, propter fossionem circa radices vitium, tulerunt longe uberrimam; *sic* strenni illi chemistarum labores et molimina circa aurum conficiendum, haud paucis nobilibus inventis et experimentis, tum ad reserandam naturam, tum ad usus vitæ apprime idoneis, quasi facem accenderunt."—*De Augmentis Scientiarum*, L. i.

† Page 108, &c.

* Quoted by Cicero, *De Divinatione*, L. i, c. 58. † Whisper.

the study of science;* pearls are not to be cast before swine, nor mysteries revealed to any but the sons of art.† "It would be improper for me," says Basil himself, "to speak so plainly that whoever thought fit might without labour and weariness become a perfect doctor by merely looking into my writings; youthful rustics are not to be supplied with white bread, until they have toiled for it and earned it."‡ Yet his instructions, he subsequently declares, are so ample, clear, and distinct, that they could not be rendered more so without unpardonable sin: the public revelation of the secrets of art has been strictly forbidden by Providence,§ and to violate this prohibition would be to precipitate himself willingly and with open eyes into the regions of eternal misery—a sacrifice not to be expected of him.‖ He sometimes affects great contrition and dismay for having spoken too freely. "My God!" he exclaims, "how am I agonized in mind, when I consider my religious character, and know not whether I am doing well or ill in this publication, whether I have said too much, or been silent too soon."¶ "It is wonderful," says Dr. Kerckringius, "that no man can throw the least ray of light upon this part of philosophy, without immediately feeling the stings and arrows of conscience."** The proper reply to all this affectation and folly is contained in the words of Mr. Boyle:—"As for the scruple of the mystical writers to communicate their knowledge, they might, less to their own disparagement, and to the trouble of their readers, have concealed it by writing no books, than by writing bad ones. It were a temptation to say, that the chemists write thus darkly, not because they think their notions too precious to be explained; but because they fear, if they were explained, men would discover them to be vain and frivolous."††

Besides the philosopher's stone there was another preparation, which Basil speaks of under the name of *the stone of fire*, very inferior to the former, for it produced no effect upon tin, lead, iron, or copper; but yet not wholly contemptible, as, besides its remarkable medical virtues to be mentioned hereafter, it possesses the faculty of converting silver into gold. This stone of fire, Dr. Kerckringius asserts that he himself knew the art of preparing; but of the composition of the other stone, he confesses that he had been unable with his utmost efforts to acquire the least knowledge.‡‡

If we are late in mentioning antimony, which, from the title, might be thought the peculiar subject of the present work, we have, in this respect, followed the example set us by the author. Through a great part of the treatise antimony is not referred to, and when it is occasionally brought on the carpet, Basil's attention is continually deserting it and engaging in the discussion of other subjects.

This apparent neglect is by no means to be attributed to any low esti-

* Page 75, *note.* † Pages 160, 308, *notes.* ‡ Pages 231, 298.

§ This was a common subterfuge with the alchymists, as we learn from Chaucer:

> "The philosophres were sworn everich on,
> That they ne shuld discover it unto non,
> Ne in no book it write in no manere;
> For unto God it is so lefe and dere,
> That he wol not that it discovered be,
> But wher it liketh to his deitee
> Man to enspire."—*Chanones Yemannes Tale.*

‖ Page 337. ¶ Page 336. ** Page 336, *note.*

†† Boyle's Works, vol. iii, p. 303. ‡‡ Page 315, *note.*

mation of its value. He declares most solemnly, and confirms his assertion by an oath, that it is the most sovereign of all medicines, and will never be equalled by any other that shall ever be discovered under heaven or below the sun. He affirms, that in it are embodied all the virtues of all the other metals and of all the precious stones; that the life of man is too brief for any one person to discover all its excellencies; and that the Delphic Apollo himself would be fatigued and exhausted, were he to attempt to describe all its numerous and inestimable preparations.*

The honour of having first recommended the internal use of a remedy thus admirable, is very generally assigned to Basil Valentine.† It is probable, however, that he is not entitled to it in a strict and absolute sense, for he informs us himself that much had been written before his time on the mode of preparing and using it.‡ Yet it appears to have been a very unpopular medicine when he wrote, violently denounced by physicians, and in no good repute with any one,§ a circumstance attributable, he assures us, to the malice of the devil, the perpetual enemy of true science, who is ever exerting his utmost efforts, both of fraud and violence, to blast the character of all valuable medicines.‖ From the low condition to which this evil spirit had reduced it, it was elevated into public favour by our author's earnest and energetic commendations, and to have effected this change reflects more credit upon him than he could have derived from

* Pages 115, 131, 134, 113.

† He is said to have discovered its salutary properties by observing its effects upon some swine who had accidentally taken it with their food. He says nothing of this in the present work, but recommends to housekeepers, as a valuable precept in domestic economy, to commence the process of fattening swine or other animals, by giving them for two or three days free doses of antimony.—P. 187.

‡ Page 112.—The earliest mention which occurs in books of nearly all of the most important medicines, represents them as being already in popular use, their efficacy having been previously discovered by casualty, or by experiments suggested by the lucky conjectures of the vulgar. Medicines were probably extremely numerous at a very early period. Homer speaks of their great abundance in Egypt, (Odyssey, l. 4, v. 229,) and Cicero admires at their extraordinary number in his time: "Mirari licet quæ sunt animadversa a medicis herbarum genera, quæ radicum ad morsus bestiarum, ad oculorum morbos, ad vulnera."—*De Divinatione*, l. 1, c. 7. It is but an ill evidence of the advance of our art, that they are probably as numerous now as they were in the days of Polydamna or of the Roman orator.

§ Pages 114, 115.

‖ This opinion is widely different from one subsequently declared by Paracelsus. That most brilliant of mountebanks, adopting the classic sentiment, "flectere si nequeo superos, Acheronta movebo," publicly asserted, that when medical knowledge could be obtained in no other way, it was proper and advisable to resort to the devil as a teacher well inclined and amply competent to afford us assistance. He held with Ralpho in Hudibras, that

> —— "Physicians may allege,
> For any thing their privilege,
> And to the dev'l himself may go,
> If they have motives thereunto."

Basil, on the contrary, being, as he often states, a *religious man*, maintains the policy of the more cautious Sidrophel—

> "I assure you, for my part,
> I only deal by rules of art,
> Such as are lawful, and judge by
> Conclusions of philosophy;
> But for the dev'l, know nothing by him,
> But only this, that I defy him."

the accidental circumstance of being the first person by whom it was used. He also deserves great credit for the variety and novelty of his experiments upon it, and for its many valuable preparations which he invented.

Basil speaks copiously of the various names, *asinat*, *stibium*, *antimony*, and *spiesglas*, by which his favourite metal was designated among the Arabians, Chaldeans, Romans and Germans; and argues from them with no great clearness of logic, that it was not only known to those several nations, but also in high repute among them for its medical virtues.* The etymology of its common name, *antimony*, from the fatal results of his own use of it upon his monastic brethren, ἀντι μονοχους, *monks' bane*, he had probably never heard of, and would no doubt have indignantly denied its historic propriety.† This etymology, which is given by Dr. Paris,‡ and many less recent writers, is indeed more plausible than accurate. The word *antimony* was in use long before monks were either killed or cured by Basil Valentine, and is derived from ἀντι μονον, *enmity to solitude*, from the fact of antimony being rarely found by itself or unmixed with some other metal.

The combinations of antimony, devised by our author, and recommended in the *Currus Triumphalis*, are numerous and ingenious. The agents which he used in forming them, are for the most part heat, nitric acid, vinegar, spirit of wine, borax and sulphur. In praise of these preparations he discourses with voluble and fervent eloquence. His style in this part of his treatise is not a little similar to that which glows in the compositions of those great benefactors of the human race, the venders of panaceas, who do exceedingly abound and flourish in the scientific nineteenth century, and whose valuable dissertations occupy nearly one half of all our newspapers, and are read with infinite satisfaction and profit by our fellow citizens in "this most enlightened country on the face of the globe." Three or four grains of the sulphur of antimony dispel lepra and syphilis, *purify the blood*, remove melancholy, conteract all manner of poisons, and cure asthma and pleurisy.§ The distilled oil of antimony is capable of effecting every indication that a physician can in any case wish to see accomplished.‖ The fixed powder of antimony produces a new growth of hair, and perfectly renews the whole body.¶ The oil of antimony is an admirable remedy in those cases where the patient has no hope except from God's mercy, and where his only prospect is speedily to exchange life for death.** It renews the person who takes it as if he were made over again; it banishes melancholy and sadness of heart, strengthens the limbs, and improves the memory. The liquor of sulphur of antimony, applied to recent wounds, acts with all the marvellous potency of Don Quixote's immortal balsam of Fierabras, preventing suppuration and inflammation, and occasioning immediate reunion.†† The oil of mercury and antimony is useful against apoplexy, comforts the brain, and makes him who uses it industrious. To cure the syphilis is mere sport to it—*ludus est*—and its virtue and efficacy are too great to be ade-

* Pages 76, 77.

† He frequently boasts of the signal success of his practice upon his companions in the monastery, pages 199, 277, &c. Their souls, he says, he physicked with sermons, and their bodies with antimony, page 30.

‡ Pharmacologia, vol. i, p. 70. § Page 154. ‖ Page 163.

¶ Page 193. ** Pages 243, 244. †† Page 156.

quately told either by the tongue or the pen.* But the glory of all other medicines is eclipsed by the prepared, fixed, solid tincture of antimony, or *stone of fire*, which we have mentioned before. The stone of fire, exhibited in spirit of wine in a single dose of three or four grains, removes every disease; it pervades all parts of the body, cures vertigo, maladies of the lungs, difficulty of breathing, cough, lepra, syphilis, plague, and jaundice; it is an antidote against every poison; it corroborates the limbs, the brain, the stomach, and the liver; it heals all diseases of the kidneys, grinds stones in the bladder to powder, restores the vital spirits, dispels hysteria, is the best of emmenagogues, and the most profuse of aphrodisiacs. Applied externally, it subdues cancers, fistulas, caries of bones, *noli me tangere*, and all affections arising from impurity of the blood. It is, in short, a remedy for every disease that can assail the human system, and any one may easily ascertain its value by experiments, *provided* he be a true physician, and called to his sacred office by the voice of God.† The most extraordinary property of this medicine—But, Ohe, jam satis!

"Our excellent author," says Dr. Kerckringius, "has been too reserved, and too parsimonious of eulogy in describing the powers of his inestimable remedies. Such was the excess of his modesty, that he dreaded lest he should appear in bestowing praises on them to be commending himself."‡

Yet his supply of this amiable quality, however abundant it may have been, was probably neither unlimited nor inexhaustible. We forget whether Plutarch in his treatise upon the occasions on which it may be proper for a man to praise himself, has particularized the case of a writer speaking of his own works, or of a physician publishing a detail of the success of his professional labours. If he has not, our author appears to have been in nowise restrained by the want of his venerable sanction. Of the extreme value of his writings he was evidently perfectly aware, and also well inclined to embrace the counsel of the Sabine poet, "sume superbiam quæsitam meritis," and to assert his just claim to gratitude and reverence. "I acknowledge," he says, "that I am but a pupil in the science of antimony, yet what I have seen, learned, and discovered in it is more than is known, or ever will be known, to all the physicians on the earth, and to all who resemble them.§ If the student acquires from this work the knowledge which he seeks, let him give thanks first to God and next to me; but if he wanders astray, it is his own fault; I am innocent; his errors must be imputed to himself.‖ Let him not read my book in a careless or perfunctory manner; no letter in it has been traced in vain, no syllable has been written without some peculiar and instructive meaning; its words are more precious than coined gold, and the wiser the reader is, the oftener will he revolve its pages.¶ To the blind and ignorant my writings will afford no light, to the young and inexperienced no instruction, but to such as are qualified to be my disciples and apostles, health in perfection and perpetual prosperity.** Let all who truly hunger and thirst for knowledge, hasten to me with a cheerful heart, a good conscience, and full confidence. Let them hear my instructions, weigh my precepts, adopt my doctrines, and possess themselves at once of their heart's desire,

* Pages 253, 254. † Pages 314, 338, 341. ‡ Page 163, note.
§ Page 44. ‖ Pages 299, 337. ¶ Pages 59, 262, 263.
** Page 219.

of true wisdom and lasting happiness. Then shall I reap the ample reward of my toils from the devotion of my followers. My philosophy will be defended not only by my own writings, but also by their living eloquence. Their gratitude will raise my memory triumphant over the tomb that enshrines my body, and their commemoration of my praises will be as lofty and perdurable as the starry fires that blaze for ever in the firmament of heaven."*

Alas, for human hopes, and the expectation of posthumous renown! The stars still shine as brightly as when they first sang together, but nowhere beneath their beams can that school of grateful followers of Basil Valentine be discovered. We hear no deafening celebration of his merits; his glory, if it ever existed, has waxed old as doth a garment, and has well nigh passed away; his work on antimony is rarely read, and the few who are at the pains to examine it are more surprised than profited by its contents. It tells them a tale that blends its author's honours with his shame, and they lay it down with some gratitude for his services to medicine, some doubt of his sanity, and much uncertainty respecting his honesty. In writing this account of its contents, we have endeavoured to treat his memory with kindness, from reflecting that the good which he did lives after him, while the evil of which he was guilty has been long buried with his bones. And we have expressed the less contempt for his philosophy, because we fear that the best medical science of the present day, should it chance to be known three hundred years hence, will stand greatly in need of indulgence and pardon. S. C.

* Page 37, &c.

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# BIBLIOGRAPHICAL NOTICES.

Art. XV.—*Récherches Anatomiques, Pathologiques, et Thérapeutiques sur la maladie connue sous les noms de Fièvre Typhoïde, &c.* 2eme edition, considérablement augmentée. Par P. C. A. Louis, Paris, 1841.

*Anatomical, Pathological, and Therapeutic Researches, concerning the disease known by the name of Typhoid Fever, &c.* 2nd edition, considerably enlarged. By P. C. A. Louis. Two vols., pp. 534, and 516. Paris, 1841.

The appearance of a new edition of this celebrated work, will be hailed with satisfaction by all who are familiar with the original edition—who have taken an interest in the discussions to which it gave rise—and who are aware of the important influence it has exerted upon the study of febrile diseases, and of the surprising degree of exactness which it has introduced into this department of medical observation.

The principal additions made in the edition before us, consist of the detail of new facts regarding the symptoms and lesions in typhoid fever, as well in infants, as in adults; of important considerations touching the differences between it and typhus fever, and camp-fever; of an entirely new chapter on the prognosis of the disease; of a review of the several modes of treatment recommended; and, finally, of a succinct sketch of the features of resemblance and contrast which typhoid fever presents, when compared with other acute affections.

The softening of the mucous membrane of the stomach and of the intestinal canal, unaccompanied by redness and thickening, and that also of the liver and the heart, observed in very many of the fatal cases, are subjects of investigation in the first part of the work.

The influence of temperature, and of decomposition after death, in producing this alteration of structure, is examined in regard to each of the organs in its turn, and, in addition, the action of the liquids and solids contained in the digestive tube, upon its lining membrane. The general induction from all the facts in the case is, that none of these causes, either singly or combined, is sufficient to account for the lesion in question, but that the softening of the liver and heart *may in part* depend upon an elevated temperature favourable to decomposition, provided that its influence *before death* be admitted. If we might venture an opinion, it would be, that the dissolution of the blood, and its imbibition by the solids, would more readily account for their diminished consistence. Because, 1st. This change in the circulating fluid is noted in those cases in which the softening of the organs was remarkable; 2d. The same relation is stated to have been found in those dying of other acute diseases; 3d. The correspondence is constant in typhus fever. It is true that M. Louis hints obscurely at this cause, but does not anywhere examine numerically the relative frequency of the fluidity of the blood, and of diminished firmness of the solids, in the same class of cases.

Two varieties of alteration of Peyer's glands, are noticed at some length, and a distinction is made between the "hard" and the "soft," as if these characters were referrible to different causes, and were essentially distinct from each other. It will be remembered that the former, or hard variety, was found in patients who died in the early stage of the disease, and where this latter was peculiarly violent, while the soft glands existed only in those who were carried off at a late stage of the malady. As the only real difference between the two varieties of glands consisted in their greater or less degree of softness,

would it not be more agreeable to sound reasoning to conclude that this difference depended merely upon the period of the disease at which the patients they were observed in died, and that the alteration was a progressive one, and passed successively through the stages of hardening, softening, and ulceration? However this may be, it is not easy to understand the purport of the question propounded by M. Louis, and answered by him in the affirmative; to wit, "May there not be more peril attached to these glands (the hard) than to the soft ones?" For in the present state of our knowledge, the condition of the abdominal organs in typhoid fever, does not count for anything among the causes of death, excepting always the case of perforation of the intestine, an accident which does not appear to depend upon any particular original condition of the gland in which it occurs, and which usually takes place during the decline of the symptoms, and even after the commencement of convalescence.

The portions of the present edition relative to the typhoid fever of children, are drawn from the works of M.M. Rilliet and Taupin, internes of the Children's Hospital, and both distinguished for the fidelity and completeness of their medical observations. It must have been a matter of no slight satisfaction to M. Louis, to have recognised in the analysis of the cases of these observers, an almost exact counterpart of his own, although relative to patients at so different an age, and under such dissimilar circumstances. There is hardly any proposition true of typhoid fever in adults, which is not equally so of it in those of tender years, whether as regards its symptoms, or its pathology. This, it is hoped, will be a sufficient excuse for not entering further upon the subject in the present notice.

In the chapter on "the state of the blood" in typhoid fever, M. Louis calls in question the assertion of Prof. Bouillaud that the blood abstracted in this disease cannot be said to resemble that existing in any other, while he admits with this gentleman and M.M. Andral and Gavaret, that the blood is generally less coagulable in this, than in other diseases.

In the course of a very interesting article on "Diagnosis," the author thus expresses himself, giving us in a few words a most accurate portraiture of the disease under consideration. "Thus, youth, a more or less marked febrile reaction, headache, *malaise*, an altered expression of countenance, a greater or less degree of feebleness, the partial and then complete loss of appetite, and subsequently, diarrhœa, delirium, and somnolence, are not sufficient of themselves, in the absence of any local symptom at the outset, to establish the existence of typhoid fever. In order to do so, we must be able to add to these symptoms, diarrhœa and abdominal pains in the beginning, and afterwards, sooner or later, either tympanitis, or the enlargement of the spleen, or the presence of the lenticular rose-coloured spots, and the impaired functions of the organs of the senses. Nevertheless, the absence of diarrhœa would not render the diagnosis of the affection less certain, especially if the other symptoms just enumerated were present." If the remarks just quoted were kept constantly in remembrance, we should have fewer complaints about the difficulty of detecting this disease, and less frequent errors in regard to the treatment which it demands; for how can our treatment be rational while our diagnosis remains doubtful?

In the fifth article of part third, the author considers the following question: "Are camp-fever and typhoid fever one and the same disease?" The memoir of M. Gaultier de Claubry, presented to the Royal Academy of Medicine, affords the principal means of solving it. According to the researches of this physician, the fever of camps and armies, called by the French, "*typhus*," is identical with that described by M. Louis; a conclusion admitted by the latter, in these words, "these descriptions, although in truth very incomplete, appear nevertheless to confirm, as far as they go, that which a comparative study of the symptoms pointed out, to wit, the *identity of* '*typhus*,' and typhoid fever."

Although M. Louis considers the researches of M. de Claubry as having settled the question in the affirmative, others might, perhaps, hesitate to accord to them an equal importance, for the memoir of M. Montault, upon the same theme, presented also to the Royal Academy, makes a very different inference

from the same facts. This author expresses himself as follows: "The lesion of the small intestine, has a fixed seat, it begins with the disease, and accompanies its progress; it is not proved that such is the case in 'typhus.' The alterations of the blood and of the nervous centres are *primitive* in 'typhus,' and *secondary* in typhoid fever. The primitive change in the characters of the blood in 'typhus,' depends upon a cause external to the organism, but in typhoid fever the intestinal lesion represents a centre of infection, which alters the blood secondarily." It would indeed seem most probable that the writers who furnished grounds for such dissimilar conclusions, described two different affections, just as it is now proved that English authorities have done hitherto; and we strongly suspect that future observations will show, that typhus and typhoid fevers both exist on the continent, as they certainly do in Great Britain, and that they continue to be confounded in the one place as well as in the other.

In the succeeding article, the typhus fever (of the English) and the typhoid affection, are compared, with a view of determining their differential diagnosis. And here we have the gratification of observing that the observations of Doctors Gerhard and Pennock, and of Dr. Shattuck, Jun., of Boston, are assumed as a basis for settling this mooted subject, and a just appreciation made of their important labours in regard to it. After comparing the symptoms and the *post-mortem* appearances in typhoid and in typhus fevers, the author says, "It is then but natural that in those who die of the first disease, there should be found a lesion of Peyer's glands, absent in the other; and it would be marvellous indeed if the small intestine presented the same changes in two affections, whose symptoms are so essentially different."

In a new, and very interesting chapter on the *prognosis* of typhoid fever, the author examines the value of each particular symptom relatively to the result; whence it appears, that all those symptoms arising from the abdominal organs are of but small importance in calculating the probable termination of the disease, while on the other hand the greater or less degree of somnolence, delirium, agitation, perverted intelligence, spasmodic movements and permanent stiffness of the limbs, in a word, of the cerebral symptoms, must be held as the best indications of the safety, or of the peril of the patient. Yet the evidence, even of these phenomena, is to be received with extreme caution, since, with the exception of "permanent stiffness of the limbs, and that perverted consciousness which makes a patient declare that 'he is well,' although dangerously ill, there is no symptom, however formidable, which is not occasionally met with in those who recover." It would appear, also, that in children, the same elements of prognosis are to be weighed, as in adults, but that the mortality amongst the former is sensibly less than amongst the latter class of patients; a proposition true of acute diseases in general.

The chapter upon "Causes," contains an article upon the influence of "change of habits" in the production of typhoid fever. It has been generally supposed that persons coming from the country into a large city, were more apt to be attacked by the disease than native citizens, or those long resident therein, and the influence of this change has been emphatically asserted in regard to the labouring classes of Paris, whose ranks are constantly recruited by new arrivals from the provinces, and whose nourishment is usually both scanty and of bad quality. M. Louis admits the fact of the very frequent occurrence of typhoid fever in individuals of the class referred to, but doubts whether bad or insufficient food ought to be held as favouring the development of this, rather than of any other disease.

*Contagion.*—The author declares, that "the contagious nature of typhoid fever appearing to be proved by facts, he admits it without hesitation." These facts have been observed and recorded by several physicians, and especially by M. Bretonneau, some of whose conclusions are sufficiently important to be recited in this place. He believes it to be demonstrated: 1st. That typhoid fever may be communicated by contact with those affected by it, by remaining near them, by means of the clothing, &c. they have used, and by contact with those who have attended upon them. 2d. That the importation of the disease is often the

origin of an epidemic; and that this latter is the effect and not the cause of the contagion. 3d. That the propagation of the malady depends upon the degree of intercourse maintained with the sick, and not upon the wretchedness or the insalubrity of their habitations. 4th. That an isolated case of the disease may become the cause of its prevalence, &c. M. Gendron also asserts, that a first attack preserves from a subsequent one. The contagious character of typhoid fever, is not so well established by the observations made in Paris, but M. Louis granting that such is the case, asks, very pertinently, "how can we admit that the same disease should be contagious at Tours, and at Château-du-Loire, and not at Paris? Perhaps, after all, the truth may be, that the advocates as well for, as against contagion, may both be right, that the disease may, under certain circumstances, be spontaneous in its origin, and in others the effect of contagion. Is not this commonly admitted to be true of measles and scarlet fever?

The most considerable, and perhaps the most important additions that have been made to the original work, are those relative to the *treatment* of typhoid fever. Critics and readers have very often raised their voices in condemnation of M. Louis, because in the former edition of his work, he had not introduced as much certainty into the therapeutics of typhoid fever, as he had into the history of its symptoms, and morbid anatomy; forgetting the good he had done, they were ready to blame him for that which he had not accomplished; forgetting, moreover, that the question of treatment in any disease, is a problem, requiring for its solution, the comparison and valuation of an infinite number of elements very intricately involved, and a labour and a clear-sightedness far superior to those needed in the study of the natural phases of disease. It is so easy to say that such or such an agent is *good* in a particular disease, it costs one so little self-denial, or devotion to science, it demands so little accuracy of observation, so little freedom from the dominant prejudices of the time, to write whole volumes upon therapeutics, as they are commonly written, that it is hardly to be wondered at, men should cry out at seeing a systematic treatise on fever, nearly barren upon the subject of treatment, while so rich in every other part. It may, indeed, be true, that thorough analysis, and logical induction, are inapplicable to the facts upon which every question in therapeutics must be determined; there are those who think so, and who despair of ever advancing much farther towards perfecting the treatment of diseases, than through the accumulation of evidence by that method so wronged and misnamed, when it is called *experience*. If, therefore, we find little that is susceptible of application to the treatment of disease, in works founded upon a minute observation of facts, and upon their philosophical analysis, we should rather impute the defect to an inherent difficulty in the subject, than to negligence, an undue disregard of its value, or a want of ability on the part of the author.

In the present instance, however, M. Louis has detailed all that has come within his knowledge, of the best mode of conducting the treatment of typhoid fever, although he compares the several methods proposed relatively only to their influence on the mortality of the disease. This is indeed the most important relation in which they can be considered, but not the only one; for it is often in the power of art to lessen the violence of symptoms whose duration it cannot shorten, and to alleviate the sufferings of patients whose destruction it cannot avert. In the article on "Bleeding," the author takes occasion to examine the reports of M. Bouillaud, who, as is well known, claims to have been singularly successful in the employment of a method of depletion called by him "*coup-sur-coup*," or, as we might translate it, "*hand-over-hand*." It is shown that M. B. selected for experiment only those cases brought under his notice at the commencement of the affection, and that not a few of them were far from being cases of typhoid fever. After allowing for these circumstances, it is made abundantly evident, that, on the whole, the mortality in the wards of M. B. was really greater than elsewhere, and that the average duration of the disease in those who recovered under his care, was not less than that observed by other practitioners. The thirty-four pages devoted by M. Louis to this matter

are well worthy of study as a specimen of critical acumen, and an admirable illustration of the power of analysis to develop truth.

We pass over two very copious and interesting chapters on the use of purgatives (*evacuants*) and opium, in order to give a summary of the author's general views in regard to the treatment of typhoid fever. "It has been seen," says M. Louis, "by what has gone before, that the superiority of purgatives, as a general method of treating typhoid fever, is not yet incontestably proved; we may not, therefore, in the present state of our knowledge, recommend the administration of purgatives, to the neglect of depletion. In resorting to the latter, the following seems to be the best method of employing it. General bleeding should be preferred either to leeching or cupping, it should be moderate, should be had recourse to in the first ten or twelve days of the disease, and be proportioned to the febrile condition and the strength of the patient; it should be repeated twice in the period just indicated, when it can be borne. After the first fifteen days in severe, and earlier in mild cases, the loss of blood retards convalescence rather than hastens it. This proposition should be modified, however, by a regard to the strength of the patient, of which the physician should never lose sight, for the danger and severity of acute affections are proportioned to the real debility of the patients; and this debility is favourable to the development of secondary lesions.

Acidulated drinks, (*boissons aigrelettes*,) and especially those which contain carbonic acid, should be used in the treatment of typhoid fever. A weak solution of chloride of lime or soda, may perhaps be tried with advantage instead of the carbonated waters. Emollient enemata may be prescribed in all stages of the disease, once a day in the beginning, and when, at a more advanced period, the stools become more frequent, and the colon seems to share in the inflammation of the intestines, they should be repeated several times daily, and each one retained for eight or ten minutes at a time. In this advanced stage, when the patient is in danger of sinking, exhausted by the quantity of his alvine dejections, small opiate enemata should be substituted. In the first periods of the affection the sick-chamber should be kept at a moderate temperature; cold is less to be dreaded than heat, although care should be taken lest the former become excessive, and the cough increased, or a pneumonia excited.

If, for any reason, purgatives should be preferred to bloodletting, recourse should be had, in the conditions pointed out by M. De Larroque,* to tartar emetic given in a large quantity of drink, for the purpose of evacuating the stomach. *Daily* thereafter should be administered a certain quantity of Seidlitz or Pullna water, or laxative doses of castor oil, or calomel, so as to procure five or six stools a day. To these agents should be added emollient poultices upon the abdomen, (should it be painful,) acidulated drinks, and mucilaginous injections night and morning. This treatment should be persisted in as long as the typhoid symptoms continue, and when once the febrile reaction has ceased, mild tonics should be given to hasten the return of strength.

The utility of opium in this disease appears to our author to be confined to the single case of perforation of the small intestine, when it should be given in full dose, and repeated so long as the violence of the symptoms may demand it. While taking it the patient should be restricted to the least possible quantity of acidulated drinks, or to the use of some small pieces of ice. If there should be constipation, prudence would require that all attempts to overcome it should be suspended until the danger was at an end, and even then evacuations should be procured only by enemata, at first emollient, and afterwards in case of the failure of these, slightly purgative.

"It results from all that precedes," says M. Louis, "that the principal therapeutic agents now employed in the treatment of typoid fever, have a favourable,

* One of the physicians of the Neckar hospital, who first published the results of his treatment of the typhoid fever by evacuants, in 1837, in the Medical Journals of Paris, and in a memoir presented during the same year, to the Royal Academy of Medicine.

although a limited influence upon the course and the issue of the disease; and the impartial examination of evidence teaches us, with a sufficient degree of precision, the best mode of availing ourselves of the three chief means which experience has pointed out to us, viz. bleeding, purgatives and tonics. Moreover the very partial success obtained hitherto, ought not to discourage the friends of science, and strengthen the belief that no better mode of treatment for the disease in question will ever be discovered. Who could ever have foreseen the effects of opium, or of cinchona, or the protective virtues of vaccine? What opportunity and observation have done already, they may do again, and therapeutics, like other departments of science, has every thing to expect from observation."

The appropriate treatment for typhoid fever in children, is nearly the same as in the case of adults, unless indeed blood-letting be more generally hurtful than salutary for the young, to whom very active remedial measures are rarely applicable.

The concluding chapter of the work before us treats of "the analogies and differences existing between typhoid fever and other acute febrile diseases." The typhoid, like other acute inflammatory affections, usually commences with a more or less active febrile paroxysm, a chill of variable duration, followed by heat and sweating, but in the former disease this paroxysm more frequently recurs, and is accompanied by pains in the limbs, headache, and a remarkable feebleness. To these symptoms are immediately superadded pains in the abdomen, and liquid stools. In other acute affections the number of symptoms is small, while in typhoid fever they are, so to speak, infinitely various, and the whole economy suffers, whether the attack be slight or severe. Thus in the abdomen we have almost always tympanitis, and enlargement of the spleen, and sometimes paralysis of the bladder, bloody evacuations, and painful deglutition. In the chest a moderate cough, and a sibilant ronchus, without oppressed breathing. Depending on the brain, an indisposition to the exercise of the mind, dullness and coma, restlessness, delirium, spasms, *subsultus tendinum*, and spasmodic rigidity of the limbs. The sight is dim, the hearing dull, and occasionally lost, there is buzzing in the ears, and bleeding at the nose. The skin displays its rose-coloured spots and sudamina.

The duration of typhoid fever differs from that of eruptive and acute febrile diseases in general, inasmuch as these latter generally run through all their periods in less than a fortnight, the *earliest* date at which M. Louis has seen a case of the former enter on convalescence. Its duration is also without fixed and natural limits, while eruptive diseases regularly pass through distinct stages of ascertained length.

"Admitting the contagious nature of typhoid fever, which it possesses in common with the *exanthemata*, it differs from these latter in sometimes arising spontaneously." But are there not many cases of eruptive fever whose contagious source is very doubtful?

The lesions of typhoid fever commence uniformly in the same point, while those of other acute diseases set out sometimes from one, and sometimes from another portion of the affected organ, and the anatomical character of the *exanthemata*, the eruption, breaks out in nearly every part of the body at the same time.

Finally, neither in those diseases already mentioned, nor in cholera, nor in typhus fever, nor in yellow fever, are to be found ulcerations, which in the typhoid affection occur not only in the intestinal canal, but in the œsophagus, on the epiglottis, and in the larynx. A. S.

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ART. XVI.—*Second Annual Report of the Registrar-General of Births, Deaths, and Marriages in England.* London: 1840. 8vo. pp. 240.

THIS volume is one of a series which will be eagerly sought after by those

interested in vital statistics. The present one* contains, 1st. The Report of the Registrar-General, T. H. Lister, addressed to the Marquess of Normanby, principal Secretary of State for the Home Department, accompanied by abstracts exhibiting in tabular forms, records of the marriages, births and deaths, not only for the metropolis and larger towns, but in the rural districts of England and Wales. 2dly. An appendix, showing the causes of death in England and Wales, in the form of a letter, addressed to the Registrar-General, by William Farr, Esq., dated London, June, 1840. It is this last abstract which will be viewed with the deepest interest by the investigator of vital statistics, since it embraces no less than 342,529 registered deaths, of which, the number having the causes assigned, amount to no less than 330,559. It will not, of course, be in our power to notice all the interesting facts developed in Mr. Farr's very rich communication, and we shall, therefore, content ourselves with referring to a few which we hope will prove acceptable to our readers.

*Mortality of Males and Females.*—In Great Britain, as well as other countries, it is observed that the mean duration of life is greater for females than for males. The mortality of males is shown by Mr. Farr to exceed that of females by seven per cent. The tables exhibit the principal diseases which lead to this result; and show that while the two sexes are concurrently exposed to the ravages of nearly all the causes of death, their degree of liability to death from particular maladies is very various. "The discrepancies," observes Mr. Farr, "may be ascribed to two sets of causes; a difference of organization, and a dissimilarity of habits and occupations, involving different degrees of exposure to the accidents, hardships and dangers of life. Deaths from childbirth, and deaths from violence are examples: 2811 women died in childbirth, while 8359 males and only 3368 females died violent deaths. The higher mortality, and the smaller number of males living, have been ascribed exclusively to intemperance, wars, excessive fatigue, and other external causes; but this ground is too narrow; for the differential mortality is greater in early childhood and before birth, than in the more advanced ages, and one of its causes must be sought in the intimate structure and properties of the body. The blood, the brain, and all the organs and functions present modifications in the two sexes; but I am not aware that any anatomical or physiological reason has been advanced to explain the singular facts, that 690 males and 1828 females died of cancer; 4036 males and 5071 females of hooping-cough; 27,935 males and 31,090 females of consumption; 4242 males and 3430 females of hydrocephalus; or 152 males and 55 females of diabetes."

This subject has been investigated by us, as will be seen by reference to the pages of this journal,† and we believe we were the first to identify the distinct sources of the different proportions of deaths among males and females, and the classes of diseases which proved most destructive to each, and to show that the excess in the mortality of males, more particularly under the ages of fifteen and twenty, was not the result of greater exposure to accidents, but arose from physiological causes; and chiefly those involved in the higher grades of inflammation.

*Increased consumption of ardent spirits.*—Among the causes operating in producing mortality, Mr. Farr alludes to the consumption of intoxicating liquors, which he says has increased faster than the population in the last twenty years, and the sale of spirits at a much more rapid rate than that of ale and wine, which last can only be injurious when taken to excess. This he proves by referring to the average annual number of bushels of malt on which duty was paid in England, which in the five years, from 1820 to 1824, inclusive, amounted to 25,834,345; in the five years from 1834 to 1838, inclusive, the consumption was 35,048,368 bushels. "Spirit drinking," he observes, "almost always ends in impairing the health; it takes away the appetite, wastes the limited means of the artisan, deprives his family of food, firing, clothing, and clean ventilated

* The first report was noticed in our number for January 1841, page 192.
† See No. for Nov. 1835, p. 56.

lodgings; leads to dissoluteness of every kind; and must therefore be considered one of the indirect, but certain causes of epidemics, of fevers, and of other diseases."

*Comparative mortality of towns and rural districts.*—The investigation of the subject of the comparative mortality of diseases in towns and the open country, presents many very interesting points. The population in 1838, of the metropolis, and what are called city districts, is stated at 3,726,221; that of the rural districts being 3,539,908. The mortality of the metropolis and twenty-four towns, was 101,019, whilst that of the rural districts was 70,410.

In the whole of England and Wales, the mean mortality under three years of age, was 343 out of every 1000 deaths at all ages. Although, as a very general rule, the mortality of children is greatest in large towns, it is singular that in the metropolis the proportion is so small as 338 out of every 1000 deaths at all ages. In Manchester, the deaths under three years amount to 496 out of every 1000 males of all ages, being about fifty per cent. of the general male mortality. The mean deaths of children under three years, in Manchester and Salford and suburbs, were 475 out of 1000 deaths. In Leeds and its suburbs, the proportion was 447; in Birmingham, 440; in Liverpool and West Derby, 437; while in Dorsetshire and Wiltshire, it was 281; in Devonshire, 296; in the North Riding of Yorkshire, with Durham, (except the mining parts,) and the northern part of the West Riding, 282; and in the northern part of Lancashire, Westmoreland, Cumberland, and Northumberland, (except the mining portion of the latter,) not more than 253. With respect to the proportion of deaths reported from old age, equally remarkable contrasts are exhibited by the towns and rural districts.

"The proportion out of every 1000 deaths, which have been at the age of 70 and upwards, has been, in Manchester, only 53; in Liverpool, 60; in Leeds, 68; in Birmingham, 78; in the Metropolis, 99; while in the North Riding of Yorkshire and the agricultural parts of Durham, it is 202; in Devonshire, 208; and in the north of Lancashire, Westmoreland, Cumberland, and Northumberland, not less than 210. In the whole of England and Wales, the proportion, out of 1000 deaths occurring at 70 and upwards, was 140.

"Great also are the differences exhibited by the mining districts and the agricultural districts which surround them, with respect to mortality both in childhood and in advanced age.

"In the mining parts of Staffordshire and Shropshire, the mean deaths in 1000 at all ages under three years were 462; at 70 and upwards, only 90. In the rest of Staffordshire, Shropshire, and Cheshire, the proportion under three years was 332; and 70 and upwards, 141. In the mining parts of Northumberland and Durham, the proportion of deaths under three years of age was 349; of deaths at 70 and upwards, 150; while in the surrounding agricultural districts, comprised in Divisions 22 and 24, the proportions of deaths under three were only 282 and 252; and of deaths at 70 and upwards, 202 and 210."

It is well known that the same injuries and diseases are more fatal in cities than in the country, which, Mr. Farr observes, may account for the higher mortality from violent death, hernia and some other causes. Parturition is as frequent in the country as in town, where it is nevertheless so often followed by puerperal fever as to be 63 per cent. more fatal. The greater strength of the recuperative powers in the country, add greatly to the success of surgical operations, which in cities would be regarded as of doubtful expediency or altogether hopeless.

With regard to the mortality in the metropolis, a very considerable disparity exists in the proportions reported for the eastern, and the western and northern districts, the mean duration of life in the first being only from 25 to 30 years, whilst that of the latter was as high as from 40 to 50 years.

"The first writers who established satisfactorily the high mortality of cities took a gloomy and perhaps fanatical view of the question. Cities were declared vortices of vice, misery, disease, and death; they were proclaimed 'the graves of mankind.' The population of the country, it was said, was drawn to them

to be sacrificed; and those who entered left all hope behind, for no prospect of health in cities was beheld. Happily the further application of the methods which those eminent writers employed, and the facts which the registers furnish, enable us to analyze the causes of death in cities; and to show that while the mortality is increased as much as they stated, the apprehensions into which they were betrayed were ill-founded when applied to the future. There is reason to believe that the aggregation of mankind in towns is not inevitably disastrous. Health and life may be preserved in a dense population, provided the density be not carried beyond certain limits. Of this the nature of the causes to which the mortality is due, as well as the rapid improvement in the health of London within the last two centuries, is presumptive proof; and the favourable condition of several districts of the metropolis leaves little room for doubt on the subject."

In other towns the proportional mortality of different districts varies quite as much as in the metropolis, as will be seen from the following examples:—

| | Population in 1838. | Deaths. | Annual percentage mortality. |
|---|---|---|---|
| *Liverpool.* | | | |
| Liverpool, . . . . . | 207,826 | 6627 | 3.189 |
| West Derby, . . . . . | 75,003 | 1625 | 2.967 |
| *Manchester.* | | | |
| Manchester, . . . . . | 174,482 | 6035 | 3.459 |
| Blackley, &c. . . . . | 30,533 | 671 | 2.198 |
| *Birmingham.* | | | |
| Birmingham, . . . . . | 133,168 | 3359 | 2.581 |
| Aston, . . . . . | 46,061 | 1099 | 2.386 |

The proportion of population in England living in cities, exceeds that of any other country in Europe, and increases more rapidly than the population of the rural districts. Within the last few years, great improvements have been made in all the circumstances upon which the health of the metropolis depends; such as the careful exclusion of all unnecessary animal and vegetable matter; the immediate removal of residual products; the opening of streets so as to favour the dilution of unhealthy exhalations; the erection of public slaughter-houses in the precincts; the supplying of pure water; the more effectual draining, and improvement in the sewers, &c. In relation to this subject, Mr. Farr observes, "Wide streets, squares, and parks, with spacious houses, would render ventilation easy, and secure the dilution of poisonous emanations; but the ground is valuable, and building is dear in cities; hence there has been a constant and an unopposed tendency in landlords to accumulate the greatest number of houses on the least possible space in poor districts, and the families of artisans are driven to crowd in small, low, close rooms. The evils from this source are one of the contingencies of poverty and ignorance; they may, however, be met by opening, in the densest neighbourhoods, a certain number of wide streets, through which the collateral streets would be ventilated by fresh atmospheric currents. As information spreads among tenants, landlords will naturally render the districts in which their property lies healthy. Men will pay higher rents rather than expose themselves and their families to the risk of sickness and death. The landlords of the metropolis, at whose expense the improvements must be made, are deeply interested in its sanatory state; for every amelioration conducive to the health of the inhabitants raises the value of houses, while the deterioration of the atmosphere must inevitably drive the wealthy out of town, and lead to the erection of residences in the country, which the facilities of travelling will every day render more accessible."

*Mortality of the different seasons.*—The influence of the seasons in the production of fatal diseases at the present day, and so far as the metropolis is concerned, is strikingly exhibited by the deaths registered in the four quarters of

the year 1838, in which we find the amount for winter, 15,611; spring, 13,109; summer, 11,397; autumn, 12,581. Summer was, therefore, the healthiest season, and winter the most fatal, an observation which accords with all those made since the beginning of the last century. The early English writers, however, found the relative salubrity of the seasons in accordance with the rule laid down by the Greek and Roman authorities, as summed up by Celsus in the aphorism; saluberrimum ver est: proxime deinde ab hoc, hiems: periculosior aestas: autumnus longe periculosissimus. This order of salubrity, which, as already observed, formerly obtained in London, is still found to subsist in Rome, and other towns on the shores of the Mediterranean. In attempting to explain the operation of the seasons and other circumstances tending to the production of the results furnished, Mr. Farr makes the following remarks:—

"The reduction of temperature alone, when the atmosphere reaches the freezing point, is fatal to a certain number of persons; at the same time many artisans are thrown out of employment, the small earnings of the poorer classes are diminished, and, as fuel is dear, the air, to exclude the cold, is shut out of their dwellings, until it becomes highly insalubrious. Warm weather creates a demand for labour out of doors, and excites all the functions when it is not carried to excess. As the temperature advances, and autumn comes on, dead vegetable and animal matter undergoes rapid decomposition; the living are infected; and, where the miasmata are concentrated in cities, or in undrained lands, remittent fevers, dysenteries, plagues, and malignant maladies, are generated.

"It therefore follows, that the same atmospheric conditions, and the same changes of temperature, may produce directly opposite effects on the relative mortality of the seasons in populations placed in different circumstances. Winter may be the most fatal to the inhabitants of a city on a favourable site, furnished with sewers, or to an agricultural population occupying a dry soil; and summer to the inhabitants of marshy districts, or of cities in which the refuse of organic matter is exposed to putrefaction. In proportion as the severity of the weather or malaria preponderates, the winter or summer will be the unhealthiest season."

*Diminution of mortality produced by modern improvements.*—A comparison drawn by Mr. Farr, between the rate of mortality observed in the metropolis in the four years, embracing 1606 to 1610, and 1838, exhibits in a most striking manner the improved state of health in London, and how much life is under human control. If the annual mortality of the metropolis had been the same in 1838, as it was in 1606–10, the deaths in the four seasons would have stood thus contrasted.

| *Year.* | *Winter.* | *Spring.* | *Summer.* | *Autumn.* |
|---|---|---|---|---|
| 1606–10 | 26,200 | 28,210 | 39,670 | 37,960 |
| 1838 | 15,611 | 13,109 | 11,397 | 12,581 |

The rate of mortality for the earliest period, was seven per cent. of the population, whilst that for 1838 was only 2.81 per cent.! It may be proper to remark that the first period does not embrace any of the plague years during five of which the average mortality constituted 25 per cent., or one-fourth of the population.

*Mean temperature.*—The following extract from Mr. Farr's letter shows the mean temperature of the year, and of the respective seasons in and near London, together with the dryness of the atmosphere.

"At Chiswick, in the vicinity of London, the mean temperature of winter (January 1st to March 31st) was 40°, spring 55°, summer 61°, autumn 45°, during the ten years 1826–35; in 1838 the mean temperature of winter was 35°, spring 52°, summer 60°, autumn 44°. The mean temperature of the year was 47°.6, of the ten years preceding, 50°.5. The mean temperature of January was 4° below the freezing point; while on an average of the ten years, 1826–35, it was 4° above the freezing point. In the shade the thermometer fell 4½° below zero, or 14° lower than in 1826–35, when the minimum observed was 10°. The cold in London was less intense. The temperature of the four

seasons at the apartments of the Royal Society, Somerset House, was 36°, 53°, 61°, 45°,—of the year 48°.9. The thermometer did not fall lower than 11°.

"The dryness of the seasons, measured at Chiswick with Mr. Daniel's dew-point hygrometer was 2°.2; 5°.7; 4°.7; 1°.3, in 1826–35; and 1°.9; 6°.1; 4°.2; 1°.0, in 1838. The moisture was above the average; yet the quantity of rain that fell was only 21½ inches, while the average quantity, from 1826–35 was 24 inches.

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"The electric state of the atmosphere was not observed; but it is indicated by the deaths from lightning, which in the kingdom amounted to 24; in winter 1, spring 10, summer 11, autumn 2."

In the metropolis the cold increased the mortality from the following named causes to the greatest extent.

| | Winter. | Spring. | Summer. | Autumn. |
|---|---|---|---|---|
| Paralysis, | 234 | 181 | 135 | 187 |
| Apoplexy, | 299 | 241 | 201 | 246 |
| Asthma, | 760 | 225 | 97 | 331 |
| Hydrothorax, | 90 | 73 | 43 | 79 |
| Bronchitis, Pleurisy, Pneumonia, | 1699 | 870 | 545 | 1154 |
| Diseases of the Heart, &c. | 273 | 159 | 177 | 211 |
| Diabetes, | 12 | 4 | 1 | 6 |
| Dropsy, | 501 | 427 | 375 | 465 |
| Mortification, | 84 | 50 | 35 | 56 |
| Sudden Deaths, | 216 | 165 | 105 | 146 |
| Old Age, | 1383 | 969 | 778 | 981 |
| Consumption, | 1944 | 2109 | 1905 | 1729 |

*Epidemics.*—Whilst the causes of death thus enumerated seem to be regulated by seasons and influenced by increase or diminution of temperature, there are others which operate with almost equal force throughout the year. "The diseases of the epidemic class," Mr. Farr observes, "follow laws of their own; they remain nearly stationary during months, years, and, as we learn from medical history, centuries; then suddenly rise, like a mist from the earth, and shed desolation on nations—to disappear as rapidly or insensibly as they came. The pestilences of ancient history, the plagues of England, cholera, influenza, smallpox, and typhus, are examples of this peculiar tribe of diseases. Epidemics have furnished much matter for discussion, and still offer large scope for inquiry. They have been attributed to terrestrial emanations, to the influence of the stars, to mysterious changes in the atmosphere, to heat, to animalcules, to deteriorated food, to contagion; and acting upon the latter doctrine, it has been assumed that the prohibition of direct intercourse with districts in which they prevailed would protect the inhabitants of a country from invasion.

"The registration has already yielded facts which are likely to throw light upon the propagation of epidemics."

Mr. Farr furnishes a highly interesting statement of the *smallpox epidemic* which prevailed from July, 1837, to December, 1839, a period comprising two winters, two springs, three summers, and three autumns, constituing ten seasons or quarters. He exhibits in separate tables the deaths from this source, not only in the metropolis, but in 324 divisions of the kingdom. An examination of the facts connected with the rise and progress of this epidemic, shows most evidently, that the disease was not regulated by temperature or change of season, since at the time that it was commencing in one district it was at its height, or was declining in another, placed apparently under the same general circumstances. More than thirty thousand persons (30,819) fell victims to the epidemic. The mortality increased up to the fourth season or quarter of the epidemic period. The deaths in the first quarter were 2513, in the second 3289, in the third 4242, which is about at the regular rate of 30 per cent. The rate of increase is retarded at the end of the third quarter, and only rises 6 per cent. in the next, where it remains stationary, like a projectile at the summit of its curve. The decline of the epidemic was less rapid than its rise. In the metropolis the mortality was greater than in all the other parts of England.

Mr. Farr's investigations show that the rates of increase vary with the density of population, the numbers susceptible of the attack, and other accidental circumstances. He thinks that the smallpox increases at an accelerated and then a retarded rate; that it declines first at a slightly accelerated, then at a rapidly accelerated, and lastly at a retarded rate, until the disease attains the minimum intensity, and remains stationary. It was sometimes arrested by vaccination, which protected a part of the population. Where inoculation was resorted to he had reason to believe it led to the extension of the epidemic by diffusing the infection artificially.

Among other epidemics which contributed to swell the mortality, Mr. Farr informs us that in the beginning of January, 1838, the cholera broke out in the Coventry House of Industry, the deaths from which were 55, (27 males and 28 females.) It did not spread through the town.

In noticing this second annual report of the British Registrar-general, we could not restrain ourselves from furnishing a few of the abundant interesting facts and details with which it abounds. Such publications are treasures of information, whose stores contribute to the attainment of exact knowledge for present and future use. They reflect the highest honour upon the enlightened government by which they were designed, and all concerned in the exceedingly laborious task of making the calculations and tabular statements. G. E.

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ART. XVI.—*Grundzüge zur Dipsobiostatik, oder Politisch-Arithmetische, auf ärztliche Beobachtung gegründete Darstellung der Nachtheile, welche durch den Missbrauch der Geistigen Getränke in hinsicht auf Bevölkerung und Lebendauer sich Ergeben.* Von Dr. Fr. Wilh. Lippich. Erstes und zweites hundert der Beobachtungsfäller, 8vo., pp. 150. Liabach, 1834.

*Sketches of Dipsobiostatics, or a Politico-Arithmetical Exposition of the Prejudicial Influence Resulting from the Abuse of Intoxicating Drinks, in respect to Population and the Duration of Life, based upon Medical Observations.* By Dr. F. W. Lippich. First and second century of observations.

Among the various causes by which the vital energies of the human organism are impaired, the functions of its several organs impeded or disturbed, and the occurrence of positive disease, either invited or produced, no one, confessedly, is more efficient or common than the abuse of intoxicating drinks. But while this fact is very generally recognized, the actual nature and amount of the etiological influence which the habitual use of alcoholic fluids exerts, is, nevertheless but little, if at all understood. The statistics of intemperance, in reference especially to those particulars which have an immediate bearing upon pathology, have been almost entirely neglected, rendering thus the general statements made by medical writers, of its effects in the production, or in the modification of the character of diseased action, as well as of the influence it exerts upon the operation and results of the usual therapeutic agents, altogether loose and unsatisfactory—preventing thus the possibility of our deriving from them any deductions of an accurate or practical character.

To contribute his aid towards supplying the deficiency in our information upon this important subject, is the object of Dr. Lippich in the work before us, which presents a variety of highly interesting views in relation to it, based upon the results of the author's own observations. The value, however, of the general results deducible from the several tables in which the facts collected by Dr. Lippich are arranged, is, to a certain extent, impaired by the limited field of observation from which they are derived. To enable us to form correct general conclusions in regard to the actual nature and amount of the morbific influence exerted by intoxicating drinks, will require a larger series of similar statistics to those furnished by our author, derived from more extended observations, made in different communities, and among persons in all the various classes of society.

The observations of Dr. Lippich are derived from two hundred patients, re-

siding in Laibach and its environs, all of whom were addicted to the habitual use of intoxicating drinks in various degrees, as well short of actual inebriation as to the extent of continual drunkenness. One hundred of these patients came under the author's care, from the beginning of the year 1827, to the autumn of 1829, and the second hundred from the autumn of the latter year to the close of 1831. The results derived from the two centuries of observations, are given by the author separately. To furnish, however, to our readers, some idea of the general results of the whole, and to avoid the repetitions into which the author has been led by the necessity of comparing the two, we shall present, in the short notice we propose taking of the work, a general view of the two centuries collectively.

The first chapter of each part treats of the *sex* of the two hundred patients to which the observations of Dr. Lippich refer. Of these 145 were males, and 55 females, of whom 90 died; namely, 63 males and 27 females.

The second chapter presents the respective *ages* of the patients. Under 20 years of age there were 3 males; between 20 and 50, 91 males, 44 females, total 135; between 50 and 70, 45 males, 9 females, total 54; over 70 years, 6 males, 2 females, total 8. Of those who died, 1 male was under 20 years of age; 27 males and 19 females were between 20 and 50 years, total 46; 29 males and 6 females were between 50 and 70, total 35; 6 males and 2 females were over 70 years of age, total 8.

The third chapter presents a view of the *temperaments* of the 200 patients. 31 males and 16 females are set down as of the sanguino-choleric temperament, total 46; 47 males and 9 females, as of the phlegmatico-choleric, total 56; and 26 males and 11 females as of the melancholo-choleric, total 37; of the remaining 61, 9 males and 6 females were of the sanguino-phlegmatic, total 15; 8 males and 5 females were of the choleric, total 13; of the phlegmatico-melancholic, there were 10, all males; 5 males and 5 females were of the sanguine, total 10; 6 males and 4 females were of the sanguino-melancholic, total 10; of the melancholic, there were 2, both males; and 1 male of the phlegmatic.

The fourth chapter treats of the *degree*, *kind* and *duration* of the intemperate habits of each of the 200 patients. Of the first grade, habitual drinkers of intoxicating fluids, but not to the extent of actual inebriation, there were 24, viz., 13 males and 11 females, of whom 4 died, viz., 2 males and 2 females. Of the second grade, habitual drinkers of intoxicating fluids to the extent of occasionally producing inebriation, there were 66, viz., 46 males and 20 females, of whom 22 died, viz., 12 males and 10 females. Of the third grade, habitual drinkers of intoxicating fluids to the extent of frequent inebriation, there were 97, viz., 76 males and 21 females, of whom 47 died, viz., 38 males and 9 females. Of the fourth grade, confirmed and continued drunkards, there were 13, viz., 10 males and 3 females, of whom 10 died, viz., 7 males and 3 females. Of the 200 patients, 78 males and 32 females were addicted to the intemperate use of *wine*, total 110; of whom 31 males and 13 females died, total 44; 64 males and 23 females to the intemperate use of *ardent spirits*, total 87; of whom 27 males and 11 females died, total 38; 3 only, all males, to the intemperate use of *beer*, of whom 1 died; 60 of the patients, 44 males and 16 females had been in habits of intemperance for less than 5 years; 53 of these were under 50 years of age, and 7 over 50 years; 19 of these 60 patients died, viz., 15 males and 4 females; 103 of the patients, 68 males and 35 females, had been intemperate for a period of between 5 and 15 years; 77 were under 50 and 26 over 50 years of age; 45 of these 103 patients died, viz., 27 males and 18 females; 37 of the patients, 33 males and 4 females, had been intemperate for a period beyond 15 years; 8 were under, and 29 were over 50 years of age; 19 of these 37 patients died, viz., 15 males and 4 females. Of the 110 wine drinkers, 35 were over 50 years of age; 18 were of the *first grade* of intemperance, 34 of the *second grade*, 53 of the *third grade*, and 5 of the *fourth grade*. Of the 87 drinkers of ardent spirits, 27 were over 50 years of age; 5 were of the *first grade*, 31 of the *second grade*, 43 of the *third grade*, and 8 of the *fourth grade*. The three beer drinkers, were all

under 50 years of age; 1 was of the first, 1 of the second, and 1 of the third grade.

The fifth chapter treats of the social relations of the 200 patients, and of the number of their offspring; 80 were single, 61 males and 19 females; 105 were married, 75 males and 30 females; 15 were widowers or widows, 9 males and 6 females. During the period of their intemperance, by 65 of the above individuals, viz. 45 males and 20 females, 97 children were begotten, 39 males and 58 females. Of the 65 parents, 28 were of the first grade of intemperance, 17 males and 11 females; 23 of the second grade, 18 males and 5 females; 14 of the third grade, 10 males and 4 females, and none of the fourth grade. The children begotten by the 45 intemperate males are thus arranged.

| | | | |
|---|---|---|---|
| By the 17 of the first grade, | 9 males, | 14 females, | total 23 |
| By the 18 of the second grade, | 11 " | 19 " | " 30 |
| By the 10 of the third grade, | 4 " | 8 " | " 12 |
| 45 | 24 | 41 | 65 |

The children conceived by the 20 intemperate females are thus arranged.

| | | | |
|---|---|---|---|
| By the 11 of the first grade, | 7 males, | 8 females, | total 15 |
| By the 5 of the second grade, | 4 " | 5 " | " 9 |
| By the 4 of the third grade, | 4 " | 4 " | " 8 |
| 20 | 15 | 17 | 32 |

Chapter six gives the occupations of the patients. 37 males and 7 females were mechanics, total 44; 24 males and 6 females were day labourers, total 30; 19 males were soldiers, mostly discharged from service; 15 males and 19 females were without occupations, total 34; 13 males and 10 females were sellers of liquors, &c., total 23; 8 males were officers of revenue; 6 males were officers of the law; 4 males and 5 females were traders, total 9; 3 males were students; 3 males were scriveners; 3 males were sailors; 3 males were teachers; 2 males and 1 female were housekeepers, total 3; 2 males were sugar boilers; 2 males were musicians; 6 females were prostitutes; 1 male and 1 female were servants, total 2.

Chapters seven and eight treat of the residence of the patients and the period of the year in which they were attacked with disease. In the first of these particulars we can take no interest, unacquainted as we are with the medical topography of Laibach. In regard to the second, we find that 42 were taken sick in autumn, 60 in winter, 66 in spring, and 32 in summer.

Chapter nine. The subject of this chapter is the nature of the diseases under which the patients laboured, with their results. There were

| | | Were Cured. | Impr'd. | Died. | Rem'd. |
|---|---|---|---|---|---|
| 32 | labouring under affections of the brain, of whom | 5 | 3 | 20 | 4 |
| 57 | under diseases of the chest, of whom - - | 9 | 14 | 28 | 6 |
| 32 | " " abdomen, of whom - - | 9 | 3 | 16 | 4 |
| 25 | " fevers, of whom - - - - - | 22 | 0 | 3 | 0 |
| 5 | " delirium tremens, of whom - - - | 5 | 0 | 0 | 0 |
| 6 | " epilepsy, of whom - - - - - | 1 | 1 | 2 | 2 |
| 3 | " diseases of the eye, of whom - - - | 1 | 1 | 0 | 1 |
| 3 | " syphilis, of whom - - - - - | 3 | 0 | 0 | 0 |
| 3 | " erysipelas, of whom - - - - | 2 | 1 | 0 | 0 |
| 1 | " chlorosis, of whom - - - - | 0 | 0 | 1 | 0 |
| 1 | " smallpox, of whom - - - - | 0 | 0 | 1 | 0 |
| 2 | " abscesses, of whom - - - - | 2 | 0 | 0 | 0 |
| 6 | " cachexia, of whom - - - - | 0 | 0 | 5 | 1 |
| 2 | " drunkenness, of whom - - - - | 0 | 0 | 0 | 2 |
| 1 | " neuralgia, of whom - - - - | 0 | 0 | 1 | 0 |
| 7 | " dropsy, of whom - - - - - | 0 | 0 | 7 | 0 |
| 186 | | 59 | 23 | 84 | 20 |

| | | Were Cured. | Impr'd. | Died. | Rem'd. |
|---|---|---|---|---|---|
| 186 | | 59 | 23 | 84 | 20 |
| 7 | under gout, of whom - - - - - - | 2 | 3 | 0 | 2 |
| 2 | " jaundice, of whom - - - - - | 1 | 1 | 0 | 0 |
| 1 | " gravel, of whom - - - - - | 0 | 0 | 0 | 1 |
| 2 | " uterine hemorrhage, of whom - - | 1 | 1 | 0 | 0 |
| 2 | " fluor albus, of whom - - - - | 0 | 0 | 0 | 2 |
| 200 | | 63 | 28 | 84 | 25 |

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We wish our readers to understand that the foregoing is a bare skeleton of the leading facts embraced in the first nine chapters of each of the two parts into which the work before us is divided: the commentary appended by Dr. Lippich to the several tables, as well as the various interesting details given by him in relation to the general facts to which we have confined ourselves in the foregoing summary, are all important to a correct estimate of the legitimacy of his several deductions. Of these it was however impossible for us to present a digest in any way satisfactory to our readers.

In the ensuing eight chapters the diseases with which the two hundred patients were affected, are examined in reference to the sex and age, the temperament, the grade and kind of intemperance, the generative and physical condition, the occupation, the residence, &c. of those in whom they respectively occurred. From these chapters we cull the following facts. Previously, however, it is proper to state that of the one hundred cases treated during the first period, fifteen again came under treatment during the second period. The diseases, with their results, of these fifteen were as follows:

1 Laboured under congestion of the brain, and was cured.
1 " " epilepsy, and remained under treatment.
5 " " diseases of the thoracic viscera, of whom 2 were cured, 2 died and 1 remained.
4 " " diseases of the abdominal viscera, 2 were cured, 1 improved and 1 died.
1 " " gout, and was cured.
1 " " ascites, and died.
1 " " ophthalmia, and was cured.
1 " " bilious fever, and was cured.

From which it appears that 8 of the 15 were cured, 1 improved, 4 died, and 2 remained.

Independently of the diseases that are enumerated above, some of the individuals included in the author's observations, had been repeatedly attacked during the period of their intemperance, with a variety of morbid symptoms:—the diseases to which the numbers in the tables of Dr. Lippich refer, being mostly only the final link in a long chain of suffering.

Among the morbid affections not included by the author in his tables, are ranked those peculiar symptoms, which, in different degrees of intensity, occur in almost all the grades of intemperance;—as, for instance, sleeplessness, confusion of mind, tremulousness, morning sickness, heartburn, loss of appetite, &c. These, in a very striking manner, occurred in 50 instances. In their highest grade, the symptoms referred to, appear to be connected with a cachectic condition of the organism dependent on a morbid condition of the blood and lymph. Besides the foregoing, there occurred 19 attacks of hæmoptysis, 18 of epistaxis, 13 of hemorrhoids, 15 of hysteria, 9 of gastro-saburral fever, 9 of abscesses, petechia, &c., 7 of erysipelas, 7 of catarrho-rheumatic pains, with or without fever, 5 of eneurisis, 4 of constipation, 3 of chronic rheumatism, 3 of inflammation of larynx, 3 of spasms, 3 of vertigo, 3 of chronic diarrhœa; 3 of itch, 2 of inflammation of the spleen, 2 of rheumatic fever, 2 of uterine hemorrhage, and 1 of neuralgia, chronic cephalalgia, scurvy, inflammation of mediastinum, induration of mesenteric glands, saturnine cholic, cramp of the stomach, calculus, and poisoning with mercury, and many of inflammation of the ovaries.

Independent of the cases enumerated in the author's tables, of the individuals to whom his observations refer, during the period of their intemperance, 30 had been affected with catarrh, 23 with intermittent fever, 16 with pneumonia, 15 with decided congestion of the brain, 15 with bilious symptoms, with or without fever, 12 with gout, 8 with hepatic disease, 6 with syphilis, 5 with ascites, 4 with epilepsy, 4 with delirium tremens, 4 with inflammation of the throat, 4 with asthma, 4 with bilious fever, 4 with the cachexia of drunkards, 3 with bilio-nervous fever, 3 with saburral fever, 3 with diarrhœa, 2 with ophthalmia, 2 with aneurism, 2 with erysipelas, and one with consumption, angina pectoris, rheumatism, jaundice, chlosma, &c.

Before the period to which the author's observations refer, many were affected with the venereal, and during that period 5 (2 males and 3 females), became so. One case of abortion was observed.

Of the first hundred cases, most that terminated fatally in patients under 30 years of age were of consumption; in those from 30 to 40 of consumption and dropsy; in those from 40 to 50, of apoplexy, consumption, inflammations of the abdomen and their consequences. After the 50th year, the most of the deaths were from pneumonia, especially in females; after the 60th year, they were from apoplexy, especially in males.

Of the second hundred cases, most that terminated fatally in patients under 30 years of age were of consumption and organic diseases of the heart; from 30 to 40 years, from diseases of the bowels and heart; from 40 to 50 years, from diseases of the liver and consumption; from 50 to 60 years, from apoplexy and the cachexia of drunkards; over 60, from asthmatical affections, apoplexy and cachexia.

Of the first century of cases, the diseases in individuals of the first grade of intemperance were, for the most part, attributable to epidemic and endemic influences; they consisted chiefly in remittent bilious fever, and intermittent fever of a bilious character; among the chronic diseases were periodical gastritis, habitual congestion of the brain, obstruction of the liver, and gravel; of the 10 cases of individuals of this grade, one of bilious fever was fatal.

In the second century of cases, the diseases in individuals of the first grade were more generally the consequence of the intemperate lives of the patients; arising partly from the less pandemic character of the diseases generally prevalent during the period of the attacks, and partly in the habits of intemperance of the greater number of the individuals having been of longer duration. The principal affections were those of the heart, light inflammatory attacks of the abdominal viscera; the mortality in this grade was double in the second to what it was in the first hundred cases.

Of the first century of observations, the diseases in individuals of the second grade of intemperance were chiefly of an inflammatory congestive character; and seated principally in the thoracic organs. The mortality was as 1 to 2.5.

Of the second century of observations, the diseases which occurred in individuals of the second grade of intemperance, were principally inflammatory and spasmodic affections of the lungs, gout, erysipelas, and inflammatory affections of the abdominal organs, particularly the liver. The mortality was as 15 to 48.

Of the first hundred cases, the diseases occurring in patients of the third grade of intemperance were for the most part inflammations of the lungs, the accompanying fever being either of a bilious or bilio-nervous character—most of the cases of consumption and of apoplexy, occurred in individuals of this grade, of which the first were all, and of the last all but one, fatal. The other affections were disturbances of the mental powers, the delirium of drunkards, one half the cases of epilepsy, one half the cases of bilious fever, and bilio-nervous fever; all the cases of hepatitis with their results; inflammation and scirrhus of the bowels, &c. The mortality was as 1 to 2.

Of the second hundred cases, the diseases of persons in the third grade of intemperance, were the cachexia of drunkards, consumption, apoplexy, inflammation of the lungs, cramp of the breast, affections of the heart, concussion of

the brain, and one half of the mental affections. The mortality was the same as in the first hundred cases.

Of the first hundred observations, the diseases of those in the fourth grade of intemperance, were a single case of apoplexy and delirium of drunkards; scirrhus of the abdominal viscera and most of the dropsies. The mortality was as 1 to 1.2.

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In the second hundred, the diseases of persons of this grade, were one case of cachexia of drunkards, and one of scirrhus of the stomach, dropsy and apoplexy. The mortality was as 3 to 4.

In the first one hundred observations, the wine-drinkers were chiefly affected with apoplexy—one half of the cases occurring in them; pneumonia (most of the cases); consumption; bilious fever and intermittent fever. The mortality was as 24 to 57.

In the second hundred, the principal diseases of the wine-drinkers were hepatitis, gastric remittent and intermittent fever, cramp of the breast, congestion of the brain, apoplexy, ophthalmia, pneumonia, affections of the heart, consumption, dropsy, gastritis and enteritis.

In the first hundred cases, among drinkers of ardent spirits occurred one half the cases of apoplexy, one half of the epilepsies. Their fevers inclined to the bilio-nervous character; inflammation of the abdominal viscera especially of the liver, and their consequences, also were very frequent in this class of persons. The mortality was as 22 to 41.

The diseases of the drinkers of ardent spirits among the one hundred individuals of the second series of observations, were chiefly pneumonias, cramp of the breast, organic affections of the heart and blood-vessels, gastritis, and cachexia of drunkards. The hepatic affections were of a chronic character; apoplexy and mental disturbance occurred in about equal proportions.

Of the two beer drinkers of the first hundred cases, the one was epileptic, and the other was affected with cramp of the breast; of the two beer drinkers of the second hundred cases, the one was affected with gout, the other with aneurism of the aorta with a consequent fatal attack of apoplexy.

Apoplexy in the first hundred cases occurred generally among aged persons, unmarried; delirium tremens among the married; epilepsy among single persons of dissolute lives; pneumonia among the married, and those who had been married; consumption seldom among the last; bilious fever among individuals of all conditions.

The individuals who laboured under chronic diseases of the chest and abdomen, especially women, exhibited the least procreative power.

In the second hundred cases apoplexy occurred mostly among the married, epilepsy among the single, pneumonia equally among married and single; the other diseases of the chest, with the exception of the organic affections of the heart and great vessels, occurred principally among the single. The single were most often affected with gastric and enteric maladies, the married with inflammatory affections of the liver, dropsy and cachexia of drunkards. The widowed were affected with asthmatical complaints and apoplexy. As in the first century of cases those labouring under chronic affections of the chest and abdomen exhibited the least procreative energy.

In the seventeenth chapter the author treats of the morbific influence of intemperance.

In one class of cases the diseases were produced by causes independent of the intemperate habits of the patients—their abuse of intoxicating drinks causing, however, a change in the character of the diseases, increasing the intensity, prolonging their duration and rendering them anomalous in some of their features.

The diseases of this class were mostly of an epidemic or endemic character, as remittent and bilious fever, catarrh, rheumatism, diarrhœa, erysipelas, cholera, inflammations of the liver and other organs; or arose from some cause of an accidental character, as an abscess of the lower extremity, the consequence of inflammation in a parturient female; or from contagion, as syphilis and small-pox—most of these diseases assuming in the intemperate a nervous or putrid

character, with rapid sinking of the strength, and were complicated frequently with sympathetic affections of the brain, stomach, liver and spleen.

To this class belonged 38 out of 215 cases; 23 males, 15 females; 7 were over 50 years of age: 5 were of the first grade of intemperance, 19 of the second, 13 of the third, and 1 of the fourth; 13 were drinkers of ardent spirits; 7 died.

In a second class of cases the intemperate habits of the patients had produced in them a strong predisposition to disease, the latter being readily induced by affections of the mind, changes of temperature, errors in diet, &c. The diseases of this class were nearly all the cases of epilepsy, most of the metastastic and some of the other cases of apoplexy, especially those with extravasation; inflammations of the throat, liver, spleen, lungs, intestines, eyes and other organs, many of the cases of nervous fever, hemorrhoides, cholera, dropsy, gravel, eneurisis, scurvy, chronic diarrhœa, &c.

To this class belong 58 out of 215 cases, 45 males 13 females; 30 were over 50 years; 12 were of the first grade of intemperance, 28 of the second, 16 of the third, and 2 of the 4th; 23 were drinkers of ardent spirits; 20 died.

In a third class of cases, the habits of intemperance of the patients acted both as predisposing and exciting causes of disease—producing epilepsy, epistaxis, delirium tremens, congestion of the brain, apoplexy, particularly the serous, hæmoptysis, bilio-nervous pneumonia, (the bastard pneumonia of Sydenham,) asthma, inflammation and organic changes of the heart and blood-vessels, aneurism, inflammation, especially chronic, and organic diseases of the œsophagus, stomach, liver, intestines; saburral fever; febris crapulosa, almost all the dropsies; consumption, profuse uterine hemorrhage, a peculiar kind of hysteria, &c. Spontaneous combustion occurs in general among patients of this class, sometimes among those of the second class.

To this class belong 53 out of 215 cases, 42 males, 11 females; 15 were over 50 years; 8 were of the first grade of intemperance; 12 of the second, 26 of the third, 7 of the fourth; 27 were drinkers of ardent spirits; 24 died.

In a fourth class of cases, the abuse of intoxicating drinks not only acted as predisposing and to a certain extent exciting causes of disease, but the continued use of these drinks during the course of the disease, augmented its violence, and increased the danger of a fatal termination. This was especially the case in inflammatory affections of the chest, consumption, gout, fluor albus, uterine hemorrhage, cachexia of drunkards, aneurism, angina pectoris, scirrhus of the liver and intestines, dropsy and mental disturbances.

To this class belong 53 out of 215 cases, 33 males, 20 females; 15 were over 50 years; 4 were of the first grade of intemperance, 12 of the second, 34 of the third, and 8 of the fourth; 27 were drinkers of ardent spirits; 29 died.

As the immediate cause of disease intemperance acted in 9 cases of febris crapulosa, vertigo, and a peculiar form of apoplexy in which after death, the smell of alcohol was perceptible in the cavity of the cranium; of these 9 cases, 3 were in persons over 50 years of age, 5 in males, 4 in females; 1 was of the first grade of intemperance, 1 of the second, 5 of the third, and 2 of the fourth; 3 were drinkers of ardent spirits; 4 died.

As the mediate cause of disease from external injuries, intemperance acted in 4 cases, 1 of traumatic pneumonia, 1 of traumatic phthisis, and 2 of concussion of the brain; of these 4 cases, 3 were in patients over 50 years; all were in males; 1 was of the second grade of intemperance, 3 of the third, 1 was a drinker of ardent spirits, and 1 died.

In the second division of the first part of the treatise before us, Dr. Lippich presents a view of the general movement of the population to which the two hundred individuals who form the subjects of his observations belonged. Taking the medium of the births and deaths for forty years, he finds the annual average of deaths to be 390, and of births 423. He subsequently, from various data, estimates the probable proportion which the intemperate bear to the temperate portion of the community, and determines from the result of his observations their proportionate annual mortality and births; and then to exhibit the influence which intemperance exerts upon population, he gives the following statement—

| | | | |
|---|---|---|---|
| Yearly average of deaths | 390, of births | 423, excess | 33 |
| Deduct the number who die annually through intemperance, | 87 | | |
| Add the loss in births caused by intemperance, | | 56 | |
| | 303 | 479, excess | 176 |

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Consequently, the author remarks, were it not for intemperance there would be an excess of births over the deaths, annually, of 176; and agreeably to one of Euler's tables, the population would double itself by natural increase in 45 years, whereas, with the present state of things this would scarce be accomplished in centuries.

The probable duration of the intemperate of different ages—of the different grades, and of different periods of intemperance is the subject of the concluding chapter of the first part of the treatise.

In the final chapter of the second part, the author gives some general deductions drawn from the yearly consumption of intoxicating drinks in Laibach.

We have thus presented to our readers some imperfect idea of the nature of the statistics collected by Dr. Lippich in regard to intemperance, its agency in the production of disease, and in augmenting its fatality, in diminishing the procreative energies of its victims, and in shortening their lives. This is a subject of no trifling interest to the pathologist as well as to the enlightened statesman, and although we cannot accede to the entire correctness of all the author's calculations, or to the validity of every deduction he has drawn from the very limited series of observations he has made, yet as presenting a plan upon which future and more extended observations may be based, the publication of the present treatise may not be without important results. D. F. C.

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ART. XVII.—*Manuel d'Hydrosudopathie, ou Traitement des Maladies par l'eau froide, la sueur, l'exercice, et le regime, suivaint la methode employée par V. Priessnitz, a Græfenberg.* Par le Docteur BIGEL, Médecin, &c. &c. &c. &c. Suivi d'un Mémoire Physiologique sur la Chaleur Animale. Par M. PELLETAN, Professeur, &c., a Paris. pp. 396, 12mo. Paris. Baillière: 1840.

In again noticing Dr. Bigel's work, we had at first no design to say more about the opinions expressed in it than is already contained in the abstract, at pages 218-222, of our number for January last, as there compiled from the Medico-Chirurgical Review; but had intended to confine our comments to one or two of the circumstances of the publication. Upon looking over the volume, we still find that analysis, in our opinion, quite sufficient for justice to the general subject, both as regards the inventor and our readers. Along with the history of the water treatment, however, we find included a memoir by Professor Pelletan, on which we propose to add a few remarks at the end of the present notice.

The first circumstance which has attracted our attention is, that the inventor, who has reaped the honourable reward of his exertions in praise, thanks, and a handsome pecuniary independence, is not a "Doctor Priessnitz" at all, being, in fact, a farmer, the son of a farmer, educated in the habits of life which belong to his situation, and among other things, of limited school acquirements, and no other knowledge of the world than was to be acquired in his own retired neighbourhood. With regard to the degree of ease or hardship of his condition, accounts are given with great freedom, but varying among themselves; some speaking of him as a simple labouring man. All agree in representing him as utterly devoid of the slightest knowledge of medicine.

The Paris compiler, Dr. Bigel, described in the English journal as "one of the Medical Professors in the Imperial College, at Petersburgh," does not in-

form us very distinctly where his "professorship of midwifery" lies, or whether, indeed, it be public, or, as is not uncommon in Europe, private and voluntary. He informs us that he is an "assesseur" of the College of the Empire of Russia; by which we understand an assistant, liable to be called upon for professional opinions; the word having, in French, a legal sense, equivalent to what we call an "associate judge." What we are told, however, very explicitly, is, that he is the author of no less than four works on Homœopathia. This is stated in a conspicuous flyleaf, facing the titlepage.

This liberality in bestowing medical titles on the inventor, Priessnitz, the partial ambiguity about his editor, and, in fine, the employment of the latter in disseminating Homœopathia, constitute a real source of error into which we reviewers have no right to lead our readers blindfold. Some persons may consider these as small matters, excusable in haste or oversight; but we cannot regard them thus. Such entering-wedges to indifference in respect to accuracy, may be slight in appearance; but it is a principle of that mechanical power that they serve to introduce larger; nor can we ever consent that the boundary of the empire of truth shall ever be violated. It is at the frontiers that such invasions should be met; and a bad example becomes no better by being a little one. In announcing new facts, real or imaginary, in the science or practice of medicine, no precaution against error is more necessary than extreme care and precision in describing the degree and source of authority on which they are alleged. It never can be right to describe a strong-minded labouring man as a doctor of medicine, or to omit the circumstance that a large part of the history of his cures reaches us through the agency of a believer in the sanative efficacy of the quintillionth parts, and other high arithmetic of the Homœopathians.

We feel much more willingness, indeed, to expect the relief of chronic diseases and excessive medication, from the action of the kidneys, liver, mucous follicles, cutaneous pores, and other emunctories, aided by good food, exercise, relief from business and anxiety, and the pure air and water of the Sudetic mountains, than from the imagined presence of drugs in portions so small as to form no perceptible addition to the thinnest coating of a red globule, and no obstruction to an exosmotic porosity. A rapid improvement from the causes we have enumerated, is a thing frequently witnessed among our own mountains, without artificial perspiration; and we have ourselves seen and recognized the production of furuncles in the progress of such recoveries.

We have also a remark to offer in regard to the pompous invention and assumption of new words. Following the practice so familiar in their learned country, and to which men acting under a Latin diploma can hardly with a good grace object, Drs. Engel and Behrend have employed two words constructed from the Greek. The one calls the cold-water treatment of Priessnitz and his predecessors, *hydrotherapia*, and the other, the *hydriatric* method. On these we bestow no censure. They express the fact; and they are well suited to the studies of Germans, and ought to be so to those of Americans. But M. Bigel has coined an expression more majestic, not only in its intonation, but in its pretensions. *Hydrosudopathy* is not only an inadmissible engrafting of Latin and Greek, but implies the claim of being, what?—a *system* of medicine! The syllables "pathy," in this employment of them, mean not a practice, but a doctrine; while we in vain search for anything worthy of the latter appellation throughout the volume, unless we find it in the suggestion, that all the diseases cured at Græfenberg were produced by morbid poisons, subsequently eliminated by means of the water. We might as well make a new word for the use of any other popularized remedy. Suppose we write Lobeliopathy or Alcoholosalipathy! A laical friend, a better Hellenist, it seems, than the author of Dr. Bigel's word, assured us, the other day, that he really thought the expression was Hydropseudopathy.

The mention of the above attempt at connecting M. Priessnitz's successes with something like a philosophical opinion, naturally leads to the paper of Professor Pelletan. The observation so generally applicable, that most of the phenomena of life bear, and indeed require, a double explanation, on one side,

in regard to humoralism, and on the other to the doctrine of excitement, is exemplified in the present case. M. P.'s first memoir on the same subject as the present one, was published in 1826, in the Revue Médicale. Not attracting, however, so much of the public attention as the author thought it worthy of doing, he has made the arrangement with M. Bigel to append it to the present volume. We shall endeavour to sketch its outlines; when it will be found to present the explanation, according to solidism, of the cures of M. Priessnitz.

According to the views of Professor Pelletan, the stimulation which heat imparts to the activity of the functions, is not produced by the quantity of free caloric present, but by the rapidity and force of a current. After reminding us of the wonderful phenomena recently found to accompany and surround the route of an electric or magnetic stream, and the complication of these last with heat, he naturally concludes that we have a right to claim all the probability of analogy in favour of the converse existence of currents of electricity and magnetism along with and around those of caloric. After thus establishing, a priori, the possibility and probability of such processes, he goes on to exhibit the connection which can be proved to exist between currents of heat taking place in animal and vegetable life, and the most active vital labours of organized nature. In warm-blooded animals, these accompany the columns of fluid in the arteries. In exogenous vegetables, in which alone these phenomena can be rendered perceptible, a constant flow of free caloric takes place from the ascending sap in the alburnum to the coating of descending vessels, which lies immediately contiguous in the innermost bark. The first conveys a steady stream of heat, derived from the common reservoir of the earth, intended to be diffused and expended at the surface of the plant; while the latter returns fluids already cooled by exposure to the atmosphere in the leaves. It is in the space intervening between these two masses of vessels, that the most energetic actions of vegetable life, with the exception of those which take place in the organs of fructification, are carried on. In the former are produced the two new strata of the wood and bark; possessing, too, a renovated vitality. In the flowers and fruit, to which M. P. does not extend his inquiry, we believe the existence of currents could be shown; but it is inexpedient, at present, to venture so far into vegetable physiology. As much, too, could be said of the cold-blooded animals. Indeed, it is difficult to imagine the continued generation of heat in a vascular organization, without the necessary accompaniment of currents.

Among the warm-blooded tribes, with whom the most important applications of this principle or question occur, the connection of the vital activity of organs with the presence and rapid circulation of red blood, is one of the most familiar principles of physiology, human or comparative, and of pathology. It is certainly unnecessary to expatiate on this point. The theoretical view of Professor Pelletan is undeniably borne out by the universal coincidence of a current of caloric with any one of arterial blood. In the application of ice and other cold substances to the skin, overlying our organs, in medical treatment, M. Pelletan is of opinion, that when the effect is to create a great depression of temperature in the skin, while the sources of caloric in the organ beneath continue unimpaired, the effect is corroborant and stimulating. When the coldness penetrates profoundly the substance of the organ itself, the effect, as is well known, is depressing. This M. P. explains by alleging, (p. 387,) that, in general, the quantities of caloric transmitted by a body, are in proportion to its temperature. We think that M. Pelletan here concedes too much ground; and might claim still more clearness and simplicity for his own theory. The cold which deeply affects the substance of an organ, diminishes, and frequently altogether suspends the currents of caloric which have their origin in the newly aerated blood, both by diminishing the quantity of that fluid which enters the organs, and also by intercepting the heat before it actually enters the tissue which is cooled, and conveying it away directly from the sides of the vessels.

Another and very beautiful illustration of the views of M. Pelletan, is derived from the varying, and often apparently inexplicable effects produced by cold climates upon the vigour of the constitution. If the current of animal heat be

so powerful as not to be exhausted at its source, the effect of a low temperature, acting on the surface of the body, (and the same rule applies to icy potations,) is to increase the vigour of the actions of life. If the original source be exhausted or enfeebled, the effect is to destroy or to enfeeble the constitution. Hence the explanation, why in wintry regions of the earth, the most general effect on the human race is to destroy the feeble and invigorate the strong.

M. Pelletan's views, in this point, are confirmed by the observations of Dr. John Davy, on the effect of a climate nearly equatorial in increasing the heat of central parts of the human body, several degrees above the average standard. This is necessary in those regions, even at the lessened rate of human vigour generally found there, to keep up the currents of caloric from the heart and lungs to the evaporating surface. At the other extremity of the scale, if we apprehend his ideas correctly, we should look to find the Hyperborean race of men, the Laplanders, Esquimaux, and Samoiedes, possessing a lower degree of heat in the centres of circulation than the inhabitants of the temperate zones; an inquiry requiring future labour for its answer.

It is obvious that these considerations will explain the effects of cold as a hygienic agent, in strengthening the human body; as well as furnish a neat explanation of the phenomena of what is called *reaction* against cold. We know that a similar train of reasonings has passed through some minds; but the memoir of Professor Pelletan is the first instance in which we recollect to have seen it published. B. H. C.

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ART. XVIII.—*Die Lehre von der Zurechnungsfahigkeit bei zweifelhaften Gemuthszustanden. Fur Aartze und Juristen praktisch dargestellt.* Von Dr. ADOLPH SCHNITZER. Berlin: 1840.

*The Doctrine of Responsibility in cases of doubtful State of Mind.*

IT is not extraordinary that in a country of learned men, the subject of Dr. Schnitzer's work should excite discussion. As late as 1838, Professor Mittermaier, an eminent German jurist, published a treatise with a similar title. "*De principio imputationes alienationum mentis recté constituendo.*"

So much has been accumulated, both of facts and reasoning, on this matter, in Europe and our own country, that we purpose, at as early a period as possible, to present a full view of it to the readers of this journal. Dr. Schnitzer has pursued his investigations systematically, and notices, amongst other points, the following:

The imputation of responsibility to those who are pregnant—mania sine delirio, amentia occulta, mania transitoria—on the imputation of illegal acts committed during a lucid interval—monomania—the responsibility for acts committed during sleep, dreaming and somnambulism; the same as to acts committed during a state of intoxication, and the condition of mind induced by habitual drunkenness, and delirium tremens; and the same as to acts committed by the deaf and dumb, and by epileptics. T. R. B.

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ART. XIX.—*A Practical Treatise on the Human Teeth: showing the causes of their Destruction, and the means of their Preservation.* By WM. ROBERTSON. With plates. First American from the second London edition. Philadelphia: LEA & BLANCHARD, 1841. 8vo. pp. 239. Pl. VI.

NEARLY all the writers on the diseases of the Teeth, have maintained the opinion that these organs are possessed of vital properties, and that caries of them is the result of an inflammatory action. Mr. Robertson, on the contrary, comes forward in support of the doctrine, that the teeth are not vital organs, but that the enamel and bone of the teeth are, strictly speaking, inorganic sub-

stances; and that their destruction is effected by chemical and not by inflammatory action. He supports this view of the subject by many weighty facts. A single one only we shall notice, but that seems to us almost conclusive as to caries being the result of chemical action. He states that when artificial teeth are fixed to a gold frame or the fangs of natural teeth, "if any crevice or interval, however small, be allowed to exist between the frame and teeth, a recess will then be made for the reception of minute particles of food, and a *process of caries will commence in the extraneous teeth*, exactly like that which takes place in the teeth naturally contained in the jaw." Page 83.

Cruvelhier, one of the latest writers on the anatomical relations of the teeth, regards them as appendages of the epidermic tissue, analogous to the nails, hair, &c., and like these structures, not endowed with vitality, and we believe that the weight of evidence will be in favour of this view.

We have not space to enter into further details on this subject, but must refer those who are interested to the volume of Mr. Robertson. This is evidently the production of one who has had much experience in dental surgery, and we strongly recommend it to those who practice that art.

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ART. XX.—*An Essay on the connection of Mental Philosophy with Medicine.* By NATHAN ALLEN, A.M., M.D., editor of the American Phrenological Journal and Miscellany. Philadelphia: 1841. 8vo. pp. 32.

THE objects proposed by the author of this essay, is to inquire, 1st. Why the cultivation of metaphysics is so generally neglected by medical men? 2d. To point out the intimate connection of mental philosophy with medicine; and, 3d. To offer some remarks upon the importance of a knowledge of this science to the physician. These are important topics, and Dr. Allen has discussed them in an able manner. His essay is sensible and well written, and will be read with pleasure and advantage.

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ART. XXI.—*Boylston Prize Dissertation, for the years* 1838 *and* 1839, *on Scrofula, Rheumatism, and Erysipelatous Inflammation.* By EDWARD WARREN, M.D., Fellow of the Massachusetts Medical Society. Philadelphia: 1840. pp. 122.

THESE dissertations furnish a very excellent summary of the existing knowledge in relation to three highly important diseases, and will be considered a valuable contribution to our medical literature.

# SUMMARY

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OF THE

# IMPROVEMENTS AND DISCOVERIES

IN THE

# MEDICAL SCIENCES.

## ANATOMY AND PHYSIOLOGY.

1. *Fibres in the Walls of the Gall-Bladder.*—M. Barth exhibited to the Anatomical Society of Paris, a dilated gall-bladder, in the parietes of which were manifest fibres, interlaced, and greatly resembling muscular fibres.—*L'Expérience*, Nov. 19, 1840.

2. *On the varying Proportion of some of the Principles of the Blood in Disease.*—MM. Andral and Gavarret experimented on the blood of 200 patients, or 360 different blood-lettings; and the process followed in their analyses was the same as that used by MM. Prevost and Dumas. They ascertained that, in disease, taking 1000 parts of blood, the fibrine may vary in proportion from 1 to 10 in that quantity; the globules from 21 to 185; the solid matters of the serum from 57 to 104; and the water from 725 to 9151; but it was very rare to find these different ingredients increased or diminished simultaneously. Sometimes only one ingredient was changed in proportion, whether it was increased or diminished; sometimes two were altered, but generally in an inverse ratio, as, for instance, if the fibrine were increased, the globules were diminished, and *vice versa*. From this remarkable circumstance MM. Andral and Gavarret divide into four classes the diseases which produce an alteration in the composition of the blood.

The first class comprehends those diseases in which the fibrine is constantly augmented; such are the phlegmasiæ.

The second class comprehends those diseases in which the fibrine is never increased in proportion, but often diminished; such are the pyrexiæ.

The third class includes those diseases in which there is constant diminution of the blood globules, as in chlorosis, &c.

In the fourth class are included those diseases or morbid states in which the albuminous matter of the blood is diminished, as in Bright's disease of the kidney, &c.

But this simplicity of arrangement cannot always be observed; for it often happens that many morbid states, each of which produces its peculiar alteration in the blood, are met with in the same individual. In this case they were able to trace distinctly in the blood the indications of this complication.

Besides disease, losses of blood and low diet were found to have a powerfully modifying effect on the relative proportion of the ingredients of the circulating fluid, and somewhat masked, as it were, the peculiar alteration of the blood caused by disease. They chiefly acted, however, on the blood-globules which they diminished; but it was found that, from one blood-letting to another, the globules were not diminished in the same proportion in all patients. In this respect there were very great differences in different individuals; so much so, indeed, that whilst one would between each bleeding lose only from 2 to 3 parts in the 1000, another would lose from 30 to 40.

At the same time that the blood-globules diminished from blood-letting, the fibrine most generally maintained its original proportion, rarely diminished, but sometimes increased.

When the disease was of that nature that the increase of the fibrine was one of its necessary results, this increase took place in spite of blood-letting and diminution of the blood globules. In order that loss of blood should effect the diminution of the proportion of the fibrine, it was necessary that it should be carried to a very considerable extent. It was then found that all the solid ingredients of the blood diminished simultaneously.—*Edinburgh Med. and Surg. Journ.*, from *Journal de Pharmacie*, Sept. 1840.

3. *Existence of Fibrine in the Blood in the Shape of Globules.*—Since the time of Hewson, it has been the commonly received opinion, that fibrine existed in a state of solution in the serum of the blood. He arrived at this conclusion from observing that, when a buffy coat was forming on the surface of recently drawn blood, the clear serous-looking fluid collected from its surface with a spoon separated into serum and a fibrinous clot. Subsequent observers having remarked the same fact, arrived at the same conclusion; and it is not a little strange, that, whilst other portions of the blood have been frequently subjected to microscopical examination, this portion, (viz., the serous-looking fluid collected from the surface of recently drawn blood, and which forms the buffy coat,) has been passed over unnoticed. A few observers have, it is true, observed colourless globules in the mass of the blood, mixed with the coloured globules; but their true nature has never been hinted at.

Mr. Addison, on placing in the focus of a microscope, a drop of the serous fluid which collects on the surface of the clot, found it to consist of serous fluid, and "an immense multitude of clear colourless globules." Some of the same serous fluid, removed from the surface of the recent blood before coagulation had taken place, separated into serum and a clot of fibrine. This experiment was frequently repeated, and always with the same result.

It is astonishing that analogy did not lead physiologists or anatomists long ago to this very result; for, on examining any portion of fibrine with the microscope, each fibrilla is always found to present the appearance of a congeries or string of globules. This discovery will also explain many circumstances connected with the physiology of the blood, hitherto not properly accounted for. It will go far to explain the appearance of the buffy coat on blood drawn from a vein, as the different specific gravities of the fibrinous and red globules, in particular conditions of the blood, may account for the greater or less thickness of the fibrinous layer on the surface.—*Ibid.*, from *London Med. Gaz.*, Dec. 18, 1840.

4. *The Physical and Moral Qualities observed in Adult Age are evinced at Birth.* M. Blanchet, from a long series of experiments and observations extended over twenty-five years, has arrived at the conclusion, that the future size, character, &c. of an individual may be pretty accurately guessed at a few days after birth.

His first series of observations had reference to the size of the individual. He marked the heights of 100 new born children, born between the years 1805 and 1810, and divided them into three classes according to their height. 1. Those who were shortest, and whose height did not exceed 16 inches, 6 lines, twenty-five in number. 2. Those of middle stature, sixty in number, whose height did not average more than 18 inches, 6 lines. 3. Those who were tallest, fifteen in number, whose height reached 20 inches, 6 lines. After a period of twenty years the survivors of these one hundred individuals, seventy-five in number, were again measured, and with the exception of seven individuals, they were found to hold to each other the same relative stature. Thus, those of the first class had attained a height of only 4 feet 11 inches to 5 feet. Those of the second class, that of 5 feet 3 inches to 5 feet 4 inches. Those of the third, 5 feet six inches to 5 feet seven inches, French measure. Of the seven exceptions, one had passed from the first to the second class, one from the first to the

third, and one from the third to the first. The other four were out of the way, and their stature could not be ascertained.

His next series of experiments were on the development of the brain, as connected with the intellect of the individuals. But we refrain from giving any detail of these, as they take for granted certain phrenological doctrines which do not appear to be proved. He embodies his conclusions in the following words:

1. That the male infant, born at the full period, bears the impress of the character, inclination, and intellect which it will have at 25 years of age.

2. That the quantity and quality of the intellect (esprit) depends on the volume of the brain; but is influenced much by the greater or lesser development of its anterior or posterior parts.

3. That in 100 men, 13 are born stupid, 2 idiots, 7 with a good share of intellectual endowments, 2 men of genius, 1 disposed for deeds of cruelty, 2 with superior intellectual endowments, 22 with a greater share of spirit than ordinary, and 51 with good common sense. *Ed. Med. and Surg. Journ.*, from *Bull. de l'Acad. de Med.*, November 15, 1840.

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## PATHOLOGICAL ANATOMY.

*5. Acephalocysts in the Brain.* By Dr. Michea.—Acephalocysts are so rarely found in the brain, that we record a notice of two cases which we observed in the practice of M. Martin Solon. The symptoms in this first case, in a man fifty-three years of age, resembled those of sanguineous effusion into the right hemisphere of the brain, followed by hemiplegia. The dura mater was found very vascular, with slight serous effusion into the arachnoid cavity, and injection of the pia mater. Opaline vesicles were found in both hemispheres, but mostly in the anterior lobe of the left, of the size of large peas, containing a diaphanous liquid, the centre of which was occupied by a small, globular, opaque milky-white body, without head or tail visible by the microscope. The second case was an epileptic patient, aged twenty-three, in whom the acephalocysts were found in smaller numbers.—*B. and F. Med. Rev.*, from *Gaz. Méd. de Paris*, November 2, 1840.

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6. *Rupture of the Fallopian Tube from accumulation of the Catamenial Fluid.* —"Dr. Munk was requested, early on Tuesday morning, October 24, 1837, to visit R. S., æt. 18, who, on his arrival, (about an hour subsequently,) was evidently *in articulo mortis*. Her pulse was barely perceptible, but extremely rapid; the skin was covered with a cold and clammy perspiration; there were low muttering delirium; tracheal rattle; the facies Hippocratica; and a continual involuntary discharge of the alvine contents. She died in a few hours.

"Upon making some inquiries into the history of the case, I was informed that she had never menstruated; that about eighteen months previously, when the evolution of the external organs of generation and of the mammæ rendered probable the speedy appearance of the catamenia, she suffered from headache, pains in the back and limbs, cold extremities, and a heavy dragging sensation in the pelvic region, with some bearing down pains. These symptoms, after a brief continuance, subsided, but returned in five or six weeks; again ceased, and then returned after a shorter interval. This state of things continued for three or four months, the symptoms upon each recurrence remaining longer, and becoming more urgent, whilst the intermission became shorter in duration, and less perfect; so that at last there was no intermission, but manifest exacerbations occurring every fourth or fifth week.

"In January, the lower part of the abdomen began to swell; a deep-seated tensive pain was felt in the pelvis; all her symptoms were aggravated, and there was in addition occasional vomiting. She still, however, kept about her usual employment, and took, by the direction of a neighbouring practitioner,

some medicines, which, from the description given, I presume consisted either wholly or in part of iron. Under this treatment she got rapidly worse. On Friday the 20th, when stooping, she felt, to use her own expression, something give way within her, and the swelling of the abdomen appeared to subside, as did likewise the dragging and tensive pain above-mentioned. Towards evening she complained of diffused pain of the abdomen, which, by Saturday, had so far increased that she was unable to bear the slightest pressure. There was great heat of skin, headache, knees flexed upon the abdomen, some difficulty of breathing, contracted state of the features, nausea and vomiting, with difficulty of, and intense pain over the abdomen, on emptying the bladder. This condition continued until Monday, when she passed gradually into the state in which I found her on the Tuesday morning.

"*Autopsy twenty-six hours after death.*—On laying open the abdomen, I was surprised to find a large quantity of a dark red and thickish fluid (somewhat similar in appearance to blood, which had been for some considerable time effused) lying in the cavity of the peritoneum, and amounting, I should imagine, to twelve or fourteen ounces. The peritoneum, which was everywhere in contact with it, was stained of a reddish colour. On wiping away the fluid with which it was covered, there was an evident increase of vascularity, and in some parts the membrane was covered with a thin layer of coagulable lymph. I searched for the source of this sanguiniform fluid, but for a considerable time without effect. The uterus at length attracted attention; it was considerably larger than the ordinary size of a man's fist, but, nevertheless, flaccid. Upon opening it, I found four or five ounces of a similar fluid to that in the abdomen, contained within its cavity. The fallopian tubes were enormously distended; so much so that I could with ease pass the little finger into them. Close to the fimbriated extremity of the left tube there was a fissure about two lines in length, with ragged edges, thus forming a free communication from the cavity of the uterus to that of the peritoneum: through this the fluid in question had evidently passed. The lining membrane of the uterus was of a slightly reddish colour, depending, as I imagine, on its contact with the contained fluid. On pursuing the examination, I found an obstruction to the passage of the finger or probe through the vagina. This was caused by the opposition of the walls of the canal, and their junction by firm cicatrization. This cicatrix was from half an inch to an inch in length, and contained a hard tough substance in many respects resembling cartilage. I could find nothing at all resembling the hymen."
—*London Med. Gaz.* March, 1841.

7. *Remarkable Spina Bifida.*—Dr. Verrall relates the following example of this, in a healthy, ruddy looking boy, about 13 years of age. When viewed in front, no deformity is perceptible, but on looking at his back a tumour, as large as a man's head, is seen situated over the lumbar vertebræ. This tumour is some inconvenience to him, but he plays about like other boys of his age. The skin covering it is here and there red, and tense and tight over the entire swelling.

The history of the case is as follows:—It was small at birth, but began to increase in size; at two years of age it was punctured by an empiric, and a quantity of fluid removed from it. The boy became immediately paralyzed, and continued so for several months. He recovered, however, when the tumour again increased in size. It was once more opened by the same person, who on this occasion made an incision of some extent over its surface. Ulceration again took place, and the boy was again paralyzed. He again, after some time, recovered the use of his limbs. The marks of the puncture and incision were quite visible on the tumour. Pressure over the swelling does not affect the patient.
—*Lancet*, February 13, 1841.

8. *On Sudden Death.*—Mr. Winslow read before the Westminster Medical Society, an interesting paper on this subject. After referring at some length to the physiological causes and phenomena of sudden death, he brought before the

society an analysis he had made of 200 cases in which life was suddenly extinguished, from which it appeared that 40 arose from diseases of the heart; 20 from affections of the brain; 25, brain conjoined with disease of the heart; 18, abdominal affections; 20, aneurismal tumours; 10, convulsions; 32, mental excitement, with and without bodily disease; whilst under the use of mercury, 2; from lightning, 2; during parturition, 6; idiopathic asphyxia, 4; drinking cold water, 5; pulmonary apoplexy, 5; hæmorrhage from the Fallopian tubes, 1; air in vessels of brain, 2; blows on the stomach, 4, &c., &c. The majority of these cases were women. In 1838, Mr. Farr states that, out of 3012 cases of sudden death that occurred, 1840 were males, and 1772 were femles. Women, it appears, have less chance of dying suddenly than men, in the proportion of 10 to 18. The majority of cases of sudden death arise from hæmorrhage. From January 11 to October 17, 1840, 524 instances of sudden death took place in the metropolis alone. Between the ages of 1 and 15, 142; between 15 and 60, 246; and from 60 upwards, 131. Mr. Winslow then considered in the following order the organic affections which commonly give rise to this awful calamity:—1, Diseases of the heart and large vessels; 2, Diseases of the lungs, and those causes that interfere with the functions of respiration; 3, Diseases of the brain and appendages; 4, Diseases of the stomach and abdominal viscera generally. The affections of the heart, that often predict a sudden suspension of life, are as follows:—Rupture of the heart; relo-condition of the heart, or asphyxia idiopathica; syncope angina pectoris; hydatids of the heart; metastasis of disease of the heart; the sudden bursting of aneurismal tumour. Mr. Winslow related many instances of fatal rupture of the heart. The first case is related by Harvey, and Morgagni, who himself died suddenly of this disease, narrates many similar cases. He considered that the symptoms which usually indicated liability to this affection are—violent pain beneath the sternum and in the arms, pain in the præcordia and epigastrium, cold extremities, &c. In the majority of cases the heart has undergone some previous disease, either ulceration or softening, or there is a disproportion in the thickness of its muscular parietes. When the heart has undergone a structural alteration, it requires but a slight cause to rupture it. Mr. Winslow referred, at considerable length, to sudden death from *asphyxia idiopathica*, a decisive point noticed by Mr. Chevalier, which consists of a sudden loss of power in the minute vessels to propel the blood they have received from the heart; in consequence of which this organ, after having contracted so as to empty itself, and the dilated organ, continues relaxed for the want of the return of its accustomed stimulus, and dies in that dilated state. This affection seizes the patient suddenly, and, if proper remedies be not administered, death ensues in a few moments. It is often mistaken for apoplexy. Mr. Winslow then alluded to sudden death from *protracted syncope*. A person drops down in a fainting fit; relief is not instantly afforded, the heart never recovers its action, and death ensues. A case of this kind was related, caused by wearing tight clothes. Mr. Winslow thought that death often resulted from *spasm of the heart*. Hippocrates, Herophilus, and Bichat, relate cases of this character. In this way the latter physiologist considered that great mental emotion caused death. Mr. Winslow entered into the consideration of sudden death resulting from the transmission of disease to the heart, to the bursting of aneurismal tumours, hydatids in the heart, vomica suddenly bursting in the substance of the lungs, effusion in the chest, pulmonary apoplexy, which disease was considered generally to be conjoined with disease of the heart. The affections of the brain that caused sudden death were next dwelt upon; viz., 1, Cerebral apoplexy; 2, Latent inflammation, causing suppuration; 3, Abscesses suddenly bursting; 4, Generation of air in the vessels of the brain. He considered that sufficient attention was not paid to the latent or insidious affections of the centre of the nervous system; that inflammation and the formation of pus often took place, and extinguished his life before we were aware of its existence. Many cases, illustrative of this position, were related. Morgagni conceived that sudden death often resulted from what he termed "a repletion of the blood-vessels of the brain by air," which had been developed there spon-

taneously, compressing, by its rarefaction, the organ of the nerves, and thus destroying life. Mr. Winslow related the particulars of several instances of sudden death, in which the vessels of the brain were found filled with air; but expressed a doubt as to whether it was in our power to trace a connection between the extinction of life and the generation of this fluid in the vessels of the brain. The affections of the stomach and intenstines were next considered. Many fatal cases of ulceration of the stomach and intestinal canal were referred to, caused by the presence of *lumbrici*, in which death was suddenly and unexpectedly induced. The other affections which Mr. Winslow brought under the notice of the society, as deserving of its consideration, were as follows:—Death from mental excitement; drinking cold water; rupture of the biliary ducts; hæmorrhage from the Fallopian tubes in utero-uterine conception; inhalation of noxious gases, whilst under the influence of mercury, caused by exposure to intense cold, or to the heat of the sun.—*Lancet*, November 21, 1840.

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9. *Obliteration of the Inferior Vena Cava.*—Dr. Gelv has recorded, in a recent number of the *Journal de la Section de Médecine de la Société Académique du Département de la Loire-Inférieure*, the following interesting case of obliteration of the inferior vena cava.

Gerard, a seaman, 48 years of age, strong constitution, sanguineous temperament, was admitted towards the close of the winter of 1838, into the hospital of Nantes, with symptoms of anasarca, ascites, febrile oppression, extreme varicose dilation of the veins of the lower extremities, and of the abdomen, which were also excoriated over several spots. He stated that the varicose state of the veins came on during the winter of 1823, when he had the misfortune to have his legs frozen. He however recovered so far as to be able again to go to sea, where he contracted one of those cutaneous affections so common amongst negroes. Ulcers and abscesses formed on various parts of his legs, and he was long confined to bed; the varicose state of the vessels increased; and, for the last five or six years, he had been unfit for work. After a residence of a few weeks in the hospital, he died, with all the symptoms of some serious affection of the circulatory organs.

On dissection the superficial veins of the lower extremities presented the appearance of thick cords, doubled on themselves a great number of times, in the same way, indeed, as the *vas deferens* is at its origin. This mass, as it approached the crural arch, increased in volume; but after passing this, in its progress over the abdomen, it diminished in bulk till it reached the false ribs. The varicose veins were perceptibly larger and more flexuous on the right than on the left side. The varicose vessels over the trunk of the body were the abdominal tegumentary vessels, which anastomosed on each side with a large external mammary branch, which terminated in the axilla. The femoral and iliac veins of the right side were filled with false membranes to such an extent as to diminish the calibre of the venous canal to a tenth of its natural diameter. The false membranes became more numerous as they approached the *vena cava*, which was reduced to the state of a cartilaginous cord, as far as the point where the emulgent veins unite with it, above which portion it was pervious, but reduced in diameter.

The right epigastric vein was somewhat narrowed in diameter, but that of the left side was enormously dilated, ascended towards the umbilicus, coursed along the suspensory ligament of the liver, and followed exactly the course of the umbilical vein. The two renal veins were very much dilated, and on the right side an abnormal branch opened into the *vena cava*, and was continuous with the *vena comes* of the crural nerve, which was much dilated, and seemed to receive the blood from the deep vessels of the thigh.

The heart was hypertrophied, with dilation of all its cavities; and osseous concretions were met with around the aortic and auriculo-ventricular orifices, as well as in the coats of the aorta.

This case is extremely curious, as showing the mode in which the venous circulation had been kept up in spite of the destruction of the canal of the *vena*

*cava*. Thus, on the right side, the blood from the lower extremity, collected by the superficial veins, passed along the tegumentary veins and external mammary into the axillary vein, and from that into the superior cava; whilst the blood of the deep portions of the same limb was emptied into the *vena comes* of the saphena nerve; and from it into the *vena cava* inferior, above the contracted portion, and lumbo-vertebral venous plexus. On the left side, again, the superficial blood returned to the centre of circulation in the same manner as that on the right side; whilst the venous blood from the deep portions of the limb was poured into the epigastric vein, and from it into the sinus of the *vena portæ* by the umbilical vein.

The opening of one of the epigastric veins into the umbilical vein, and the enormous dilation of the vein which accompanies the crural nerve, and communicated with the *vena cava* inferior, were the two most striking anomalies in this case.—*Gazette Méd. de Paris*, November 7, 1841.

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## MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

10. *Results of Re-vaccination in the Deaf and Dumb Institution of Paris.*—The number re-vaccinated was 128—124 pupils, whose ages varied from ten to eighteen years, and four adults, servants of the institution. Of the entire number, 60 were males and 68 were females. The operation was performed from arm to arm; the vaccine lymph was abundant; and the number of punctures made in each arm varied from two to six.

In 25 of the individuals, there neither were any traces of previous vaccination on their arms, although they had no doubt been vaccinated in infancy, nor were there any marks of smallpox on their face or body. (The mere absence, however, of cicatrices cannot be taken as a proof that the parties had never been vaccinated, nor had passed through variola.) Of these 25 cases, the vaccination produced no vesicles in 18; imperfect or false vesicles in four; and genuine cow-pox vesicles in three only.

Of seven individuals, who had distinct marks of smallpox on their faces, limbs and bodies, the operation succeeded perfectly in two, and failed altogether in five of them.

In the remaining 94 cases, there was distinct cicatrices of a former vaccination, the number of these varying from one to four or six; in some, one or more cicatrices were observed on each arm, in others on one arm only.

Now of these 94 persons, ten exhibited distinct cow-pox vesicles (after the re-vaccination,) 16 imperfect or bastard vesicles, and, in the remaining 70, the operation failed in producing any effects.

If we take, therefore, the entire number of persons "all well re-vaccinated by me," says M. Meniere, the reporter, "we find that in 15 cases only out of the 128, regular cow-pox vesicles were formed over the punctures on the arms; in 20 the vesicles were imperfect or bastard; and in 93 none at all were developed. From these data it appears that the operation took effect in about *one-eighth* of the whole; in about the same proportion, *one-eighth*, in those who had never had smallpox, and who exhibited no traces of vaccine cicatrices on their arms, although they had been vaccinated at some former period of life; in *one-third* of those who had had smallpox in their youth; and in about *one-tenth* of those in whom the cicatrices of a former vaccination were still distinct."

In estimating these results, it may be proper to attend to certain circumstances connected with the cases.

Of the fifteen persons in whom the re-vaccination took complete effect, ten were under thirteen years of age, and the other five were a few years older. In the two young girls, in whom it succeeded after previous smallpox, (which had left numerous and most distinct traces on the face and elsewhere) five years had elapsed in one case, and seven in the other, since the date of the attack

Among the pupils who had been vaccinated in their infancy, and in whom the re-vaccination took complete effect, two were twelve years, and the third was fourteen years old.

From these data, we may infer that the preservative or counteracting power of smallpox does not exceed that of cow-pox; since, under very similar circumstances, those who had passed through the two diseases were submitted to the same contagious influence, and experienced nearly the same results.

But we are unwilling to draw any general conclusions from the preceding report; as we are well aware that experiments must be made on a much more extensive scale before we can safely do so.

In conclusion, we may state, that several infants were vaccinated for the first time from the vesicles on the arms of those in whom the second operation took effect, and that the virus thus obtained seemed to be perfectly genuine and active. —*Med. Chirurg. Rev.* from *Journal des Connaiss. Med. Chirurg.* Sept. 1840.

11. *General result of the Vaccinations and Re-vaccinations in France.*—There is in a recent number of the *Annales d'Hygiène et de Méd. Légale* a table, prepared by M. Villeneuve, the reporter of a commission appointed by the Royal Academy of Medicine, exhibiting the general results of the vaccinations and re-vaccinations performed, and of the number and issue of the cases of smallpox in those who had been vaccinated, compiled from reports sent from forty-one departments. The results of those reports only are given in which the vaccinators have recorded their unsuccessful as well as successful cases; and wherever the re-vaccinations were described as doubtful, they have been omitted.

We give only the totals.

| Vaccinations. | | | Re-vaccinations after ascertained Vaccination. | | | Smallpox after ascertained Vaccination. | |
|---|---|---|---|---|---|---|---|
| Number. | Successful. | Unsuccessful. | Number. | Successful. | Unsuccessful. | Number. | Deaths. |
| 30,410 | 29,853 | 560 | 2199 | 223 | 1976 | 365 | 8 |

It results from this table:—

1. That the proportion of cases in which vaccination failed, compared with that in which it took effect—estimated by some writers as one to eight, or one to ten—is not more than about one to fifty-four.

2. That of 2199 cases, in which re-vaccination was performed on persons of different ages and sexes who had been successfully vaccinated at some previous period of their lives, the operation took effect in 223 cases only—which would give the proportion of about one to thirteen or fourteen.

3. That of 365 cases of confirmed smallpox, occurring in persons, who had been at some previous period successfully vaccinated, there were only eight that proved fatal—giving a proportion of about one in forty-five or forty-six.

We know that sporadic smallpox usually carries off about an eighth or a tenth of those who are affected with it; and that, when the disease becomes epidemic, the mortality is often as high as one in four, and sometimes even higher.

M. Villeneuve, in submitting the above table as containing the results of the labours of the commission, admits that the data hitherto supplied are far from being sufficient to solve the question submitted by the government to the Royal Academy—whether it is necessary to have recourse to re-vaccination as a universal measure throughout France.

12. *Anatomico-Pathological Researches on Cirrhosis of the Liver.* By ALFRED BECQUEREL, of Paris. The name cirrhosis was given by Laennec to a peculiar affection of the liver in which that organ appears as if filled with numerous yellow granules, which are sometimes present in such numbers that the surface of a section of the liver presents an uniform yellow colour. If this surface is carefully examined, M. Becquerel says, an innumerable quantity of minute granulations may be discovered, which may be compared to the lobules of hardened and reddish-coloured fat which are commonly found in the subcutaneous cellular tissue of the thigh and leg of anasarcous subjects. These little masses are sometimes intimately united to the texture of the liver, but they are frequently separated from it by a thin layer of cellular tissue which forms a slight envelope round the globules from which they are easily detached.

The exact nature, the causes, and the symptoms of this affection are very imperfectly understood; and it is for the purpose of elucidating these points that M. Becquerel has published the present memoir. Laennec considered that in this disease a new morbid product was deposited in the liver, which he termed "cirrhose," and which he believed might be also developed in other organs of the body; appearing first in a state of crudity and afterwards softening. Andral states that the granules, in his opinion, merely arise from hypertrophy of the white or secreting part of the liver, which in the more advanced stages is accompanied with corresponding atrophy of the red or vascular tissue, giving rise to that shrivelled state of the liver generally which was described by Laennec as frequently occurring in this disease. M. Cruveilhier considers that cirrhosis consists in atrophy of a great number of the lobules of the liver, and a corresponding degree of hypertrophy of those which remain which causes the irregular granulated surface. Dr. Carswell, who gives an admirable description and delineation of this disease in the article Atrophy, in his work on Pathological Anatomy, regards it as consisting in atrophy of the lobular structure of the liver, produced by the pressure of a contractile fibrous tissue formed in the capsule of Glisson; an opinion which, as we shall find, very nearly coincides with that adopted by the author of the present paper. M. Bouillaud regards cirrhosis as a disunion of the two natural elements of the liver, the yellow granulations being nothing more than the secreting lobules undergoing disorganization in consequence of obliteration of the vascular tissue and consequent obstruction of the hepatic circulation.

M. Becquerel, previously to stating his own opinions on the nature of the morbid alteration of the liver in cirrhosis, briefly reviews the different opinions concerning the intimate anatomical structure of this organ in its natural state; and he adheres to the notion that there are two distinct substances; one yellow, which is the true secreting tissue, and the other red, which consists of the ramifications of veins and arteries. He inclines to the opinion of Cruveilhier, that each lobule possesses a spongy tissue not injectible; and thus widely differs from Mr. Kiernan, who describes the liver as being throughout essentially vascular; the lobules consisting of minute radicles of the biliary ducts surrounded by a plexus of the terminating branches of the portal veins. The latter eminent pathologist explains the differences in appearance between the red and yellow parts of the liver by the different degrees of injection of the different portions of its tissue.

Admitting, then, the presence in the liver of secreting lobules, into the interior of which no vessels enter, not even the minute ramifications of the biliary ducts, which together with the branches of the vena porta and hepatic artery form a network round the lobules without penetrating them; the lobules themselves merely consisting of a mass of albuminous corpuscles, as described by MM. Dujardin and Verger; M. Becquerel next endeavours to ascertain which of the tissues—the secreting or the vascular—is the one altered in cirrhosis, and he arrives at the conclusion that it is the latter only. He says that this tissue becomes infiltrated with a yellowish plastic or fibro-albuminous matter, which possesses the properties which characterize fibrine and albumen; for it is coagulated by heat, and by a continued application of that agent is converted

into a horny substance. He considers that this effused matter is analogous in its composition to the false membranes which are developed in mucous, and more frequently serous tissues; and he says that it undergoes the same changes.

M. Becquerel has determined that in this disease of the liver no pus globules can ever be detected in the altered structure; a very small quantity of fatty matter is likewise present, which is always abundant where pus is met with. He deduces from these facts that cirrhosis does not arise from acute inflammation; the absence of fat will also distinguish this disease from the fatty disease of the liver,* in which this organ is likewise of a yellow colour.

This fibro-albuminous matter is supposed to be deposited by interstitial infiltration in the central part of the secreting lobules, and the yellow substance of the liver becomes thus hypertrophied and causes compression, and eventually atrophy of a great part of the red or inter-lobular substance. Many of the vessels and ducts are thus obliterated, and the tissue of the liver becomes difficult of injection. In the most advanced stages of this disease the effused matter loses great part of the water which entered into its composition, becomes firmer, and contracts in size. It thus undergoes the same change as false membranes, which are at first soft and thick like white of egg, but which afterwards becomes organized and firm, and lessen in volume. From the contraction of this matter the yellow substance of the liver which was at first hypertrophied becomes atrophied, the altered lobules are diminished in volume, and many of them often coalesce, forming the patches which were described by Laennec as occurring in certain forms of this disease, and which give an irregular appearance to the surface or to a section of the liver. When this retraction has taken place, a great portion of the red or interlobular tissue of the liver no longer exists, and we only see an irregular agglomeration of yellow tubercles of different sizes, and the whole organ becomes hardened and shrivelled.

The immediate causes of this disease are completely unknown. M. Becquerel conjectures that it may arise from active and long-continued congestion of the liver, consequent upon chronic disease of the lungs or heart, (with the affections of which organs cirrhosis is often complicated,) or arising from other causes.

Cirrhosis never affects the liver partially, it always attacks all parts of the substance simultaneously. The gall-bladder is almost always quite natural. M. Becquerel has not made any comparative analysis of the state of the bile in this disease, but he found it vary considerably in consistence and colour.

This affection of the liver is mostly complicated with organic disease of other parts, as Bright's disease of the kidney, and various lesions of the heart and lungs; it is rarely met with by itself: M. Becquerel only found seven out of forty-two cases which he could consider as uncomplicated. He classes these complicating diseases under two heads: *First*, Chronic diseases, developed before or at the same time as the cirrhosis. *Second*, Diseases more or less acute, and probably consequences of the cirrhosis. 1. To the first class belong the following:—Lesions of the *Heart*. These are more commonly met with in connection with cirrhosis than any other; for in forty-two subjects examined the heart was affected with chronic disease in twenty-one cases, or in half; and the disease in all these instances had advanced to such a degree that it must have preceded, if it did not give rise to, the disease of the liver. The disease of the heart in these cases is often complicated with other affections, as emphysema of the lungs and chronic bronchitis, tubercular disease, or Bright's kidney.

It is exceedingly difficult to determine whether the affection of the heart gives rise to that of the liver, and if so in what manner. M. Becquerel has no doubt that the former precedes the latter in almost all cases, and supposes that it may give rise to it by keeping up a state of continued congestion of the liver. Pulmonary emphysema and chronic bronchitis, which are sometimes found accompanying cirrhosis, without disease of the heart, may be supposed to act in its production in the same manner, by obstructing the venous circulation.

* See Brit. and For. Med. Rev., vol. viii, p. 554.

Cirrhosis is very rarely found in connection with tubercular disease of the lungs. The fatty degeneration of the liver, on the contrary, is a frequent complication of consumption.

The morbid alteration of the *kidney*, known by the name of Bright's disease, frequently accompanies cirrhosis, having been met with fifteen times in forty-two cases. Some differences were observed between these cases of considerable interest; thus in nine cases where cirrhosis and renal disease existed together and appeared to be of about the same standing, old organic lesions of the heart and lungs were also found, which our author considers to have been the exciting causes of the diseases of both the liver and kidneys, repeated congestion of both these organs having been occasioned by obstruction to the circulation. In another series of cases, which includes three out of fifteen, the cirrhosis seemed to be of a much older date than the affection of the kidneys, and probably gave rise to it by obstructing the circulation of the abdominal veins. In the remaining three cases the disease of the liver and kidneys seemed to be of about the same date and had been probably developed from a similar cause, the nature of which, however, was unknown.

2. In the second class may be arranged the following:—*Ascites*, which constantly accompanies cirrhosis in the more advanced stages; *Peritonitis*, producing purulent effusion and the formation of false membranes; *Pleuritis* and *hydrothorax*; *Pericarditis*—this has only been met with in a few cases; *Anasarca*—this generally occurs in complicated cases along with ascites and when the disease of the liver is in an advanced stage. Besides these, *œdema of the lungs*, *pneumonia*, and *pulmonary apoplexy* have been met with, as well as congestion of the mucous membrane of the alimentary canal; and *intestinal hemorrhage*, which must be considered as an effect of the disease of the liver arising from the obstruction of the circulation of the blood through the vena porta.

Cirrhosis is more frequently met with in men than in women; thus of eighteen cases of the simple or uncomplicated form of this disease, twelve occurred in males and six in females. Of the whole number of forty-five cases examined by M. Becquerel, twenty-eight were found in men and seventeen in women.

With regard to the influence exerted by age, the eighteen simple cases may be thus arranged:

| | | | | | |
|---|---|---|---|---|---|
| Between | 18 | and | 20 | years | 1 |
| " | 20 | " | 30 | " | 2 |
| " | 30 | " | 40 | " | 7 |
| " | 40 | " | 50 | " | 3 |
| " | 50 | " | 60 | " | 5 |

Thus persons between thirty and forty seem to be most liable to be attacked by cirrhosis. This disease is also met with in children; and M. Becquerel is disposed to think that it occurs more frequently in young subjects than has generally been supposed.

With regard to the symptoms produced by cirrhosis, none exist sufficiently characteristic to enable the physician to diagnosticate its presence during life. The most constant symptom of this disease in its more advanced stage is dropsy, which always commences in simple cases in the abdomen; its approach is generally unaccompanied by pain, but in a few cases the belly is the seat of pain, either with or without pressure, and the presence of peritonitis is thus indicated. Anasarca sometimes precedes the ascites, but Bright's disease of the kidney or disease of the heart are then always indicated. M. Becquerel says that the state of the urine is always peculiar in this disease; it is of a deep orange and often reddish-yellow colour, very dense, strongly acid, and deposits an unnaturally large precipitate of urate of ammonia, which is of a bright red or cinnabar colour. The causes of this state of the urine are unknown.

The course of this affection is uniform and continued, and it always proceeds more or less quickly to a fatal termination, being apparently uninfluenced by any plan of treatment. *Brit. and For. Med. Rev.*, October, 1840, from *Archives Gén.*, April and May, 1840.

13. *Tubercle in the Cerebellum.*—Diseases of the central organs of the nervous system are involved in so much obscurity, that the following case, communicated to the Liverpool Medical Institution, by Mr. LONG, will be read with interest.

Whilst attending a lady in February, 1840, Mr. L. was requested to see a servant who was suffering from sick headache; she had nausea, and occasional slight vomiting; her bowels were constipated, and tongue slightly furred; a disagreeable bitter taste in the mouth; pain in the occipital region extending to the vertex, and a perfectly quiet pulse.

"I ordered an aperient, which evacuated the bowels freely, and then directed small doses of blue pill to be taken at bed-time, and a mild aperient each morning. In a few days the tongue became perfectly clean and moist; the disagreeable taste had disappeared; but the vomiting and headache persisted, having still the characters of that form of headache usually denominated sick headache.

"I ordered her to bed, with the intention of examining her more carefully. I found the abdomen quite soft, without the slightest degree of tenderness in the epigastric region, or elsewhere. I then inquired into the state of the uterine system: her age was forty; the catamenia were regular as to time, and healthy in quantity and quality. She informed me that for upwards of a dozen years she had, at intervals, suffered from attacks similar to that which she now experienced, and that at times the pain in her head was so severe as to confine her to bed; that these attacks frequently came on at the menstrual period, but, if they occurred prior to it, were always aggravated by it; that at first they were easily removed by a brisk aperient, but had progressively become more obstinate; and that the attack under which she was then labouring had existed a fortnight before I saw her.

"She described the headaches as commencing usually during the night, or towards morning, and when very severe being always attended with vomiting, which occurred most frequently after eating, but frequently without any assignable cause; in fact, it was the obstinacy of the vomiting which drew my attention more particularly to the case; for medicines and treatment directed by this particular symptom were of no use whatever.

"Taking into account the healthiness of the uterine functions, the quietness of the pulse, the natural state of the tongue, the freedom from pain or tenderness in the epigastric region, and the persistence of the vomiting and periodical headache, I felt little doubt but that these phenomena owed their origin to the cerebro-spinal system; in effect, on making pressure between the occiput and atlas she experienced an acute pain extending from this region to the vertex, and immediately vomited.

"I directed leeches to be applied below the occiput; they produced marked relief. I repeated them, and the headache and vomiting ceased; she slept soundly during the night, which she had not done for weeks before, and was able to go about the house as usual. At this period I did not remark any peculiarity in her gait, except that she moved about cautiously, as if afraid of shaking her head.

"In a few days the symptoms began to return. I directed a blister to be applied to the same region. This checked them at once; she improved, was able to go out, and stated that although she did not feel quite well, yet that she was in her usual state of health. In this state she continued, and at my urgent solicitation applied a second blister, but could not be prevailed upon (being relieved from her distressing symptoms) to persist in the treatment I had laid down for her.

"Towards the end of March she went into the country, and consulted a practitioner there, who was of opinion that all her ailments resulted from a "change of life," and that the leeches and blisters had been injurious. He recommended some medicines, which she took; the effect, however, not bearing out the opinion she had received, but her headache and vomiting recurring, she returned to Liverpool, and I was requested to see her in consultation with a physician of this town. I found her much worse. The headache and vomiting were as bad as at first, with occasional hiccup, and now and then slight difficulty of deglutition. In attempting to walk she staggered like a drunken person, and supported herself by holding a chair, or placing one hand against the wall. In sitting

down she was some time before she could steady herself. At times partial convulsive movements occurred. These were peculiar; the muscles at the back of the neck first became rigid, the head being drawn backwards, and then twisted to the right side, and then convulsive movements of the muscles of the face on the same side commenced. These convulsive movements were sometimes accompanied by a tremor of the whole body. The menstrual secretion was still regular and healthy; the tongue quite clean, but tremulous; the bowels easily moved by medicine; the pulse slow, but otherwise natural; the temperature of the body below the natural standard.

"The plan of treatment adopted included slight irritation of the nape of the neck by means of lunar caustic, and she continued under our care until the middle of May, the convulsive twitchings increasing in severity, the headache, unsteadiness in walking, and vomiting persisting. It is worthy of remark that the convulsive twitchings and accompanying phenomena had for the last week or two assumed an intermittent character, so that she had what she called a good day and a bad day; the good day was only so, however, when compared with her bad day. This always commenced with headache during the night, then vomiting, then convulsive twitchings of the neck and right side of the face, and then a tremor of the whole body. During her bad day she was confined to bed; during her good day she sat up or walked about in the unsteady manner I have described. She was once seen by one of the family, when attempting to walk in the garden, to roll completely over. Her sister also informed me, and was corroborated in her statement by her fellow-servants, that she had frequently a tendency to fall forwards, and would have done so had not she or they caught her.

"She went to reside with her sister in town from this period until the evening of the 28th May (about a week.) I heard nothing of her. On the evening in question I was sent for, and found her seated in a chair, dead. She appeared to be asleep, so that I had some difficulty in persuading her friends that she was actually dead. Her sister informed me that during the preceding week she had been rather worse than usual; that the convulsive twitchings had extended to both arms, both being equally affected; that, on the morning of the day on which she died, she felt better than usual, but expressed a strong conviction that she should not recover. In the evening her headache commenced, the convulsive twitchings succeeded, she complained of sickness, a basin was held before her, she opened her mouth as if to vomit, and expired. She had passed her usual catamenial period eight days.

"I examined the body eighteen hours after death, and was assisted by Mr. Ellison. There were no external signs of scrofula. Nothing unusual was found in the membranes of the brain, or in its substance. A considerable quantity of colourless fluid escaped from the lateral ventricles; the arachnoid investment of both choroid plexuses was considerably distended by fluid underneath, presenting a hydatid-like appearance. The pia mater investing the cerebellum was much more minutely injected than could be accounted for by the effects of mere gravitation, particularly as the pia mater investing the posterior lobes of the brain was not similariy injected. The external configuration of the cerebellum was natural. Its whole substance and surface were rather softer than usual. The inferior vermiform process was occupied by a tubercle the size of a common marble, of a somewhat irregular figure, extending about a quarter of an inch into the right lobe. The nervous tissue immediately surrounding it was softer than the rest of the cerebellum. The superior surface of the right restiform body, just where it plunges into the cerebellum, was much softer than the left. The medulla oblongata, the pons varolii, and the nerves, arising from them were perfectly healthy. We were not permitted to examine into the state of the spinal cord, or any other part of the body. The tubercle was hard, and when cut into presented granules of concrete pus, and appeared to me to be contained in a fine cyst.

"*Summary of the Symptoms.*—Senses unaffected; intellectual faculties entire, except that the memory seemed at times impaired; catamenia regular, and no

derangement of sexual functions; periodical headache extending from the occiput to the vertex, of twelve years standing.

"Pain on pressing the occipital region; vomiting without epigastric tenderness; clean but tremulous tongue; occasionally slight difficulty of deglutition; rigidity of the muscles of the neck, with convulsive twitchings drawing the head to the right side; twitchings of the muscles of the right side of the face, extending subsequently to both arms; want of command over the lower limbs, with tendency to fall forwards.

"Lesions found after death; tubercle in the inferior vermiform process of the cerebellum, extending into the right lobe; softening of the cerebellum, particularly around the tubercle; injection of the pia mater investing the cerebellum; softening of the right restiform body; fluid in the lateral ventricles of the brain.

"1. The points worthy of notice are the rarity of tubercles of the cerebellum. Thus Louis and W. Lombard found tubercles in this organ twice only in 450 tubercular adults.

"2. The length of time these productions may exist without giving rise to serious symptoms: a case is mentioned by Dr. Abercrombie in which a tubercle of the cerebellum evidently dated its commencement at least five years prior to death.

"3. The intermittent phenomena caused or induced by a permanent change of structure, or new production, depending probably upon the intermittence of the lesions which exist around it; and, consequently, the existence of a new production may give rise to no phenomena, so long as the surrounding tissues are unaffected by it, and remain in a state of integrity.

"4. The non-appearance of the menstrual discharge at its usual period—eight days prior to death; the aggravation and extension of the symptoms during this period; the existence of a considerable quantity of serum in the lateral ventricles: though a question may arise whether death was caused by the vessels relieving themselves by this effusion, or whether it was produced by syncope.

"5. The softening of the right restiform body, and the remark of Rolando, "That injury of one of the restiform bodies produced convulsions, with curving of the body of the animal to the injured side;" there being in this particular a coincidence.

"6. The want of accordance between the case I have related and the case related by Mr. Serres, which induced him to place the seat of sexual impulse in the middle portion of the cerebellum (on this point I was particularly anxious, and purposely delayed its consideration for this place.) Eighteen years ago she had a son, who is now alive; since that period she has had no intimate male acquaintance, although she has not shunned their society; and during the whole of my attendance I did not perceive the least symptom of any amorous propensity, and her sister assured me that since her mishap she is certain she had none.

"I may mention here that Mr. Montault has related a case of a tubercle an inch in size occupying the whole vertical thickness of the middle portion of the cerebellum. The individual was paraplegic, and addicted to women; but in this case there existed other disease of the brain, and the lumbar vertebræ were diseased; whereas M. Guerard mentions a case where a tubercle an inch and a half in size existed at the upper surface of the cerebellum, and in the middle line; the substance of the cerebellum around the tubercle to the extent of two lines was softened; the spinal cord was sound. This individual was weak, particularly in his lower limbs, and staggered in walking. It is added it would be impossible to say that there was any marked symptom referring to the genital organs. The case rather seems to favour the opinion of M. Magendie, who, it is stated in the Journal Hebdomadaire, ascertained, by direct experiment, that when an injury was inflicted upon the middle portion of the cerebellum the animal remained undecided in its movements; or considering the cerebellum as a whole, without reference to its middle portion, it seems to favour the opinion of M. Flourens and M. Bouillaud, that in it resides the faculty of combination of the movements; and coincides with the cases related by Lallemand, Gall,

and Guerard, the individual staggering in walking, and having a tendency to fall forwards.

"7. The accordance of the symptoms in the case I have related with the cases of disease of the cerebellum related by Andral, these being thirty-six cases of disease of various kinds, and of variable extent, and eleven cases of abscess.

"Thus we find the intellectual faculties affected in 5; the senses in 6; the motor powers in 30; the tongue, in the thirty-six cases, 2; headache in 35; vomiting in 17.

"With respect to derangements of the motor powers they are stated to have been various; but amongst them we find several in which paralysis affected especially the lower limbs; whilst it is noted, however, the involuntary contractions of a greater or less number of muscles is a more common phenomenon than paralysis: in a great number all the body was agitated by convulsive movements, at intervals, in other particular muscles, as those of the neck, drawing the head backwards, or to one side. He also mentions the facts stated above, that some individuals had a sort of uncertain gait, staggering like a drunken person, and having a tendency to fall forwards.

"I may here mention two cases, one by Andral. Convulsive movements occurred, and always commenced by a powerful agitation of the head, which was drawn backwards as in a variety of tetanus. Some days the convulsions were confined there; but at other times became more general, and almost all the muscles of the body were affected: they augmented in frequency and intensity, extended to the respiratory muscles, and the patient died in a sort of asphyxia. An encysted abscess, the size of a pullet's egg, existed in the left lobe of the cerebellum. The second by M. Recamier. Frequent convulsive movements existed, commencing always in the muscles of the neck. In these attacks all the body was agitated, and the head drawn backwards. An encysted abscess, the size of a pullet's egg, existed in the left lobe of the cerebellum.

"With respect to the headache, it is remarked by Andral that it was generally seated in the occipital region; was mostly intense, and in several cases assumed a periodical or intermittent character; and that when vomiting occurred it was in all sympathetic, and one of the predominant symptoms, not occurring as a simple complication, but being certainly connected with the disease of the cerebellum.

"Dr. Abercrombie remarks, that where periodical headaches and paroxysms of vomiting occur in indurations of the nervous centres, the prominent morbid appearances are found in the cerebellum, and that the uneasiness in the head is more permanent and fixed than we should expect to find in a dyspeptic case, and the uneasiness is increased by causes which would probably be beneficial in dyspeptic headache; such as activity and cheerful company.

"He also notices that in cases of paraplegia tumours and indurations often exist in the cerebellum or tuber annulare; but that the cases on this point are unsatisfactory, in consequence of attention not having been paid to the spinal cord."—*Lond. Med. Gaz.* December, 1840.

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14. *A Peculiar Form of Infantile Convulsions.* Mr. J. W. West, of Tunbridge, describes in a recent number of the *Lancet*, a very rare and singular form of convulsion peculiar to young children. The only case Mr. W. has seen of it, occurred in his own child, a boy nearly a year old, who was, when born, a remarkably firm and healthy infant, and continued to thrive until he was four months old. "It was at this time," Mr. W. says, "that I first observed slight *bobbings* of the head forward, which I then regarded as a trick, but were, in fact, the first indications of disease; for these *bobbings* increased in frequency, and at length became so frequent and powerful as to cause a complete heaving of the head forward towards his knees, and then immediately relaxing into the upright position, something similar to the attacks of emprosthotonos; these bowings and relaxings would be repeated alternately at intervals of a few seconds, and repeated from ten to twenty or more times at each attack, which attack would not continue more than two or three minutes; he sometimes has

two, three, or more attacks in the day; they come on whether sitting or lying; just before they come on he is all alive and in motion, making a strange noise, and then all of a sudden down goes his head and upwards his knees; he then appears frightened and screams out; at one time he lost flesh, looked pale and exhausted, but latterly he has regained his good looks, and, independent of this affection, is a fine grown child, but he neither possesses the intellectual vivacity or the power of moving his limbs of a child of his age; he never cries at the time of the attacks, or smiles, or takes any notice, but looks placid and pitiful, yet his hearing and vision are good; he has no power of holding himself upright or using his limbs, and his head falls without support.

"Although I have had an extensive practice among women and children, and a large circle of medical friends, I have never heard or witnessed a similar complaint before. The view I took of it was that, most probably, it depended on some irritation of the nervous system from teething; and, as the child was strong and vigorous, I commenced an active treatment of leeches and cold applications to the head, repeated calomel purgatives, and the usual antiphlogistic treatment; the gums were lanced, and the child frequently put into warm baths. Notwithstanding a steady perseverance in this plan for three or four weeks, he got worse, the attacks being more numerous, to the amount of fifty or sixty in the course of a day. I then had recourse to sedatives, syrup of poppies, conium, and opium, without any relief; at seven months old he cut four teeth nearly altogether without any abatement of the symptoms, and, up to this period, he was supported solely at the breast; but now, at the eighth month I had him weaned, as he had lost flesh and appeared worse; I then only gave him alteratives, and occasionally castor oil. Finding no benefit from all that had been done, I took the child to London, and had a consultation with Sir Charles Clarke and Dr. Locock, both of whom recognized the complaint; the former, in all his extensive practice, had only seen four cases, and, from the peculiar bowing of the head, called it the "salaam convulsion;" the latter gentleman had only seen two cases; one was the child of a widow lady, it came on while she was in Italy, and, in her anxiety, she consulted the most eminent professional gentlemen of Naples, Rome, Florence, Genoa, and Paris, one of whom alone seemed to recognize the complaint. In another case, mercury, corrosive sublimate, opium, zinc, and the preparations of iron, were tried without the slightest advantage; and, about six months from the commencement of the symptoms, a new one was added; there began a loss of motion in the whole of the right side, and the child could scarcely use either arm, hand, or leg. Sir Astley Cooper saw the child in this state: he had never seen or heard of such a case, and gave it as his opinion, that "it either arose from disease of the brain, and the child will not recover, or it proceeds merely from teething, and, when the child cuts all its teeth, may probably get well:" some time after, this child was suddenly seized with acute fever; the head became hot, and there were two remaining teeth pressing on the gums; the child was treated accordingly; leeches to the head, purged, and lowered; the gums were freely lanced; in a few days the teeth came through, and the child recovered, and from that time the convulsive movements never returned. Sir C. Clarke knows the result of only two of his cases; one perfectly recovered; the other became paralytic and idiotic; lived several years in that state, and died at the age of 17 years. I have heard of two other cases, which lived, one to the age of 17, the other 19 years, idiotic, and then died. I wrote to Drs. Evanson and Maunsell, of Dublin; the former gentleman being in Italy, the latter very kindly replied, he had seen convulsive motions in one finger, arm or leg, but had never witnessed it to the extent of my poor child. As there has been no opportunity of a post-mortem examination, the pathology of this singular disease is totally unknown."—*Lancet*, February 13, 1841.

15. *Treatment of Variola by the ectrotic method.*—By J. F. Olliffe, M. D. In this paper read before the Parisian Medical Society, we have some statements worthy of particular notice.

Cotugno is said to have been the first to direct attention to the means of preventing the disfiguration of the face, and for that purpose he recommended that this part should be frequently bathed with tepid milk and water, under the idea that the continual moisture would be efficacious in opposing the complete development of the pustules. The work of Cotugno was published in 1771.

In 1825, M. M. Bretonneau and Serres in an article published in the *Archives Générales*, advocated the employment of cauterization in variola, and gave the name of "*méthode ectrotique*" to it. M. Velpeau united with them in this treatment, but though each of these eminent practitioners united in the *principle* of the treatment, they differed in their mode of operating.

M. Bretonneau pierced the summit of each pustule with a gold or silver needle, charged with a small portion of lunar caustic in powder: he cauterized on the second, or at latest on the *third* day of the eruption, with the double intention of procuring the abortion of the pustules, and preventing the formation of scars; M. Guersent, physician of the Hôpital des Enfans Malades, repeated M. Bretonneau's experiments.

To M. Serres belongs the credit of creating the *méthode ectrotique*, properly so called. The word ectrotique is derived from the Greek εκτρωσις or εκτρωτικος, which means "procuring abortion." M. Serres proceeded, in confluent smallpox, by what he called "cautérisation en masse." He passed over the eruption a pencil dipped in a solution of nitrate of silver, the proportion from fifteen to forty-five grains per ounce of distilled water; in the distinct or discrete variety, he was not accustomed to open the insulated pustules, whilst M. Bretonneau invariably did so, but he touched each externally with the caustic. M. Serres affirmed that this topical application, besides causing the abortion of the pustules, opposed the occurrence of phrenitis, otitis, and ophthalmia, which so often appear in the course of the disease which now occupies our attention.

M. Velpeau completely removed the apex of the pustule with the point of a lancet, and then introduced into its cavity the sharpened end of a pencil of nitrate of silver.

The inventors of this method have summed up their ideas in the following conclusions:—

If the cauterization be performed on the second day of the eruption, or, at *latest*, on the *third*, no pustules are formed; if on the fourth day, the result is uncertain; if it be delayed until the fifth or sixth day, the progress of the eruption is not modified, and cicatrices remain.

In 1839 M. Legrand read to the Academy of Medicine a memoir* on the employment of gold leaf in smallpox. This practitioner applies to the face of the patient a coating of a solution of gum arabic, over which he lays the metallic leaf, thus gilding the visage.

In 1835 M. Gariel, interne at the Salpetrière, published in the *Archives Générales* some very interesting experiments made by M. Briquet, on the treatment of variola by mercury. The memoir alluded to, contains reports of eight cases of variola, six semi-confluent and two confluent, all treated and cured by mercury. The first patient was a young man, aged 25 years. He entered the hospital with an abundant eruption. The plaster of *Vigo cum mercurio*† was applied to the left arm, and on the right was placed a common diachylon plaster. Under the mercurial plaster *no pustules appeared;* whilst on the right arm the progress of the eruption was unmodified. No mercurial topic was applied to the

* Archives Générales, Aug. 1839.

† The following is the formula for the plaster of Vigo according to the French pharmacopœia.

| | |
|---|---|
| Mercure - - - - - - | 95 partica. |
| Styrax liquide - - - - - | 48 |
| Emplâtre simple - - - - - | 312 |
| Cire, resine, terebinthine, āā - - - | 16 |
| Gum ammoniac, bdellium, encens et myrrh, āā | 5 |
| Safran - - - - - - - - | 3 |
| Esprit de lavande - - - - - | 2 |

face of this patient, as M. Serres dreaded the occurrence of cerebral symptoms; *deep cicatrices* remained after the recovery of the patient.

The second case occurred in February, 1835. I mention this date with precision, as the patient, named Bouret, ætat. 15, was the first who was treated by the general topical system. His face was covered with the plaster; a part of which he tore off during the night which followed its application. *The denuded surface was the seat of suppurating pustules, whilst on that portion of the visage which continued subjacent to the plaster their abortion was effected!*

The last case narrated by M. Gariel, is that of a man named Odiard. He had not been vaccinated. He was affected with violent confluent variola; the pimples were small, scarcely raised above the level of the epidermis, and surrounded with a brilliant red areola. The Vigo plaster was applied, and allowed to remain seven days; on its removal, it was found that no suppuration had been established, with the exception of four pustules, and these were situated near the mouth, and had not been in contact with the plaster. This patient was radically and rapidly cured, and no scars were manifested. I must not omit to state, that the comparative effects of other topical remedies were tested, but in no case did they in any way modify the eruption.

From the foregoing results, M. Gariel drew the following inferences:—

1. The plaster of Vigo cum mercurio and powdered litharge united with lard, produces a complete abortion of variolous pustules.

2. Diachylon, porphyrised charcoal, gum arabic in solution, and all other topics hitherto applied (with the exception of litharge), with the intention of causing this abortion, have completely failed.

3. The abortion takes place, not only when the pustules are yet in a state of papulæ, but even when they are in full suppuration.

4. The abortion takes place by a process totally different from that which is effected in *varioloid* affections. In the latter it is to be attributed to the prompt desiccation of the *vesicle*, whilst in variola the pimple does not open at all; no pus appears, no scales are formed; resorption is effected, and, consequently, no scars can possibly occur.

5. That this resorption occasions none of the accidents which they were theoretically supposed to do, previous to the researches of M. Serres, but that, on the contrary, the abortion of the pustules renders this disease less severe, since it diminishes the number of pustules, in which, in fact, consists the severity of the disease.

In 1837, M. Gariel defended an inaugural thesis on the subject before us, at the Parisian Faculty of Medicine; but little attention was paid to his remarks or to those of M. Serres. Even M. Rayer, in his last edition of the "Maladies de la Peau," alludes to mercurials in variola in a very cursory manner, and professes his ignorance of their mode of action. Things were in this state, when, in October, 1837, a violent smallpox epidemic broke out in Paris and elsewhere. M. Briquet, of the Hôpital Cochin, was thus afforded an opportunity of giving mercury a fair trial. The result of these trials was given in the *Archives Générales* for Sept. and Oct. 1838.

The following is the plan of treatment now under consideration, as given by M. Olliffe.

"Mercury, as a topic, ought to be employed in all the varieties of smallpox, whether simple, confluent, or modified. Its effect is either to prevent the development of the pustules, or so to modify them that they become mere abortions. The whole face should be covered with a mask of the Vigo plaster, merely leaving a space for the mouth, nostrils, and eyes. A little mercurial ointment is applied to the eyelids. By the application of these plasters, the exanthem either undergoes entire resolution, or is converted into *vesicles*, or tubercles. The resolution is either primitive or secondary. The former takes place when the eruption is still papular; so that the papulæ, which, without the application, would have passed into pustules, disappear completely under its influence. The plaster often, indeed generally, changes the nature of the eruption, by converting it into a vesicular or tubercular form. When it assumes the

vesicular form, it differs little in appearance from herpes;—the vesicles contain a lymph-like serosity, and are surrounded by a light red areola; and a most remarkable circumstance is, that the skin between the insulated vesicles is pale, and never swollen and red, as it is in smallpox. No *suppuration ever takes place.* A day or two after the removal of the plaster the vesicles dry up, without any desquammation; and as for cicatrices, M. Briquet has never seen any form after his treatment. He totally differs from M. Serres respecting the utility of the plaster when the eruption has become pustular. The plaster is allowed to remain for three days in simple smallpox, and for four in confluent. M. Briquet tried, as did M. Serres, the effect of pressure, of lead plasters, and a host of other topical remedies; but always without the effect of modifying, in any way, the eruption. Thirty observations, some of them relative to cases of the most grievous kind, attest the unparalleled success of M. Briquet's experiments.

"Friction, with mercurial ointment, may be substituted for the Vigo plaster; and they are, in fact, quite as efficacious; but they must, as in all other cases, be performed before the eruption assumes the pustular form."—*Lancet*, Feb. 6, 1841.*

16. *Smallpox—Vaccination—Re-vaccination.*—These subjects are of such great interest, and are exciting so much attention, that we transfer to our pages from the *Lancet*, the following notice of a paper by George Gregory, Esq., entitled "Observations on Vaccination and Smallpox, more especially to the theory of vaccine influence, and the relation subsisting between the cicatrix and the character of the consecutive variola;" read before the Royal Med. and Chirurg. Soc., and also extracts from a report of the debate to which the reading of the paper gave rise.

The observations of the author, in the present paper, are intended to point out, first, the alarming increase of smallpox in the metropolis, as shown by the books of the Smallpox Hospital; and, secondly, the insufficiency of the appearance of the cicatrix of the former vaccination, as a test of the degree of protection afforded by the process.

Upon the first point, he adduces the fact that the admissions in the first three quarters of 1840, only amounted to 142, being at the rate of 16 per mensem; while in the 25 days immediately preceding the reading of the paper, they amounted to 93, being at the rate of nearly 4 per diem—a greater number than was ever admitted in one month since the establishment of the hospital in 1746. Of 316 cases admitted in 1840, 194 had not been vaccinated, of whom 87 died, or 45 per cent.! 120 had been vaccinated, of whom only 8 died, being at the rate of 7 per cent.; the remaining two had the smallpox previously. Of the 316 patients, 47 were under 5 years of age, of whom 28 died; 45 between 5 and 15, of whom 9 died; 224 were adults, of whom 58 died. The total mortality was 95, or 30 per cent. on the gross admissions.

With reference to the second point, the author entered at some length into an explanation of the causes by which the many observed varieties in the appearance of the cicatrix may be explained, and presented the society with two series of well marked cases; in the first of which, severe smallpox occurred in cases presenting perfectly normal cicatrices; whilst, in the second, the opposite anomaly presented itself; the lightest and truly varicelloid eruptions co-existing with small and very imperfect cicatrices.

In the conclusion of his paper the author expresses a doubt of the conclusion seemingly derived from the late experiments of Mr. Ceeley, of Aylesbury, of the identity of the vaccine and variolous poisons.

Dr. Webster thought that the conclusion come to by the author, in the first paragraph of his valuable paper, respecting the unusual prevalence and mortality of smallpox, at the present moment, in the metropolis, was somewhat erroneous. And, as every observation from Dr. Gregory, on a disease with which he was so familiar and experienced, carried great weight with it, especially when considerable alarm existed in the public mind on the subject, Dr.

* The memoir of M. O., at least as published in the *Lancet*, contains a number of errors which are here corrected.—Editor.

W. begged to offer a few remarks, in opposition to the deductions the author had drawn from recent occurrences at the Smallpox Hospital. For, although a greater number of patients had been admitted, and more deaths had taken place at that institution, during last year, than at any similar previous period since its foundation, the result has been quite otherwise in the metropolis generally; and in support of this opinion, Dr. W. appealed, with the utmost confidence, to the Registrar-general's Report; a document most useful to the medical profession, and highly creditable to the government. In these tables 3817 fatal cases of smallpox, or 73½ weekly, were recorded to have taken place during 1838, in London, whilst in 1840 only 1233 deaths occurred, being scarcely one-third of the former number. Such an incontrovertible fact, notwithstanding the admissions and deaths at the Smallpox Hospital, must show that the fears now existing were groundless. Statistical conclusions, when drawn from a limited number of facts were often very fallacious; but if obtained from the occurrences in a population of upwards of a million and a half, like that of the metropolis, they were then of great value, and most correct; hence the opinions expressed by the author must be taken in a limited sense, and by no means as proving the general prevalence of smallpox. It was much to be regretted that this disease has so frequently prevailed after vaccination, as stated by the author; but Dr. W. trusted that in many of those cases the patients had been imperfectly vaccinated; and he hoped the fact of so many persons affected by the secondary smallpox, would stimulate those most interested to extend genuine vaccination more and more, since it was the surest preventive we yet possessed against the ravages of this most disgusting and fatal disease.

Dr. Gregory, in answer to the observations of Dr. Webster, might remark, that the present epidemic was now only in its commencement. This epidemic, like that in 1838, began in the autumn; and as it had been proved that epidemic diseases generally required six months to fully develop themselves, and six months more to recede, he calculated that the present one would reach its greatest height in May or June next. This epidemic had commenced in October, 1840, since which period the admissions into the Smallpox Hospital had been gradually and steadily increasing in number. The epidemic of 1838 commenced in October 1837, and did not reach its crisis until the following May; hence it would be seen that Dr. Webster's calculations were altogether fallacious, as they had extended to the whole of the years 1838 and 1840, whereas, to be correct, they should have been limited to the months in which the disease had been epidemic. Regarding the other statement of Dr. Webster on the possibility of statistics drawn from the Smallpox Hospital, being erroneous, when taken in reference to the disease in general, he might merely remark, that in both the old and new Bills of Mortality, the deaths from smallpox bore a remarkable correspondence in number with those occurring in the institution in question. He (Dr. G.) had not as yet made any accurate calculation of the comparative numbers affected by this epidemic and that of 1838; but he thought, from general recollection, that the latter was more severe than the former.

Dr. Webster, in addition to the remarks made by Dr. Gregory on the epidemic smallpox of 1838, would say, that the disease was most prevalent in the months of April, May, and June of that year, when the average weekly deaths were about 88, or 1141 in the quarter; whereas, during the same months of 1840, the average deaths were only 13½ per week, or 174 in the quarter. This contrast was, indeed, truly remarkable. Besides, although Dr. G. reported the admissions and deaths, at the Smallpox Hospital, to have been very great during last December, and up to the present date, nevertheless it appeared by the registrar-general's tables, that the epidemic was becoming less prevalent. In the month of December last, the disease was certainly more fatal than during any other month in the year; but it was only in the last week that the average number of 1838 was actually exceeded, when 102 deaths are reported. However, it ought to be remembered, when the accounts for the year were about being closed, that perhaps some deaths were included in this fifty-second report, which ought to have been entered in previous returns; and such a supposition appeared the more likely, since the deaths from all causes were so high as

1377, instead of approximating to the average number of previous years, or 1013. Again, in the reports of the 9th and 16th of January of the present year, the deaths from smallpox were respectively 86 and 55; thus proving most conclusively, that the epidemic was rapidly diminishing, notwithstanding its great prevalence at the Smallpox Hospital, which Dr. Webster believed was greatly owing to the excellent accommodation afforded to the patients; besides the well known zeal and experience of the physician, Dr. G., under whose charge they were placed, it was, therefore, not surprising, if so many cases were sent to that institution from all quarters.

Mr. Arnot requested information as to which was the most proper period to perform vaccination for its full preservative powers to be obtained. A case was related in the paper, of a child two years and a half old, suffering from confluent smallpox, who had been vaccinated at two months old; and he himself had seen one case of consecutive variola, in a child under seven years of age, who had been vaccinated at the second month.

Dr. Gregory replied, that it appeared to him that the question of the most proper age for vaccination might be drawn into a very small compass, provided the disease were taken properly—that there was a good vesicle and areola, with a due degree of constitutional effect, it mattered not whether vaccination were performed at the second, third, or fourth month, or the second, third, or fourth year. The true question for consideration was, at what period of infantile life vaccination could be performed, so as most certainly to ensure success, and to avoid inconvenience to the parties. This question had recently been forced upon public notice from the interesting circumstance of the Princess Royal being born during an epidemic prevalence of smallpox. In answer to this question it might be stated, that in the first week or ten days after birth, before the infant had attained any degree of plumpness, it was very difficult to vaccinate; not from any want of susceptibility in the patient, but from the difficulty of inserting the lymph properly. This difficulty was more or less present until about the fourth month, and therefore this was the period usually chosen; for not only was the arm then generally plump, but there were also then no contending influences, such as teething, present in the constitution.

Mr. Ceeley agreed, in the main, with Dr. Gregory; but he thought that the difficulty of vaccinating very young children, was mainly dependent upon the mode in which the operation was performed. He believed that an infant of two or three days old might be effectually vaccinated, if the lymph were inserted by merely scratching the skin on its surface; puncturing in these cases would not succeed.

Dr. Gregory remarked, in answer to a question, that there was extreme difficulty in determining at what age patients were vaccinated, who, having afterwards contracted smallpox, were admitted into the hospital. They generally stated that they were vaccinated in early life; but whether at the second, sixth, or twelfth month, they could not tell. Even parents could give no precise information on this point. Thus, in a family of ten children, all of whom had been vaccinated, and one of whom had since contracted smallpox, and died, the only information he could obtain in reference to the operation was, that it was duly performed, in all the cases, by a surgeon at Aylesbury, and that one pound one was paid for each child, "not eighteenpence, Mr. President," said Dr. Gregory, "but one pound one."—(*Hear, hear, and laughter.*) There was another point, however, upon which he would venture to offer more definite information. He had observed a number of cases of smallpox after vaccination, when the process had been gone through at the seventh, eighth, and tenth year, and even at a later period. It appeared to him, that of those who were vaccinated at the adult age, more took the disease than where the vaccination had been performed in early life. Hence he considered the latter period more favourable than the former for the operation; and he explained this by supposing, that in adult life there existed a greater mass of fluids to be improperly impregnated than in the infant state. He would wish to ask a question of the society, and this had reference to the new matter, the variolo-vaccine, as it had

been termed, and which had been extensively employed in practice since 1839—Had the members of the society had any experience of this new material? and if so, had they observed any difference between it and the old vaccine matter? and also, whether they thought it was likely to be more effective in its results than that which had been in use for the last forty years? He himself had recently paid much attention to this subject; and he had observed so marked a difference between the two kinds of matter, that he thought they possessed features which rendered each at once distinguishable. There was a difference in the areola, in the appearance of the vesicle, and in the reparative process. Thus the areola of the variolo-vaccine was of a purple hue; in the centre of the vesicle was a minute green point, described by Dr. Ceeley as the "emerald resting on the pearl;" whereas, in the old vaccine vesicle, Dr. Jenner had described the appearance to be that of the "pearl resting on the rose." The variolo-vaccine was liable to be followed frequently by sharp and deep inflammation of the cellular membrane, and the reparative process was attended by much constitutional disturbance.

Mr. Ceeley believed that there was no specific difference between the two kinds of lymph, although there might be a little variety in the effects of the variolo-vaccine consequent upon the structure into which it was inserted, and the temperament of the individual operated upon. It was curious to observe the various accounts he had received from practitioners of the effects of this lymph. Some said that its effects were milder than were those of the old vaccine matter; others described it as precisely the same, and some remarked that it was more active. These differences in the effects, he believed, were mere varieties, and did not depend upon any specific difference in the matter, but on the circumstances he had already mentioned—the state of the skin, the subject acted upon; and the time of year in which, and of the tissue into which it was inserted. There might be some difference in its activity, in consequence of its being a new lymph. The popular opinion in Aylesbury was, that the new lymph was followed by more secondary inflammation, and more constitutional irritation than was the old; but this peculiarity did not obtain in regard to its primary effects.

The subject of *re-vaccination* being mentioned, Dr. Gregory remarked, that he had not been able to obtain much information, except that it was becoming more prevalent among the lower order than it used to be. In the case alluded to, of a family of ten children, one of whom had died of smallpox after vaccination, eight of the other children had been re-vaccinated under his own eye. In one half of these the disease was attended by perfect vesicles and areola; in others these were mere irritable papulæ; and yet all the children presented perfect cicatrices. This difference in the effects did not appear to be at all traceable to age; some of those in whom the disease took well were old, some were young. He thought we were yet in much want of information to explain some of the phenomena connected with variola. He should, however, recommend re-vaccination in all cases, to give the patient a better chance against the infection of smallpox. With regard to the remarks of Mr. Ceeley, respecting the different accounts he had received of the effects of the variolo-vaccine, he (Dr. G.) might merely observe, that these differences did not obtain when the old matter was employed. He knew by experience what he had to expect from the old matter, and calculated accordingly. Not so, however, with the new, for he found that this would produce a mild vesicle on Thursday, the first; a very severe one on Thursday the eighth, and from this a mild one might subsequently be reproduced. It appeared to him, in this particular, to bear a close resemblance to variola; for a mild varioloid disease sometimes produced a confluent form of the complaint in another person, and *vice versa*, the confluent sometimes generated the mildest varioloid.

The same subjects were also discussed before the *Medical Society of London* and as the debate elicited some interesting facts, we add a report of it.

Mr. Dendy stated that he had found the character of the cicatrix, from the previous vaccination, afforded no evidence of the amount of protection, and, in

consequence, that would not determine the character of the consecutive variola. With respect to the old vaccine matter and the variolo-vaccine, some of which he had procured early from Mr. Estlin, he had found the latter to be so little to be depended upon, that he had given up its use entirely. He believed the reason why vaccination was more likely to be effective in early life, than at the adult period, did not depend upon the cause specified by Gregory; namely, that at the latter period there was a larger mass of fluids to impregnate, but rather upon the fact, that the child's constitution was purer, and the vaccine process was less likely to be interfered with by contending influences in the system. He should recommend the performance of re-vaccination every six or seven years.

With respect to the preventive power of vaccination, Mr. Dendy alluded to three cases, which had come under his notice, of secondary smallpox occurring in children who were deeply pitted by the first attack of the disease; while other children, in the same families, who had been protected by vaccination, merely suffered from a varicelloid eruption, which was followed by no secondary fever. Mr. Dendy adverted to the present prevailing epidemic, which was of a most formidable character.

Dr. T. Thomson thought the vesicle produced by the variolo-vaccine was so frequently exactly similar to the one produced by the old matter, that we might depend upon it as as good and efficient a preventive for smallpox as the latter. It might, perhaps, be a little more active, in consequence of having been so recently obtained from the cow. With regard to the proper time for performing vaccination, he believed that in Paris, at the Foundling Hospital, all the children were vaccinated within the month, and the operation was generally successful. With respect to the susceptibility to the influence of secondary vaccination, he inquired if this might not depend a great deal upon changes which had been produced in the system by severe disease, particularly by fever? He had found that persons who had not been subjected to the annoyance of insect bites previously to the occurrence of a fever, had been so subjected afterwards. Dr. Jenner had considered that the efficacy of the vaccine lymph was somewhat modified by being within the atmosphere of the Smallpox Hospital, and that it was not so protective in that locality as in other places.

Mr. Linnecar considered that sufficient time had not yet elapsed since the introduction of the new matter, for us to come to any conclusion with respect to its efficiency. Mr. Leese, a very experienced vaccinator, had stated, some sessions ago, in that society, that he never knew a case of consecutive smallpox in a person in whose arm there were above four cicatrices from the previous vaccination. Had this been noticed by other practitioners? As secondary smallpox occurred to persons deeply pitted from the first attack, he did not think the test referred to was to be depended upon. The recent Vaccination Bill was a dead letter!

Dr. Chowne observed that, in the Smallpox Hospital, so great a dependence was placed upon the number of the cicatrices present, that the character of the consecutive disease was generally prognosticated from that circumstance alone.

Mr. Dendy believed that one vesicle, if it went through its proper stages, and produced a proper degree of constitutional disturbance, was as effective as twenty. It might be a presumption that such constitutional effect had taken place, if several cicatrices were present.

Mr. Proctor observed, that when vaccination was first introduced, it was never usual to attempt to obtain more than a single vesicle. Consecutive smallpox was very rare for a long time after Jenner's plan was introduced. We did not appear to improve in vaccination. If the system were fully under the influence of the vaccine disease, it afforded the best criterion of the patient's safety. A friend of his had lately lost a child from erysipelatous inflammation consequent upon vaccination.

Dr. Alison related a case of consecutive smallpox, occurring in an infant three or four months old, before the crust of the vaccine vesicle had fallen from the arm.—*Lancet*, February 6, 1841.

17. *On Gouty Concretions, with a new Method of Treatment.*—Alexander Ure, Esq., in a paper on this subject, read before the Royal Med. and Chirurg. Soc., introduces to the profession a remedy, which he believes likely to prevent the formation of tophous concretions in gouty subjects. The remedy is benzoic acid, administered in doses of a scruple an hour after a meal. "In the course of a couple of hours (as the author has found by frequent experiments made upon himself and others) the urine voided, amounting to five or six ounces, will be found, on adding a small quantity of muriatic acid, to yield a copious precipitate of beautiful rose-pink acicular crystals, which weigh, after being allowed to settle for a day, about fifteen grains." The body thus produced by the agency of vital chemistry is hippuric acid, and is found to have taken the place of uric acid in the urine, none of the latter being discoverable.

By thus substituting hippurate of soda, a salt of easy solubility, for the very sparingly soluble urate of that alkali, the author conceives that the formation of the tophous concretions may be altogether prevented.

Mr. Ure stated that he had employed the plan recommended in his paper in two or three cases with decided success. He had not found the dose, twenty grains, to be at all too large, and had frequently taken it himself without any unpleasant effects.—*Lancet*, February 6, 1841.

18. *On a Sedative Lotion in Headaches, Congestions, and Cerebral Fevers.*—Professor Raspail, in a letter to the editor of *l'Expérience*, (July 24, 1840,) gives the mode of preparing a lotion, the sedative effect of which, he says, is almost instantaneous. It is as follows: liquor of ammonia, (Qy. the strength?) 100 parts; distilled water, 900 parts; purified marine salt, 20 parts; camphor, 2 parts; essence of rose or some other scent, in the necessary proportion. The whole dissolved cold.

A piece of linen is to be steeped in this solution and applied over the part of the head that the patient points out as the seat of pain, taking care, if it is on the forehead, to apply a thick bandage over the eyebrows, to prevent any drops of the fluid passing into the eyes.

M. Raspail says he has seen headaches intolerably violent, accompanied by photophobia, and retraction of the globes of the eye, disappear completely, from a quarter to half an hour after the application of one wetted cloth. The linen is to be soaked as often as a new access of pain is threatened, and left on the head until it is necessary to soak it anew. In the numerous trials the author has made with this solution, first on himself and afterwards on others, he has been struck by two circumstances of interest in connection with organic chemistry, and symptomatology. When in a violent attack of cerebral fever, we apply on the principal seat of inflammation a concentrated solution of marine salt, an evident odour of chlorine is disengaged, the diseased reaction being analogous to the decomposing and deoxygenating action of manganese, in the elimination of chlorine from marine salt, by means of sulphuric acid. Is this sign constant in affections of this class? It is for experience to decide. When on the contrary we employ a solution of ammonia, a strongly characterized *hircine* (goatish) odour is manifested. The same odour has been disengaged on the application of hydrochloric acid to the skin. M. Raspail has drawn the attention of the profession to this subject in order that they may employ this formula, and fix their attention on the analyses of the disengaged substances, as they may become characteristic of special affections.—*B. & F. Med. Rev.*, Jan., 1841.

19. *Sulphur ointment in Smallpox.*—Dr. Midavaine recommends in an article in the *Annales de la Societé de Médecine de Gand* frictions with sulphur ointment in the treatment of Variola, with the view of arresting the development of the pustules, and consequently preventing the inflammatory fever which results from the turgescence of the skin or the secondary fever (*fièvre de resorption*), so fatal in the suppurative stage.

"The ointment which I use," says M. M. "has the double advantage of preventing suppuration of the pustules, and the cicatrices which ordinarily result from them. This ointment consists of one drachm and a half to two drachms (the first for varioloid, the latter in cases of confluent smallpox) united with an

ounce of lard, with which the whole face and those parts of the body covered with pustules are gently rubbed, three times a-day. The nearer the commencement of the eruption this is done, the greater the chances of success. The small pimples then contract and become completely indurated in place of enlarging, and the gastro-intestinal irritation completely disappears. It is rare, even in confluent variola, for the patients not to promptly recover their appetite and ask for food."

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Dr. M. relates sixteen cases in which he has employed this treatment and with the most entire success.—*Journ. de Méd. et de Chi. Pratiques*, Dec. 1840.

20. *Treatment of Epilepsy by Cauterizations with Potash.*—Dr. Fievee, de Jumond, has published in the *Gazette des Hôpitaux* some cases of epilepsy cured by severe cauterizations, and he invites the attention of practioners to this measure, which he says he has resorted to successfully a number of times.

It is well known that epilepsy has been cured by the patients falling in the fire and severely burning themselves, and we presume this fact suggested the remedy just noticed, at all events it seems to afford encouragement to try the measure. We shall notice one of Mr. F.'s cases.

M. B. aged 45, strong constitution, has been epileptic for fifteen years. The attacks usually came on two or three times a month, and the patient had ordinarily two in the twelve hours.

Nineteen deep and large cauterizations made with caustic potash on the neck, on each side of the cervical and dorsal vertebræ, in series of four each time and at intervals of six weeks completely cured this long continued and horrible disease. Three years has elapsed without a single attack to interrupt the security of the patient or the satisfaction of the physician.

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

21. *Partial Injury of one of the Halves of the Spinal Marrow.* By M. Begin.—L., a robust old soldier, ætat. 59, received a wound from a sharp-pointed cutting instrument in the back of the neck. He fell immediately, and being unable to raise himself, was obliged to be carried to an adjacent house. He said he had been knocked down by some heavy weapon, and that he had fallen not in consequence of the wound in the neck, which he thought insignificant, but from the violent stunning which he felt at the instant he was struck. He fell *backwards* and on his right side, and there was a slight bruise on the right elbow, but no other sign of external violence, although he attributed the impossibility of moving his right limbs to the shock and the bruises which he had received in his fall, or more still to the blows which he affirmed had been given him while on the ground.

The wound was united by plaster, and the patient, regarding his injury as a slight matter, refused to be bled. On the next day he was taken to the Val-de-Grace, where M. Begin first saw him, in the evening. He then said that he felt nothing but a little numbness of the right side. His pulse was slightly excited; the wound had healed, and he would not be bled. Cold was applied to the head and neck, and warmth to the feet, and antiphlogistic diet was ordered. He passed the night quietly. Next day, on examining the united wound more closely, it was found to be in a transverse direction, half an inch long, at the level of the fifth cervical vertebra, and nearly an inch from its spinous process. Its angles were nearly equally acute, rendering it probable that it had been made with a double-edged instrument; there was neither ecchymosis, nor swelling, nor heat, nor pain, nor hardness about it; the movements of the head and neck were perfectly free, and unaccompanied by pain, even when carried to a considerable extent. The patient felt a kind of weight in his right arm, and had creeping sensations in the hand; with a little difficulty, however, he could raise the arm, and move the forearm; but the fingers half-flexed could neither

be opened nor closed completely. The right leg was absolutely motionless. A vague pain was felt along the right side of the chest, and there was perfect sensibility in every part of the body. The mind was clear: there was slight fever. The patient was bled freely both from the arm and locally; stimulants were applied to the feet, and cold to the head, and strict abstinence was observed.

On the third day after the accident there was a slight power of moving the right great toe. But there was much more fever, and the patient was again freely bled. On the fourth day, after a very quiet night, he was a good deal better, but at night he became feverish, excited, and delirious. This condition was somewhat relieved by leeches; but next day he had a violent shivering-fit, followed by incomplete reaction; at night he had low delirium, with an unequal pulse, difficult, hurried respiration, and hiccup, and with these increasing, he died early in the morning of the sixth day after receiving the wound.

At the examination of the body, the wound externally was scarcely discernible, but more deeply its course became more and more evident by the effusion of blood in the adjacent tissues. In the middle of the right lamina of the sixth cervical vertebra there was a fragment of a knife, which projected backwards for about a line, and had its back directed towards the median line. Having removed all the cervical portion of the vertebral column, and cleaned its fore-part, the point of the same portion of knife was found projecting about one-tenth of an inch between the sixth and seventh vertebræ. It had broken the upper edge of the body of the latter, and had stuck into, but not passed through, the posterior wall of the pharynx. The left side of the column was cut away, and the vertebral canal being thus opened, the medulla spinalis was found surrounded by pus mixed with the spinal fluid, and its surface was softened above and below the wound. It had been struck by the back or rather by the blunt edge of the blade of the knife, and the cut extended obliquely on the right side, from the level of the origin of the posterior roots of the nerves to the anterior median furrow. The posterior column was uninjured from the line of origin of the posterior roots to the posterior median furrow, while the anterior column was divided from the same point to the groove occupied by the anterior spinal artery.

The portion of the weapon that remained in the wound was an inch and three quarters long, and three-fifths of an inch broad at its base; it was part of a short and very sharp dagger-knife.

The shock that must have accompanied the violent penetration of the arch of the sixth vertebra, and the intervertebral cartilage, as well as the part of the body of the seventh vertebra, perfectly explains the sensation of bruising and the stunning which the patient felt at the instant of receiving the wound. Neither during life nor after death was there any erection of the penis.

[This case is interesting in every way, but especially in its obvious bearing on the functions of the columns of the spinal marrow, and the nerves respectively connected with them.]—*B. & F. Med. Rev.*, from *Bull. de l'Acad. de Méd.*, Dec. 15, 1840.

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22. *On the Removal of Foreign Bodies in the Joints by means of Subcutaneous Incisions.* By Dr. Goyrand, of Aix.—This new method of operating was suggested by the fact, that incisions made into joints through such small external openings that the air cannot obtain admittance to the cavity, are never productive of that severity of inflammation which follows wounds with wide external apertures, and which, in the operations hitherto performed for this disease, has so often terminated fatally. The proceeding recommended by the author consists in pushing the loose body (if in the knee-joint,) into the synovial pouch above and to the outer side of the patella, beneath the vastus externus muscle, and while an assistant holds it fixed there, passing a narrow knife through the skin at some distance above the joint, and through all the intermediate tissues down to the foreign body. Without enlarging the opening in the skin, the synovial membrane and adjacent tissues over the loose substance are now to be freely divided, till, by the pressure on the latter, it slips out of the joint through the wound, and lodges itself in the subcutaneous cellular tissue, or in some of

the other tissues between the skin and the joint. After this the patient must remain at rest for several days, (the small external aperture being merely covered by sticking-plaster,) till all chance of inflammation occurring has passed away. The foreign body dislodged from the interior of the joint, will form a cyst for itself, and remain in its new position without producing any annoyance; but, if it should be deemed necessary, it may easily be removed by a single incision through the skin over it, which will no longer be likely to excite any inflammation of the joint itself.

The author details a case in which this method of operating was adopted with perfect success. Two loose cartilages were dislodged, and pushed into the tissues adjacent to the joint. One was subsequently removed by an incision through the skin; the other was allowed to remain, and it produced no inconvenience whatever. Through the whole course of the treatment the patient had not a bad symptom, although less precautions were adopted than are usual in this description of cases.

[We understand that Mr. Syme, of Edinburgh, performed this operation, and with complete success, without previous knowledge of M. Goyrand's proceeding.]—*Ibid.*, from *Annales de la Chirurg. Française et Etrangère*, Jan. 1841.

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23. *Successful Performance of Tracheotomy in a case of Croup.* By M. Saussier.—The case occurred in the hospital of La Pitié, in a boy two years old, who had been operated on for hare-lip, by M. Sanson. The first croupy symptoms appeared ten days after the operation, and after the unsuccessful employment of leeches and emetics, the child seeming to be in imminent danger of suffocation, the operation was performed. White patches had formed upon the tonsils and arches of the palate, afterwards on the tongue and internal surface of the cheeks, and deglutition had become impossible.

The operation was followed by instant relief. M. Saussier cleaned out the trachea with a sponge, which he introduced several times, and upon which he withdrew a transparent pellicle, about two centimetres broad. Ten minutes afterwards, the canula was introduced, and the child almost immediately fell asleep.

During the three following days, eleven distinct, thick, yellow, false membranes were either expelled naturally by the patient, or withdrawn from the trachea by means of the sponge. The trachea was cauterized four times with a solution of sixty centigrammes of nitrate of silver in four grammes of water. The canula was changed thrice.

The canula was finally removed on the thirteenth day, and the teazing cough and frequent expectoration of thick mucosities which had continued till then, immediately ceased. On the sixteenth day the wound was healed, and at the end of August the child was discharged, having been operated on on the 3d of June.—*Ibid*, from *L'Expérience*, Dec. 3, 1840.

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24. *Chloride of Zinc in the Treatment of Acute and Chronic Gonorrhœa.* By M. Gaudriot. After a large number of observations the author of this memoir concludes that the chloride of zinc, properly diluted, has a remarkable power in curing simple gonorrhœa of the urethra and vagina, also in dilating the urethra, and thereby ameliorating strictures. He believes that it is always by an inflammation *sui generis* that the discharge is cured, and that injections of the chloride of zinc determine a series of phenomena not produced by other caustics. It is only necessary to use a few drops of injection, as the extremity of the urethra is the only part to which it should be applied. To combat vaginal gonorrhœa in women, M. Gaudriot proposes a new proceeding, which consists in the use of solid vaginal suppositories, composed of a paste made to melt easily, and containing a certain quantity of liquid chloride of zinc and sulphate of morphine.

In men the author employs the following formula:

Liquid chloride of zinc, 24 to 36 drops.
Distilled water, four ounces.
Agitate and filter through paper.

A small quantity of this solution should be injected about an inch along the urethra, two or three times a day.

The vaginal suppository which he employs is formed of

Liquid chloride of zinc, 5 drops.
Sulphate of morphine, half a grain.

Mix with three drachms of the following paste!

Mucilage of gum tragacanth, 6 parts.
Powdered sugar, 3 "
Starch powder, 9 "

To cure radically a gonorrhœa in man, it will ordinarily suffice to apply two injections a day for two or three days. The first injections are almost always followed by a more or less swelling of the glans penis, but this does not prevent their continuance.

In women, four or six suppositories, one being introduced every day, or every second day, suffice to obtain a cure. The first introductions frequently occasion a swelling with more or less heat of the vulva, but these phenomena are soon completely dissipated. Emollient baths have in most of the cases been employed for this purpose.—*Ibid.*, from *Journ. des Connaiss. Méd. Prat. et de Pharmacologie*, Sept. 1840.

25. *Ligature of the common Carotid Artery, and Experiments on the Ligature of both Carotids in Animals.*—M. Jobert, de Lamballe, has addressed a memoir to the Royal Academy of Medicine, containing a case where he tied the common carotid to cure an erectile tumour of the orbit, and also the result of his experiments on living animals, to determine the influence that ligature of both carotids would have upon them.

Ligature of the common carotid on either side does not stop the course of the blood through the ramifications of the tied artery; how then can it effect the cure of erectile tumours of the face and head? M. Jobert replies, 1st, by the sudden subtraction of a large quantity of blood from the tumour; 2, by giving an obstacle to the transmission of the impulse of the heart, in its full energy towards the tumour. He has convinced himself by his experiments, that beyond the ligature, the blood runs in a continual jet, waving, and without jerk (*saccade*). His conclusions are, 1st, that erectile tumours of the orbit, destroy the bones after the manner of aneurisms; 2d, they have the characters of aneurismal tumours, and are cured by ligature of the common carotid of the same side; 3d, the cure is not owing to obliteration of the artery beyond the ligature, but to diminished impulse of the column of blood arriving in the tumour; 4th, the vertebral arteries suffice for the cerebral circulation after ligature of the carotids; 5th, dogs, sheep, and rabbits do not experience ill effects after this operation; 6th, horses on the contrary do not survive it, dying with pulmonary apoplexies; 7th, blood-lettings before or after the ligature, diminish the intensity of the pulmonary lesions; 8th, perhaps in man, the loss of a certain quantity of blood after the operation, would have good effect.—*Rev. Méd.*, Sept. 1840.

MM. Bérard, Gimelle, and Larrey, who were appointed as a committee to examine the memoir of M. Jobert, consider it of importance; 1st, as adding two cases of cure of erectile tumours, one in the orbit by ligature of this carotid, to four other cases previously recorded; 2d, as the experiments prove the harmlessness of ligature of both carotids, in those animals whose vertebral arteries enter the cranium of a calibre sufficiently large to keep up the cerebral circulation and avoid pulmonary congestion; 3d, as it proves that the brain and the organs of the senses preserve their functions entire after this ligature; 4th, as it places beyond doubt, that animals who from their anatomical construction survive the ligature of the common carotid arteries, are not affected with lesions of the organs of the senses as described by authors; 5th, as these experiments and their results will exercise a great influence on the surgical therapeutics of diseases, for the cure of which ligature of the common carotids might be proposed. —*Ibid.*, from *Bull. de l'Acad. Royale de Méd.*, Oct. 15 and 30, 1840.

26. *On Resection of the Elbow-Joint.* By M. Roux.—Within the last twenty months I have performed the operation of excision of the elbow-joint three times; one in July, 1839; another in 1840: and the third in the month of September last. These are not the only cases in which I have performed a similar operation; but I submit them to my surgical brethren, chiefly on account of an improvement in the mode of operation, which I believe to be of some importance.

We all know that when white swellings have arrived at a certain degree, the surgeon has no other resource left than to amputate the limb, or excise the diseased joint. Each method of relief has its advantages and disadvantages; but they are not applicable to all joints, nor can they be compared together, except in relation to certain cases. For my own part, I strongly incline to the propriety of excision of some joints, whenever such an operation is practicable. Since the year 1812, I have excised the elbow-joint eleven times, and this sum total exceeds that of all the other important joints put together, for I do not now speak either of the smaller articulations, or of cases in which only a portion of a joint has been removed. Of the eleven operations three terminated fatally, the remaining eight recovered; of some patients I lost sight; but two I had an opportunity of watching for a long time; one of the latter was a chambermaid, and for fifteen years she was able to follow her usual occupations; she is now married, and conducts a commercial establishment; the other, also, was in a condition to follow his trade during ten or twelve years.

In my first eight cases I adopted the common mode of operating. I made two incisions, one on each side of the joint, and a transverse one behind, on a level with the olecranon, so as to expose the hard parts. But this mode gave rise to several inconveniences, particularly with reference to the after treatment and dressing of the wound. Hence I resolved, even at the risk of making the operation more difficult, to modify it, by making an external and a transverse incision only, and thus forming two triangular flaps, united in such a manner that the limb may be retained in a perfect state of rest during the after treatment. I have employed this method in the three cases now submitted to the Academy, and have some reason to believe that it has contributed not a little to their happy termination. *Provincial Med. and Surg. Journal*, from *Bull. de l'Acad.*, *March* 31, 1841.

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27. *Reduction of Hemorrhoidal Tumours.*—Much difficulty is sometimes experienced in returning protruded hemorrhoids. Pressure alone is applied in vain. But if the patient be directed, Dr. Marshal Hall says, to make a forcible expulsive effort, and pressure be simultaneously made, the tumour frequently recedes immediately, the sphincter is positively relaxed, the ligature which it formed round the tumour is removed, and the reduction is easy.

Dr. Hall inquires whether a similar measure would aid the accoucheur in returning prolapsus uteri? *Lancet*, March 13, 1841.

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28. *Wound of the Heart.*—Professor Malle relates in his *Clinique Chirurgicale de l'Hopital d'Instruction de Strasbourg*, the following remarkable case of wound of the heart.

"A soldier, ætat. 31, was amusing himself with a comrade in firing, when suddenly his friend's gun burst, and wounded him. He fell instantly in syncope, but soon regained his senses and complained of a severe pain behind the sternum. He was carried to the hospital, where he presented the following symptoms. About two inches on the inner side of the left nipple, between the sixth and seventh ribs, there was a small wound, which gave passage neither to blood nor to air. The chest was normally resonant beneath it; the patient had some bloody expectoration; the heart's motions were obscure and the pulse feeble; there was dyspnœa; the skin was cold, the face pale, and the patient felt as if he should faint. The surgeon in attendance regarding the greater part of these symptoms as the effect of the fright, ordered some simple means. Four hours after reaction took place, and the patient was bled to ten ounces, after which the expectoration of blood completely ceased. The pulsations of the heart, however, remained obscure, the pulse was small, and the sternal pain

continued; but the face had regained its colour, the heat of the surface had returned, and the threatenings of fainting had passed away; he was bled again in the evening.

"Next day, the patient had passed a tranquil night; the pulse was fuller and regular, at 100; the face flushed but expressive of suffering; the pain behind the sternum continued; the ear distinguished at the part a kind of undulatory crepitation, something like that heard in a varicose aneurism; and there was a little crepitation in the left lung near the heart. Everywhere else the natural respiratory murmur was heard, though the dyspnœa continued; the horizontal position was irksome. The patient was again bled to ten ounces, and cupped over the heart. On each of the two following days the condition of the patient remained unaltered, and the same depletory means were repeated.

"On the fourth day after the accident he was better; he had slept four hours and had lost his faintness. He had less pain, there was no longer any râle, the pulse was less frequent and regular. The improvement continued during the succeeding days; the patient had some appetite and took some light food. The pain behind the sternum was almost gone; but there was still dulness in the precordial region; the pulse remained feeble, and he did not evidently gain strength. His apparent convalescence, though it advanced slowly, would probably have been more marked had it not been twice or three times interrupted by the patient's heat of temper and refusal of being restrained to perfect quietude. After each fit of anger, his cough became worse, the dullness in the precordial region more extensive, the pain at the sternum more acute, and the pulsations of the heart more obscure; and for every such aggravation of symptoms depletions were required and were generally efficient. He continued thus alternately improving and suffering from a return or aggravation of his first symptoms up to the forty-second day after the accident, when his condition was such as to permit a hope that his recovery would be permanent. At this time, however, he was seized, without any evident cause, with erysipelas of the left leg, with fever, &c.; his old symptoms returned with irrepressible violence, and he died on the 14th of May, having received the wound on the 28th of March.

"On examination the brain and the abdominal organs were found healthy. In the chest at the wounded part there was a cicatrix scarcely firm. The right lung presented on its anterior surface and near the heart, a small cicatrix, which was also discoverable under the corresponding portion posteriorly, proving that the lung had been perforated. It was also hepatized for about four inches, and united by some slight adhesions to the pleura. The pericardium was larger than usual, and at first appeared distended with liquid. It contained about five ounces of reddish sanies, and some fibrinous clots, two of which adhered to the heart. A foreign body was fixed in the left ventricle. On closer examination this was found to be a portion of the stock of the gun that had burst; it was situated at the front and about the middle third of the ventricle; its free extremity, which was about as large as a full-sized writing quill, projecting about ten lines; the cavity of the ventricle contained a very firm coagulum extending into the aorta. The piece of wood had traversed the left ventricle and the septum, and projected into the cavity of the right ventricle. Its direction was obliquely from without inwards and from below upwards; its form was somewhat triangular, tapering irregularly from the part that projected in front to that which traversed the septum. The internal surface of the heart was red, and in parts a little softened, especially near the apex; near the valves, on the contrary, the membrane appeared slightly hypertrophied."—*Brit. and For. Med. Rev.* July, 1840.

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29. *Clinical Lecture on Fissure of the Anus.* By M. Velpeau. The patient who now occupies bed No. — is affected with fissure of the anus, a disease which still requires for its elucidation careful research. Notwithstanding the labours of Boyer, Beclard, Dupuytren, and a few other surgeons, I believe that we have much to learn of the causes, symptoms, and treatment of this painful affection; I shall, therefore, embrace the present opportunity of directing your attention to this subject.

Fissure of the anus consists in the existence of a small narrow ulceration seated in the radiating folds at the margin of the anus, and usually attended with very excruciating pain, whenever the patient goes to stool. Before Boyer's time this disease was almost entirely unknown, and if we examine what has been said concerning it by writers who preceded him, we shall be convinced that our knowledge of its causes, symptoms, &c., dates within the last twenty-five or thirty years.

Let us first turn our attention to the *causes* of fissure of the anus. This disease may be excited by constipation, piles, the evacuation of hard fæcal matter, in large masses, by mechanical injury, from the end of a lavement apparatus, for example, &c.; but in many cases it is developed without our being able to discover or trace any probable cause. It arises, in most instances, in a very gradual manner, and soon assumes the characters of other ulcerations about the part; hence we find great difficulty in assigning to it its true and efficient cause; nor do I think that we could produce the disease by artificial means. It exists in individuals of both sexes, but attacks females more frequently than males; it commonly appears between the ages of twenty-five and sixty, but has been observed at the ages of eighteen or twenty. I have seen it in a young man eighteen years of age, and in a girl of twenty-one; children, however, seem to be exempt from this affection. One of the most remarkable points connected with the history of fissure of the anus is the great pain and suffering by which it is accompanied; effects which we are unable to reconcile with the slight degree of organic injury constituting the complaint. M. Blandin and M. Harvey de Chégoin think that fissures seated above or below the sphincter ani are of an insignificant nature, and heal of their own accord, or under the most simple treatment; while other fissures are attended by the symptoms described by Boyer. This seems to me to be a speculative distinction, for I have seen several cases of fissure of the anus in which violent pain was a prominent symptom, although the affection did not implicate the sphincter muscle of the anus.

One circumstance, gentlemen, connected with the history of this disease, merits particular attention. The sphincter ani muscle is in a state of permanent constriction. But is this a cause or an effect of the disease? Boyer asserted that this constriction formed a principal exciting cause, since division of the sphincter muscle immediately calms all suffering, without any application whatever having been made to the fissure itself. On the other other hand, MM. Roche, Sanson, and Blandin contend that the constriction of the sphincter is a result of the complaint, because the ulceration may frequently exist without our being able to discover it. We cannot, it is true, deny that fissure may sometimes exist without constriction, although it be accompanied by the signs of the latter affection, such as violent pain, burning heat, &c., on going to stool. I have witnessed several examples of this: but who can affirm there is no fissure, merely because the surgeon who examines may be unable to find one? The great authority of Boyer is the only cause of our attaching any weight to his assertions, for they have never been confirmed by the result of *post mortem* examinations. Perhaps, however, there may be some means of reconciling opinions on this interesting point in the history of fissure of the anus. Thus, we can understand how a small fissure, being irritated by the passage of stercoraceous matter, may excite spasmodic constriction in the muscular bands underneath it; and again, we can believe that strong spasmodic contraction of the anus, by inducing costiveness, may induce excoriation of the skin about the anus, and thus become a cause of fissure. Under this point of view constriction of the sphincter ani and fissure are two distinct affections which are independent, but have a strong tendency to merge one into the other.

The *symptoms* of the disease are the following; the patient first experiences some pain on going to stool, and for some time after an evacuation from the bowels. The pain gradually increases in intensity and period of duration, and when it has arrived at its maximum, the patient suffers the most excruciating torture. The sensation excited by the passage of fæces is compared by the

patient to the pain occasioned by a red hot iron, or to the tearing asunder the margin of the anus, and brings on a feeling of faintness or threatening of convulsions. In the intervals between each stool, the patient merely feels some lancinating pain or scalding, with a sense of weight about the part, and colic. As the time for evacuating the bowels approaches, the pain is manifestly increased, is most violent during the moment of expelling the fæces, and then gradually declines for a few hours. It occupies a circumscribed space about the margin of the anus, and is often attended by pulsation of the vessels like that which accompanies phlegmonous inflammation. The bowels now become obstinately constipated, and evacuations take place every eight or ten days, unless purgatives or clysters be employed. The patient feels such a dread of going to stool, that he defers the moment as long as possible, although he knows that such conduct will aggravate his sufferings. One patient, at the Hôtel Dieu, was heard to exclaim that he would rather die than go to the water-closet, so great was the pain during evacuation of the bowels. Some persons who labour under this disease have recourse to curious methods of avoiding the inconveniences occasioned by the passage of fæcal matter; thus, Boyer mentions the case of a lady who kept a canula constantly fixed in the rectum, to prevent the suffering which she experienced at each evacuation. But fluid stools, or even the passage of air, will occasionally excite very severe pain. Some patients are able to walk about, sit down, or attend to their ordinary business during the intervals between the attacks, but others are compelled to keep their beds in spite of the increased heat and pain thus occasioned. The shooting pains extend towards the bladder or uterus, and in some cases to the hypogastric region. The digestion is impaired; the patient eats little, to avoid the necessity of going to stool; he becomes thin and of a yellow hue; the face is expressive of suffering, and on looking at it, one would say that the patient laboured under some severe organic disease; occasionally the slightest movement will excite the accesses of pain; coughing, spitting, blowing the nose, speaking or singing will aggravate it; any excess in eating or drinking will have a similar effect. The presence of the catamenia, also, increases the sufferings of women. The pain is at once excited by introducing any body into the rectum, as the pipe of a syringe, &c., and when we attempt to pass up the finger, we not only occasion severe agony, but feel that it is powerfully grasped by the constrictor muscle of the anus.

On separating the folds of the anus and drawing the rectum gently down, we perceive, at the bottom of some one fold, a small ulcerated fissure about one or two lines broad, by four, eight, ten, or twelve in length. The edges of the fissure are generally free from hardness; they are of a bright red colour, and bear the strongest resemblance to the cracks which so often exist in the hands, feet, or corners of the mouth. A very small quantity of pus may be discharged from the fissure, and in some cases a little blood. It often happens that we find it extremely difficult to discover the fissure, hidden as it is in the folds of the anus, which is usually, in such cases, more or less of a funnel shape; we must carefully unfold the integuments, and desire the patient to make a few expulsive efforts. The fissure is then exposed; it may occupy any point of the margin of the anus, may scarcely reach the edge of the mucous membrane, or may be confined to the parts above the spincter. In many cases the fissure seems to commence from or terminate in a pile; and usually it extends in a vertical direction upwards. We can often assure ourselves of the existence of this lesion by the mere touch; the instant the finger comes in contact with the fissure, the most violent pain is experienced by the patient, and we feel a hard, wrinkled cord, which indicates the precise situation of the crack. Such, gentlemen, are the ordinary symptoms of fissure of the anus; severe burning pain at the moment of going to stool; narrow, elongated and superficial ulceration at the edge of the anus; and violent contraction of the sphincter muscle.

*Progress of the disease.*—Fissure of the anus does not present all the symptoms now enumerated, from its commencement; it begins with very slight pain, or itching; tickling feel or creeping sensation, with heat after each stool. These symptoms may continue for six months, or even a year, before they become

sufficiently severe to excite much attention. In other cases, the disease will acquire its greatest degree of intensity in a few weeks, or may be very severe from the commencement. You are not, either, to imagine that the series of symptoms already described will present itself in every case; many patients feel no pain whatever; others (and the patient on whom I am about to operate is of this class) suffer severe and almost constant pain. Our patient has a long fissure, with grayish, irregular, and granulated base, resting on indurated cellular tissue. She suffers much from burning pain whenever she goes to stool; the anus contracts violently, and it is with the utmost difficulty that we can introduce a canula, or even the tip of the little finger. You should therefore remember that Boyer's description of fissure of the anus is merely a general one, and that several varieties may present themselves to us, in which the symptoms described by Boyer do not exist, and to which the treatment recommended by him would be inapplicable.

*Treatment.*—Some cases of painful fissure may get well of their own accord. I knew a medical student who laboured under this disease for seven or eight years, and then recovered without operation or any treatment. A few days ago I saw a patient in town who equally got well without treatment, after three or four years. However, patients are in general very anxious to adopt some means of relieving their sufferings, and removing the unpleasant disease under which they labour. This may be effected with or without operation. Several ointments have been employed for this purpose. Boyer obtained a cure in one case by throwing into the rectum two or three spoonfuls per day of an injection composed of hog's lard, walnut juice, sorrel juice, and almond oil, of each four ounces; but here the fissure was attended with slight contraction of the sphincter.

M. Descudé informs us that we can cure the disease with large doses of the oleum hyosciami, and topical applications of mercurial ointment. Some surgeons speak highly of *douches* of cold water, of decoctions of chœrophyllum or poppy heads, &c. In a few cases I have succeeded with white precipitate ointment. Dupuytren employed with excellent effect, the following ointment, introduced into the anus by means of a tent: extract of belladonna, two drachms; lard, two ounces; honey, two ounces. More recently some practitioners have spoken in very favourable terms of *monesia*, and one or two cases of cure by this remedy have been cited; but I fear that it will soon meet with the fate of most of our new remedies, which flourish for a time and are heard of no more. When the above mentioned means have been tried (and we must often try them to satisfy our patients) without success, we must have recourse to one of the following, viz., cauterization, dilatation, division of the sphincter muscle, or excision of the fissure. The disease is sometimes cured in the most satisfactory manner by running a stick of nitrate of silver over the whole surface of the fissure. Beclard pretends that he never failed in this way; but other surgeons have not met with the same success; I have tried it myself in many cases without obtaining any benefit, and think that the cases which presented themselves to Beclard, must have been slight, and unaccompanied with contraction of the sphincter muscle; besides, Beclard employed dilatation at the same time. Cauterization can only cure fissure of the anus by modifying the ulcerated surface, and transforming it into a simple wound, which heals like common solutions of continuity. In this way we explain the success obtained by Guy de Chauliac, and Dionis, who cauterized or scarified the ulcers, and by Guerin, &c., who applied the actual cautery, or irritated the surface of the sore with the nail, &c.

*Dilatation*, by the introduction of tents of lint gradually enlarged, into the rectum, has often been attended with the best effects in the hands of Beclard, Dubois, Marjolin, and others. I have employed this mode of treatment with success in some cases, but it is often tedious and painful. In order to shorten the period of pain and diminish its violence, we should employ the largest tents that we can introduce into the rectum. The pain is at first very severe, but as soon as we get to the fourth or fifth tent it is much mitigated; the tents may be

covered with any of the ointments which I have already mentioned to you. However, I should remark that the composition of the ointment does not seem to have any effect whatever. I have tried them all, and afterwards common cerate, and found the latter to answer as well. Dilatation then is the chief element of cure in such cases, and I believe that considerable success would attend its use if we could induce our patients to resist the pain which it, in the first instance, always occasions.

*Incision* of the sphincter ani was proposed by Boyer, and recommended by him as the best, indeed the only mode of treating fissure of the anus; his practice has been followed by most of our surgeons up to the present day. Boyer regards this method as infallible, yet several practitioners mention cases in which it has failed. He was naturally led to advocate this mode of practice, because he believed that contraction of the sphincter ani was the chief cause of fissure.

The preparatory steps of this operation are exactly the same as those for fistula in ano. The lower intestines are to be emptied by means of a lavement, or some mild purgative, in order to ensure quietude for some time after the operation. The instruments employed are a straight, probe-pointed bistoury; a common bistoury; a large tent; a T bandage, and all the minor accessories. The patient is placed on the edge of a bed, with the head low, the under limb extended, the upper one flexed, and the buttocks kept widely apart by assistants. The surgeon now introduces the index finger of his left hand into the rectum, guides along it the flat side of his probe-pointed bistoury, and divides the sphincter. Should the fissure occupy the median line in front, he must not cut upwards, for fear of injuring the urethra or vagina. Boyer thought it sufficient to divide the sphincter at any point, without caring where the fissure may be; but I am of opinion that you will do well to pass the blade of the knife through the fissure at the same time that you divide the muscle. When this has been accomplished, you continue the incision upwards and downwards for an inch or two, so as to cut through the whole thickness of the sphincter. A single incision is usually sufficient; but if there be several fissures, or if excessive contraction of the sphincter be present, then we must make a second incision on the opposite side of the anus. When the edges of the fissure are rounded off, hard, and thickened, we seize them with a forceps, and remove the hardened portions either with the knife or scissors.

The dressing is very simple. A tent of lint covered with cerate is placed between the lips of the wound, but its upper extremity must reach about an inch beyond the superior angle of the incision. The space between the buttocks is then filled with lint, and the whole supported with a T bandage. The tent must be supplied every day until cicatrization takes place. I have said nothing of the occurrence of hemorrhage, for it is almost impossible that any such accident should happen; but were it to arrive, you must have recourse to the usual means of arresting it, with which you are all familiar.

Such, gentlemen, are the methods of treatment generally employed for the cure of fissure of the anus; cauterization, dilatation, incision. The latter treatment is successful in a vast majority of cases; but as some modern practitioners have insisted on the point, that constriction of the anus is the effect, not the cause of fissure, their opinions have produced some new ideas relative to the treatment of this affection. Upon the principles of these gentlemen, I have practised excision of the fissure instead of dividing the sphincter muscle. This operation had been highly spoken of by Mothe and Guérin; I had mentioned it myself in 1832, and some of my operations were published in 1836. The following is the method which I adopted. The patient is placed in the same position as for incision of the sphincter; the point of the border of the anus occupied by the fissure is then seized with a hook, and a couple of strokes of the bistoury on the right and left complete the excision of the fissured part. Sometimes I employed the scissors to remove it, but always avoided cutting the muscular tissue underneath. The operation is soon over, and unattended with pain; I have performed it eight or ten times at least, and have almost always succeeded

in curing the patient. In one or two failures I was unable to find out whether the want of success depended on my not having cut out all the diseased structure, or on some other cause. I believe that when the complaint is of long standing, we should divide the sphincter, and at the same time remove the ulceration; that is to say, combine incision and excision together. I shall do this in the case we are about to operate on. The disease here has existed for several years; the ulcer is large, with a grayish, lardaceous base; and it is very probable that simple incision of the muscle would fail to effect a cure. You may ask me, perhaps, why I employ excision, and do not remain content with division of the muscle, a mode of treatment which has been sanctioned by experience. My reasons are the following. Division of the sphincter is an easy and quick operation, and attended almost certainly with success; but it compels us to cut through the deeper-seated tissues beyond the muscle. The wound which results always suppurates for some time, and may occasion dangerous accidents. The inflammation and formation of matter may extend to the pelvis, and compromise the patient's life. I have seen two cases in which the patients died after a division of the sphincter for fissure of the anus. The operation of excision is entirely free from this danger, because the cellular tissue beyond the sphincter is not touched. The resulting inflammation is very slight, and the wound requires to be dressed for three or four days only. Finally, it is an operation much more simple than division, and one which we should always prefer in recent cases; but when the disease is of long standing, and the contraction of the sphincter violent, we should combine the two operations, so as to ensure success in the most obstinate cases.—*Provincial Med. and Surg. Journal*, April 3, 1841.

30. *Case of Dislocation of the Cervical Vertebræ cured.* By Dr. Schuk, of Vienna.—A man, 24 years of age, whilst engaged at his work on the 5th of December, 1838, twisted his head suddenly round, in consequence of one of his companions roaring into his ear, when he instantly felt something give way in his neck, and found it impossible to move his head. Next morning, when he applied for assistance, his face was swollen, his head turned to the right, and bent down towards the shoulder. His neck was slightly arched on the left side, but hollowed out on the right. He complained of pain, which was augmented on pressure over the seat of the third, fourth, and fifth cervical vertebræ, and he was unable to move the head in any direction; every attempt to do so gave pain. The direction of the spinous processes of these vertebræ could not be accurately ascertained. He complained of weakness of the right arm, and could only raise it with great effort. The other functions of the body appeared to be natural. It was thus apparent that partial dislocation of some of the cervical vertebræ existed, and some attempts were made to reduce it by drawing the head directly upwards, the trunk of the body being held fixed; these, however, failed, but they gave no pain.

On the 7th of December, the weakness and numbness of the right arm were greater. New efforts were therefore made to effect the reduction of the dislocation. The patient was laid in the horizontal posture, the shoulders were held fixed by means of folded sheets, whilst a towel was passed under the chin, in order to allow of a greater force being used for the extension; an assistant supported the occiput with both his hands. Extension was then made and gradually augmented, till the patient and assistant felt a snap as of two bones meeting. The extension was then gently relaxed, when it was found that the head was restored to its normal position, and the power of moving it was restored. The weakness of the limb, however, remained, and was even worse next day. On the 9th, he complained of vertigo and starting during his sleep, and his pulse was quick. For this he was bled to a considerable extent, which induced fainting and convulsions. He passed, however, a good night, and next day his pulse was nearly natural, the vertigo was gone, and he had partially regained the use of the right arm. He left the hospital cured on the 13th.—*Ed. Med. and Surg. Journ.*, from *Medizinische Jahrbuch des Osterreichischen Staates*, vol. xxx, 1840,

31. *On the Auscultatory Phenomena in externally situated Aneurisms, and on the difference between an independent and a communicated pulsation in Tumours.* By Dr. Schuk, of Vienna. When the stethoscope is placed over an aneurismal sac, or over a diffused aneurism, one perceives a very loud uninterrupted bellows-sound increasing with each pulsation. It is the more marked the more powerful the action of the heart is; the nearer the aneurism is to the heart, the rougher the wall of the artery turned towards the blood is, and the easier the blood contained in the aneurismal cavity can be put into eddying and vibratory motions by the wave of blood passing through it. The last circumstance explains why, in enormously large aneurisms with but few layers of coagulum, as well as in those of which the sac contains scarcely anything but layers of coagulated lymph, the bellows-sound is proportionally weak. In the first of these cases the quantity of fluid is too great for all its parts to be put into strong vibration by the current of blood; and, in the second, the quantity of fluid put in motion is small, and the layers of lymph, laid one over the other, hinder, in some measure, the conduction of the sound.

When the blowing is remarkably loud, it is observable that the note of the murmur is not equally high throughout; but that at the beginning of the diastole of the artery it appears higher, and thence decreases remarkably till the next diastole.

This murmur extends for a considerable distance both towards the heart and even somewhat further towards the distal portion of the artery, and becomes weaker as it is examined at a greater distance from the aneurism.

The causes of the murmur are, first, the friction of the current of blood on the rough walls of the aneurism, or the fibrine, or on the edges of the orifice of communication between the artery and the aneurismal pouch; second, the vibration or eddying motion of the fluid blood contained in the aneurism, excited by the current of blood passing through it.

In a varicose aneurism the auscultatory signs are heard in the most striking manner. I had not long since two opportunities of observing this condition; in both it resulted from unfortunate venesection at the bend of the elbow. In these cases the murmur, by its intensity, becomes a whizzing sound, and the equality of the strength, as well as of the note of the sound at the different movements of the motion of the blood, is very remarkable. These phenomena are already distinct at a period of the disease when, from its short duration, but little dilatation of the wounded vein has taken place, and they are, therefore, of essential use in facilitating and supporting the diagnosis. The loudest sound is heard at that part at which the purring can be most distinctly felt with the finger; that is, where the arterial current excites the vibrations of the venous blood. With the distance from this part, the sound gradually decreases in loudness, and at last merges into a bellows-sound, which is audible only during the diastole of the artery, and which is recognized on whatever part of the limb the stethoscope is placed, as well at the shoulder-joint as at the dorsal and palmar surfaces of the hand.

The phenomena just mentioned are of themselves, and for their own sakes, interesting, and they increase the probability of the diagnosis of aneurisms of all kinds. But their practical value appears especially evident in reference to the fact, that by their means one may distinguish an independently pulsating tumour, *i. e.*, an aneurism, from one to which pulsation is only communicated. In all works on surgery we constantly meet with expressions of regret that it is in many cases so difficult to determine whether a tumour which has the symptoms of both a visible and a sensible pulsation is an aneurism, or whether the motion is only communicated to a morbid growth by the artery running under it. If the tumour can be pushed aside, and if, when its position is changed, the pulsation ceases because the artery now no longer runs under it, one may be quite sure there is no aneurism. But this cannot always be done, and in such a case, doubt, as to nature of the disease, must sometimes exist in the mind even of an experienced surgeon.

If by pressing it with the finger we lessen the calibre of an artery, for instance the external iliac, to a certain extent, and sufficiently for the finger to perceive the sensation of purring, we may hear *a blowing sound at the moment of the pul-*

*sation*, along the whole course of the femoral artery down to the knee, but which, though evident and easily recognized, is yet far weaker than in an aneurism. It bears the greatest resemblance to what is called the placental murmur in pregnant woman, only it is for the most part of short continuance, and limited to the moment of the arterial diastole. The phenomena that are thus artificially produced not unfrequently occur naturally in consequence of the pressure of tumors or morbid products on the arteries. If the pressure is too considerable, or too slight, no blowing is produced; in the former circumstance, because the arterial walls are brought into contact, and the circulation is prevented at that part; in the latter, because the slight pressure is not sufficient to give rise to such an obstruction of the blood as to produce a murmur of the increased friction between the blood and the arterial wall. Large thyroid glands, comprising, in some measure, the carotid, afford the most frequent opportunities of testing the truth of these observations. The blowing becomes in the same proportion weaker, and at last entirely ceases as the gland gradually diminishes in size under the use of remedies. This short consideration of the matter, therefore, warrants the following conclusion;—a tumor which pulsates synchronously with the adjacent artery may be considered to be an aneurism when the murmur heard with the stethoscope is loud, uninterrupted, loudest and often highest in its note at the commencement of the diastole of the artery, and gradually from that point of time decreasing in intensity; but the pulsation is only one communicated from a subjacent artery when the murmur is either altogether absent, or, if present, is heard only at the moment of the pulsation.—*Lond. Med. Gaz.* Dec. 1840, from *Med. Jahrb. des Orsterreitchischen Staates, B.* xxi. *S.* 3.

32. *On Pneumonia in connection with, or as a consequence of, Surgical Operations and Injuries.*—In the *London Medical Gazette* for February last, there are some interesting remarks on this subject, by Mr. J. E. Erichsen. From a table which he gives of 41 deaths, occurring from various injuries and diseases in the surgical wards of University College Hospital (in which an account of the state of the lungs was kept), these viscera were found in twenty-three cases to be in the first or second stages of pneumonia. Of the remaining eighteen cases, the lungs, with the exception of a few cases in which scattered tubercles were found, were healthy in ten; and of the eight cases in which there was disease of the lungs, but no pneumonia, bronchitis was found in four; œdema of the inferior posterior part of both lungs in one; vomicæ from tubercles in another; and of the remaining two, the lungs were emphysematous in one case; and gorged with fluid blood, the patient only living six hours, in the other.

Of the twenty-three instances in which pneumonia was found, that disease had advanced to hepatization in eleven cases; the remaining twelve being in a state of congestive pneumonia in the first stage of the disease.

That the depressing circumstances which attend confinement in a hospital, together with the recumbent position, have some effect in predisposing to this disease, is shown by the fact, that of the 18 cases in which no pneumonia was found, 11 died before the 3d day after admission, viz. 4 on the 1st day, 2 on the 2d day, and 5 on the 3d day. Of the remaining 7, 1 died on the 5th day, another on the 14th, and 4 at periods varying from one month to two months and a half. Of these last 4, one died of phthisis after amputation of the leg, and two of the others were not confined to a recumbent position until a very short time before death; one, in fact, with sloughing ulcer of the neck, and sloughing ulcer over the trochanter, died in her chair.

On the other hand, of the 23 cases in which pneumonia was found, only one died before the 3d day, and that was an old bed-ridden woman, moribund on admission; 4 died on the 4th day, 2 on the 5th day, 6 between the 8th and 14th days, and 9 between the 16th day and 6th week. In all the cases in which the congestive pneumonia was found, the patient was, from the nature of his injury or disease, required to be kept in the recumbent position; and this, no doubt, together with other causes already mentioned, must have disposed him, Mr. E. thinks, to the occurrence of the disease, by giving rise to congestion of the lungs.

"Inflammation of the lungs, occurring in a person already suffering from a severe injury or a capital operation, is of course a complication greatly to be dreaded, and one which, it has been shown, is much more frequent than is usually believed. It is a complication against which it is necessary to guard as strictly as possible, both on account of it being of a very dangerous nature, and of it assuming very frequently a latent character; that is to say, the rational symptoms are in a great measure, or altogether wanting, and the presence of the disease can only be ascertained with certainty by a carefully conducted physical examination of the chest, which, as it is the posterior part of the lung that is almost constantly affected, it is extremely difficult to institute in the great majority of surgical cases; as it must be obvious to every one that it would be extremely injurious to place a patient suffering from a severe injury, or one who has lately undergone a capital operation, in such a position as would enable us to examine the posterior part of his chest with care. When this can be done, however, we find the same physical signs that occur in typhoid pneumonia, namely, dulness on percussion, with sibilous or bronchial respiration. The crepitation is not so well marked in this as it is in the more active forms of the disease. Sometimes it is entirely absent, and when present it only exists for a short time, and is, as Dr. Hudson observes to be the case in typhoid pneumonia, quickly lost by the accumulation of blood in the surrounding vessels compressing the air cells. As the latency of this disease is usually increased by the low condition of the patient, or by the existence of some severe injury which may chiefly attract the surgeon's attention, it behoves him to watch with the utmost care any appearance, however slight, of the supervention of a chest affection. He must not wait for the marked symptoms of active acute pneumonia to show themselves; but if the respiration be at all hurried and short, if there be any dyspnœa, lividity of the lips, or occasional slight cough, although there be no expectoration, no pain, and little or no pyrexia, he should immediately be on his guard, and, if possible, examine the chest with his ear, to ascertain if there be any of the well-marked and easily recognized signs of pneumonia present; and, if so, have recourse to as active a mode of treatment as the circumstances of the case will warrant.

"The knowledge of this tendency in severe injuries and operations to give rise to pneumonia, should always make us cautious in using the knife whilst there is any disposition in the patient to disease of the lungs, and should teach us the necessity, after operating, of guarding most carefully against those circumstances which are, in health even, exciting causes of inflammation of these organs, and which will act with increased vigour on a constitution already lowered by irritation. On this account it would be prudent to defer operations during very severe weather, or during the prevalence of an epidemic pneumonia."

33. *Operation for the cure of Stammering.*—The greatest novelties in surgery, which the Foreign Journals for the last three months present us, are the operations for the cure of stammering. Of these we shall give a full account, not that we believe that they will accomplish all that is claimed for them, but in the performance of our duty to keep our readers informed of what is doing.

*Operation of Dieffenbach.*—"The idea lately suggested itself to me," says the celebrated Berlin Professor, "that an incision carried completely through the root of the tongue might *possibly* be useful," in relieving stuttering which had resisted other means of cure, "by producing an alteration in the condition of the nervous influences, allaying spasm of the chordee vocales, &c.," and on this slender *possibility*, based on a most vague notion, it is not worthy of being termed a theory, he proceeded at once boldly to divide completely the root of the tongue.

Three modes of operating are described by Dieffenbach as tried by him to accomplish this object. "1st. The transverse horizontal division of the root of the tongue. 2d. The subcutaneous transverse division, in which the mucous covering of the tongue is left inviolate. 3d. The horizontal division, with excision of a wedge-shaped portion."

The first seems to have "*failed*," the second only "*ameliorated*" a high degree of stuttering, but the third we are told was attended with "brilliant success."

"The first operation I performed," says Prof. D., "on the 7th Jan., 1841. I chose for this case the method by which a wedge-shaped portion is removed from the posterior part of the tongue; for, as I have remarked, I felt more confidence in this than in the other methods.

"Frederick Doenau, a highly intelligent and talented boy of thirteen years of age, had stuttered from his earliest childhood, and to so painful an extent, that the defect was thought to be quite incurable. It varied, however, much in degree: when at the worst, he was unable even to produce a sound. He stuttered in Latin and French, as well as in his own language—sometimes on one set of words, and sometimes on others. The pronunciation of the sibilant letters (s, z, ss,) and of the palatals hard (g, k, ch, and x,) was attended with particular difficulty; and he made no distinction between the hard sounds, p, t, k, and the soft ones, b, d g, (German). He repeated the same letter often four times running; and when he whispered, he stuttered as much as when he spoke loud or shouted; often he could either not speak at all, or produced only half articulate sounds. The presence of a stranger invariably affected him in a manner most painful to behold. His face became distorted; the alæ of the nose worked convulsively; his lips moved quiveringly up and down; his eyelids were expanded into a wild and eager stare; the tongue was now stiff, now played convulsively within the mouth; and the muscles of the throat, larynx, and trachea were sympathetically affected. Thus, after terrible efforts, the boy gave utterance to a mangled and imperfect word;—now for a time was his speech free, and words chased one another with incredible velocity, till confusion ensued amidst the thronging sounds; and the same painful scene was thus again and again renewed. The peculiar physical horror which constitutes a stutterer, and which is excited by the effort to speak, is very similar to that which gives rise to the excitement and spasm of the hydrophobic patient at the sight of water. This internal movement might, on that account, be called phonophobia.

"The boy's mother caught eagerly at my offer to make an effort to cure him; accordingly, with the assistance of Drs. Holthoff and Hildebrandt, the operation was performed as follows: The boy sat with his head leaned against the breast of an assistant; the tongue being protruded as far as possible, was grasped on its anterior half with the forceps of Müzeux thus compressed laterally, and drawn forward by one assistant. The gentleman against whose breast the boy's head rested, retracted the angles of the mouth with a pair of blunt hooks. Grasping now the tongue as near to its root as possible, between the thumb and forefinger of the left hand, I passed the bistoury through it, and divided it completely from below upwards; a strong ligature passed through the posterior edge of the wound, served to fix it temporarily, and prevent too great a strain upon the slender band which alone connected the mass of the tongue to it; the anterior lip of the incision was now grasped, and laterally compressed between the modified hare-lip forceps, and a wedge-shaped slice excised out of the whole thickness of the tongue. It will be found more convenient to make this second incision from above downward, and with a small straight knife. The posterior edge of the wound was now, by means of the before-mentioned ligature, and a sharp double hook, drawn so far forwards that the needles with the ligatures could be conveniently passed through it; six strong sutures served to bring the edges of the wound together, and to restrain the hæmorrhage. To effect the latter object, they must include the whole depth of the wound within their loop. That the hæmorrhage was considerable, may be imagined from the nature of the operation, which should not be attempted by all persons indiscriminately. As soon as the boy's mouth was washed out, I desired him to pronounce some of those words which he had before found especially difficult; he did so without stuttering or hesitation. The distortion of the face, however, continued; the patient was put to bed, and a cooling plan of treatment ordered. With the exception of a slight sympathetic febrile disturbance, the swelling of the tongue, that one might anticipate, and the consequent impeded deglutition, nothing remains to be noticed,

so far as regards his recovery from the operation itself. His features, and his mouth especially, were still much distorted when he spoke, but the stutter had entirely ceased. On the fifth day I removed three of the sutures; during the next twenty-four hours the swelling of the tongue had visibly decreased, and I then removed the three remaining sutures. On the seventh day the wound was completely healed, the back part of the tongue alone was very inconsiderably swelled, and the boy quite re-established. At this present time, not the slightest trace of stuttering remains, not the slightest vibration of the muscles of the face, not the most inconsiderable play of the lips. His speech is throughout clear, well-toned, even, and flowing. Neither inward emotions nor unexpected external impressions, produce the slightest hesitation; he can speak, read, and entertain himself indifferently with friends or strangers.

"The total number of stutterers that I have relieved up to this time is sixteen, and those who are as yet under treatment appear to promise equally favourable results."*

The inventor of this operation thus characterises it: "It can never be performed by one who has not the temperament of an operator: the hæmorrhage must hold all others at a respectable distance. The extent and importance of the operation, the possible danger to life, or loss of the tongue either through the want of skill in the assistants, who may tear it off when so nearly separated, or through mortification or ulceration of its connecting isthmus. These are contingencies rationally to be feared, and which must be carefully weighed beforehand." We commend this to the consideration not only of the surgeon, but most earnestly also to the unfortunate subjects of the operation.

Notwithstanding the eminently dangerous nature of this operation,† several of the most distinguished surgeons of Paris have hastened to execute it, and seem now to be contending who shall perform it most frequently and boast most loudly of their success. Amussat, Velpeau, Roux, Bonnet, have all entertained the French Academy with accounts of their wonderful success, and some even contest with M. Dieffenbach the merit of having "first had an idea of this operation."

At the meeting of the Academy of Surgeons on the 8th of March, Mr. Amussat stated that he had operated upon 21 stammerers.‡

M. Bonnet, of Lyons, has also tried the effects of this operation on five patients; the three first were relieved; the two last were *immediately* and *perfectly* cured, although affected with stammering in the very highest degree. M. Bonnet divides the genio-glossi muscles by a subcutaneous incision beneath the skin, and not by cutting the mucous membrane near the frænum linguæ, as practised by M. Amussat, Mr. Lucas and other surgeons. A very small incision is made on the median line, about an inch or an inch and a half below the chin; through this is introduced a blunt-pointed tenotome, which is directed from below upwards, and a little forwards. The blade is directed towards the jaw-bone, and when the point has reached the mucous lining of the mouth, (a fact easily determined by the finger introduced into the mouth,) the process from which the muscles arise is felt for; the blade of the instrument is now carried to the right and left, against the upper part of the inner surface of the jaw, and in this way the origins of the genio-glossi muscles are divided, while the genio-hyoid muscles are avoided. By this method we divide the aponeurotic attachments of the muscles; avoid the cellular layer which is close to them, together with the sub-

* Memoir of the Radical cure of Stuttering by a surgical operation. By J. F. Dieffenbach. Translated by Joseph Travers. London, 1841.

† It is said to have been fatal in one of Dieffenbach's cases, that of a young man who was dismissed seemingly cured. Owing to the irritation caused by the cicatrix, this patient commenced picking his tongue; hæmorrhage came on, which proved so alarming that Dieffenbach was sent for, but so much blood had been lost that the man sank.—*Provincial Med. and Surg. Jour.*, May 15th, 1841.

‡ Gazette Méd de Paris, March 13, 1841. In a more recent communication he stated that he has operated upon 33 patients.

lingual arteries, and the wound made is so insignificant, that the patient can speak and walk about his business on the following day. The first patient who was completely cured, 14 years of age, was afflicted with a very high degree of impediment. While M. Bonnet was withdrawing the instrument, he exclaimed, "Thank you, sir," with the utmost precision, and on the following day presented no trace whatever of the defect. In another case the results were equally fortunate, but in the three first patients operated on, the same success did not attend division of the genio-glossi muscles; the impediment of speech was more or less relieved, but not completely cured. M. Bonnet inquires whence this difference of result, but is unable to account for it.*

Dr. Phillips, of Liege, has also performed the operation, and he says with success.†

*Mr. Lucas's operation.*—Mr. Lucas, of London, having learned from a newspaper article that Professor Dieffenbach had cured stammering by dividing some of the muscles of the tongue, immediately hastened to put into practice "some views, which the newspaper account alluded to," led him to adopt for the cure of stammering. This operation had for its object the division and partly removal of those muscles which oppose the free elevation of the tip of the tongue to the superior alveolar arches. He has performed it, he states, in 18 cases, of which 4 were not in any way benefited, 3 were cured, and 5 considerably relieved.

The operation which Mr. Lucas performs, is as follows:—

"The patient being seated before a strong light, and his head resting against the breast of an assistant, I make him open his mouth fully, and elevate his tongue, which movement puts the frænum linguæ upon the stretch. In most instances the patient can keep his tongue for a sufficient time in this position to enable the operator to accomplish the object intended; but if he should not be able to do so—if the tongue be unsteady, as it sometimes is—the assistant who supports the head can readily keep the organ elevated and steady with his finger, having first covered them with a napkin. I next seize the frænum with a common dissecting forceps, held in my left hand, and with a pair of sharp-pointed scissors I divide this membrane across, and also the mucous membrane laterally and vertically. After this is accomplished, the borders of the genio-hyoglossi muscles, often without any more dissecting, are brought into view; but in other instances it has occurred that a fascia and cellular tissue intervened between them and the frænum, so as to render this part of the operation more difficult, not only on account of the other parts which require to be divided, but also on account of the depth of the muscles from the surface. At this part of the operation there is often hemorrhage from some of the sub-lingual veins being divided, but never more than to the amount of a small spoonful, and the flow of saliva also from the Whartonian ducts is considerable. At other times there have not been more than a few drops of blood. If the hemorrhage should obscure the further steps of the operation, the patient should wash his mouth with cold water two or three times, when it soon ceases. When the free borders of the muscles are brought into view, I seize them with the same forceps that was used for grasping the frænum, and I cut a triangular portion out of each with the sharp-pointed scissors. The reason I prefer the latter to be sharp-pointed is, that I am enabled to see better what I am about. The quantity of muscle I remove depends upon circumstances. After having removed the quantity apparently necessary for the free and perfect elevation of the tongue, I place the point of my forefinger in the wound, and if any parts become tense when the tongue is being raised, I free the organ from their influence. The proximity of the ranine arteries, the large sublingual veins, and considerable branches of the sublingual and gustatory nerves, makes it necessary to observe caution in the excision of the muscles. The only evidence of injury done to any of these parts in the operations I have performed was a tingling pain shoot-

* Provincial Medical and Surgical Journal, April 10, 1841.

† Du Bégaiement, &c. Paris, 1841.

ing from the seat of the operation to the base of one, and sometimes to those of both. This sensation, however, subsided in a few minutes. In a few days the wound is completely healed, and in general no trace of the frænum linguæ is left."*

*Mr. Yearsley's operation.*—Whilst Dieffenbach was devising a surgical means for the cure of stammering, Mr. Yearsley of London and Mr. Braid of Manchester were prosecuting the same subject. Mr. Yearsley's operation is, however, a very different one from that of the Berlin Professor, and founded on different views as to the cause of the defect.

"In the practice of my department of the profession, says Mr. Y., it has been usual with me to explore the condition of the mouth and pharynx in every case of deafness committed to my care. I have thus discovered that a large number of patients suffering from deafness are affected with enlargement of the tonsils and uvula, and an irritable condition of their investing membrane and the pharynx generally. It has been my constant practice, when I have considered these states at all contributing to the imperfection in hearing, to remove either the tonsils or the uvula, or portions of both, according to the nature of the case, with the most marked and immediate benefit, as far as the hearing may have been concerned. In December last it occurred to me to operate in this manner on two patients. They were, at the time of treatment, so deaf, that I did not then address my questions particularly to them, but to their parents, so that I was unaware of any impediment to speech in these instances. Some time after, as the cure of deafness advanced, I learned from the parents that both children had been stammerers from infancy, and, as much to my surprise as gratification, that the cure of stammering had ensued immediately on the excision of the tonsils. At the time at which I write, the subject of both these cases remain free from any impediment, though their stammering previously to the operation is represented to me as having been very decided. I had before this remarked that persons with enlarged tonsils were affected with thick and imperfect speech, for which I had often, during the last year, practised excision with the happiest effect, in restoring the voice to its original clearness. Since the cases above mentioned, I have operated on upwards of forty persons, all of whom have immediately felt themselves relieved of their impediment. Many have seemed wild with joy, or have shed tears of pleasure, at the instantaneous restoration they have enjoyed. After the operation, the difficulty of speech which remains is referred by the patient to the lips; they express themselves entirely free from the original difficulty. Something must be allowed for the long misuse of the organ of voice, and the existence of habit, in rendering the voice less perfect than in the natural state. In fact, after their relief, patients have yet to learn the proper use of the vocal apparatus.

"I have performed the operation by means of a scalpel, tenaculum, and scissors, without any serious hæmorrhage, and with a small amount of pain, which has appeared somewhat greater in the case of the uvula than the tonsils.

"In reflecting upon the subject, the explanation I have at present to offer is, that to produce stammering, the dorsum linguæ, the palatine arches, velum palati, and uvula, approximate together so completely, and perhaps irregularly, as to leave no room for the expulsion of air from the larynx. In a person who stammers, no air issues from the mouth during the abortive effort to speak; but it does so as soon as the patient is relieved from this state, so as to produce sound. The most violent contractions of the abdominal muscles can be seen attempting to force up the diaphragm and expel the air; sometimes all the respiratory muscles, and even those of the body generally, are thrown into violent spasmodic action, as the individual grasps some near object to assist the expulsive effort. In some cases, when there is nothing abnormal about the tonsils or uvula, I find a great congenital narrowing of the entrance from the mouth to the pharynx."†

*Mr. Braid's operation.*—Mr. Braid's notion as to the cause of stammering, and

* Provincial Medical and Surgical Journal, April 3, 1841.
† London Medical Gazette, March 12, 1841.

his mode of cure are very nearly the same as that of Mr. Yearsley. "My attention was first drawn to this subject particularly," Mr. Braid observes, "from several patients, who were severely affected with this malady, applying to me. Up to that time I had considered it to be a nervous affection, or an acquired habit, to be overcome by constitutional treatment, and particular attention in the use of the vocal organs. Amongst the number of patients who daily consulted me, I had found so many other complaints, generally considered incurable, to be amenable to surgical treatment, that the idea occurred to me that stammering might possibly arise from some physical defect, and be capable of being relieved by surgical operation; and I therefore directed my attention to the examination of these patients with this view. I very soon discovered that stammering was associated with a rigid state of the tongue in the majority of instances, which would naturally prevent the free and prompt action of the epiglottis required for permitting or restaining the passage of air through the glottis in the quantity necessary for a free and correct enunciation. The free division of the frænum appeared to me to be the most easy and natural mode of relieving this, and I operated accordingly. The effect of the operation was the instant removal of the complaint, and which, being so evident to a number of other patients who were present at the time, their report of this success induced others to apply to me, so that I have had two or three patients in succession undergoing the operation; and, of the scores of cases I have had, I think there have not been more than one or two which have not been benefited, whilst most have been entirely cured. Although division of the frænum will succeed in many cases, it will not in all, but may be rendered efficient in such cases by a farther division at the symphysis of the lower jaw. Other cases I found to depend on an obstruction to the free motion of the tongue, and especially to its permitting the free opening of the glottis; not from its being bridled down, but to its being pressed down by enlargement of the tonsils—a disease which I have known go so far as to cause not only stammering, but inability to articulate a single word distinctly, and at the same time producing deafness by pressing upon the eustachian tubes. All these defects I have found instantly to be removed by excision of the enlarged tonsil or tonsils. I had a most interesting case of this kind, which I operated upon on the 7th of October last, which remains perfectly well to this time. With the instrument I use for the purpose this can be done in patients of any age in a few seconds, with perfect safety and very little pain. Any other tumour, in such a situation, might produce similar effects, and therefore ought to be removed with the same view. It is quite delightful to witness the instant relief afforded by such operations. Patients who were not able to utter a single sentence distinctly, enabled to speak correctly, and with ease, instantaneously; and others, who were almost entirely deaf, instantly restored to the possession of the valuable sense of hearing. I was compelled to perform these operations sometimes surrounded by twenty or thirty patients, so that the accuracy of what is here stated is well known to hundreds who have witnessed them.

"I consider it an important fact to state that, in some cases from a distance, in which I had not an opportunity of watching the progress of the cure, and preventing the divided parts cicatrizing in their former contracted state, the stammering, which was completely removed by the operation, was about as bad as at first when the parts were so closed; but a redivision of these parts, and restoration of freedom to the tongue, had again the effect of immediately removing the malady; and by attention to guard against its closing in the contracted state, the cure has been permanent for the last five months, and therefore, it may be presumed, will now remain so for life. Stammering and coughing are occasionally associated with a relaxed or hypertrophied uvula, a portion of which I always excise in such cases. It may also arise from a relaxed state of the fauces, for which astrigent and stimulant gargles, blisters, and constitutional treatment, may be required. When it is a purely nervous affection I know nothing new to recommend in such cases."*

* London Medical Gazette, March 19, 1841.

For the division of the frænum linguæ, Mr. B. uses a pair of sharp-pointed knife edged scissors; and for the excision of the tonsils, Dr. Fahnestock's instrument.* Mr. B. it is right to say, claims the priority of this operation, he having first performed it in September last, whilst Mr. Yearsley's first operation was in December, and Dieffenbach's on the 7th January.

It is difficult to explain how the division of the frænum or the removal of a portion of the tonsils or uvula can cure stammering, and this difficulty becomes greater when we remember that enlargement of the tonsils, enlongation of the uvula and shortness of the frænum linguæ, often exist without the individuals thus affected, stammering. Nevertheless, we have the testimony of Dr. Marshall Hall, Mr. Mabyn, Mr. Downing and others, as to the success of some of Mr. Yearsley's operations.† Sufficient time has not yet elapsed however to determine whether the cures will be permanent, and we suspect, in the end, it will be found that the success is more seeming than real. It is manifest, moreover, that the operation of Mr. Dieffenbach and that of Mr. Yearsley cannot be applicable to the same description of cases, and yet neither of these operators attempt to point out the particular kinds of stammering to which their respective operations are applicable. Such being the state of the case, the performance of any of those operations is entirely empirical‡ and unworthy of a scientific surgeon, and that of M. Dieffenbach is so eminently dangerous, that we do not know whether an operator should not, in case of the death of his patient, be held responsible. These expressions may be considered strong, but the direction which surgery seems now taking, appears to call for it. Surgery is fast degenerating into the art of tendon cutting and removing deformities, and the highest ambition of some prominent surgeons seems to be, to exhibit to admiring crowds, individuals whose personal appearance has been embellished by their skill. All this, like the arts of inserting artificial teeth or making wooden legs, may be, and indeed are useful in their way, but Surgery has higher and nobler objects, and to these we wish to recall the attention of surgeons. We desire to have to record such triumphs of intellect and skill as would be the invention and performance of new operations for the removal of diseases now irremediable, and, above all, the devising of methods of cure for those numerous surgical affections which, to this day, are refractory to all treatment save those dreadful resources of surgery, *cautery* or the *knife*.

As regards the operations for stammering, the results thus far obtained are sufficiently striking to induce inquiries into the cause, or rather causes, for we are persuaded that they are numerous, of this defect. The pathology of the affection once fully elucidated, we may then proceed on safe grounds to adopt appropriate measures for the cure of its various forms.

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## OPTHALMOLOGY.

34. *Cure of Myopia by division of the muscles of the Eye.*—M. Jules Guerin, in a communication addressed to the French Academy, states that there are two forms of myopia, a mechanical and an optical. "The mechanical form depends on primitive shortness, or retraction of some two, three, or four of the recti muscles together, and in an equal degree. It often accompanies strabismus, and then depends on the fact, that only one of the muscles is affected, or some one

* London Medical Gazette, April 9, 1841.

† See Proceedings of Westminster Medical Society, in *Lancet*, March 27, 1841.

‡ The empirical character of the operation is shown by the result of Mr. Yearsley's cases. Mr. Alcock stated to the Westminster Medical Society, that he had seen many operations performed by Mr. Y., and that "in some of these no good result followed, but in others the operation was attended by marvellous improvement; in others there was some doubt as to whether any improvement had taken place; in others again, relief, but not a cure, followed."

in a greater degree than the rest. The characters of this species of myopia are furnished by the form of the globe of the eye, and by its movements. The anterior of the globe is conical, and the sides are flattened in the direction of the shortened muscle; the movements of both eyes are limited according to the number of muscles contracted, and their degree of shortening.

"The treatment of mechanical myopia consists in dividing the shortened muscles. M. Guérin has performed this operation on several occasions with success, both in cases of simple myopia, and in those complicated with strabismus. One of the most remarkable was a man, fifty years of age, affected with slight divergent strabismus, who had been dismissed from the army thirty years before, on account of his shortness of sight. He could read print with glasses No. 3; on the third day after the operation he could read newspaper print without any glasses at all. M. Guérin also mentions the case of a young man, whose mother and grandmother were short-sighted; before the operation he was unable to distinguish large characters at more than four inches and a half; but with spectacles No. 7 he read them freely. Three days after the division of the internal and external recti muscles in both eyes, he began to read without glasses the same print, and could distinguish objects at a distance of ten yards, which before he could not even see. On the ninth day after the operation he could read common print at a distance of eighteen inches, and large Roman capitals at a distance of three feet, but they seem to him smaller than before the operation. He can distinguish large objects clearly enough at a distance of a hundred yards, while the same objects became invisible with glasses No. 7 or 13.

"A knowledge of the immediate cause of mechanical myopia tends to prove that the eye adapts itself for the vision of close or distant objects, by contraction of the recti muscles; besides, this is proved by direct experiment. M. Guérin has submitted to the inspection of M. Arago, a young man, 28 years of age, in whom the advance and retreat of the globe of the eye, corresponding to short and long vision, were quite evident without the assistance of any instrument. Finally, from the preceding facts M. Guérin concludes that the lens does not undergo any change of form in long or short vision, as many writers assert, but merely changes its relations of distance to the retina and transparent cornea."

"M. Bonnet of Lyons has also conceived and executed the idea of treating myopia by division of one of the muscles of the eye. His first operation was performed on the 14th of February 1841. M. Bonnet, however, attributes the defect of vision to contraction of the oblique muscles, and not of the recti, as M. Guérin does. In one case, that a medical student, 22 years of age, M. Bonnet divided both inferior oblique muscles with the best effects; in two other cases of simple myopia, which had existed from infancy, the improvement was great, but a complete cure did not ensue. Finally, in two cases where myopia was complicated with some amaurotic symptoms, such as 'sparks' in the eyes, fixed look, &c., no benefit whatever was obtained; one case, indeed, seemed to have been much relieved during the two days, but afterwards relapsed to its former state."

[There must be, we conceive, some mistake in regard to the alleged result of the above operations of M. Guérin and Bonnet's, since such a result would be in opposition to theory and at least one carefully observed fact. If the division of the recti muscles alters the adjustment of the eye, the effect of such division would be to render the eye more myopic. For undue contraction of the recti muscles can influence the adjustment of the eye solely by flattening the globe, that is lessening its antero-posterior diameter, the effect of which would be to cause more or less presbyopia, or farsightedness. The division of these muscles, then, by removing this constriction, would lengthen the antero-posterior diameter of the globe, and of course produce more or less myopia or nearsightedness. Such a result is in exact accordance with what was observed by the editor of this Journal, in a case in which he divided the internal rectus muscle in a patient for the cure of squint. This gentleman, who before the operation was remarkably presbyopic, had this considerably diminished, i. e., there resulted an approach to presbyopia.

The results, as stated, of MM. Guérin and Bonnet's operations are irreconcilable with the above fact, and with the well determined theory of vision at different distances. Had the operation been proposed for the cure of the opposite condition to myopia, i. e. presbyopia, it would have been in accordance with theory, and a favourable result would have been better entitled to credence.

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35. *Partial Amaurosis cured by Division of the Recti Muscles.*—Mr. James J. Adams, of London, records in the *Provincial Medical and Surgical Journal*, (April 3, 1841,) the following case of amaurosis, in which a cure was effected by division of the external and internal recti muscles.

"Sarah Hicks, ætat. 22, an intelligent woman of delicate appearance, has light brown hair, and dark irides.—Catamenia regular and natural.

"Position of both eyes natural, and in appearance healthy, but the right eye is slightly smaller than the left.

"Pupils not more than ordinarily dilated; irides act freely and in union, when equally and simultaneously exposed to the light—but if the light be admitted to the eyes separately, the right iris, which is slightly irregular, will contract more slowly and less completely than the left.

"She states that when both her eyes are open she cannot work at her needle, or read, or view small objects for more than a few minutes, without much dimness and confusion of sight being produced, which compel her to rest her eyes. If the left eye alone be used, she does not suffer any inconvenience from the sight for several hours; but if the right be used by itself, dimness or mistiness, which is constant, exists to such a degree that she cannot see, in a strange place, to guide herself about. By the right eye she can distinguish faintly the bars of a window, but not the tassel cord which is attached to the blind; also, she can distinguish between the print and margin of a page, though she cannot read the largest printed letter. The mist before the right eye is *least* in a direction towards the *right inner canthus*.

"She is very subject to giddiness, and to pain over the right brow and temple; has experienced severe pain over the right side of the face and nose. The pains commence if she begin to read, work, or bustle about; and are generally worse in the morning, or at night, when candles are present. At some times, the dimness of sight and pains have been so slight that she has been enabled to work, during several hours, without inconvenience; at other times she has not been able to do a quarter of an hour's work, or even to follow her occupation as servant; for, if she attempted to exert herself, or to move quickly from place to place, giddiness, with pains about the head and eye would commence, which would become so intensely severe that she would almost be deprived of sight; indeed, on three different occasions she has found herself perfectly blind with both eyes for several hours; the sight afterwards gradually returned to its previous condition.

"The history of S. H.'s complaint is as follows; about two years since, while at needlework, she felt suddenly a mist or fog come over both her eyes, which, by closing the right eyelid, was removed; also, she felt, at the same time, a curious fluttering sensation in the right eye, which, to use her own words, resembled the jumping of a fly." The mistiness and sensation continued, and became so troublesome, that she was not only obliged to abandon all attempts at needlework, but to leave, for several days, her situation as servant; after which she returned to her place, but at the end of one month, again was compelled to quit her mistress for a longer period, on account of the recurrence of the giddiness, the headache, and confusion of vision. She then placed herself under medical treatment, to which during the last six months she attended, without any apparent benefit; her surgeon then advised her to quit London, and try the effect of her native air. While she continued in the country, she remained afflicted by so much pain and imperfection of vision, that she was not able to earn her living, or to do a day's work. Moreover, several medical men had seen her, and gave her so little hope of a recovery, that she had no prospect of again being able to support herself.

"Her medical treatment has been bloodletting, blistering, and probably mercury; on one occasion, she describes herself to have perceived with the right eye 'sparks and flashes of fire.'

"*March 1st*, 1841.—I divided the right internal rectus muscle, having previously separated, as completely as possible, all its cellular attachments to the globe; the immediate effects of which were, a slight abduction of the right eye beyond its natural central position, and a slight but decided improvement in the sight, the fog or mist being *less dense* in the direction of the *right external rectus*.

"*4th*. Sight very much improved; fog much lighter than it was soon after the operation; sees most distinctly towards the right external canthus; all objects appear clearer; can distinguish the tassel cord. Read, in the presence of myself and others, several sentences in large print; sees all objects double when both eyes are open.

"S. H. states that she read, on the day after the operation, the large printed title of a child's book by means of the right eye, the left being closed. Position of the left eye natural; right very much abducted.

"*12th*. Sight considerably improved since the last report. Read, in the presence of several professional friends, the large print of a public journal. Position of the right eye much altered, and is now nearly natural; the patient says, that three days since it came straight suddenly.

"*15th*. Sight still more improved. Read, in the presence of many gentlemen, a moderate sized print. Still sees double.

"The pains about the eye and brow have been, since the operation, much less; but she has had two or three attacks of general headache.

"I now proceeded to divide the right external rectus muscle, carefully separating its cellular connections.

"The immediate effects of this second operation were to render the position of the right eye perfectly central and corresponding with the left, to remove the double vision, and to cause the sight to become perfect, in a direction towards the right inner canthus, as it had been, previous to operation, towards the right external canthus.

"*20th*. Sight more extensive since the second operation; can see with the right eye as well towards the left hand as towards the right; can see to read the ordinary newspaper print.

"*24th*. Sight in the right eye slightly improved since last report; cannot yet read with it very small print; with *both* eyes open can read the smallest print or do fine needlework without pain, confusion of vision, or in fact any inconvenience."—*Provincial Med. and Surg. Journal*, April 3, 1841.

Mr. Adams claims to have been the first to have cured amaurosis by operation performed expressly for its cure. He does not, however, attempt to point out the modus operandi of the operation, or to point out the symptoms by which the cases suitable for it may be distinguished. Neither does he inform us whether any change was effected by the operation, in the adjustment of the eye.

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36. *Physiology of the Iris.*—Mr. W. P. Brodrieb relates, in the *London Medical Gazette* for May last, an interesting case illustrative of the physiology of the iris. The patient, a young man 30 years of age, is completely *amaurotic* in his *right eye*, so as not to be able to distinguish light from darkness; the pupil of the eye is, however, but slightly dilated, and the motions of the iris are not much impaired.

On the other hand, vision in the *left eye is uninjured*, whilst the pupil is widely dilated and the iris perfectly immovable. When light is admitted into this eye, its iris remaining fixed, the iris of the amaurotic one contracts.

The case is one of disease of the brain, and the patient labours under complete ptosis of the left eye, with paralysis of all the parts supplied by the third pair of nerves of this side.

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37. *Influence of Supra-orbital wounds in the production of amaurosis.*—Dr. F.

De Walther, after a full and impartial review of the recorded cases of amaurosis, said to be produced in consequence of wounds over the seat of the supra-orbital nerve, arrives at the conclusion, that injury of this nerve has nothing to do with the production of this affection, since the nerve is often divided without giving rise to amaurosis, and amaurosis has been produced when the nerve is left quite entire and unaltered. M. Walther endeavours to prove that the supra-orbital nerve has no direct communication with the optic nerve or the retina, and that its connection with the ciliary nerves is very indirect, being by means of the nasal nerve. Amaurosis, which occurs after a wound over the supra-orbital region, he therefore attributes either to some direct violence having been sustained by the organs within the orbit, as by concussion, or to an affection of the brain; he, however, admits that amaurosis may also be produced in consequence of inflammatory action being propagated from the supra-orbital wound to the retina or optic nerve, through means of the continuity of the tissues.—*Edin. Med. and Surg. Journal, from Jour. de Chirurgie und Augenheilkunde*, October 1840.

38. *On the action of the Oblique Muscles of the Eye.*—By A. W. Volkman.—In an admirable but little known treatise by Hueck of Dorpat, (on the rotation of the eye on its axis, Dorpat, 1838,) it is shown that the office of the oblique muscles is to turn the eye upon its axis, so as to render it possible for the rays of light from any object to fall on identical spots on the retina, even when the head is inclined downwards; a condition on which, as is well known, singleness of vision depends. The observations of Volkman fully confirm this view. In the dog, calf, and other animals experimented on, the axis round which the eye rotates is the visual axis itself, or at least its position is so little different from that of the latter, that when the oblique muscles act alone no motion of the pupil is discernible. In man a rotatory motion must also be produced by the action of the oblique; for since the muscles wind on the eyeball in the form of a semicircle, rotation is unavoidable. But in man the axis of this rotation is not coincident with the axis of vision. While in the calf the direction in which the oblique muscles act intersects the visual axis at a right angle—in man the intersection is at an acute angle. The inferior oblique arising from the lacrymal bone goes outwards and backwards, comes in contact with the eyeball at a point directly beneath the axis of rotation, and is then prolonged backwards and outwards, and after describing a semicircle, is attached to the outer and posterior part of the eyeball. The rotation which it produces will therefore have an axis, which may be considered as passing from the outermost part of the iris to the point of insertion of the optic nerve; in short, an axis which, instead of coinciding with the visual axis, cuts it, and passes across it from the front and externally backwards and inwards. The necessary consequence is that when the inferior oblique acts *alone*, the pupil describes a portion of an arc of a circle; and, supposing that the view just advanced is correct, it must turn round the outermost point of the iris (which remains unmoved,) and be thus carried in a curved line upwards and outwards.

Albinus held this opinion respecting the action of the inferior oblique, but Bell and, with him, many modern authors have thought differently. The inferior oblique they think must move the eyeball so as to carry the pupil upwards and inwards, in the direction in which it is carried in wincing, and in which it is fixed during sleep. These motions, when automatic, are ascribed by Bell to the inferior oblique, and not to the combined actions of the superior and internal recti, which preside over voluntary motions exclusively. But the proofs for this opinion are insufficient. Bell divided the superior rectus in a rabbit, and found that the pupil was still moved upwards when the eye was irritated; but this might have been affected by the upper fibres of the retractor bulbi, (as in cap. 6.) He divided also the oblique muscles in a monkey, and it remained capable of all the voluntary motions of the eye, but the pupil on that side on which the inferior oblique was divided was *scarcely distinctly* moved upwards in wincing. But a slight motion must require an organ for its performance not less than a

great one does; and Bell has therefore unintentionally proved that the motion of the pupil in wincing may depend on the recti. But, in fact, this motion is never produced by the inferior oblique; for, 1st, that muscle could only move the pupil upwards and *outwards;* 2d, its action must be connected with the axis-rotation of the eye of which no trace can be discerned in the act of wincing; 3d, the experiments already detailed prove that contractions of the inferior oblique are not connected with the twitching upwards of the pupil; 4th, that same twitching upwards continues after division of the inferior oblique. In short the position of the inferior oblique sufficiently indicates its action; it carries the pupil in the arc of a circle outwards and upwards.

In cases in which this rotation of the eye on its axis really takes places, it may be discerned in men as well as in animals, by a mode that Hueck pointed out. By fixing on a small vessel in the white of the eye, which (if possible) is directed transversely and horizontally across it, and then moving the head towards the shoulder, the vessel will be found not to alter its position; and it is therefore evident that the eye turns round in the direction opposite to that in which the head is inclined downwards.

The oblique muscles of the human eye, if they acted alone, would alter the position of the pupil and consequently the visual axis; but they do not act alone. The straight muscles determine the direction of the visual axis, and this being once fixed, the action of the oblique muscles can be no other than that of turning the eyeball round its unchanging axis.—*B. and F. Med. Rev.*, April 1841, from *Müller's Archiv.* 1840, p. 480.

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## DENTAL SURGERY.

39. *On the treatment of the milk teeth from their first appearance until they are shed.*—M. Delmond has published in a French Journal, *l'Esculape*, an interesting article on the diseases of the teeth during infancy. This physician inquires into the course to be observed in order to preserve the teeth, and into the influence of their extraction, when they are carious, on the development of the succeeding ones. According to him, gastro-intestinal affections react in a very unpleasant manner on infant as well as adult teeth; it is often difficult to remove the cause of destruction; but another source of evil is the abuse of sweetmeats, which, always containing a great amount of malic acid, excite a painful irritation, the precursor or companion of caries. When children experience this pain, care must be taken to rub the teeth for a few moments with a soft brush well charged with magnesia. The pain or irritation ceases at once, the malic acid combining with the magnesia.

When the tissue of the teeth, more advanced in its decomposition, has exposed the dental pulp, all proper means must be employed to stop the irritation, and then to plug the milk tooth in order if possible to await the development of its successor. M. Delmond, in these cases, has derived benefit from the following mixture: camphorated oil of sweet almonds, 2 ounces; Sydenham's laudanum, half an ounce; essence of mint, four to five drops. A little ball of cotton soaked in this is to be introduced into the carious cavity. A few drops of oil of sweet almonds or of lilies, with or without laudanum; gentle frictions behind the ears; a discharge kept up from that part by means of a dressing of epispastic ointment; small camphorated vesicatories to be applied in some cases, or indeed a few leeches behind the ear, or to the angles of the jaw, according to the indications, might have a good effect, and stop the pain by resolving the inflammation. Means must then be immediately adopted to prevent its return by plugging the tooth. But when these means fail, when the aveolo-dental membranes are affected with chronic inflammation, should more or less suppuration make its appearance around the neck of the teeth, they must, however disagreeable the necessity, be extracted.

It is not correct to say that the loss of the second teeth ought to be attributed to

the extraction of the milk teeth. This extraction, on the contrary, cannot harm the germs of the second teeth unless the operator by clumsiness fractures the alveolar process so much as to expose the germ of the tooth beneath. It is even possible for the completely carious milk tooth to be thrust out by the secondary tooth, which rises from its alveolus in the midst of the *debris* of the former without the latter experiencing the least alteration. But when caries has attacked the milk tooth at an early age, if its alveolar membranes are affected with chronic inflammation, if the pains are frequent and prolonged as well as the inflammation, the irritation may extend more deeply, and then the loss of the two teeth united is the consequence. This accident might be avoided either by plugging the milk tooth from the first, as we have shown; or by drawing it out after having ascertained that the progress of the caries could not be checked.

However, M. Delmond by no means decides without good reason upon extracting the milk teeth, above all the last molar, for towards the age of six or seven years when the first permanent molar appears, should it find no obstacle whatever to its development, it grows forwards, and the space which the second teeth should occupy is thus diminished.

In support of these remarks this physician cites three cases. The first is that of a child one of whose teeth was drawn with a thread. The pain had been severe and prolonged, the gums were swollen and pus had formed around the neck of the teeth. It was a first molar; it was extracted with the crown of the permanent tooth which still embraces it. Caries had already extended to this tooth, and it would have been impossible to save it. The second case cited by M. Delmond is that of his own child eight years of age, whose second upper molar was carious, but without causing pain. All at once this tooth was attacked with violent inflammation, and it had to be drawn. An abcess formed in the gum. As soon as the tooth was removed it discharged a great deal of pus; a small fistula established itself, and dried up only when a small fragment of alveolus came away. Then they plainly saw the crown of the permanent tooth yellow, roughened, and that it would have to be drawn. Since that time the first small molar has come out from its alveolus, but it is crookedly placed, it is painful, and will not last long.

Finally, the third case cited by M. Delmond is that of a young girl of seven years, who was in a much more painful condition. A molar had been carious; they did not like to draw it, and the caries advancing, an inflammatory swelling had become habitual on that side. When M. Delmond was consulted necrosis of the jaw bone existed to a considerable extent. This fragment of bone being removed, it was found to contain in its interior the crowns of the lateral incisor, the canine and the first small molar. These crowns were black and atrophied. A pretty large breach resulted from it, which, at the present time, causes a disagreeable deformity.

We have very rarely had occasion to entertain our readers with the therapeutics of the diseases of the teeth, because a very few works appear on this important branch of surgery, the writers of our day seeming to have entirely neglected a subject which, however, interests every practitioner in the highest degree.—*Journal de Med. et de Chirug. Prat.* June, 1840.

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40. *On Plugging Teeth.*—M. O. Taveau, a distinguished Parisian Dentist, has published in *La Lancette Francaise*, the following interesting practical observations on this subject.

1. *The time for plugging.*—All authors who have written on this subject agree that we ought never to plug, first an aching tooth, next a tooth affected with sanious or humid caries. The first part of this maxim never to plug an aching tooth is true in most cases, but it is liable to some exceptions; for we meet for instance with teeth which only ache just because their interior is subjected to atmospheric vicissitudes that painfully affect it, and which cease to give pain the moment their cavity is protected by its occlusion from the action of heat and cold—I have actually under my eye a proof of this furnished by a physician, who has a second inferior large molar deeply excavated, and from

which he suffers only when he takes away from its cavity a plug of cotton with which he is obliged to fill it every day. Let this person present himself to a dentist after having removed the cotton from his tooth, and he will certainly complain of pain, which in some cases is very severe, but will this pain be a contra-indication to plugging, and even to a final plugging? Very certainly not, since this means alone can stop it.

In other circumstances, pain affecting a tooth more or less excavated by caries, may be seated not in the accidental cavity, but in the alveolar periosteum; we ascertain this by percussion which aggravates the pain, and by introducing into the caries a sound which produces no unpleasant sensation. This kind of pain, like the former, does not always contra-indicate of itself the plugging of the tooth. There is then nothing absolute in relation to pain taken as a measure of the proper time for plugging; equally is it more agreeable to what experience demonstrates to confine ourselves to saying: that if an aching tooth must not be plugged, it is especially one, the cavity of which is constantly painful, or where the pain is accompanied by inflammatory phenomena.

As to the counsel given in aphoristic form, not to plug a tooth affected with sanious or humid caries, it is entirely obligatory if we desire to comprehend by the word to plug the definite obturation of a carious tooth; but is less just if by this word we wish to forbid all introduction into the diseased tooth of a foreign body, capable of securing it provisionally from the action of air and food. In fact we have nearly always to commence with that, since substances capable of arresting suppuration of the dental pulpe, or decomposition of the enamel, ought to remain in contact with the diseased part a certain time, in a word the time necessary to the cicatrization, or if you will to the drying up of the caries. The rule in the case of sanious caries ought then, to express the rational indication suitably, to be given somewhat in these terms; secure provisionally the cavity of the caries against the contact of the air, and of foreign bodies, to facilitate its drying up, and then plug.

To fulfill the first indications by drying up the caries, I have long used with success and for want of a better, a sort of cement or paste, composed of sulphate of alumina and sulphuric ether; but I have been forced to acknowledge that the advantages of this substance, which hardens moreover promptly enough, were annulled by the species of astriction, which the alum inevitably creates on the neighbouring parts, and by the inconvenience resulting from disengagement of ether—I have made on this subject some new researches which have conducted me to the discovery of another substance, which not only has all the advantages of the preceding without its inconveniences, but which seems to me preferable on every account to the crowd of preparations which the industrious and speculative spirit of our age has brought to light, and extolled with emphasis as infallible remedies for the toothache. It is a solution of the resin of the *pistachia lentiscus* of the Isle of Chio, or simply of benzoin in alcohol at 42 degrees, and with which a little cotton is to be soaked and then introduced into the cavity of the caries, plugging it pretty strongly.

This preparation, which does not leave the penetrating odour and taste of sulphuric ether and creosote, and which has not like the latter the inconvenience of cauterizing every part that it touches, has the double advantage first, of drying up the dental pulpe very promptly, that is to say, in two or three applications, and often indeed in one alone, and according to the habitual expression, not very medical by the by, to carbonize the interior of the tooth. Second, of hardening in six or eight hours, in such a manner that it not only secures the caries from contact with the air and food, but also accustoms the tooth to the presence of a body, less hard it is true than any of the metals employed in plugging, and yet of such a consistence that it completely fills the carious cavity. It may serve then as a topical application from its escharotic properties, like all alcoholic tinctures, and as a retentive means for every substance such as opium, camphor, myrrh, &c., which it should be judged necessary to maintain a certain time in direct contact with the bottom of a dental caries.

Add to this, that its texture allows it to be easily withdrawn as soon as it is thought proper.

2. *Stopping material.*—When, by the employment of appropriate general and local means, we have managed to arrest the progress of a caries, and have as it were effected cicatrization, we ought to set about plugging in a definite manner; and I maintain that this operation, which is perhaps too much neglected in our day, might, properly done, preserve at least eighty teeth in the hundred of those which we are called upon to extract. Be this as it may, five kinds of metals have been hitherto generally employed: lead, tin, gold and platina, which are used in leaves, and the metal of Darcet, which is employed in the state of fusion.

Lead is with reason totally abandoned now, and this is almost the case with tin, which although filling up well enough, always oxidizes in time, and allows this oxidation to penetrate to the bottom of the caries which it tends to maintain; gold, and platina have been substituted for them with the greatest success. But gold which some modern dentists erroneously speak of having first employed for this purpose, since Fanchard describes it in express terms, is preferable to all. When suitably prepared it is excellent, not only because it does not very sensibly differ in colour from the teeth like tin, and even platina, which are always of an iron grey, but also because it does not oxidize like tin, and identifies itself more intimately than any other, with itself and the surrounding parts. It is only a matter of regret, that it is so difficult to procure pure gold in Paris; for M. Motin, *Rue Grénelat*, is almost the only person who furnishes it in this state; besides, it is less suitably prepared than that of Vienna in Austria, and even than that of the United States.

Metals in leaf, may be used as a means of dental obturation, in circumstances which authors do not seem to me, by any means, to have determined with sufficient strictness. These circumstances exist almost exclusively, either in cases of small caries centrally placed, or in those of caries, the opening of which is very narrow. But unhappily these cases are not the most common, for the caries are most frequently large, and very often affect the lateral portions of the teeth; a disposition, which on some occasions would not permit the metals in leaf to remain even twenty-four hours.

A more solid substance then must be sought for, one more susceptible as it were of forming an attachment to the tooth. This was supposed to have been found in the metal of Darcet, which is known to be merely a compound of eight parts of bismuth, five of lead and three of tin, to which one of our honourable professors, Mr. Regnard, has added a tenth of mercury to increase its fusibility. If this substance has over the metals in leaf, the advantage, 1st, of amalgamating more uniformly, and consequently of not leaving in its interior those gaps which I have often met with, in sawing teeth stopped with other substances; 2ndly, of not allowing a sort of capillary filtration of the buccal fluids into its interior; it has however one inconvenience, that is of requiring the employment of a temperature which, without being high enough to burn the teeth and surrounding parts, may nevertheless inflame the latter and dry up the enamel, even to produce cracking, so that although capable of doing great service, long experience and great prudence are heeded in its use: for it is not enough to know that "it melts at the temperature of boiling water;" we must be able to judge promptly, that temperature which below the desired point, leaves the operation incomplete and obliges us to repeat it, and which above this point may really burn.

To obviate all these inconveniences, I have availed myself for the last four or five years with undoubted advantage of a paste, which I have named the *silver paste*, and the composition of which I immediately communicated to several members of our profession. It is the same as that which an English dentist has very recently brought to Paris as a new thing, and which he has designated very mal-a-propos by the name of mineral succedaneum, a designation which is, to say the least of it, nonsensical, since it indicates neither its nature nor its uses. This paste is prepared with pure silver and mercury. For

this purpose a given quantity of mercury is saturated with pure silver, reduced to a very fine powder and well refined, the whole is triturated in a mortar about two hours, that the metals may incorporate well; and it is passed through, or in better words, the whole is forcibly expressed through a piece of kid skin, deprived of its epidermis, in order to extract from it nearly all the mercury. The residue thus obtained, is a very compact paste, which is to be enclosed in a wide mouthed well ground glass stoppered bottle, to be used when needed.

This preparation is used cold, being made to penetrate into the carious excavation with a stopping instrument, and is managed exactly like the substances in leaves. The mercury evaporating by the heat of the mouth alone, and that in the short space of three or four days, the silver remains in one piece in the hollow of the tooth, filling all its anfractuosities, and becoming as compact as if it had been cast in the same cavity. This new plan possesses then, an incontestable superiority over all at present commonly employed; since, in the first place, it amalgamates better and without requiring as much packing as the metals in leaves; next because it does not need the aid of fire like the metal of Darcet; finally because it does not harden until after a length of time that allows of its removal in case the experiment should prove that the tooth was not in a requisite condition for permanent stopping.

The silver paste undergoes scarcely any contraction, such as might be feared from the evaporation of the mercury of which there is, after its expression in the kid leather, but an almost inappreciable proportion. As to the fear that might be entertained of the action of this portion of mercury on the teeth, it is absolutely illusory, since this metal does not remain there except in an amount much less than in the metal of Darcet as modified by Regnard; it is infinitely superior too in hardness. In a word, this paste it appears to me ought to at once replace all other means of plugging, since it not only possesses all their advantages without their inconveniences; but it accommodates itself to almost every case, and presents at the same time both a perfect homogeneousness and a firmness which would be sought in vain elsewhere. This hardness is such in fact that the point of a steel instrument which very easily penetrates the fusible metal hardly scratches the other. I do then an act of duty in seeking to extend its use, by calling to it the attention of practitioners who think rightly that the loss of a tooth is always to be regretted, and that its extraction is a sacrifice only to be resolved upon at the last extremity.

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## MIDWIFERY.

41. *Case in which Six Pregnancies occurred during Amenorrhœa.* By Dr. Flechner, of Vienna.—A woman, now thirty-five years old, menstruated for the first time in her fourteenth year, being then but imperfectly developed. Menstruation continued regular for some time, but then ceased for nine months, during which time many symptoms of chlorosis appeared. She then fell into a feverish condition, which continued for several weeks, but left her in a better state of health than she had previously enjoyed. During her convalescence the catamenia reappeared, and they now observed a regularly periodical type for several years, though still usually accompanied by congestion of blood about the head and chest. In her twenty-second year she married, and during the next year gave birth to a healthy child, which she suckled for only a few months, for her supply of milk then decreased, though no traces of return of the process appeared. Instead of the latter there came on periodically pains in the head, varying in severity and length of continuance, with a sensation of pressure and heat in the frontal and parietal region, and frequently great distress of breathing and palpitation of the heart, or even more or less distinct paroxysms of asthma. Notwithstanding the physiological energy of the uterus seemed completely paralyzed, yet after two years she again became pregnant. Gestation and parturition were gone through in the same manner as at the first time; and then, in

the place of the catamenia, which were still suppressed, the same train of periodical symptoms again came on. In this way the woman became a mother six times in the course of thirteen years, without a trace of menstrual fluid ever once appearing; and she declared that during this time she had observed neither a blenorrhœa nor any morbid secretion of the uterine or other system, that could be deemed vicarious of the catamenia.

Cases of conception during lactation, before the return of the catamenia, are by no means rarities, and the secretion of milk continued for a year sometimes hinders the secretion of menstrual blood without at all excluding the possibility of conception. But in this case the peculiar condition induced by lactation could have had nothing to do with the suppression of the menses.—*London Med. Gaz.*, from *Medicin. Jahrbücher Oesters Staates*, B. xxx, S. iv.

42. *Singular Case of Tumour in the Pelvis.* By Professor von D'Outrepont, of Würzburg.—A woman, twenty-six years old and well made, gave birth when twenty-five years of age to her first child without difficulty. Towards the end of her second pregnancy she again applied at the hospital in consequence of experiencing pain in the pelvic region. Vaginal examination discovered a hard and painful tumour, extending from the inner surface of the left ischium nearly to the corresponding point on the opposite side. It was hard, globular, even on its surface, and occupied the ascending ramus of the ischium and the descending ramus of the pubis, and extended over the obturator foramen. It was impossible to reach the lower segment of the uterus, or to feel any part of the child.

The size and hardness of the tumour seemed to leave no chance of the birth of a living child, even by the induction of premature labour. Professor D'Outrepont, who doubted whether the tumour was fibro-cartilaginous, or a true bony exostosis, asked the opinion of many eminent men who saw the case. They did not express themselves with certainty as to its nature, and the patient refused to allow an experimental incision to be made into the tumour.

A short time before labour began, the tumour was thought to have become slightly compressible. When labour commenced, the professor called a consultation in which it was determined that unless a great change had taken place in the character of the tumour, an attempt should be made to remove it, or to cut away the bone if that should be found to be implicated, and as a last resource, to perform the Cæsarean section.

On an examination being made, the right foot of the child was found to present, the cord was prolapsed, and did not pulsate. The tumour, however, was found to be so much softened that it was possible to pass three fingers through the outlet of the pelvis. Professor D'Outrepont brought down the foot, in doing which he found that the hips had compressed the tumour still more. The chief difficulty was experienced in extracting the head by means of the forceps, which gave the patient considerable pain. The child was still-born, but was speedily recovered. After the birth of the child the tumour regained its former size, so that the placenta could not be expelled by the natural efforts, and it was necessary to introduce the hand in order to remove it.

The patient recovered rapidly, and returned ten weeks after her delivery, in order to have the tumour removed, which operation was performed by Professor Textor. The growth was found to be fibro-cartilaginous, and was connected neither with the bone nor the periosteum. It weighed 11 1-2 ounces, and was so hard that none but they who were present at the patient's delivery, could have believed its previous softening possible. The patient was completely cured.—*B. and F. Med. Rev.*, from *Neue Zeitschrift für Geburtskunde*, B. ix, S. 1.

43. *On the best and surest way of inducing Premature Labour.*—Dr. Meissner of Leipsic, from experience condemns all the usual means of inducing premature delivery, as none of them are free of danger to mother or child. Thus puncture of the membranes, by allowing the *liquor amnii* to escape, often causes death of the child; dilatation of the uterine orifice by means of prepared sponge is tedious, and apt to give rise to dangerous uterine irritation, as is also separation of the

membranes, and titillation of the vaginal portion of the uterus; whilst ergot of rye, borax, &c. are often fatal to the child and dangerous to the mother.

During the last five years he has attended 900 deliveries, and has induced premature labour in eight with perfect safety to both mother and child. In all these cases the women were deformed or rickety, and their pelves were diminished in their antero-posterior diameter so much as in their previous deliveries to require perforation of the head of the infant in order to effect their delivery.

Dr. Meissner never induced premature labour till the thirty-sixth week of pregnancy, and in all the cases the antero-posterior diameter varied from two inches and three quarters to three inches one line. His mode of operating, which is a modification of that by puncture of the membrance, was the following. A very slender canula is provided of about 13 or 14 inches in length, and bent regularly in the form of a segment of a circle. It has a ring soldered on the convex side of its lower extremity, in order to give a more secure hold, and allow of the point of the instrument being accurately guided. This canula is provided with two trochars, one with a blunt point and the other with a sharp-cutting point. When the instrument is to be used, the blunt-pointed trochar is introduced to the canula, and projects beyond its orifice so far as to prevent the edge of the tube injuring the parts. The patient then stands before the practitioner, who kneels before her, the usual manner in which vaginal examinations are made on the continent, or she may sit on the very edge of a chair or of the bed. The fore-finger of the left hand is then introduced into the vagina, and the canula guided along it to the orifice of the uterus, making the convexity of the instrument correspond to the curve of the sacrum. The point of the instrument is then pushed slowly backwards and upwards, so as to make its rounded point slide between the uterus and the back of the membranes. When the point is once past the neck of the uterus, it advances easily, care only must be taken to detach the membranes as little as possible. When the point of the instrument is about 10 or 11 inches within the *os uteri*, the blunt-pointed trochar is withdrawn, and the handle of the instrument is pressed against the perinæum, to detect, if possible, against what the point of the canula is pressing. If it be felt to be a hard body, the point is made to move to one side or other till an elastic fluctuating spot be reached, which shows it is opposite the membranes alone; the sharp-pointed trochar is then introduced and perforation of the membranes is made. The trochar is then withdrawn, and about a table-spoonful of the *liquor amnii* is allowed to escape; after this the canula also is removed, and the woman is allowed to walk, sit, or lie down at her own pleasure. The amniotic waters after this slowly, and drop by drop escape, and appear to prepare the parts for delivery, so that after 24 hours the hand may easily be introduced into the vagina. Labour-pains usually come on from 24 to 48 hours after the puncture of the membranes; in several of the cases, delivery was completed 36 hours after the puncture.—*Ed. Med. and Surg. Journal*, from *Medizin. Annalen*, No. 4 Vol. vi.

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44. *Compression of the Aorta as a means of arresting Uterine Hemorrhage.*—Dr. Piedagnel communicated to the *Société Médicale d'Emulation*, on the 4th of April, 1840, two cases in which uterine hemorrhage, following labour, was immediately arrested by compression of the aorta. These cases were referred to MM. Velpeau and Brierre de Boisment, who made a report in relation to them on the 6th of May. This last paper contains so admirable a summary of the history of this therapeutic measure, that we are sure we shall gratify and instruct our readers by transferring the principal part of it to our pages.

"The idea of compressing the aorta to arrest uterine hemorrhage, must naturally have suggested itself as soon as the laws of anastomosis became well known, and accoucheurs saw the splendid conquests of modern surgical art in the vast field of aneurisms. But before investigating the origin of hemorrhages and discussing the value of compression, it is not without utility, in a few words, to trace the history of this new mode of cure. When MM. Trehan and

Baudeloque (nephew) published their memoirs,* compression had not been practised at all in France, but the moment that attention had been called to this subject, the ancients were searched, the foreign journals were hunted through, and soon, according to invariable custom, it was found that many authors before MM. Trehan and Baudeloque had spoken of this hemostatic remedy. This time we cannot go back to Hippocrates, and the honours of this priority fall to Daniel Louis Budiger, an accoucheur of Tubingen. In order to ascertain the real truth of these assertions, we have consulted the works referred to; and here is the result of these researches: Budiger employed compression of the aorta for the first time in a female who had just lain in and was at the point of death from loss of blood. The flooding lessened immediately; the uterus contracted; the mother was revived and saved. Budiger adds that he has had recourse to this remedy in a score of cases.

"Ploucquet published the new operation, the description of which had appeared in the Journal of Loder in 1797. He says positively that compression of the aorta had been made *per manum in utero adhuc expanso.*†

"Compression of the aorta to arrest uterine hemorrhages had been proposed, or at least employed nearly at the same epoch, by the celebrated Danish accoucheur, Math. Saxtorph. He compressed this vessel by acting on the womb through the walls of the abdomen.‡

"In 1812 Boër expressed himself thus: 'Inter alia conamina nuper etiam hoc legimus; inductâ manu posterior uteri paries satis opprimitur ut, descendentis retro aortæ, velut suffocatione sanguis irruere in interum per subditos ramos præpediatur. Ecce nova alia procul ægris excogitata instructio! Quam circa candidus afferans quæ duobus periculis sum expertus. Ubi nempè uterus modice crassus et contractus est, compressio arteriæ, etiam si fieri possit, inefficax, ac ne quidem necessaria est. At flaccido et amplo viscere, ut manus robur in arteriam penetret, mors alioqui fores pulsat, ex uteri paresi scilicet, cujus hemorrhagia solum consequentia est, ut, nisi apoplexiam loci sustuleris, ægra occidat, sanguis fluat, necne. Id saltem compertum in præsens ego habeo."§ This passage from Boër's work conclusively establishes that compression of the aorta was well known in Germany; that accoucheur, however, entertains an unfavourable opinion of this proceedure, although it is probable that he objects to the manner of doing it. At the present day compression in the uterus is generally abandoned.

"Dr. Ulsamer, of Würzbourg, repeatedly compressed the aorta with success. The cases cited by him in his work are clear and precise.‖ He used two fingers to arrest the course of the blood. Nearly at the same period Eichelberg, Siebold, MM. Baudeloque, nephew, and Tréhan reported cases of cure of uterine flooding by compression of the aorta. The two latter physicians, who were not aware of the labours of the Germans, believed themselves to be the inventors of this operation, and laid claim to the priority in it. Siebold's researches were made in 1828. In the case cited by him the aorta was compressed with the fist.

"We shall not dwell longer on this order of facts; they put it beyond a doubt

* Trehan, p. 1. Nouveau traitement des hémorrhagies utérines qui suivent l'accouchement par la compression de l'aorte.—Paris, 1829; in 8vo., p. 29. Baudeloque neveu, Traitement des pertes de sang qui peuvent suivre l'accouchement, par la compression de l'aorte exercée sur le ventre, la pression convenable du ventre et l'usage du seigle ergoté et des fortifians.—*Journ. des Conn. Méd. Ch.*, 1834, t. i, p. 201.

† Loder's Journal, für die Chirurgie Geburtshülfe und Gerichtliche Arzneikunde, b. 1, p. 493, 1797; vide t. ii of Ploucquet, Report. Medicinæ Practicæ Chirurgiæ atque rei Obstetricæ, art. *Hemorrhagia, Compressio aortæ descendentis*, p. 261. Tubingæ, 1808.

‡ Math. Saxtorph's Gesammelete Schriften Geburtshülflichen, praktischen und physiologischen inhalts. Complete works of Math. Saxtorph, published by P. Scheil, Copenhagen, p. 229.—1803.

§ Boër, Nat. Med. Obstet. lib. sept., p. 525.—Vienna, 1812.

‖ See Friederich et Hesselbach: Beitraege zur Natur und Heilkunde, t. 1, p. 261.—1825.

that the treatment of uterine floodings by compression of the aorta is by no means new, and if honourable physicians have insisted on their having discovered this expedient, it is because, at the epoch of their proclaiming it, the works of the Germans were very little known, owing to the difficulties presented by their language.

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"Compression of the aorta is then unquestionably registered in the annals of our science; but has this remedy all the efficacy attributed to it, or are we to believe, with some, that it is useless and even hurtful? Two opinions so opposite can only arise from the mode of explaining the origin of uterine hemorrhage.

"If the blood be furnished by the arteries—and the anatomical disposition of the vessels, which acquire a prodigious development, favours this opinion—the theory would teach us to compress the main trunk; but if the blood comes from the venous system, as M. Jacquemier assures us it does, compression of the aorta would have none of the utility accorded to it. The last named author, founding his opinion on an examination of the vascular circle of the uterus, and of the manner in which the venous circulation is effected there, ascribes flooding mainly to a want of resistance of the utero-placental veins. Whatever tends to favour the stasis of blood in the uterine veins a little too long, establishes a predisposition to repeated losses. The quantity of blood furnished by the utero-placental arteries must be infinitely small.

"Compression of the aorta, continues Dr. Jacquemier, cannot attain the end proposed. By that measure we force the blood to pass more rapidly and abundantly through the divisions of the aorta above the point compressed; the upper vena cava bringing to the right auricle more blood than usual, the lower vena cava remains in a state of distension. The ovarian and uterine veins destitute of valves, partaking of the overloaded state of the inferior vena cava, it follows that the blood retrogrades into the uterine cavity, as long as the contraction of the uterus does not serve as a valve or check.*

"It cannot be denied that M. Jacquemier's explanation is ingenious; but we must admit that the mechanism of uterine floodings is similar to that of other hemorrhages; if it be so, the capillaries ought to have a large share in the production of these hemorrhages, which take place then by a true exhalation from the internal surface of the uterus. This explanation, favourable to compression of the aorta, is moreover justified by the facts already cited, and by the observations we are about to report.

"But if compression of the aorta be, as M. Velpeau thinks, a resource at once important and easy, it must not be lost sight of, that in thus suspending the afflux of arterial blood, we may equally check the return of venous blood, and that we ought, as much as possible, to avoid, at the same time, compressing the vena cava.

"M. Piedagnel's observations are two in number; the first was in the case of a young lady, whose confinement, which had been natural, was followed by a flooding which cold water injections could not arrest. This physician then had recourse to compression of the aorta, seconded by the employment of refrigerants. The patient presented most of the symptoms observed in persons perishing of hemorrhage. As soon as he had put this expedient in operation, the flow ceased, but the convalescence was long.

"Observation second relates to the same lady. Her flooding was immediately combated with compression of the aorta; the blood stopped running, but the womb remained inert; a stream of cold water, directed into the interior of the organ, brought on contractions. Napkins placed above and maintained by a body bandage, completed the cure. The duration of the flow, in this instance, was from 20 to 25 minutes.

* Recherches d'anatomie, de physiologie et de pathologie sur l'uterus humain pendant la gestation, et sur l'apoplexie utéro-placentaire, pour servir à l'histoire des hémorrhagies utérines, du part prématuré et abortif; par M. Jacquemier.—*Arch. Gén. de Méd.*, 1839.

"There is no accoucheur who, in the course of his practice, has not seen women recently delivered losing blood enough to bring on swooning, dimness of sight, and partial fainting, and these symtpoms spontaneously disappearing at the moment we are about having recourse to energetic treatment. At other times cold applications and astringent drinks have sufficed to suspend the discharge of blood. In many cases we have availed ourselves most successfully of stimulation of the uterus, whose contractions we have excited by passing the ends of the fingers over the internal surface of the organ, while we compressed the womb with the left hand on the abdomen. Finally, the administration of ergot has very often triumphed over uterine hemorrhages. Perhaps the employment of some one of these means would have sufficed in the second case; but M. Piedagnel, who still had in his mind the grave symptoms of the former hemorrhage, acted prudently in resorting to the remedy which had succeeded so well with him the first time.

"The interest attached to this subject engages us to report two other cases, which we owe to the kindness of our honourable confrère, M. Pinel Grandchamp. A lady, after a laborious delivery, in 1834, was taken with a considerable flooding. M. Pinel, time after time, introduced his hand into the vagina and uterus, to extract the clots and excite the internal face and the neck of this viscus, expressed into the womb the juice of several lemons, and made free aspersions of cold water, all in vain, the swoons rapidly succeeded one another. In this state of things our colleague thought of compression of the aorta, and practised it for an hour. When he intercepted fully the passage of the blood in the artery, he observed the following phenomena:

"The countenance regained a portion of its natural colour; the eyes became more animated, the lips more rosy; the pulse rose again; it was frequent, and had some fulness; the strength of the heart was increased; the patient came out of the state of syncope or prostration, into which a slight compression had almost immediately thrown her. She then said that she felt much better. The blood no longer flowed externally, although the uterus and vagina were freed from clots.

"When he suspended the compression, the blood no longer issued as abundantly, or with the same force, but if it recommenced flowing, all the phenomena of syncope reappeared, and the pulse almost ceased beating. Only an hour and a half after the operation, the uterus began to recover itself and contract so as no longer to create any fear of inertia. Twelve days afterwards the patient was perfectly restored.* No ergot whatever was administered; it would probably, adds M. Pinel, have aided me in more quickly overcoming the inertia of the uterus.

"In the course of that year M. Pinel Grandchamp was called, in consultation, by Dr. Marye, to a woman who had been losing blood several hours. By touching he recognised the placenta inverted on the neck. Having introduced three fingers behind the symphisis, partly to detach the placenta, he ruptured the bag of waters, and slowly penetrated into the interior of the womb. The head was in the first position at the superior straight; he applied the forceps in this straight, which, on account of the space in which we manœuvre, is easier than generally supposed. The child was withdrawn alive, but half asphyxiated. While our cares were directed to its recovery, the sound of a liquid running on the floor apprized us that the mother was bleeding freely.

"Notwithstanding her delivery the blood continued to flow, and the patient's faintings continually increased; M. Pinel, after having in vain injected cold water, and squeezed several lemons in the cavity of the womb, resorted to compression of the aorta, which momentarily arrested the flooding; but as soon as they ceased applying the fingers the blood reappeared as abundantly as before. At length, an hour having elapsed, it seemed to run somewhat less. A peeled lemon was introduced anew, and the hemorrhage gradually stopped.

"These cases, those reported by the authors, sufficiently attest the utility of

* Censeur Médical, Avril, 1834, p. 301.

compression of the aorta. But this point established, it remains for us to consider the place to be chosen for the operation, the manner in which it is to be performed, and its duration.

"All the modifications proposed can be reduced to three procedures. Some, as Budiger, Eichelberg, carry the hand into the uterus; others, as Saxtorph, reach the aorta by acting on the womb through the walls of the abdomen; finally, the third party, whose method is generally followed now, compress the artery above the womb.

"The introduction of the hand into the uterus, and resting on its posterior region, has been rightly blamed. This plan indeed is bad, and of difficult application; it exposes the tissue of the organ to a kind of attrition; it is moreover impracticable when the womb begins to react. However it has many times succeeded. Eichelberg cites the case of a woman in whom compression thus effected lasted an hour; the moment it was stopped the blood flowed.

"The physical condition of the female just delivered is favourable for compressing the aorta independently of the thinness of the walls, which, by the spreading out of the recti abdominis muscles, are reduced to that of the skin and two aponeurotic and serous membranes, which allow the aorta and vena cava to be almost directly touched; the intestines have, so to speak, chosen an abode in the lateral portions of the abdomen.

"The fundus of the womb also can easily be pushed into the region of the loins, or into the pelvis, whilst in the normal state, besides the thickness, sometimes considerable, of the walls, due to the accumulation of fatty cellular tissue, we are obliged to press on the intestines in order to reach the aorta, which makes the operation more difficult and painful.

"Compression through the abdominal parietes can be exerted with the thumb, with two or with four fingers, as preferred by MM. Baudeloque, Tréhan and Ulsamer. We have seen that Siebold had practised it with the closed hand applied a little to the left of the spine; this plan is more difficult in execution than the two preceeding. M. Piedagnel employed the cubital margin of his hand. M. Pinel Grandchamp, advises us to press the artery moderately with the fingers; in bearing forcibly on the vessel the fingers grow numb and the operation cannot be continued long by the same person. This means, it appears to us, ought to be employed in preference to all others. To reach the aorta the precaution must be taken to turn aside the intestines; the arterial pulsation indicates the presence of the vessel. It is then compressed longitudinally without involving the inferior vena cava in the manœuvre.

"The duration of the compression has been a matter of very diverse opinions. Some have limited it to five, six and seven minutes; others have prolonged it an hour or two. Eichelberg and M. Pinel Grandchamp, did not succeed in arresting the blood in less than an hour. M. Paul Dubois thinks we must continue this operation an hour or two, and then suspend it by degrees, assuring ourselves that the bleeding appears no more. The examples cited by us prove that simple compression suffices to check the hemorrhage, but we believe it better to associate with it the spurred rye, (ergot).

"However it may be with the combination of these two means, we are not the less persuaded that compression of the aorta has been and will be of real service; moreover M. Piedagnel appears to us to have done well in adding his observations to those of Blount,* of MM. Brossart,† Latour,‡ Lowenhardt,§ and Martins.‖—*La Lancette Francaise, May* 12, 1840.

* Ingleby on Uterine Hæmorrhagy, p. 249.
† Thesis, Strasbourg, Feb., 1830.
‡ Revue Médicale, t. iii., p. 22, 1830.
§ Revue Médicale, *id.*
‖ *Ibid.*

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

45. *Symptoms of Rupture of the Bowels.*—"The symptoms following ruptured bowel are deathlike from the moment of the injury. They are quite unlike those of inflammation and of gangrene, and are indeed *sui generis*. The mind is clear but depressed, as if overwhelmed by the irreparable nature of the injury. The countenance is pale, and the features liny and drawn. The pulse is not immediately affected, but soon becomes quick, feeble and irregular in its measure, intermitting, thready, and then no longer to be felt. The surface chills, but remains dry; there is a painful sense of dryness of the mouth and fauces and frequent efforts to vomit. Pain, which commences at variable periods, but is never long delayed, is acute, unremitting, extending over the whole abdominal region, which becomes tense, and will not bear the slightest pressure. This produces great anxiety and restlessness, and frequent appeals for relief, and next for death. The peritoneal surface is reddened, but there is seldom any effusion of membranous or massive lymph agglutinating parts; only small deposits in tags and shreds roughening the surface, although the period of survival varies from twelve to six-and-thirty hours; the state of the canal perhaps determines this variation."—*Benjamin Travers, in Medico-Chirurgical Transactions*, vol. xxiii. T. R. B.

46. *Remarkable effect upon the Human Gums, produced by the Absorption of Lead.* By Henry Burton, M.D., Physician to St. Thomas's Hospital.—The only approach to the observation now to be stated, is a notice by Dr. Christison, and Dr. A. T. Thomson, that in persons who have taken lead in quantity, salivation is apt to occur, and the saliva is of a *bluish colour*. Dr. Burton, from observations made since 1834, on persons who had been exposed to the action of lead in the course of their usual avocations, and of those also who had swallowed the acetate of lead medicinally, is of opinion, that salivation in the ordinary sense of the term, does not occur in one case out of thirty-six cases of lead colic, the number examined in his wards; nor in one case out of fourteen cases of pulmonary disease, which were treated by him with acetate of lead, but in the total number of fifty patients, who were examined whilst under the influence of lead, a peculiar discoloration was observed on their gums, which he could not discern on the gums of several hundred patients who were not under its influence.

The edges of the gums attached to the necks of two or more teeth of either jaw were distinctly bordered by a *narrow leaden-blue* line, about the twentieth of an inch in width, whilst the substance apparently retained its ordinary colour and condition. There was no invariable tumefaction, softening or tenderness about them—nor fetor of the breath—while the quantity and colour of the saliva preserved the same appearance after as before the appearance of the blue line.

This appearance has no resemblance to the effects caused by mercury. On the contrary, the blue line was obliterated on patients with lead colic, to whom calomel was given in sufficient quantity to affect the system.

While the discoloration of the gums is a very constant and *early* occurrence from the effects of lead, Dr. Burton is of opinion that salivation and turgidity of the gums are rare events, and not characteristic of its influence. The discoloration is also permanent—requiring a length of time to remove it—and in several instances, it continued and was manifest after death.

As this change takes place either from large doses of lead, taken internally, or its action on workers in it, Dr. Burton suggests that a knowledge of its cause may be usefully employed in leading to an early treatment of the patient.—*Ibid.* T. R. B.

47. *Brucine.*—Brucine is considered by Dr. Fuss to be merely a mixture

of strychnia with a resin, from which it may be separated by a peculiar method. —*London and Edinburgh Philosoph. Magazine*, March 1841. T. R. B.

48. *Detection of Arsenic.*—Dr. Figuier recommends that the following plan be adopted:—Cut the suspected matters in pieces, and boil them for four or five hours in water, maintaining a slight alkaline reaction in the liquid. When cold, the fatty matters which swim on the surface must be separated, and the liquid filtered. The filtered liquid is then slightly acidulated by hydrochloric acid, evaporated to dryness, and the residuum dried, but not carbonised.

It is then redissolved in warm water, and filtered to separate the deposit caused by desiccation. The brown liquid thus obtained is submitted to a current of washed chlorine gas, until it ceases to be rendered turbid by the gas. The precipitate is again separated by filtration, and the liquid boiled in a porcelain capsule to expel the chlorine. The liquid is then introduced into a modification of Marsh's Apparatus.

This consists of a flask, closed by a cork, which is traversed by two tubes, one of which terminates at its upper extremity in a funnel, and descends to near the bottom of the flask. The other is a bent tube of about one-fourth of an inch in diameter, and drawn out at its extremity. In the horizontal part, are placed some pieces of fused chloride of calcium, and farther on, some fragments of porcelain; to this latter part of the tube the heat is to be applied. Zinc in proper quantity is now placed in the flask, and diluted sulphuric acid is poured in by the funnel tube. When the disengagement of gas has gone on long enough to avoid the danger of explosion, heat to redness is applied to that portion of the tube which contains the porcelain, and then the decoction prepared as above, is poured into the flask. If the mixture in the flask foams so much as to be likely to enter the tube, five or six grammes of alcohol poured in through the funnel will check it instantly.

If the liquid tested, contains any traces of arsenic, it will soon show itself at a short distance from the point heated red hot, in the form of metallic arsenic. The operation should be continued one or two hours. Then cool the tube and separate it from the rest of the apparatus. The metal may now be tested, or the tube may be hermetically sealed by the lamp and preserved for future exhibition.—*Journal of the Franklin Institute*, April 1841, from *Journal de Pharmacie*. T. R. B.

49. *Healthy Appearance of the Internal Surface of the Stomach.*—Very various are the accounts given by different authors who have written upon this subject, of the natural and healthy colour of the mucous membrane. It has been described as being white, grayish white, grayish, reddish, grayish approaching to yellow and red, straw coloured, &c. Billard, in whose opinion, Dr. Hodgkin is inclined to place most confidence, states it to be a dead milky white. According to Buisson and Bichat, the colour is of a deep red, and Sabatier and Habicot describe it as of a reddish purple and deep purple. Gavard, Boyer, Soemmering, Chaussier, and Adelon make it of variable shades between red and gray. Rousseau who derived his opinion from the examination of the bodies of criminals dying by the hands of the executioner, (by the guillotine, we presume), states that the colour of the gastro-intestinal canal is white, or white faintly tinged with red. Dr. Yelloly states, that in various opportunities which he had of examining the human stomach soon after death, in such parts of it as were free from vascularity, it had usually a light straw-coloured tinge, but gives it as his opinion, that from the analogy of the mucous covering of the mouth and fauces, and of the urethra, it is probable that when circulation is going on in the stomach, its inner surface is of a pale red hue, arising from vessels so minute as to give an uniform colour, without any appearance of distinct vascularity. We are ourselves rather disposed to agree with M. Hippolyte Cloquet, who describes the usual appearance of the membrane as being of a reddish white and mottled, (comme marbrée), but we must observe that this diversity

of opinion as to a fact so evident to the senses, could only have arisen from the varying appearances of the membrane presented to the several observers under different circumstances of disease, or from the effects of certain physical agents acting during the last moments of life. The manner of death would appear to exert considerable influence; the presence of aliment recently taken into the stomach causes a decided red tinge throughout the membrane; extremes of cold and heat, according to Beaupré, are also productive of a like effect in the mucous membranes generally, and the stomach has been observed to take a decided tinge from various medicines administered shortly before death.*—*British and Foreign Medical Review*, April 1841. T. R. B.

50. *Peculiar Action of Sulphuric Acid on the Stomach.*—"An important remark, by Dr. Hodgkin, which from its bearing on medico-legal inquiries, we must not pass over, is, that where an intense active agent (boiling water and sulphuric acid are especially referred to) has been swallowed or forced into the stomach, it is, as it were, discharged against that part of the internal surface of the stomach which is immediately opposite the opening; and that upon this spot, an almost instantaneous change is produced, which is deeper and more intense than that which is afterwards produced in other parts of the mucous membrane, when the agent is diffused over them, lowered in its activity by the mucus, which is rapidly secreted, and which does not merely dilute the noxious agent, but in some degree, protects the membrane. This spot is that portion of the great curvature situated immediately opposite the œsophagus, whereas, in other cases, the most intense degree of injection is usually met with at the cardiac extremity. When, therefore, this part of the stomach is affected rather than that which is the more common seat of the appearances of inflammation, it may, as the author observes, lead us to the suspicion, that some fluid, capable of producing an immediate effect, has been swallowed."—*Ibid.* T. R. B.

51. *Laburnum Seeds.*—On the 3d of December, 1840, eleven boys of the age of six to nine years ate, *immediately after dinner*, the seeds of a laburnum tree growing in their play ground, at a school in Brentford, near London. According to the quantity taken, which never exceeded five seeds, it caused vomiting and purging, or purging alone, or nausea, with drowsiness, dilated pupils, and a weak pulse. Some escaped, without any affection of the stomach, but all were more or less affected with the other symptoms. The treatment consisted in a salt and water emetic to those who had not vomited; a warm bed, with a few drops of aromatic spirit of ammonia to the faint, and for the three who had the head affected, a high pillow, a cold lotion to the forehead and temples, and hot bottles to the feet. The next day, after a gentle aperient, all were well. Mr. Bonney, *Lancet*, January 9, 1841. T. R. B.

52. *Salts of Platina.*—According to Dr. Hoeffer, (*Gazette Médicale de Paris,*) the preparations of platina (chlorides) are poisons; the perchlorides in the dose of a scruple; the double chloride of platina and sodium in the dose of two scruples. They are, however, less dangerous than the salts of gold and corrosive sublimate. The perchloride of platina in concentrated solution, produces acute itching on the skin, followed by a cutaneous eruption in the situation where the solution has been applied. Taken internally, it at first irritates the mucous membrane of the stomach, occasions cephalalgia, reacts on the nervous centres, and that exercises a peculiar alterative action on the fluids of the economy. The double chloride does not produce local irritation on the skin. Dr. Hoeffer recommends the salts of platina as alteratives in syphilis.—*British and Foreign Medical Review*, April 1841. T. R. B.

* The valuable researches of Prof. Horner relative to this subject ought not to have been overlooked. A full account of them, illustrated by coloured plates, will be found in the No. of this Journal for November, 1827.—Ed. Am. Journ.

53. *Appearances on Dissection in persons hung.*—The following is an extract from Dr. Watson's Lectures on the Practice of Physic, at King's College, London. Dr. Kellie desired to ascertain whether, under circumstances calculated to gorge the vessels of the *head*, those of the *brain* were or were not made really more full than usual. He examined the brains of two men who had been hanged. When the scalp in these cases was divided, a great quantity of blood escaped, marking plainly enough the congestion of vessels *exterior to the cranium*, but there was no such congestion observable within; "the sinuses contained blood, but in no extraordinary quantity; the larger vessels on the surface, and between the convolutions, were but moderately filled, and the pia mater was, upon the whole, *paler* and less vascular than we often find it in ordinary cases." I can corroborate the accuracy of Dr. Kellie's observations in these last instances, by what I have noticed myself. I paid particular attention to the condition of the head, when the body of Bishop, who murdered the Italian boy, was examined. When he was brought here after the execution, the eyes were blood-shotten and the lips and countenance turgid and livid. The inner surface of the scalp, when it was turned back, and the exposed surface of the skull, were very red and bloody, and in one part, on the right side of the head, there was some blood *extravasated;* but when the bone had been sawn through, and the skull cap removed, the large veins of the brain did not appear unnaturally full.

In the year 1826, I was present at St. Bartholomew's Hospital, at the opening of the head of a woman who had been hanged, the day before, for murder. I find the following statement in a note which I made at the time. "The scalp was bloody, but the brain was of a very natural texture and appearance, and not more than usually full of blood."

In France, they execute criminals by means of the guillotine, and some curious speculations have been raised, as to whether the head, after decapitation, remains for a short time sensible of what is going on or not. These speculations have led to a closer observation of the phenomena that immediately succeed this mode of punishment, and it has been noticed that although much blood is effused as soon as the head is severed from the body, it comes from the vessels of the *trunk*, and that the arteries and veins of the head do not discharge themselves of their contents for some little time. All these facts go to the same conclusion, viz. that so long as the solid contents of the cranium remain entire, the quantity of blood contained in the vessels does not and cannot vary much.—*London Medical Gazette*, February, 1841.

In the case of Scott, the American Diver, who hung himself *accidentally* in London, in consequence of using a slip knot to suspend himself, instead of a bowling one, the body was examined twenty-four hours after death. There was a mark on the skin around the neck, but it was quite superficial, and did not extend to the cellular membrane. There was scarcely any mark over the larynx; it passed up anterior to the ears. The brain presented nothing unusual, except that it was somewhat congested at its posterior part; the spine was healthy and sound; the lungs were very much congested, and the heart and large vessels were full of fluid blood; the lining membrane of the air passages was particularly congested.—*Lancet*, *No.* 909. T. R. B.

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54. *Protracted Gestation.*—A case involving this question was recently brought before the House of Lords, in England, on appeal from the Scotch courts. It is reported in Shaw and Maclean's Scotch Cases, vol. 2.

*Innes* v. *Innes.* Without referring to the other details, it is sufficient to state that Mr. Innes, the supposed father, left Edinburgh, on the 17th of June, 1826, that he departed from London for the continent, on the 26th of that month, that he returned to Edinburgh on the 19th of September, and the appellant was born on the 14th of April, 1827. From the 17th of June to the 14th of April, are nine calendar months and 27 days, or 301 days. From the 19th of September to the 14th of April, there are 207 days, being seven lunar months and thirteen days.

It was not contended, or if contended, the plea was abandoned, that this was a premature birth, since it was proved by Dr. Thomson, who delivered the mother, that the appellant was "a full grown birth." The question, therefore, was confined to the point of protracted gestation, and on this, the following testimony was presented.

*For the pursuers*, (plaintiff,) Dr. James Hamilton, Jun., Physician in Edinburgh, Professor of Midwifery in the University of Edinburgh, depones, that he thinks that ten calendar months is an unusually long period of gestation, but not by any means without precedent; that in the course of his practice, he has had occasion to know a very few cases of such protracted gestation, with regard to which he could entertain no doubt; that he has known one case of a patient passing eleven menstrual periods by seven days; that by calender months, the deponent means consecutive months, beginning at any one month in the year. Interrogated for the defenders, whether the number of cases which he has known, in which gestation was protracted to ten calender months, has, in his experience, been so great as one in a thousand? Depones certainly not. Interrogated, whether it may have been one out of two thousand, or three or four or five thousand; depones that it is impossible to answer this, because a person does not think of keeping a list. Interrogated, whether in computing the period of gestation, a medical man must not necessarily depend on the statements of the woman, as to the period from which conception is supposed to commence? Depones that the information obtained from the patient relates to the date of the last menstruation.

Dr. John Moir, Surgeon to the Lying in Hospital, Edinburgh, gave similar testimony in favour of prolongation of the period in a few cases.

*For the Defenders.* I will only quote the testimony of Dr. John Thatcher, Physician in Edinburgh. He deposed, "that he had been in practice as an accoucheur for nearly thirty years, during which he had delivered above 10,000 patients; that gestation protracted beyond nine calendar months is a possible, but not a very probable circumstance. Interrogated, whether he believes in a gestation of ten months? Depones, that two such cases, perhaps, three have been reported to him; but that he considered these, and considers such case generally, as founded solely on miscalculation or misapprehension; that wherever the woman is of bad character, or has an interest to deceive, he would most assuredly ascribe the statement, that she has gone long beyond the ordinary period, to these circumstances. Interrogated, whether in judging accurately of the exact period of gestation, he is not obliged to depend entirely upon the statements of the woman, or at least to depend so much upon these statements, that no certain conclusion can be drawn independently of them? Depones, that in general, in respectable practice, certainly he does rely upon the statement of the woman, but that in the later months of pregnancy, if required, accurate and scientific examination could be made correctly, or nearly so, to ascertain its state of advancement, independent of any statement on the part of the mother, but that if no such examination be made, the woman's statements are the only guide; that women without any motive of deception, are frequently mistaken as to the period of gestation. Interrogated, whether the woman, when there is any unusual protraction, must not be aware of this fact. Depones, I think she unquestionably must."

As this was according to Lord Wynford, an "infamous case," the mother being of decidedly bad character, the House of Lords declined to support the doctrine of protracted gestation. T. R. B.

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55. *Poisoning with Binoxalate of Potash.*—A female aged 20, took about an ounce of this, previously dissolved in hot water; about an hour and a half thereafter, she was found lying on the floor quite faint, having been previously very sick. As soon as the nature of the poison was discovered, four ounces of the cretaceous mixture were given, to neutralize the acid. She was now extremely depressed, the pulse very feeble, skin cold and clammy, with continued rigors affecting the whole body. She complained of a scalding sensation in the throat

and stomach, pain in the back, soreness of the eyes and dimness of vision. The conjunctivæ of both eyes were a good deal injected, and both pupils were dilated. She was wrapped up in warm blankets and bottles filled with hot water, were applied to her feet. She also took occasionally some ether and tincture of opium in camphor mixture. In about an hour, reaction occurred, with a hot skin, and quick and full pulse. The pain in the throat now extended to the abdomen, with tenderness on pressure. For this leeches were applied, followed by warm fomentations. The treatment proper for reducing inflammation was continued, and the next day she was much better. Sulphate of magnesia was prescribed to obviate the existing torpid state of the bowels; but it was necessary to exhibit this in small doses, as faintess recurred. She recovered in a few days.

This is probably the first case on record of poisoning with the binoxalate of potash. It is employed largely as a decolorizing agent by those who prepare straws for the manufacture of bonnets. The present individual was engaged in that business.—*Mr. Jackson in London Medical Gazette*, December 1840.

T. R. B.

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56. *Poisoning by Ammonia, in the state of Vapour.*—On the 10th of June, 1840, at about three quarters past eleven o'clock in the evening, Dr. Souchard, of Batignolles, was suddenly summoned to visit M. A. Pietri, the pupil of a druggist in that place. This young man, whom many had seen a few hours previous, in perfect health, was now in the most imminent danger. One of those enormous stone bottles, known in commerce by the name of *bonbonnes*, and which contains about fifty pounds of the volatile alkali, had been delivered late in the evening at the shop. The druggist was doing duty as one of the National Guard, and it was too late to procure other assistance in order to carry it into the cellar. The heat of the room probably caused the ammonia to expand, and thus the bottle broke. Pietri slept in a small apartment opening into the shop, but he had scarcely been in bed before he experienced a violent constriction of the throat, and great difficulty of breathing. Unable to account for this, he arose, for the purpose of procuring a drink of water, but as he entered the shop, the sense of suffocation increased, and he would probably have expired, had not a female servant been aroused by his plaintive cries. She succeeded, though not without risk to herself, in dragging him from the tainted air. It is supposed that he had been exposed to it about three quarters of an hour.

Dr. Souchard directed his immediate removal into the open air. His countenance was covered with red spots; a large quantity of bloody froth issued from the mouth and nose; the tongue was of a vivid red and appeared deprived of its epithelium, but in some places it was covered with a white mucus, resembling portions of a false membrane, and the cavity of the mouth had a similar appearance. The patient, who could articulate only with extreme difficulty, complained of a cutting pain in the throat, which soon extended to the chest; the respiration was very feeble and suffocation seemed impending. He experienced great thirst, but it was almost impossible to swallow anything, as the attempt caused violent coughing, and a mucous expectoration. The pulse was feeble, irregular and frequent, the eyes red, and the face burning to the touch. He was bled largely, with very great relief, and being removed to a bed, vinegar, diluted with water, was regularly administered. Although he swallowed at first with difficulty, yet its good effects were soon manifest in a diminution of the mucous rattle. Leeches were applied to the throat with success, and subsequently frictions, astringent gargles, enemas, and warm baths completed the cure. In forty-eight hours M. Pietri was out of danger, but for several days thereafter he laboured under all the symptoms of acute bronchitis, and he had complete aphonia for nearly a week; of all this, however, he perfectly recovered.

This is not by any means the only case in which dangerous and even fatal effects have followed from exposure to this violent irritant. M. Chevallier, in his comments, refers to no less than ten instances, and he has not included the whole that are on record.—*Annales D'Hygiene*, January 1841. T. R. B.

57. *Fracture of the Skull occurring during Labour.*—In our number for November 1837, p. 246, we gave the details of a case of this description, which occurred in the practice of Dr. Michaelis of Riel, and we are now able to add a second case recorded by Dr. Schultzen of Insterberg, in *Casper's Wochenschrift*, Oct. 10, 1840. The particulars of this last case, which we extract from our valued cotemporary, the *B. & F. Med. Rev.* for January last, are as follow:—

"A strong, healthy, and corpulent woman, about forty years old, had already had five children. All of them had been large, and all the births difficult, though accomplished without artificial assistance; two of the children were born dead. The sixth pregnancy was passed through well, and parturition came on at the right time. The pains were severe, and the membranes ruptured, but the delivery did not make progress. After twenty-four hours the author found the pains severe, and that much water had passed away, but that no blood had appeared. The uterus felt hard, and was contracted strongly round the child. The latter had a transverse position; the head lay above at the left side of the uterus, the feet below and to the right, the right hip presenting. The child was alive. The os uteri was completely open, the vagina very much dilated, and the turning of the feet was easily accomplished. The pelvis was, during this operation, ascertained to be of normal dimensions. After the turning, the body of the child was quickly forced down to the aperture of the pelvis by the continued strong pains, but here the head stopped with both arms lying close beside it, and with the face directed backwards and to the right, till at last with a further increase of the pains, and with the assistance of traction of the feet and shoulders, the child was quickly expelled. It gave no signs of life, and notwithstanding long-continued endeavours were made, it could not be revived. It exhibited nothing whatever abnormal externally, except a sugillation on the right parietal bone as large as a half-florin. It weighed a pound and three quarters; its length was twenty-two inches and a half, the transverse diameter of the head three inches and three quarters, the long diameter four inches and three quarters, the breadth of the shoulders five inches. The bones of the head moved with great difficulty upon each other, and the anterior fontanelle was proportionally very small.

"On examining the head, after its external coverings were removed, there appeared an extravasation of blood on the right parietal bone, amounting to about half a drachm. Directly below this the parietal bone was pressed in at its middle, and fractured in the form of a star. The indentation was of a round form, about an inch in diameter, three lines deep, and completely retained its shape when the bones were separated from one another. When held against the light the bones seemed very vascular, and it was evident that the fracture extended through both the tables. On the dura mater there lay a coagulum of blood of the size of a sixpence, and below it one rather larger. Another of the same size was found below the cerebellum, and the whole of the brain and its membranes were unusually vascular.

There could be no doubt that the death of the child was the consequence of this injury of the head; and it was equally certain that the injury was the result of the difficult parturition, though no instrumental means were employed."

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58. *On the Length and Strength of the Umbilical Cord at the full term of Pregnancy.* By Dr. Negrier.—A girl of bad character was accused of having strangled her child by means of the umbilical cord, before it was completely expelled from the uterus. As there was a difference of opinion amongst the medical men as to the possibility of the umbilical cord possessing sufficient strength or length for this purpose, Dr. Negrier performed a number of experiments, for the purpose of ascertaining the strength of the cord, and measured it in 166 cases to arrive at its average length.

Of the 166 cases, it was remarked that in 144 the umbilical cord floated free within the uterus; in 20 cases it was rolled around the neck of the child; in one it was round the shoulders; and in one between the thighs, the breech presenting in this case: 98 of the umbilical cords were not varicose, and 68 were varicose.

As to length, 28 were 17 inches long, 112 were from 17 to 25 1-2 inches long, and 26 above that length.

The resistance of the umbilical cords was ascertained by attaching weights to one end of the cord until it ruptured, the weights being always attached to the placentar extremity. About one-half of the cords were passed by their middle over a round bar, and weights attached till they gave way; the other half of the number were rolled one-and-a-half round the same bar, covered with linen, so as to bring it to the diameter of a child's neck, when it was found that these supported a greater weight than those over the plain bar. The varicose umbilical cords were ruptured with a lesser weight than the sound cords, and generally gave way at one of the varicose dilatations. The mean weight which these varicose cords supported before they gave way was 8 pounds Troy; the most resistant supported 14 pounds 7 ounces. The medium resistance of the non-varicose umbilical cords was 14 pounds 4 ounces Troy; but one cord required 25 pounds 3 ounces to rupture it.

Dr. Negrier next made a few experiments to ascertain what weights suspended round the neck of an adult would produce such a degree of compression as to cause unpleasant feelings or strangulation. A weight of 8 pounds was suspended to a cord passed once and a-half round the neck, the back of the neck being upwards. The respiration was rendered difficult, and the brain strongly congested in two minutes. Vertigo commenced soon afterwards. The respiration, however, could be continued with difficulty. When the face was placed upwards the effects of the congestion were more rapid; the respiration was much impeded, but was still possible; but Dr. Negrier thought that death would have resulted if this position was maintained for a quarter of an hour.

When the experiment was made with a weight of 13 pounds, and the face downwards, rapid congestion of all the vessels of the head took place; the eyes became injected, and filled with tears; the respiration was very laborious, but was still possible. It was, however, dangerous to continue the experiment for two minutes.

When the same experiment was repeated, but with the face looking upwards, the strangulation was almost complete. Respiration was so impeded that Dr. Negrier thinks death would have resulted in less than five minutes.

From these facts, he infers that the umbilical cord is both long enough and strong enough to produce strangulation in a new-born infant, by being twisted round its neck after the head is delivered. A force applied to a cord equal to 13 pounds would strangle an adult in five minutes, and a much lesser force would strangle a child.—*Ed. Med. and Surg. Journ.*, from *Annales d'Hygiene Publique*, Jan. 1841.

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## MEDICAL STATISTICS.

59. 1. *Abstract of the Glasgow Mortality Bill for* 1840. By Alexander Watt.

Population estimated at 382,000.

| | |
|---|---|
| *Burials.*—Total in the city and suburbs in 1840, | 9541 |
| Total in the city and suburbs in 1839, | 8130 |
| Increase of Burials in 1840, | 1411 |
| *Births and Baptisms recorded.*—Total in 1840, | 3054 |
| Total in 1839, | 3048 |
| Increase in 1840, | 6 |

*Monthly Record of Births and Baptisms.*

| Months 1840 | Males | Females | Twins | | Total Males | Total Females | Grand Total 1840 | Grand Total 1839 |
|---|---|---|---|---|---|---|---|---|
| | | | Males | Females | | | | |
| January, | 114 | 92 | 2 | | 116 | 92 | 208 | 211 |
| February, | 133 | 125 | | 6 | 133 | 131 | 264 | 254 |
| March, | 127 | 110 | 1 | 1 | 128 | 111 | 239 | 321 |
| April, | 158 | 132 | 4 | 2 | 162 | 134 | 296 | 264 |
| May, | 141 | 132 | 2 | 4 | 143 | 136 | 279 | 181 |
| June, | 118 | 105 | | 4 | 118 | 109 | 227 | 316 |
| July, | 142 | 132 | 10 | 2 | 152 | 134 | 286 | 263 |
| August, | 146 | 127 | | | 146 | 127 | 273 | 251 |
| September, | 110 | 116 | 2 | | 112 | 116 | 228 | 222 |
| October, | 148 | 137 | 1 | 1 | 149 | 138 | 287 | 200 |
| November, | 129 | 122 | 1 | 1 | 130 | 123 | 253 | 290 |
| December, | 118 | 92 | 3 | 1 | 121 | 93 | 214 | 275 |
| Totals in 1840, | 1584 | 1422 | 26 | 22 | 1610 | 1444 | 3054 | 3048 |
| Totals in 1839, | 1580 | 1432 | 21 | 15 | 1601 | 1447 | 3048 | |

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*Marriages.*—Total proclamations of marriages, including three irregular marriages, in 1840, - - - - - - - - - 2518
Total proclamations, including two irregular ones, in 1839, - - 2443

Increase in 1840, - - - - - - - - - - - 105

*Remarks.*—The stillborn children and premature births amounted to 720. These being deducted from the number of burials, show the total amount of deaths to be 8821. The burials to the estimated population are therefore as 1 to 29.556, or 3.283 per cent.; and the deaths 1 to 31.969 or 3.128 per cent. The registration of births and baptisms is extremely defective. Without the aid of a legislative enactment, little hope can be entertained that the evil will be remedied. The same remark applies to the table of marriages; the average amount of marriages during five years, are, to the mean estimated population of these five years, as 1 to 122.428, or 0.816 per cent. *From Henry Marshall, M.D., Deputy Inspector General of Hospitals, Edinburgh.* T. R. B.

60. *Statistics of the Vienna Midwifery Institution.*—There were delivered in the Vienna Midwifery Institution, within a period of 23 years, 29,891 women. The number of twins was 392, and of triple births, 6. Presentations of the face 258, of the breech 519, of the foot 250. Turning was performed in 151 cases; instrumental deliveries 114; head perforated 51 cases.—*Lancet*, January 9, 1841.

## FOREIGN CORRESPONDENCE.

61. *New operations for the radical cure of Stuttering—new operation for cure of Myopia—Sulphate of Quinine in large doses for the cure of Intermittent.*—[Extract of letter from Dr. E. J. Lewis, to Dr. J. K. Mitchell.] During the last two or three weeks I have seen many patients operated on, for the radical cure of stuttering, but in most of them, with very unsatisfactory results, and I have come to the conclusiom, that the accounts of the wonderful success attending this operation, as bruited forth and published to the world, by some charlatans and mistaken enthusiasts, are not to be relied upon as genuine statements of this operation. That this operation, or some one closely analogous to it, will be admited into the annals of judicious surgery, there is no doubt; but it is yet in its infancy, and will require much study to suit it to the different modifications and varieties

of this imperfection. Although Amussat has operated frequently, and presented this subject at some length before the *Académie*, as also exhibited several cases, said to have been entirely cured by the section of the genio-glossi, still there is a doubt as to the correctness of his reports, and he has been accused by some very respectable surgeons of charlatanism, even publicly through the medium of the medical journals. I have been present during several of his operations, and must confess to have never been entirely satisfied of the much boasted improvement in the speech of his patients, immediately after the division of the muscles, and I have never, but in one or two cases, been fortunate enough to meet with those operated upon, after the lapse of a short time, and in these two, the operation did not appear so flattering as I had at first supposed. But little has yet been published on the matter except a few straggling accounts met with occasionally in the Medical Gazettes.

A new idea is now gaining ground in reference to the cause and surgical treatment of myopia as it is presented to the Académie by Guérin. He supposes that there are two kinds of this affection, namely, myopie mécanique or musculaire, and myopie optique or oculaire, the former resulting as strabismus in the primitive, shortening or active retraction of the muscles of the eye. The diagnosis of these two forms, requires some nicety of examination to prevent the injurious application of the surgical means proposed.

The characters of myopie mécanique, are somewhat similar to those furnished by strabism mécanique, besides a slight deviation of the eye from its natural axis, the form of the globe oculaire is a little changed, and the movements of the organ restricted. The anterior half of the globe of the eye is more conical, the cornea representing a segment of a sphere, with a greater convexity than natural; the sides of the globe are depressed and stretched in the direction of the muscles that are retracted. The movements as before stated are affected, being more or less circumscribed either upwards or downwards, internally or externally, according to the contraction of the different muscles affected. The active treatment of myopie mécanique, you will have already anticipated, consists in the division of the muscles concerned in producing this unnatural state of the eye. Guérin states that he has operated with marked success in several cases, and of course his statements are worthy of all credit.

At the Hospital de la Pitié, the service of Piorry, a professor in the medical school, I have seen the sulphate of quinia used in a wholesale manner, for the treatment of intermittent fevers, which this gentleman considers to be caused by and dependent upon enlargement of the spleen, which hyperthophy may be produced by some external or internal agent. But he asserts, that the fever cannot exist without the enlargement and derangement of this viscus, although the spleen may be hypertrophied and engorged for a time without producing the fever. This theory of course has many disciples, and many enemies. He makes use of this medicine in the enormous doses of fifty and one hundred grains; I have often very satisfactorily percussed the spleen, and marked its limits most accurately before the administration of this medicine in the above doses, and in the short space of twenty minutes after its exhibition, I have seen this organ very perceptibly diminished in its whole circumference, and the paroxysms of the fever arrested or palliated in an incredibly short time.

*Paris, March* 29th, 1841.

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62. *Medical Schools of Berlin and Vienna.*—[Extract of a letter from Dr. T. H. Watts, of England, to Dr. Pliny Earle.]—The schools of Berlin and Vienna are the best in Germany, and the superior characteristic of their style of teaching is, *much specialty of study*. They have courses of lectures and clinics on the diseases of the eye, the maladies of children, the disorders of women, midwifery, clinics, and polyclinics. I have derived immense advantage from my tour through their numerous schools. I was about five months in Berlin, attending the great Jungken on the eye, and Rust and Dieffenbach on surgery; but at Vienna alone I remained nearly ten months, and left it with deep regret, for it has the first practical school in the world—not for the young student

or mere tyro in the profession, but for him whose mind is already well prepared. It is immeasurably superior to all others for morbid anatomy, eye diseases, and midwifery. The Civil Hospital alone counts about forty thousand admissions yearly; there are upwards of three thousand choice autopsies every twelve months, and these are open to the public. The professor of morbid anatomy and his assistant are always in the dead house at fixed hours, at morning and noon; and have the exclusive right, for themselves and their class, to open the bodies, and nowhere have I seen this part of medical inquiry made with equal care and exactness. There is still more liberality in the medical department in Vienna, than even in Paris, and foreignors are admitted scot free. Besides the general medical and surgical clinics, there are two excellent clinical courses on diseases of the eye. The one is given in German by the immortal Jaëger, in the Military Hospital, and the other in the Latin tongue, by Rosas, in the great Civil Sick-house. By a happy method of centralization the asylums for disease in Vienna are all accumulated in the same quarter of the suburbs.

The other universities I visited in Germany were in smaller cities, and as I travelled for bare practical information, I never prolonged my stay in one of them above a week or twelve days, for I studied to keep mostly to the grand metropolitan sites. I have always found the large metropolis superior for medical inquiry, except in Italy, where Rome stands certainly the lowest as a school of medicine. It is even excelled by miserable Parma."

*Paris, December* 13, 1840.

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## MISCELLANEOUS.

*Necrology.*—The foreign Journals for the past three months, announce the deaths of several very distinguished ornaments of the profession. Among these we may notice, Dr. Hope, author of a valuable work on the diseases of the Heart, and assistant physician to St. George's Hospital; Dr. Ryan, the author of several works on Midwifery, &c., and formerly editor of the *London Medical and Surgical Journal;* Esquirol, chief physician to the Hôspice de Charenton, and author of a most valuable Treatise on Insanity, and other works; Landrè Beauvais, former Dean of the Faculty of Medicine; and Mad. Boivin, well known, both as a successful writer and practitioner of midwifery. She was a Doctor in medicine, for many years Superintendent of the Maternité at Paris, and a member of most of the learned societies of Europe.

*Biography of Dupuytren.*—A highly interesting biography of Dupuytren, by Professor Cruveilhier, has recently been published in Paris.

*Hôpital de Charenton.*—M. Foville has been appointed physician in chief to this hospital, in the place of Esquirol, recently deceased.

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# AMERICAN INTELLIGENCE.

*Dysphagia from Scrofulous degeneration of the Œsophagus of five years standing, cured.* By EZRA P. BENNETT, M. D., Danbury, Ct.—The subject of this case was a young lady by the name of Mary Edwards, from the town of Sherman, in the north part of this county. She first consulted me in November, 1840. She is 19 years of age, of delicate slender form, with sallow countenance, black eyes and hair. Her general health was bad; the menses were irregular, and she complained of lassitude and debility. She said that about five years since she began to experience a little difficulty in swallowing, which had gradually but steadily increased until the present time. She could not swallow any substance as large as a common pill, without dividing it into two or three pieces, and she then swallowed it with difficulty. The pharynx was dilated upon each side into pouches of considerable size, so that when she swallows fluids, they at first appear to pass into a cavity, and then with a gurgling noise pass down the œsophagus. She complained of no pain in the throat, except after exposure to cold. After eating there was a smarting sensation, which, however, soon subsided. I attempted to pass a bougie into the throat, but was wholly unable to do so, although I made the attempt at different times. Although the instrument was of small size (not being larger than a medium sized catheter,) I could by no possible means make it pass the stricture; it would pass down about five inches from the incisor teeth and stop abruptly. If it was pressed upon, or rotated, it passed immediately into the glottis, and had to be immediately withdrawn to prevent suffocation. To satisfy myself that it really entered the rima glottidis I substituted a catheter for a bougie, which, when introduced in the same manner, permitted her to respire through it, which removed all doubt upon this point, and proved most conclusively that the instrument was in the trachea. From her general appearance, and from the history of her case, I came to the conclusion that the disease was of a scrofulous character, and that the difficulty of deglutition depended upon a scrofulous degeneration of the coats of the œsophagus. Having come to this conclusion, I commenced a course of medication in accordance with these views. I gave her a pill of conium, ipecac. and blue mass, three times a day before eating, also 20 drops of the iodide of iron three times a day half an hour after eating, directing at the same time the neck to be rubbed with iodine ointment morning and evening. Having continued this course of treatment for a few weeks I again attempted to pass a bougie into the throat, but was as before unsuccessful. Foiled in my repeated attempts to introduce a bougie, I began almost to despair of doing her any good; but I resolved to make one more trial, and that with a different instrument. I procured a flexible piece of whalebone, to the end of which I attached, by means of a screw, a small but perfectly smooth ball of ivory; the size of the ball was about that of an ordinary sized pea. Armed with my instrument, I again

returned to my task, and soon had the satisfaction of passing it through the stricture, though not without using considerable force. The passage appeared to be hard, indurated, and quite rough and knotty. After the instrument was withdrawn, she spit up some blood and complained much of pain in the stomach, which lasted for two days, and was so severe as to require full and repeated doses of morphine to subdue it. As soon as the soreness of the throat had subsided, I again introduced the instrument. By pursuing this course for four or five weeks, I found that the instrument passed with ease, and I therefore substituted a larger one, which I gradually increased in size as the passage dilated, by dipping it in melted wax. In this way the dilatation was very gradual and almost without pain, and in four months from the commencement of the treatment my patient left town in good health and fine spirits. The induration and raggedness of the œsophagus has entirely disappeared, the pharynx has regained its usual size, and she swallows with the utmost ease and facility. The blue mass and ipecac. was continued only for a few weeks; but the conium and iodine were continued through the whole course of treatment, with an occasional intermission of a few days. The instrument used in this case I think better adapted to overcome such difficulties than a bougie, as it has no point, and will not therefore be obstructed by the ragged and uneven surface of the œsophagus. Neither will it so easily pass into the glottis, and being more firm, it can more readily be guided into the tube, and when there can be pressed upon with more force and precision. I do not think that in this case I should have ever succeeded in passing a bougie.

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*Case of Congenital hypertrophy of the upper eyelids, and mucous membrance of the upper lip, with an inversion of the eyelashes.* By H. H. Toland, M. D., of Columbia, S. C.—In the spring of 1838, a male slave, ætat. 22, the property of Dr. S., was placed under my care, who had at birth an unusual fulness of the upper eyelids, produced by an unnatural development of the skin and subcutaneous cellular tissue; accompanied by an inversion of the eyelashes, and an almost entire want of control over the motions of the lids. The entropium had produced, from the irritation that had been so long kept up, an entire opacity of the cornea of the right eye, and a partial one of that of the left. If the eyes had been in a healthy condition, he could not have had perfect vision, in consequence of the inability to separate the lids.

The upper lip seemed as if it were partially everted, and the mucous membrane projected an inch below its junction with the skin, and covered or hung over a part of the under lip. Being in constant pain from the inflamed state of the eyes, and without value, we determined to make an effort not only to remove the entropium, but also to improve his appearance.

A portion of the skin of the upper lid of the right eye, was taken up between the fore-finger and the thumb, so as to evert the eyelashes, and removed with a scalpel, from the external to the internal angle of the eye, leaving a wound of a semilunar shape. The portion of integument excised did not exceed an inch in width in the centre, and diminished gradually to the extremities. After the removal of the skin, a large quantity of condensed lamellated cellular substance presented, and was removed. The wound was closed by the interrupted suture, the points being sufficiently numerous to bring the edges in direct contact.

Considerable inflammation followed the operation, but soon yielded to purgatives, with the constant application of warm water to the eye during the day, and a poultice of bread and water at night. It probably depended both on the distension of the remaining integuments of the part, as well as the number of ligatures that were found necessary to bring the edges of the wound in contact.

The ligatures were removed on the fifth day, the wound having almost entirely healed.

In a week the same operation was performed on the left eye, with a similar result. The appendage to the upper lip was also removed at the same time with a scalpel, and found to consist of the mucous membrane very much thickened, but not otherwise altered in structure. The quantity of cellular substance was increased considerably, and the labial glands somewhat enlarged. The wound was close by the interrupted suture, and united readily.

The opacity of the cornea of the eye in which it was partial soon disappeared, and diminished slowly in the other. His sight is now good. The entropium has not returned; and the deformity produced by the unnatural state of the lip is removed.

This case of entropium is the more interesting, as it was congenital, produced by the hypertrophy of the eyelids, accompanied by a similar affection of the upper lip.

He has perfect control over the eyelids, although the margins are almost in contact with the eyebrows. The mother of the boy, the subject of the affection under consideration, was at the time of his birth the property of a physician, who entertains no doubt as to the difficulty being congenital.

A few days ago, now almost two years since the operation was performed, he was perfectly well, and is as valuable as any negro on the plantation to which he belongs.

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*An Essay on the beneficial results of Statistical Inquiries, in their application to Charleston, tracing the increased mortality to Quacks and Quackery.* Dr. Thos. M. Logan read before the Charleston Apprentices' Society in May, 1841, an Essay, of which the above is the title, and the purport of which is similar to the one by Dr. Samuel Cartwright of Natchez, an extract from which was inserted in the January No., 1841, of the American Journal of the Med. Sciences. In the latter article the result of the empirical was contrasted with that of the regular practice of physic in Natchez; and to this article Dr. Logan acknowledges himself indebted both for the argument and plan, as well as idea of his own investigation as to Charleston. It seems that it was the fortune of Dr. L. to publish in the July No. for 1836, of the Southern Literary Journal, some remarks "on the climate and health of Charleston," tending to prove the *then* increasing salubrity of that city, and its advancement, pari passu, with other prosperous cities, in the social ameliorations and blessings of long life, which obtain in other well regulated and enlightened communities. Since that period an opposite state of things has taken place; not only has the population sensibly diminished, and the mortality alarmingly increased; but the laws which encouraged sciences and protected and guarded the citizens have been annulled, and a murderous set of quacks and empirics turned loose upon the credulous public. In such a state of things, Dr. L. felt it to be incumbent on him, inasmuch as he was among the first to felicitate the inhabitants concerning their advancement in civilization in 1836, to sound the tocsin of alarm, and to warn them now of the fatal change which has taken place in the medical police of the city, and arouse them from their supposed security and immunity. After a copious disquisition to prove the correctness of the proposition, with which he

starts, and which has been recognized by medical men, wherever the light of knowledge has penetrated: viz. "The experience of the world has demonstrated that in the degree in which a nation advances in civilization and prosperity, so is the mortality diminished: that whenever a people enjoy a high degree of civilization, of rational freedom, and of moral dignity, there also will a greater number of individuals reap the full harvest of their years:"—Dr. L. proceeds to point out the causes which have induced such happy results. Among these causes he particularly mentioned the improvements in the cleansing, draining and ventilation of towns, cities, and in the general economy of hospitals; as well as the common adoption of a rational treatment of diseases, and particularly of the *eclectic* plan, which reflects so much honour on the enlightened and unbiassed members of a liberal profession. These *particular* causes chiefly affect disease already formed, and when happily brought to bear upon it, promote a favourable termination. More *general* causes also act on the entire mass of people, and operate on the prevention of disease. Among the most efficient of these latter, he mentioned the increase of commercial and agricultural industry, which has multiplied the comforts of the lower classes, and has enabled them to procure more spacious dwellings, more frequent changes of clothes, and more abundant and more wholesome food; insomuch that the average mortality and health of every nation are mainly determined by the degree in which its government has encouraged these pursuits, or has checked their free course. He then goes on to remark, "If political and moral circumstances then actually possess so preponderant an influence on the duration of man's life—on the prevention as well as production of disease, and on the guidance of its fatality, it is specially incumbent on the members of the medical profession, the proper guardians of the public health, individually and collectively to watch over their sacred trust—to report from time to time the result of their observations and discoveries, and to contribute their best efforts to prevent the useless waste of life."

"Fully impressed with the importance of these views and considerations, we undertook in some previous observations, published in the July No. for 1836, of the Southern Literary Journal, to point out to our fellow-citizens the happy fact that they were then in possession of a medical police, by whose instrumentality, in connection with other favourable circumstances, they might calculate with certainty on as great an average longevity, as the inhabitants of any of the most civilized portion of the globe. We showed that Charleston was one of the healthiest cities in the world, that she was possessed of a bland and benign climate, and that she was advancing pari passu, with other prosperous cities in the railroad track of civilization and social amelioration. These positions were sustained, supported and proved by facts deduced from accurate statistical observations derived from undeniable authority. We felicitated ourselves upon the improvements which were then in the course of introduction among us,—showed that this onward course was in accordance with similar observations which obtain in other portions of the civilized world; and with heart-bounding pride felt the conclusion to be fair, that, inasmuch as our own Charleston had improved as to salubrity, in a greater comparative ratio than many other reputedly healthy cities, so in a corresponding degree must our intellectual, moral and medical condition have been advanced.

"However just, satifactory and consolatory were the opinions, reflections and anticipations indulged in at that happy era in our existence, it is nevertheless true, lamentably true, that we have lived to witness the fallacy of all human reason, and to acknowledge that we have fallen from our high and palmy state, and are now retrograding rapidly into a primitive condition of semi-barbarism and credulity. In 1838, the legislators of our enlighted republic, in the full light of the 19th century, with the experience of ages before them, and at a period in the world's history of unexampled advancement in civilization, thought fit in their supreme wisdom, on the strength of the most illogical absurdities, to rescind those wise, salutary, and time-honoured laws, created by the wisdom of our forefathers for the protection of the Science of Medicine, and the defence of the people against murderous quacks and empiricisms of all kinds. Our rulers

cried 'havoc, and let slip the dogs of war.' Previous to this, however, covert operations had been commenced by certain pretended reformers in medicine—Practitioners of steam and Botanicals, who evaded the then existing laws by never openly charging their patients with bills. These worthies and their coadjutors were unwaried in their exertions, not only to prejudice the public against most of the medicines which physicians employed, calling them poisons; but they attempted, and, with shame I say it, succeeded, in too many instances, in destroying all confidence in physicians themselves. Many a good citizen, who owed his life to the scientific practice of medicine, was not only by these means alienated from it; but, infused with an "esprit du corps," inspired by his "Family Rights," now evinces his gratitude to his former physician by the violence of apostasy and the clamour of his opposition. Death, which no human means can avert, and which, from the very nature of the tenure of life, must occur from curable as well as incurable diseases, are artfully attributed to the lancet, calomel, or poison; while the more numerous cases, which recover under the very same treatment, are entirely overlooked. The silence of the grave reigns over the many remediable cases sacrificed to steam and No. 6; but the welkin is made to ring with every case which escapes under a scalding, or in spite of it. But let us look to facts. It was in 1836, just before the appearance of the cholera,—a disease which forms an important page in the history of the world, not exceeded in mortality by the Black Death of the 14th century,—I say, it was just before the appearance of the cholera in Charleston, that we made known the results of our observations, attesting the salubrity of our city, and its rank in point of mortality with the healthiest cities in the world. Our calculations were then brought up to 1836, when 1172 deaths, 392 of which were by cholera, yielding a proportion of nearly 1 in 26 inhabitants, occurred. This unprecedented mortality ought to render 1836 an isolated year, apart from all connected claims of calculations and catenated reasoning; and we shall therefore pass it by with one remark: 'the reformers commenced their operations from this date.' Four years have elapsed since then, and we have now some data on which to base our computations. The aggregate number of deaths which have occurred since empirics divided the practice of medicine with the regular physicians, in the last four years, 1837, '38, '39, '40, amount to 3300; giving an average annual mortality of 825, or 1 in 36 inhabitants per annum. While the aggregate number for the four preceding years, (omitting 1836, the Cholera year,) viz: 1835, '34, '33, '32, is only 2458 deaths, yielding a proportion of 614 per annum, or 1 in 49. Thus if we deduct the aggregate number of deaths previous to 1836, the year memorable for the invasion of the Botanicals, from the aggregate number since that period, we will find that the reformation in the practice of medicine has reformed in four years no less than 842 souls out of existence, or 210½ on an average per annum. And let it be remarked here, too, that this is but a very moderate estimate of the increased amount of proportionate mortality for the last four years, inasmuch as the population of Charleston has been sensibly diminishing for several years past: the last census shows a population of but 29,963, whilst our calculations are based upon the old computation of 30,289 inhabitants. But it may be argued that the increased mortality of the last four years is attributable to the greater number of strangers who have lately removed hither, and who have had to undergo that peculiar change called acclimation. It may also be urged that the comparatively small mortality of the first period of four years might be owing to a greater proportional number of citizens leaving town during the sickly months, than during the second period of four years; or, again, that the great ravages of the Strangers' fever, of late years, alone accounts for the increased mortality. Plausible as these objections may appear at first glance, a little reflection will expose their fallacy,—in fact a voice from the cemetery laughs such reasoning to scorn. It is well known that the fever of acclamation, or the strangers' fever, never occurs before the last of July, (there was one exception to this, and that was in June, 1832, when 5 persons only died of the fever before July,) or beginning of August; but that our vernal remittents, intermittents, and country fevers, to which our inhabitants, strictly so called, are

peculiarly liable, occur in the months of May and June, when the town is most crowded with citizens, returning from the now sickly country, to take up their abode either for the summer, or preparatory to going to the north. It is likewise well known that with the increase of the facilities for travelling north, the number of travellers annually increases; and none who can possibly get away before July or August, remain to run the hazard of acclimation. Thus it appears that no persons fly from town in order to avoid sickness in the months of May and June; but that the country people, the peculiar subjects to the diseases of these two months, and among whom we find the chief advocates of the Botanical practice, are crowding into the city. Now why does the voice from the burial-ground cry shame! shame! unto us? It is because the total number of dead bodies conveyed there during the months of May and June of the four years preceding 1836 was only 372; while the number carried thither in the same months for the four last years amounts to 496. Taking then these two healthy months in the city, as best calculated to test the success of the empirical practice, being the months when steam-doctors are most popular, and are most frequently called in; and deducting the aggregate number of deaths in these months for the first period of four years, from the similar aggregate of the last period of four years, we will find that 124 individuals have died in these months over and above the number which did die before public confidence was shaken in the legitimate practitioners of the medical art. To charge the increased mortality to the present regular physicians, would avail empiricism nothing, unless it could blot out from the records of the city the diminished mortality previous to 1836, when the hydra of quackery first fastened its poisoned fangs into the credulity of the people. The present physicians drink, nay, drink deeper, from the same Pierian source of science that those of a former day drank from. To doubt the accuracy of the bills of mortality would be equally futile, because although these registers may be occasionally faulty, yet they are as fair for one side of the question as the other, and compared with each other through a series of years, certainly afford some approximation to the truth. It is to be regretted, however, that no account is taken by our Board of Health of the number of births in the city, and that no more effort is made to improve the actual manner of ascertaining the mode of death of every individual, as well as the name of the last medical attendant. Under an improved arrangement, their reports might prove in a high degree auxiliary to the medical sciences, and to political philosophy. The important fact, then, that since the sanction and introduction of quackery and empiricism of all kinds by the legislators, the mortality of the city of Charleston, the Emporium of the South, has increased in a frightful proportion, stands indelibly recorded—a disgrace to our country,—a blot upon the enlightened age in which we live, *never to be effaced.*"

Dr. L. next took occasion to warn the young apprentices and others of the rising generation against the pernicious and too common practice of using patent medicines, or listening to the advice of empirics. He pointed out the difference between the empiric, who had a remedy ready-made for every disease, and the philosophic physician, who cautiously imitated and excited with his remedies, such operations as nature is observed to excite as a means of restoration, and which, when inopportunely provoked, are far from being curative in their operation. Finally, he deprecated the many attempts which were used to compromise and undersell the services of the divine art of medicine; and relied upon the ethical followers of his science to unite their voice with his in discountenancing every member of their liberal profession, who would, under whatsoever pretence, keep the general public as well as the profession in ignorance of any art or means accidentally or otherwise discovered of alleviating human suffering or prolonging human life. L. C. K.

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*Cathartics in Retention of the Placenta.*—Dr. Thos. H. Todd, of Starkville, Miss., has forwarded to us some observations on the utility of purgatives, as a means of promoting the expulsion of retained placenta, and communicates the two following cases in which he resorted to that remedy with success.

*Case* 1. "A woman, the property of Richard Ellett, aged 28, was delivered of a living, and *first* child. The labour was tedious, and the patient much exhausted in consequence. After the child was removed I examined the parietes of the abdomen, and found that the uterus had contracted firmly; but, the tumour was high up in the right side. As there was no hemorrhage, I used friction, and pulled gently upon the cord only, for the first few hours. I then passed my finger along the cord to ascertain if the placenta had been detached and thrown into the vagina; but it had not, as I was unable to touch any part of the placenta. I then administered the ergot, with the view of exciting uterine contraction, and thereby relieve the patient; but in this I was disappointed, as the ergot produced no effect. After this failure I thought it best to introduce the hand and remove the after-birth, but here again I was doomed to meet another disappointment; as the soft parts had, by this time, so much contracted, that any attempt to introduce the hand, however slow and firm it might be, entirely failed. I now resolved to give a dose of ol. ricini, as the bowels had not been moved since the labour began, and to wait the result. In due time, however, the oil acted, and with the action of the bowels the pains returned, and threw the secundines into the vagina, where the mass was readily seized, and removed with the hand, twelve hours after the birth of the child."

*Case* 2. "Prissa, servant of Mr. Hines, was delivered of a still-born child near the sixth or seventh month (in Sept. 1839). On examination twelve hours after delivery I found that the cord had been broken off in attempts to remove the after-birth. The parts contracted so much that the hand could not be introduced; and the ergot had been given, but produced no effect. As the bowels had not been moved, I advised that a dose of castor oil be given, and await its operation, as there were no unpleasant symptoms in the case. By evening the oil had operated two or three times, without producing any pain whatever. I now made an examination, but found that the placenta had not advanced any. As the patient was resting well, we resolved to leave the case for the night to nature. At ten o'clock next morning we gave a dose of Cooke's pills, containing equal parts of cal., rhei, and aloes. At 6 o'clock, P. M., I was sent for in great haste; the woman was in great pain, and her mistress much alarmed. Soon after my arrival the pills acted upon the bowels; and with the first evacuation the placenta was expelled, forty-six hours after the birth of the child."

The well known sympathy between the rectum and uterus, explains the action of purgatives in exciting the uterus to expel its contents.

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*Excision of the Elbow-joint.*—Dr. Gordon Buck, of New York, relates in our contemporary, the *New York Med. and Surg. Journal*, (April, 1841,) a case of abscess of the right elbow-joint with disease of the bones, in which he excised the joint. At the date of the last report the patient was doing well.

The first operation of this description, in this country, was, we believe, performed by our friend, Dr. Thomas Harris, in June, 1835, and an account of it was published in the No. of this Journal for Feb., 1837. Our friend, Dr. J. C. Warren, of Boston, has also, we learn, performed this operation.

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*Rhatany in the Treatment of Fissure of the Anus, Prolapsus Ani, and Leucorrhœa.*—Dr. W. P. Johnson relates, in the *Medical Examiner*, (May 8, 1841,) two cases of fissure of the anus, sucessfully treated by Rhatany as recommended by Bretonneau;* and Dr. J. B. Biddle records, in the same Journal, a case of prolapsus ani and one of leucorrhœa, cured, by injections of the same article. Dr. J. and B., however, employ a preparation made according to the following formula, which they conceive to be a far neater one and more efficacious than that used by Trousseau. ℞. pulv. rad. kramer. ʒss.; aq. font. ʒvj. Put the root into a displacement vessel, or glass funnel, with a cork fitted in the bottom; pour the liquor over it, and macerate for an hour or two; withdraw the cork, and repass the liquid two or three times; then displace with an additional quantity of water until ʒvj. has passed. Prepared in this way, each ounce will

* See the No. of this Journal for April, 1841, p. 519

contain from 25 to 28 grs. of extract. This formula is furnished by Mr. T. Oliver, Druggist.

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*Case of Triplets.*—A very interesting case of Triplets is recorded in the *Western Journal of Medicine and Surgery*, (April, 1841,) by Dr. A. H. Buchanan, of Columbia, Tenn. The mother was a delicate woman, aged about 35, and had had four children previously. The father is a stout, healthy man of middle age. The three children were all well formed, and were hearty and living, when the account was written, about six weeks after birth. The child first born was a male, weighing seven pounds; the second a male, weighing four pounds; the third a female, weighing five pounds; making in all sixteen pounds. The placenta was single, and very large, being by actual measurement twelve inches across in one direction, and fourteen in another, and two inches thick in the centre; it presented three divisions upon its fœtal surface. Each child had distinct membranes and liquor amnii, and there were three distinct cords.

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*Smallpox in Philadelphia—Ectrotic Treatment.*—Some alarm has existed in Philadelphia in relation to smallpox, which the real state of the case hardly justifies.

The number of deaths from smallpox since the 23d January, as shown by the reports of the board of health, is as follows.

| | | | | | |
|---|---|---|---|---|---|
| Week ending January 30 | | 9 | Week ending April 17 | | 3 |
| " February 6 | | 1 | " " 24 | | 6 |
| " " 13 | | 1 | " May 1 | | 7 |
| " " 20 | | 3 | " " 8 | | 7 |
| " " 27 | | 3 | " " 15 | | 1 |
| " March 6 | | 4 | " " 22 | | 4 |
| " " 13 | | 8 | " " 29 | | 4 |
| " " 20 | | 8 | " June 5 | | 1 |
| " " 27 | | 7 | " " 12 | | 5 |
| " April 3 | | 4 | " " 19 | | |
| " " 10 | | 4 | | | |

Our colaborator, Dr. Thomas Stewardson, physician to the Philadelphia Smallpox Hospital, informs us that there were admitted into that institution during the month of January, 3 patients, February, 16, March, 20, April, 19, May, 15, and that from the 8th to the 24th of June, only one patient. The following table, with which he has furnished us, exhibits the number of admissions during each week from the 1st of February to the 1st of June.

| | | | | | |
|---|---|---|---|---|---|
| Week ending June 7 | | 5 | Week ending April 11 | | 6 |
| " " 14 | | 2 | " " 18 | | 1 |
| " " 21 | | 5 | " " 25 | | 8 |
| " " 28 | | 4 | " May 2 | | 7 |
| " March 7 | | 6 | " " 9 | | 4 |
| " " 14 | | 9 | " " 16 | | 2 |
| " " 21 | | 0 | " " 23 | | 5 |
| " " 28 | | 4 | " " 30 | | 1 |
| " April 4 | | 1 | | | |

It is thus evident that the disease has never prevailed to any great extent, and that it is at present on the decline.

Dr. Stewardson also informs us that he has tried the ectrotic treatment of smallpox, to a limited extent, in several of the patients in the hospital, and the results are entirely confirmatory of those obtained by MM. Briquet, Gariel, &c., as noticed in a preceding part of this No., (see pp. 188–191.) He applied mercurial ointment to one half of the face of a patient, leaving the remainder untouched. The pustules, on the half of the face to which the mercurial ointment was applied, aborted and left no marks. Those on the other half ran their regular course, and left marks which will doubtless remain as deep pits.

In another patient Dr. Stewardson covered one half the face with mercurial ointment, and the other half with simple cerate. The result was the same as in the first case, the simple cerate producing no effect.

In every case in which Dr. Stewardson applied the mercurial ointment, before the fifth day of the eruption, the pustules, whether on the face or limbs, to which the application was made, aborted. Dr. Stewardson did not, in any case, apply the ointment over the whole surface; he proposes, however, hereafter to do so should a suitable case present itself.

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*Annual Report of the Governors of the New York Hospital, made to the Legislature*, February 23, 1841.

| | | |
|---|---|---|
| Number remaining at the close of the year 1839 | | 174 |
| Admitted during 1840 | | 1797 |
| | Total | 1971 |

Of this number there have been

| | |
|---|---|
| Cured | 1317 |
| Relieved | 111 |
| Discharged at their own request | 120 |
| Eloped or discharged as disorderly | 45 |
| Discharged as improper objects | 18 |
| Died | 173 |
| Remaining December 31, 1840 | 187 |
| Total | 1971 |

A new wing to the hospital has been built 93 feet long, 63 wide, and three stories high, exclusive of the basement. It will be completed on or before the 1st of October. "The governors have also fitted up a building for post mortem examinations, and for the delivery of lectures on the facts thus disclosed."

BLOOMINGDALE ASYLUM.

| | | |
|---|---|---|
| Remaining on the 31st of December, 1839 | 126 | |
| Admitted during 1840 | 113 | |
| | | 239 |
| Of these there were cured | 60 | |
| Discharged much improved | 25 | |
| Discharged at the request of friends | 8 | |
| Eloped from the premises | 1 | |
| Died December 31, 1840 | 131 | |
| | | 239 |

The system of moral treatment, combining recreation and employment, continues to prove highly serviceable. T. R. B.

*Annual Report of the Inspectors of the Mount Pleasant State Prison (Sing Sing) to the Legislature of the State of New York*, January 13, 1841.

| | | |
|---|---|---|
| Number of convicts on the 30th September, 1839, males | 762 | |
| females | 43 | 805 |
| Received during the year ending September 30, 1840, males | 218 | |
| Females (including 10 from Auburn) | 36 | 254 |
| | Total | 1059 |

| | Males. | Females. | |
|---|---|---|---|
| Discharged by expiration of sentence | 178 | 14 | 192 |
| " by pardon | 18 | 4 | 22 |
| " by death (including one drowned) | 16 | 1 | 17 |
| Sent to the Lunatic Asylum | 1 | | 1 |
| | | Total | 232 |
| Remaining September 30, 1840 — Males | 767 | | |
| Females | 60 | | 827 |
| | | Total | 1059 |

Dr. Belcher, physician and surgeon to the prison, reports the following as the *daily* average number who have received aid during the year as above.

| | Hospital Cases. | No. of Prescriptions. | Deaths. |
|---|---|---|---|
| 1839, October - - | 14 | 42 | 1 |
| " November - - | 15 | 33 | 1 |
| " December - - | 16 | 34 | 1 |
| 1840, January - - | 16 | 37 | 1 |
| " February - - | 12 | 41 | 1 |
| " March - - | 14 | 39 | 1 |
| " April - - - | 14 | 48 | 2 |
| " May - - - | 10 | 51 | 2 |
| " June - - - | 11 | 49 | 2 |
| " July - - - | 12 | 48 | 0 |
| " August - - | 18 | 60 | 2 |
| " September - - | 17 | 48 | 2 |
| | | | Total 16 |

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The diseases most frequently occurring, have been dysentery, diarrhœa and catarrh, with a long train of chronic affections. There have been several cases of "paroxysmal aberration of mind," all of which have been successfully managed except one, who was removed to the Asylum.

Of the males the causes of death were as follows:

| | | |
|---|---|---|
| Consumption - - - - - | 5 | |
| Dropsy - - - - - - | 1 | |
| Pneumonia typhoides - - - - | 1 | |
| Gastritis - - - - - - | 1 | |
| Scrofula of long standing - - - | 2 | |
| Debility - - - - - - | 1 | |
| Sudden prostration (deranged six months) | 1 | |
| Drowned - - - - - - | 1 | |
| Adhesion of the lungs - - - - | 1 | |
| Suddenly of asthma - - - - | 1 | |
| Chronic diarrhœa - - - - - | 1 | 16 |
| One female of dropsy - - - - | 1 | 1 |
| | | Total 17 |

The female prison is situated on dry and elevated ground, and its inmates are generally more healthy than the males. T. R. B.

*Annual Report of the Inspectors of the State Prison at Auburn to the Legislature of the State of New York*, January 13, 1841.

| | | |
|---|---|---|
| Number of convicts remaining in prison December 31, 1839 | | 670 |
| Number received during the year ending December 31, 1840 | | 228 |
| | | 898 |
| Discharged during the year 1840 by expiration of sentence - | 146 | |
| " " " by pardon - - - - | 33 | |
| " " " by death (in Hospital) - - | 12 | |
| " " " by death (suicide) - - | 2 | |
| " " " by removal to Sing Sing prison | 10 | 203 |
| Remaining December 31, 1840 - - - - - - - - | | 695 |
| | | 898 |

Dr. Erasmus Humphreys, physician and surgeon to the prison, presents, in his report, some interesting tables. He states first, all the hospital cases and the diseases; and secondly, all the cases of extraneous description, viz., such as

visited the hospital from day to day, and the diseases prescribed for. The following is a condensed view of both.

| 1840 | Hospital Cases. | Reported Cases. |
|---|---|---|
| January - - | 18 | 490 |
| February - - | 19 | 388 |
| March - - - | 27 | 394 |
| April - - - | 28 | 464 |
| May - - - | 38 | 349 |
| June - - - | 27 | 306 |
| July - - - | 18 | 269 |
| August - - - | 16 | 238 |
| September - - | 12 | 171 |
| October - - - | 15 | 173 |
| November - - | 14 | 145 |
| December - - | 11 | 124 |

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The remarkable diminution in the number of extraneous prescriptions, or in other words, the increased health of the convicts, is ascribed principally, by Dr. Humphreys, to the plan recently adopted for warming the north wing of the prisons and the sleeping apartments therein. About five hundred convicts lodge in that wing, which was formerly heated by means of steam, conducted through a cast iron pipe. The force of the steam was such as frequently to burst the weak places in the pipe and thus allow it to escape. It hence filled the apartments either with vapour, water, or if the weather was sufficiently cold, with ice. Add to this, that the windows were all made tight, and closed, and certainly an atmosphere was induced sufficient to bring on disease. At present, heat is kept up by stoves and furnaces, and each convict is allowed two comfortables, with cotton batting quilted in them.

Erysipelas and ophthalmia have been prevalent diseases. There have been two cases of insanity, one produced by masturbation, the other insane on admission. Both have recovered.

The following is a table of the mortality of the prison for eleven years:

| | | | |
|---|---|---|---|
| 1830 | 18 | 1836 | 18 |
| 1831 | 15 | 1837 | 19 |
| 1832 | 12 | 1838 | 15 |
| 1833 | 11 | 1839 | 10 |
| 1834 | 11 | 1840 | 12 |
| 1835 | 10 | | |

Total 151, and not 142 as stated by Dr. Humphreys. The annual average is hence 13,8.

Of those in 1840, there died of

| | |
|---|---|
| Scrofula | 1 |
| Erysipelas | 1 |
| Erysipelas with lues and dropsy | 1 |
| Pneumonia with hydrothorax | 1 |
| Psoas abscess, ending in phthisis | 1 |
| Phthisis pulmonalis | 3 |
| Fistula in ano, ending in phthisis | 1 |
| Repeated attacks of pneumonia with spinal irritation, ending in phthisis | 1 |
| Typhus putridus | 1 |
| Lues venerea ending in phthisis | 1 |
| Total | 12 |

T. R. B.

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*Fourth Annual Report of the Trustees of the Vermont Asylum for the Insane.* Presented to the Legislature, October, 1840. William H. Rockwell, M.D. Superintendent and Physician.

| | | |
|---|---|---|
| Patients at the close of the year, October 1, 1839 | | 69 |
| " admitted during the year | | 73 |
| | Total | 142 |
| Discharged during the year | 61 | |
| Remaining October 1, 1480 | 81 | |
| | Total | 142 |

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Of the 61 cases discharged, there have been

| | |
|---|---|
| Recovered | 33 |
| Improved | 13 |
| Unimproved | 8 |
| Eloped | 1 |
| Died | 6 |
| Total | 61 |

Of the 26 recent cases discharged, there have been

| | |
|---|---|
| Recovered | 23 |
| Improved | 1 |
| Died | 2 |
| Total | 26 |

Of the 35 chronic cases discharged, there have been

| | |
|---|---|
| Recovered | 10 |
| Improved | 12 |
| Unimproved | 8 |
| Eloped | 1 |
| Died | 4 |
| Total | 35 |

Recovered of all the cases discharged the past year 54 per cent. Recovered of all the old cases discharged the past year, 28½ per cent. Recovered of all the recent cases discharged the past year, 88½ per cent. Recovered of all the cases discharged, $56\frac{3}{76}$ per cent. Recovered of all the old cases discharged, 28½ per cent. Recovered of all the recent cases discharged, 89 per cent.

The necessity of early admission is manifest from the above results. The physician also regrets the mistake, in many instances, of premature removal from the asylum.

Of the deaths, two were brought in the last stage of consumption; one lived twenty, and the other twenty-five days. Another was affected with the delirium of old age. He was greatly emaciated and unable to walk or feed himself; he was unconscious of the place of his residence, and regardless of the calls of nature. He died on the thirteenth day of his admission.

From the opening of the asylum, 239 patients have been admitted, and only eleven have died, amounting to less than five per cent.

The best moral means are found to be, useful employment in the open air; convalescents are more particularly benefited by it. Amusements are also allowed. Religious exercises are continued as heretofore.

The pecuniary affairs of this asylum are quite flourishing. The expenditures for the year ending October 1, 1840, were 9,473 67 dollars. The income from the board of patients, 9,926 86 dollars. T. R. B.

*Convention of the Physicians of Kentucky.*—A convention of the Physicians of the State of Kentucky, was held at Frankfort on the second Monday in January last, for the purpose of organizing State and District Medical Societies. The convention adopted a constitution and by-laws, with a system of medical etiquette, and made a praiseworthy movement in relation to medical education, by the adoption of the following preamble and resolutions.

" Whereas, deficiences are admitted to exist in the present system of Medical Education in the United States, impairing the dignity and usefulness of the

profession; and whereas, the remedy for this evil can be effectually applied by those only who have the training of students of medicine: Therefore,

"1. *Resolved*, That no physician ought to receive, as a pupil, any young man whose capacity, morals and preliminary education are not such as to afford fair promise of his becoming a respectable and useful member of the profession.

"2. *Resolved*, That the period of study required of pupils by the American Medical Schools ought to be extended; and that an extension of the Lecture term from four to six months would do much towards elevating the professional standard of the country.

"3. *Resolved*, That a convention of the Teachers in the Medical Schools of the United States be earnestly recommended, to take into consideration the means of promoting these objects."

*Jefferson Medical College.*—The faculty in this school has been entirely reorganized: the present occupants of the chairs are the following: Dr. J. K. Mitchell, Practice of Medicine; Dr. C. D. Meigs, Midwifery; Dr. T. D. Mütter, Surgery; Dr. R. Dunglison, Institutes of Medicine and Medical Jurisprudence; Dr. R. M. Huston, Materia Medica and General Therapeutics; Dr. J. Pancoast, Anatomy; Dr. F. Bache, Chemistry.

*New York University.*—A new Medical Faculty has been organized in this Institution, and the chairs filled as follows:—Dr. Mott, Surgery; Dr. Paine, Institutes of Medicine and Materia Medica; Dr. Revere, Theory and Practice of Medicine; Dr. Pattison, Anatomy; Dr. Bedford, Midwifery; Dr. Draper, Chemistry.

*Transylvania University.*—We are happy to announce that our colleague, Dr. E. Bartlett, has been appointed Professor of the Theory and Practice of Medicine in Transylvania University. Dr. Bartlett is a scholar, possesses ample stores of medical knowledge, and much experience as a teacher, and the appointment is alike honourable to him and advantageous to the school.

*Medical College of the State of South Carolina*—We learn that Dr. Geddings, Professor of Pathology and Medical Jurisprudence, has been transferred to the Surgical chair, vacated by Dr. Wagner in consequence of ill health. No better appointment could have been made.

*Tweedie's Library of Practical Medicine.*—Messrs. Lea & Blanchard have published the fifth volume of this work, which completes the series on Practical Medicine. This volume contains Dissertations on Hæmorrhages, Dropsy, Rheumatism, Gout, Scrofula, Worms, &c., followed by some admirable remarks on the art of prescribing, a formulary for extemporaneous prescriptions, and a general index.

Traill's *Medical Jurisprudence.*—Messrs. Lea & Blanchard have just published "*Outlines of a course of Lectures on Medical Jurisprudence*, By Thos. Stewart Traill, M. D. F. R. S., &c., Regius Prof. Med. Jurisp. & Med. Police in the University of Edinburgh, First American, from the second Edinburgh edition, revised with numerous notes." It is one of the most admirable compends we have ever met with; and comprises, in the smallest compass, all the leading principles of Medical Jurisprudence and Medical Police. Dr. Traill, in his introduction, which is devoted to a sketch of the history of Medical Jurisprudence, pronounces the work of our colleague, Dr. Beck, to be "the best one on the general subject which has appeared in the English language;" a compliment which is valuable, as coming from a perfectly competent and impartial judge.

To the members of the Legal, as well as of the Medical profession, the work of Dr. Traill will be extremely useful.

*Climate of the United States.*—Dr. Samuel Forry is preparing for publication, a work entitled "*The Climate of the United States and its Endemic Influences, based*

*chiefly on the Records of the Medical Department and Adjutant General's Office, U. S. Army.*—The articles relative to this subject from the same source, which have appeared in this Journal, afford conclusive evidence that the work will be an extremely interesting one.

*Necrology.*—The Medical Science of this country, has lost one of its brightest ornaments, in the death of Dr. Wm. P. Dewees, which took place in Philadelphia, May 16th, 1841. Dr. Dewees commenced practice at Abington, in the year 1789, and removed to Philadelphia, in 1796, where he remained until 1819. Ill health at this period, compelled him to remove to the country, and he fixed his residence at Phillipsburgh, Pennsylvania, where he remained until 1817, when he again returned to the city. In 1826 he was appointed adjunct Professor, and in 1834 Professor of Obstetrics and Diseases of Women and Children in the University of Pennsylvania. Early, in this last year, Dr. Dewees suffered an attack of paralysis, from which period his health became very much impaired. He however delivered a full course during the session of 1834–5, but at the commencement of the following session his health was so feeble as to compel him to resign his professorship and seek a Southern climate. After spending a winter in Cuba, and the succeeding summer at the North, he settled at Mobile. About a year since, he returned to Philadelphia, where he closed his long and useful career, at the age of 74 years and a few days, full of years and full of honour.

Dr. Dewees had an unusually large practice, and possessed extraordinary tact as a practitioner, with a just degree of confidence in himself, resulting from his vast experience, which led to implicit confidence in him on the part of his patients. As an accoucheur, he had indeed a more extensive experience than any other physician in this country, and in this department, he had few if any equals, and no superior.

Dr. Dewees's fame was not confined to this country. He was well known abroad by his writings, which have been more generally quoted by European authors, on obstetrics, than those of any other American physician, and his opinions are noticed with a degree of respect and deference, which evince that his authority ranks among the highest.

Dr. Dewees was too well known here, to require from us, on the present occasion, any further notice. We hope, however, ere long, to present, by a competent hand, a complete biographical memoir.

We will merely add the following testimony of respect, to his memory, paid by the Philadelphia Medical Society.

"At a meeting of the Medical Society, held on Friday, the 21st inst., Dr. B. H. Coates was called to the chair.

"Dr. Hays announced the death of Dr. W. P. Dewees, and offered the following resolutions, which were seconded by Dr. W. Poyntell Johnston, and unanimously adopted.

"*Resolved*, That the Society has heard with deep regret, of the decease of their late, much respected fellow-member and former Vice President, Dr. Wm. P. Dewees.

"*Resolved*, That Dr. Dewees, by his talents, labour, and honourable course through life, contributed materially to the advancement of our science, and to the elevation of professional character.

"*Resolved*, That in testimony of our respect for the deceased, the Society will, in a body, attend his funeral.

"*Resolved*, That Dr. H. L. Hodge, be requested to prepare and read before the Society, a memoir of Dr. Dewees.

"*Resolved*, That a committee be appointed, to express the feelings of the members to the family of Dr. Dewees, and to communicate to them a copy of the above resolutions.

"The chairman appointed Drs. Hodge, Hays, and Huston, a committee to to carry the preceding resolution into effect.

"*Resolved*, That the proceedings of the Society be published.

Samuel L. Hollingsworth, Jr., Rec. Sec."

## UNIVERSITY OF PENNSYLVANIA.

At a Public Commencement, held April 2d, 1841, in the Musical Fund Hall, Locust Street, the Degree of Doctor of Medicine was conferred by the Rev. John Ludlow, D. D., Provost, &c., upon the following gentlemen.

An Address was then delivered by George B. Wood, M. D., Professor of Materia Medica.

| NAMES. | RESIDENCE. | SUBJECT OF ESSAY. |
|---|---|---|
| Abernethy, Jesse J. | Tennessee, | Acute Dysentery. |
| Alrichs, John | Delaware, | Pertussis. |
| Anderson, Daniel B. | Tennessee, | Menstruation, and its concomitant diseases. |
| Anderson, Matthew P. | Virginia, | Bronchocele. |
| Anderson, Thomas | Maryland, | Intestinal Entezoa. |
| Askew, Andrew J. | North Carolina, | Acute Hepatitis. |
| Askew, Joseph R. | North Carolina, | Fracture of Clavicle. |
| Barrow, William | North Carolina, | Intestinal Worms. |
| Barstow, Jervis G. | Delaware, | Bilious Remittent Fever. |
| Baynard, George H. | Maryland, | Carcinoma. |
| Beach, William | New York, | Injuries of Head. |
| Beck, John E. | Alabama, | Chlorosis. |
| Bee, Ephraim J. | New Jersey, | Cranioscopy. |
| Berkey, Michael | Indiana, | Fecundation and Gestation. |
| Bliss, Chester T. | Pennsylvania, | Blood-letting. |
| Blount, Elias J. | North Carolina, | Scrofula. |
| Bobo, Charles D. | South Carolina, | Menstruation. |
| Boyd, Andrew T. | Tennessee, | Puerperal Peritonitis. |
| Boyd, James J. | South Carolina, | Sleep. |
| Briscoe, John | Virginia, | Miasmata. |
| Brooke, Alexander T. | Virginia, | Spermorrhea. |
| Brown, Benjamin L. | Illinois, | Tight-lacing. |
| Brown, Patrick W. | Virginia, | Hysterotomy. |
| Burruss, John L. | Virginia, | Coxalgia. |
| Butler, John D. | Virginia, | Influence of civic life. |
| Butt, Horace J. | Virginia, | Hernia. |
| Carter, Williams Jr. | Virginia, | Nephritis. |
| Cass, Abner S. | Ohio, | Scarlatina. |
| Clay, Eleazer G. | Virginia, | Fractures. |
| Coke, John A. | Virginia, | Apoplexy. |
| Collins, Allen T. | North Carolina, | Acute Dysentery. |
| Copeland, John B. | Tennessee, | Emetics. |
| Cornell, John F. | New York, | Blood-letting. |
| Corson, Joseph | Pennsylvania, | Immoveable apparatus in fracture of leg. |
| Craddock, Charles J. | Virginia, | Revolutions in the Theory and Practice of Medicine. |
| Croom, Richard H. | Alabama, | Fracture of Os Femoris. |
| Cummins, Robert H. | Pennsylvania, | Atmospheric Pressure. |
| Curran, John P. | Pennsylvania, | Variola. |
| Dandridge, Alexander S. | Virginia, | Variola Vaccina. |
| Darlington, Hilbern | Pennsylvania, | Stricture of Urethra. |
| Dickenshied, Charles H. | Pennsylvania, | Impotentia. |
| Drinker, Francis | Pennsylvania, | Physiology of Generation. |
| Easom, Andrew J. | Georgia, | Calomel and Opium. |
| Elliott, Thomas H. | Pennsylvania, | Physiological influence of Light. |

| NAMES. | RESIDENCE. | SUBJECT OF ESSAY. |
|---|---|---|
| Effinger, Michael | Ohio, | Delivery of Placenta. |
| Evans, M. F. T. | South Carolina, | Morbid tendencies as influenced by age. |
| Fleming, Robert F. | Philadelphia, | Generation. |
| Foster, John T. | Alabama, | Quinia, &c. |
| Foulke, John L. | Pennsylvania, | Cancer. |
| Galt, John M. | Virginia, | Botany. |
| Garnett, Alexander Y. P. | Virginia, | Extra Uterine Gestation. |
| Garnett, John M. | Virginia, | Fractures. |
| Graff, George B. (M. D.) | Illinois, | Milk-sickness of the West. |
| Gray, John B. | Missouri, | Dysentery. |
| Haberacker, Henry J. | Pennsylvania, | Intermittent Fever. |
| Halsey, Benjamin F. | North Carolina, | Hepatitis. |
| Hall, Robert P. | North Carolina, | Cynanche Trachealis. |
| Hamilton, Patrick H. | Maryland, | Phthisis Pulmonalis. |
| Hammond, John F. | South Carolina, | Meningitis. |
| Harris, Christopher H. | Virginia, | Dothin-enteritis. |
| Harrison, Mathew M. | Virginia, | Gun-shot Wounds. |
| Helffenstein, Benjamin W. | Pennsylvania, | Inflammation. |
| Hendon, Benjamin F. | Alabama, | Atmospheric Air. |
| Hilsman, Josiah | Georgia, | Antimony. |
| Hobson, Thomas Jr. | Pennsylvania, | Hydrocephaloid complaints of children. |
| Holt, Harrison | Massachusetts, | Abortion. |
| Horsley, William A. | Virginia, | Revulsion. |
| House, Lemuel S. | Tennessee, | On Stays. |
| Howell, William F. | Alabama, | Medical Topography of Mobile. |
| Hundley, Thomas J. | Virginia, | Asthma. |
| Hunter, Charles H. | Pennsylvania, | Hæmorrhoids. |
| Hunting, Isaac M. | New York, | Opium. |
| Hurt, Jethro M. | Virginia, | Mental Derangement. |
| Irish, Franklin | Ohio, | Sanguinaria Canadensis. |
| Jennings, William B. | Virginia, | Menstruation. |
| Johnson, George Jr. | Missouri, | Gun-shot Wounds. |
| Jones, Adolphus D. | North Carolina, | Ulcers. |
| Keim, Henry | Pennsylvania, | Diseases mistaken for Hernia. |
| Kello, Samuel B. | Virginia, | Acute Gastritis. |
| Lamar, Thomas C. | Georgia, | Cynanche Trachealis. |
| Lancaster, Joseph B. | Maryland, | Remittent Fever. |
| Latane, James H. | Virginia, | Dysentery. |
| Le Monnier, Y. R. | Louisiana, | Popliteal Aneurism. |
| Lewis, Willis | North Carolina, | Luxation of the Femur. |
| Logan, Joseph P. | Virginia, | Topical Blood-letting. |
| Low, James H. | Georgia, | Hydrocele. |
| Ludlow, J. Livingston | Pennsylvania, | Delirium Tremens. |
| Malone, Charles W. | Mississippi, | Fever of 1840. |
| Mann, Hugh C. | Virginia, | Luxations. |
| Martin, Charles L. | Pennsylvania, | Dysentery. |
| Masters, Joseph | North Carolina, | Acute Gastritis. |
| Mayfield, George A. J. | Tennessee, | Fœtal Malformation. |
| Mercer, Thomas N. | North Carolina, | Menstruation. |
| Michaux, Joseph | Virginia, | Croup. |
| Mitchell, James Jr. | Philadelphia, | Chemical history of Alcohol. |
| Moore, William J. | Virginia, | Phthisis Pulmonalis. |

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| NAMES. | RESIDENCE. | SUBJECT OF ESSAY. |
|---|---|---|
| Mumford, Edward J. | Virginia, | Typhus Fever. |
| Mullen, Francis N. | North Carolina, | Primary Syphilis. |
| M'Cargo, William H. | Alabama, | Bilious Congestive Fever of Limestone County. |
| M'Clelland, Hugh K. | Pennsylvania, | Blood-letting. |
| M'Kinley, Edward | Philadelphia, | Cholera Infantum. |
| M'Knight, Lewis | New Jersey, | Vaccination. |
| M'Meens, Robert R. | Pennsylvania, | Nephritis. |
| M'Sherry, Richard Jr. | Virginia, | Iodine. |
| Nicholson, Guilford J. L. | North Carolina, | Cholera Morbus. |
| Parrish, John H. | Virginia, | Strabismus. |
| Pattillo, James A. | Virginia, | Colica Pictonum. |
| Perkins, Alexander H. | Virginia, | Intermittent Fever. |
| Perkins, Peter A. | Tennessee, | Atmospheric Influence. |
| Person, Benjamin F. | North Carolina, | Double Tertian Intermittent Fever. |
| Peticrew, David | Missouri, | Medical Topography of Chariton County, Missouri. |
| Price, James A. | North Carolina, | Loxarthrus. |
| Reedy, John A. | South Carolina, | Necrosis. |
| Richey, Robert T. | New Jersey, | Fungus Hæmatodes. |
| Ritchie, James | Mississippi, | Remittent Fever. |
| Rogers, Alexander H. | Virginia, | Arsenic. |
| Ross, William V. V. | New York, | Diseases of Heart. |
| Ross, Francis A. | Alabama, | History, Pathology, and Treatment of Dothin-enteritis. |
| Rush, Lorenzo D. | Ohio, | Gonorrhœa. |
| Russell, Henry | Massachusetts, | Phthisis Pulmonalis. |
| Schoolfield, Joseph N. | Virginia, | Delirium Tremens. |
| Scott, Lawrence W. | North Carolina, | Unity of Man. |
| Selden, Henry | Virginia, | Typhoid State. |
| Shore, John | Virginia, | Cholera Infantum. |
| Smith, John N. | South Carolina, | Superfœtation. |
| Smith, Samuel S. | Mississippi, | Acute Rheumatism. |
| Smyth, James | Pennsylvania, | Hapatitis. |
| Snyder, Robert | Pennsylvania, | Nitrate of Silver. |
| Sorsby, Nicholas T. | Alabama, | Scarlatina. |
| Stewart, James R. | Maryland, | Delirium Tremens. |
| Stokes, Thomas J. P. | Pennsylvania, | Acute Gastritis. |
| Spratley, Benjamin C. | Virginia, | Acute Hepatitis. |
| Stringfellow, William H. | South Carolina, | Non-existence of Congestive Fever. |
| Summerell, William H. | Virginia, | Circulation of Blood. |
| Sutton, William J. | North Carolina, | Hydrargyrum. |
| Taylor, John N. | Virginia, | Dysentery. |
| Townsend, Richard H. | Pennsylvania, | Phthisis Pulmonalis. |
| Tutt, Samuel J. | Missouri, | Malaria. |
| Vanarsdale, Henry | New Jersey, | Physical Exploration. |
| Van Wyck, Cornelius C. | New York, | Use of Kreosote in Dyspepsia. |
| Waddell, J. Alexander | Virginia, | Nicotiana Tabacum. |
| Walker, Isaac R. | Pennsylvania, | Iron. |
| Walker, James C. | North Carolina, | Nourishment of Infants. |
| Waller, Nelson S. | Virginia, | Menorrhagia. |
| Washington, James R. | North Carolina, | Dropsical Effusions. |
| Watson, Arthur | Virginia, | Asthma. |

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| NAMES. | RESIDENCE. | SUBJECT OF ESSAY. |
|---|---|---|
| Weatherly, Joseph | Maryland, | Leucorrhœa. |
| White, Edward H. | Maryland, | Apoplexy. |
| Williams, Lewis J. | Maryland, | Remittent Fever. |
| Winston, James B. | Virginia, | Uterine Hemorrhage. |
| Wood, James H. | North Carolina, | Dysentery. |
| Wood, William | Alabama, | Chronic Gastritis. |
| Wright, Weldon E. | North Carolina, | Traumatic Hemorrhage. |
| Yancey, Albert G. | North Carolina, | Dysentery. |
| Young, Walter B. | Mississippi, | Cataract. |

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At a Public Commencement held in July, 1840, the following gentlemen received the Degree of Doctor of Medicine.

| NAMES. | RESIDENCE. | SUBJECT OF ESSAY. |
|---|---|---|
| Jonathan M. Allen, | Massachusetts, | Nervous System. |
| John Brinckerhoff, | New Jersey, | Terebinthina. |
| George C. Carrington, | Virginia, | Gastro-cutaneous Sympathy. |
| William L. Davis, | Georgia, | Luxations. |
| Thomas Randolph Hunt, | Virginia, | Apoplexy. |
| William W. Lewis, | Virginia, | Tabacum. |
| Richard T. Maxwell, | Delaware, | Acute Dysentery. |
| David Roberson, | Georgia, | Indigestion. |
| Daniel S. Triplett, | Virginia, | Nephritis. |
| Henry A. Vaughan, | Virginia, | Fever. |
| William W. Williamson, | Virginia, | Scarlatina. |

TOTAL, 166.

W. E. HORNER, M. D., *Dean.*

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## TRANSYLVANIA UNIVERSITY—MEDICAL DEPARTMENT.

The Lectures in this Institution commence, as usual, on the first Monday in November, and close on the last day of February.

THE FACULTY CONSISTS OF

BENJ. W. DUDLEY, M. D., *Professor of Anatomy and Surgery.*
JAMES M. BUSH, M. D., *Adjunct Professor of Anatomy and Surgery.*
JAMES C. CROSS, M. D., *Professor of Institutes and Medical Jurisprudence.*
ELISHA BARTLETT, M. D., *Professor of Theory and Practice.*
W. H. RICHARDSON, M. D., *Professor of Obstetrics and Diseases of Women and Children.*
THOS. D. MITCHELL, M. D., *Professor of Materia Medica and Therapeutics.*
ROBERT PETER, M. D., *Professor of Chemistry and Pharmacy.*

The cost of a full course of Lectures is $105, payable in advance, in notes of good and solvent banks of the states whence the pupils come. The Matriculation and Library ticket is $5, and the Dissecting ticket $10. Graduation fee $20. Boarding and lodging (fuel and lights included) from $2 50 to $3 per week.

By order,

THOMAS D. MITCHELL, M. D., *Dean of the Faculty.*

*Lexington, Ky., June* 1, 1841.

## JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

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SESSION OF 1841-42.

The regular Lectures will commence on the first Monday of November.

ROBLEY DUNGLISON, M. D., *Professor of Institutes of Medicine and Medical Jurisprudence.*

ROBERT M. HUSTON, M. D., *Professor of Materia Medica and General Therapeutics.*

JOSEPH PANCOAST, M. D., *Professor of General, Descriptive and Surgical Anatomy.*

J. K. MITCHELL, M. D., *Professor of Practice of Medicine.*

THOMAS D. MUTTER, M. D., *Professor of Institutes and Practice of Surgery.*

CHARLES D. MEIGS, M. D., *Professor of Obstetrics and Diseases of Women and Children.*

FRANKLIN BACHE, M. D., *Professor of Chemistry.*

On and after the first of October, the dissecting-room will be open, and the Professor of Anatomy will give his personal attendance thereto. Clinical instruction will likewise be given at the Dispensary of the College.

During the course, ample opportunities will be afforded for clinical instruction; Professors Dunglison, Huston, and Pancoast being medical officers of the Philadelphia Hospital; Professor Meigs of the Pennsylvania Hospital; and Professor Mütter, Surgeon to the Philadelphia Dispensary.

Professor Dunglison will lecture regularly on Clinical Medicine, and Professor Pancoast on Clinical Surgery, at the Philadelphia Hospital, throughout the course.

ROBERT M. HUSTON, M. D., *Dean of the Faculty.*

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## UNIVERSITY OF NEW YORK—MEDICAL DEPARTMENT.

The Lectures will commence on Monday, the 25th of October next, and continue until the ensuing March.

VALENTINE MOTT, M. D., *Professor of Surgery.*

GRANVILLE S. PATTISON, M. D., *Professor of Anatomy.*

JOHN REVERE, M. D., *Professor of Theory and Practice of Medicine.*

MARTYN PAINE, M. D., *Professor of Institutes of Medicine and Materia Medica.*

GUNNING S. BEDFORD, M. D., *Professor of Obstetrics, &c.*

JOHN WM. DRAPER, M. D., *Professor of Chemistry.*

JOHN W. DRAPER, M. D.,
*Secretary of the Medical Faculty.*

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## COLUMBIAN COLLEGE, DISTRICT OF COLUMBIA.

THE Lectures in the Medical Department of this institution will commence on the first Monday in November, annually, and continue until the 1st of March.

During this period, full courses will be delivered on the various branches of Medicine by

THOMAS SEWELL, M. D., *Professor of Pathology, and the Practice of Medicine.*

HARVEY LINDSLY, M. D., *Professor of Obstetrics, and the Diseases of Women and Children.*

THOMAS MILLER, M. D., *Professor af Anatomy and Physiology.*

JOHN M. THOMAS, M. D., *Professor of Materia Medica and Therapeutics.*

J. FREDERICK MAY, M. D., *Professor of Surgery; late Professor of Surgery in the University of Maryland.*

FREDERICK HALL, M. D., *Professor of Chemistry and Pharmacy.*
SAMUEL C. SMOOT, M. D., *Demonstrator of Anatomy.*

The Medical College is situated at the corner of 10th and E streets, equidistant from the Capitol and the President's House.

In the arrangements of this building, and the organization of the School, particular reference has been had to the study of *Practical Anatomy*, a branch which the student will enjoy peculiar facilities for cultivating.

The Professor of Pathology and Practice will illustrate the most important Pathological conditions of the System by means of Thibert's Pathological Models.

The Professor of Surgery will show all the operations upon the recent subject.

The Professor of Chemistry has a complete Chemical and Philosophical Apparatus.

The Professor of Obstetrics will illustrate his lectures by obstetrical apparatus, and an ample collection of preparations and drawings.

As there are many young men of talent and worth in different parts of our country, who, from restricted circumstances, are unable to avail themselves of the benefit of public lectures, the Professors have resolved to admit, gratuitously, two such students from each of the States, and one from each of the Territories. In order, however, to guard against individuals whose education and character do not qualify them to become useful members of the profession, the selection is placed in the hands of the Senators and Delegates of Congress, each of whom has the right to select one student from his respective State or Territory, and whose certificate of selection will be a passport to all the lectures, by paying only, on entering the school, the usual matriculating fee of five dollars.

The entire expense, for a course of Lectures by all the Professors, is $70. Dissecting Ticket $10; optional with the Student.

Good board can be procured at from three to four dollars per week.

THOMAS MILLER, M.D, *Dean of the Faculty.*

*Washington, May* 1, 1841.

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## DR. M'MUNN'S CELEBRATED ELIXIR OF OPIUM

Is a new chemical preparation of Opium, embracing all the valuable medicinal qualities in a natural state of combination, to the exclusion of those which are deleterious and useless. It is superior to every other form of opiate, such as *Laudanum, Paregoric, Morphine, Denarcotised Laudanum, &c. &c.*, as has been fully proved and *now duly acknowledged* by the most eminent Physicians, Surgeons and Chemists, and a single trial will convince the most incredulous of its own intrinsic value. Its use is not followed by any of the disagreeable effects which invariably attend the ordinary preparations of opium, such as *constipation, headache, tremors, nausea*, and *vomiting;* but it may be taken in sufficient doses to allay all suffering with perfect safety and entire success. All who from necessity or other causes are obliged to use an opiate, will find in the Elixir a most gratifying substitute, as it invigorates all the powers of nature, without being followed by a corresponding state of depression. Dr. A. W. Ives, A. M. of New York city, used nearly a hundred ounces himself during a very painful and protracted illness after every thing else had failed to give relief. "His life was prolonged months by its peculiar virtues." For other similar communications, and its trial in hospitals, &c., see directions with the medicine.—Sold wholesale and retail by A. B. & D. Sands, No. 79 and 100 Fulton St., New York. Sold also by Chas. Ellis & Co., 56 Chesnut St., Philadelphia; G. K. Tyler and R. H. Coleman & Co., Baltimore; Haviland, Harrall and Allen, Charleston, S. C.; Haviland, Risby & Co., Augusta, Ga.; Sickles & Co., New Orleans; Brewers, Stevens & Cushing, 90 Washington St., Boston; also by T. Metcalf, Tremont Row, and S. W. Fowle, Prince St., Boston; J. Balch, Providence, Rhode Island; E. W. Bull, Hartford, Conn., and by most druggists in the United States. Price 25 cents.

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THE

# AMERICAN JOURNAL

OF THE

# MEDICAL SCIENCES.

No. IV.—October, 1841. 23

# COLLABORATORS.

ELISHA BARTLETT, M. D. *Professor of the Institutes and Practice of Medicine in Transylvania University.*

T. ROMEYN BECK, M. D. *Professor of Materia Medica, in the Albany Medical College.*

JACOB BIGELOW, M. D. *Professor of Materia Medica in Harvard University, Boston.*

A. BRIGHAM, M. D. *Superintendint and Physician to the Connecticut Retreat for the Insane.*

N. CHAPMAN, M. D. *Professor of the Institutes and Practice of Physic and Clinical Practice in the University of Pennsylvania.*

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## TO READERS AND CORRESPONDENTS.

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the Lowell Mills, against the charges contained in the Boston Times and the Boston Quarterly Review. By ELISHA BARTLETT, M. D. Lowell, 1841. (From the author.)

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The American Medical Library and Intelligencer, July, 1841. (In exchange.)

The New York Medical Gazette, July, August, and September, 1841. (In exchange.)

The American Journal of Pharmacy, July, 1841. (In exchange.)

The Select Medical Library and Bulletin of Medical Science, July, 1841. (In exchange.)

Revue Médicale Française et Etrangere, March, April, May, and June, 1841. (In exchange.)

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Gazette Médicale de Paris, April, May, June, and July, 1841. (In exchange.)

Journal de Médecine et de Chirurgie Pratiques, April, May, June, and July, 1841. (In exchange.)

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Journal de Pharmacie et des Sciences Accessores, March, April, May, June, and July, 1841. (In exchange.)

# CONTENTS

OF THE

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# AMERICAN JOURNAL

OF THE

# MEDICAL SCIENCES.

No. IV, NEW SERIES.

OCTOBER, 1841.

## ORIGINAL COMMUNICATIONS.

### MEMOIRS AND CASES.

ART. PAGE.

I. On the Treatment of Intermitting Fever. By Austin Flint, M. D., of Buffalo, New York. - - - - - - - - - - - - 277

II. On the Endemic Influences of the United States. By Samuel Forry, M. D., of New York. - - - - - - - - - - - - 293

III. A Report of Cases treated in the Second Surgical Department of the New York Hospital, during the six months ending July 1, 1841, under the direction of John Watson, M. D., Attending Surgeon. By Thomas M. Markoe, M. D., House Surgeon. - - - - - - - - 398

IV. Report of Cases treated in Wills Hospital. By Isaac Parrish, M. D., one of the Surgeons of the Institution. - - - - - - - - 346

V. On Paralysis sympathetic of Visceral Disorders. By John B. Zabriskie, M. D., Physician to the Kings County Almshouse. - - - 360

VI. Case of Congenital Hare-lip; double, with both fissures extending through the roof of the mouth and palate. By N. S. Davis, M. D., of Binghampton, N. Y. - - - - - - - - - - - - 371

VII. Cases of Injury of the Head. By A. B. Shipman, M. D., President of the Cortland County Medical Society. - - - - - - - 373

VIII. On the Yellow Fever at Key West, East Florida. By C. C. Dupré, M. D. - - - - - - - - - - - - - - 380

IX. Case of Paralysis of the Portio Dura, illustrative of a curious physiological fact. By John B. Zabriskie, M. D., Physician to the Kings Co. Almshouse, New York. - - - - - - - - - - - 385

### MONOGRAPH.

X. On Diseases of the Fœtus. A contribution towards a better acquaintance with Intra-uterine Pathology. By Wm. C. Roberts, M. D., of New York. - - - - - - - - - - - - - - - 387

## REVIEW.

ART. PAGE

XII. Mémoire sur l'empoisonnement par l'acide arsénieux. Par M. Orfila. Lu a l'Academie Royale de Médecine, Jan. 29, 1839. Annales D'Hygiène, vol. xxi.

Mémoire sur un nouveau procédé pour constater facilement, dans nos organes, la présence d'une préparation arsénicale qui aurait été absorbée. Par M. Orfila. Ibid., vol. xxii.

Mémoire sur less terrains des cimetières, sur l'arsenic qu'ils peuvent fournir te sur les consequences médico-légales que l'on doit tirer de l'existence possible d'un composé arsenical dans ces terrains. Par M. Orfila. Ibid., vol. xxii.

Mémoire sur l'arsenic naturellement contenu dans le corps de L'Homme. Lu a L'Académie Royale de Médecine, le 24 Septembre, 1839. Par M. Orfila. Ibid., vol. xxii.

Mémoire sur les moyens de s'assurer que l'arsenic, obtenu des organes ou il a été porté par absorption, ne provient pas des réactifs, ni des vases employés a la recherche médico-légale de ce poison. Par M. Orfila. Ibid., vol. xxii.

Mémoire sur l'empoisonnement par l'arsenic; nouveau procedé pour retrouver l'arsenic absorbé, &c. Par M. Alph. Devergie. Ibid., vol. xxiii.

Observations sur le dernier mémoire de M. A. Devergie. Par M. Orfila. Ibid., vol. xxiii.

On the means of detecting arsenic in the Animal Body and of counteracting its effects. By J. Laurence Smith, M. D., of Charleston, S. C. Dated Paris, Dec. 6, 1840. (Silliman's Journal, vol. lx.)

British and Foreign Medical Review, No. xxi, for Jan. 1841. Art. 2—Review of Orfila's Memoirs on Poisoning. - - - - - - - 403

## BIBLIOGRAPHICAL NOTICES.

XIII. The Library of Practical Medicine. A System of Practical Medicine, comprised in a Series of Original Dissertations. Arranged and edited by Alexander Tweedie, M. D., F. R. S., &c. &c. Dissertations on Hemorrhages, Dropsy, Rheumatism, Gout, Scrofula, &c. &c., with a Formulary and General Index. 8vo. pp. 514. Philadelphia: Lea & Blanchard, 1841. - - - - - - - - - - - - - 436

XIV. A Practical Essay on some of the principal Surgical Diseases of India. By F. H. Brett, Esq. 8vo. pp. 506. Calcutta: 1840. - - 445

XV. Army Meteorological Register, for the years 1826, 1827, 1828, 1829, and 1830, from Observations made by the Surgeons of the Army and others at the Military Posts of the United States. Prepared under the direction of Thomas Lawson, M. D., Surgeon-General United States Army. To which is appended the Meteorological Register for the years 1822, 1823, 1824, and 1825. Compiled under the direction of Joseph Lovell, M. D., late Surgeon-General United States Army. [Published

ART. PAGE
for the use of the medical officers of the army.] Philadelphia: Haswell, Barrington, and Haswell, 1840. - - - - - - - - - - 447
XVI. Elements of Physics, or Natural Philosophy, General and Medical, written for universal use, in plain or non-technical language; and containing new disquisitions and practical suggestions. Comprised in five parts: 1st, Somatology, Statics, and Dynamics. 2d, Mechanics. 3d, Pneumatics, Hydraulics, and Acoustics. 4th, Heat and Light. 5th, Animal and Medical Physics. Complete in one volume, pp. 520. By Neil Arnott, M. D., of the Royal College of Physicians; a new edition, revised and corrected from the last English edition, with additions, by Isaac Hays, M. D. Philadelphia: Lea & Blanchard, 1841. - - - 451
XVII. Human Physiology; illustrated by Engravings. By Robley Dunglison, M. D., Prof. Institutes of Med. and Med. Juris. in Jefferson Medical College, &c. &c. &c. Fourth edition with numerous additions and modifications. 2 vols. pp. 579 and 651. Philadelphia: Lea & Blanchard, 1841. - - - - - - - - - - - - - - 451
XVIII. A system of Midwifery, with numerous wood cuts. By Edward Rigby, M. D., Physician to the General Lying-in Hospital, Lecturer on Midwifery, &c. &c. With notes and additional illustrations. Philadelphia: Lea & Blanchard, 1841. - - - - - - - - - - 452
XIX. Eighth Annual Report of the Trustees of the State Lunatic Hospital at Worcester. Boston, Dec. 1840, pp. 100. - - - - - - 452
XX. The Retrospect of Practical Medicine and Surgery, being a half-yearly Journal, containing a retrospective view of every discovery and Practical improvement in the Medical Sciences. Edited by W. Braithwaite, M. R. C. S., Surgeon to the Leeds General Eye and Ear Infirmary, &c. &c. Nos. 1, 2, and 3. London, 1840-1, pp. 200, 216, and 216, 12mo. - 453
XXI. Statistical Report of the Sickness and Mortality in the Army of the United States. Compiled from the records of the Surgeon-General's and Adjutant-General's Offices—Embracing a period of twenty years, from 1819 to January 1839. Prepared under the direction of Thomas Lawson, M. D., Surgeon-General. Published for the use of the Officers of the Army of the United States. Washington, 1840: pp. 346, 8vo., with a map. - - - - - - - - - - - - - - 454

# SUMMARY

www.libtool.com.cn

OF THE

# IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

## FOREIGN INTELLIGENCE.

### Anatomy and Physiology.


1. Ectopia Cordis—Motions and Sounds of the Heart. By M. Cruveilhier. - - - - 455
2. State of the Pulse in new-born Infants. By M. Trousseau. - 457
3. Imperforate Anus—Absence of Rectum. By M. Dubreuilh. - 458
4. On electric currents in the Nerves. By Professor Bischoff and Jolly. - - - - 458
5. On the Functions of the Anterior and Posterior columns of the Spinal Cord. By Dr. Kuerschner. - - - - 459
6. On a Peculiar Disposition of the Arteries of the Uterus. By M. Briquet. - - - - 459
7. Case of Secretion of Air from the Human Skin. By Sir Francis Smith. - - - 460


### Materia Medica and Pharmacy.


8. Ergot. By Mr. Wright. - 460
9. Formulæ used in the Treatment of Tinea Capitis. By M. Casenave. - - - - - 460
10. New Method of applying Iodine for the cure of Phthisis Pulmonalis. By Mr. Leigh. - 461
11. Method of preparing Fine Points of Caustics. By James Hunter. - - - - - 461
12. Citrated Aromatic Wine of Iron. By Mr. Gore. - - 461
13. Powder of Sarsaparilla. By Sir Francis Smith. - - - 462
14. On the advantages of a High Temperature in the preparation of Blistering Plaster. By M. Donovan, Esq. - - - 463


### Medical Pathology and Therapeutics and Practical Medicine.


15. Spasmodic Affection of the Larynx and its appendages cured by the External Application of Veratria. By Dr. James Tunstall. - - - - - 464
16. Diacetate of Lead in Internal Hemorrhage. By Mr. Sweeting. - - - - - 465
17. Pneumonia in the Insane. By M. Thore. - - - - 466
18. Transmissibility of Cancer. By M. Langenbeck. - - 466
19. Influence of Light upon the Spasms in Hydrophobia. By M. Triberti. - - - - 467
20. Further Facts regarding the Identity of Small-Pox and Cow-Pox. By Dr. Basile Thiele. - 467
21. Poultices in Inflammation of the Great Cavities. By Sir Francis Smith. - - - 467
22. Inhalation of Conium and Iodine in Tubercular Phthisis

PAGE

Pulmonalis. By Sir Charles Scudamore. - - - - 468
23. Remarks on Conium. By W. H. Judd, Esq. - - - 469
24. On Disease of the Brain dependent on Disease of the Heart. By Dr. Robert Law. - - 471

www.libtool.com.cn

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

25. Aneurism of the External Iliac Artery—Ligature of that Artery and Oozing of Blood from the Wound after its Application—Ligature of the Primitive Iliac, and of the Femoral Artery immediately below the Pubes—Cure. By M. Deguise. 475
26. Diffuse Aneurism of the Femoral Artery mistaken for Phlegmon—Puncture—Ligature of the External Iliac—Death on the seventh day. By M. Monod. - - - - - 476
27. Successful Ligature of the Primitive Carotid Artery for an Erectile Tumour of the Orbit, and results of experiments made upon animals, with a view to show the influence exercised upon them by ligature of this vessel. By M. Jobert. - - 477
28. Aneurism of the left primitive Carotid Artery—Ligature between the Sac and the Capillaries—Cure. By M. Colson. - 478
29. False Consecutive and Varicose Aneurism of the Femoral Artery—Ligature of the Artery —Hæmorrhagy—Ligature of the External Iliac—Hæmorrhagy—Compression—Death. By M. Lallemand. - - - 479
30. Spontaneous Softening of Stone in the Bladder. By M. Segalas. - - - - - 481
31. New local application to Erysipelas. By M. Velpeau. - 481
32. Mechanism of Purulent Absorption. By M. Velpeau. - 481
33. On the cure of Spina Bifida by a new operation. By M. Dubourg. - - - - - 485
34. Subcutaneous operation for Hernia. By M. Guerin. - 486
35. Puncture of Pericardium. By Dr. Skoda. - - - - 487
36. Operations for Stammering. 488
37. Ununited Fracture cured by a Seton. By M. Jobert de Lamballe. - - - - - 489
38. Apparatus for applying water in the manner of irrigation. By Dr. James Macartney. - - 490
39. Chloride of Zinc in Necrosis. By Mr. Guthrie. - - - 490
40. Threads of Caoutchouc for Sutures. By Thomas Nunneley, Esq. - - - - 490
41. Irregularly united fracture cured by Excision of Callus. By M. Portal. - - - 491

OPHTHALMOLOGY.

42. Eradication of Inverted Eyelashes. By Dr. James Hunter. 492
43. Case of Temporary Amaurosis of one eye following the extraction of a tooth. By James Hunter, M. D. - - - 492
44. Two new Fasciæ connected with the Muscles of the Human Eye. By Mr. P. Bennett Lucas. 493

MIDWIFERY.

45. Hemorrhage after delivery arrested by a new method. By Dr. Hecking. - - - - 495
46. Retroversion of the unimpregnated Uterus. By Dr. Alken. 496

## Medical Jurisprudence and Toxicology.


PAGE

47. Medico-legal Essay on Cicatrices. By M. Malle. - - 496
48. Extensive extravasation of blood in one hemisphere of the brain, without any symptom indicative of it during life. By Mr. Fowler. - - - - 499
59. Memoir on Feigned Diseases. By M. Ollivier. - - - 500
50. Presumption of Survivorship. 502
51. Poisoning with the Salts of Copper. By M. Lefortier. - 502
52. On the quantity of Arsenic required to destroy life. By Alfred S. Taylor. - - - 503
53. Galvanic test for Arsenic. - 505

PAGE

54. Wounds from Fire-arms. By Professor Malle. - - - 505
55. Compound Poisoning. By Dr. Allnatt and Mr. Wallingford. - - - - - 505
56. Poisoning with Blood Root. - 506
57. On testing for Arsenic and Antimony by Hume's Process. By Mr. Marsh. - - - 506
58. Antidote to the Salts of Copper. By M. Benoist. - - 506
59. Rupture of the Heart from external violence. By Dr. Hancock. - - - - 506
60. Case of Poisoning by Tobacco. By M. Tavignot. - - 507


## Medical Statistics.


61. Statistics of Amputations performed in the African army, during the years 1837, 8, 9. By Dr. Guyon. - - - 507
62. Statistical account of seventy-five cases of amputation, performed on seventy-three patients at the Northern Hospital, Liverpool, from March 1834, to March 1841. By Edward Parker, Esq. - - - - 508


## Animal Chemistry.


63. On the Chemical Analysis of the Blood in its Morbid Condition. By Dr. Louis Mandl. - 508


## Miscellaneous.


64. Periodical Medical Literature —Quarterly and Weekly Journals. By Dr. M. Carogher. - 511
65. Newspaper Announcements of Surgical Operations, &c. - - 512
66. Necrology. - - - - 512


---

## AMERICAN INTELLIGENCE.


A fifth Case of Enlargement of the Thymus Gland occurring in a child two years and eight months old, and terminating fatally. By Wm. C. Roberts, M. D., of New York. - - 513
Medico-Legal Cases and Observations. By Dr. C. H. Raymond, of Buffalo, New York. - - 513
Poisoning by laudanum. By Dr. Buck. - - - - - 516
Axillary Aneurism—Ligature of the subclavian.—Death on the thirty-first day. By S. D. Gross, M. D. - - - - 517
Newspaper publications of Surgical Operations. - - - 518

PAGE

Polypus Uteri removed by excision. By Prof. C. R. Gilman. 519
Case of Ovarian Dropsy. By J. B. Kissam, M. D. - - - 521
Case of pregnancy attended by a remarkable discharge from the uterus, followed by a safe delivery. By S. E. Leonard, M. D. 522
Ununited fracture of the tibia successfully treated with the seton. By Wm. Donne. - - - 524
Ligature of External Iliac Artery. By Dr. Edward Peace. - - 524

PAGE

Prof. Mott's Orthopedic Institution. - - - - - 524
Albany Medical College. - - 524
Vermont Academy of Medicine. - 524
Louisville Medical Institute. - 524
Wills Hospital for the Blind and Lame. - - - - - 524
Medical College of Ohio. - - 525
Primer of Physiology and Animal Mechanism. - - - - 525
Editorial Injustice. - - - 525
Works in Press and in Preparation. - - - - - 525
Obituary of Dr. John Wagner. - 526

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# AMERICAN JOURNAL

OF THE

# MEDICAL SCIENCES.

OCTOBER, 1841.


## ART. I.—*On the Treatment of Intermitting Fever.* By AUSTIN FLINT, M. D., of Buffalo, New York.

THE subject of intermitting fever occupies so small a portion of periodical medical literature, in comparison with the frequency of the disease in many extensive sections of our country, that in communicating observations which are supposed to possess novelty, it may easily happen that we are only stating facts with which a large number of our professional brethren are already familiar, and which, to a considerable extent, have had their legitimate practical influence. This may be the case with the points upon which it is my purpose to present the results of my experience in the following remarks, viz:—the exhibition of quinia in larger doses than are generally directed by standard writers, and without those preliminary and precautionary measures, which have been considered very important to be observed in the treatment of the disease. When I found cause to modify my own views concerning the use of this specific, I was not aware that others had been led by their observations upon similar ground. I have, however, since ascertained, that the ideas which I shall offer have no claims to originality. In the late work of Professor Elliotson, (which I have recently seen,) the same principles are recommended which circumstances had led me to entertain. Since my attention has been particularly directed to this subject, I have also seen similar views in the various medical Journals. Supposing, nevertheless, it to be highly probable that there is, (as they appear to me,) in many instances, improved methods of managing

the disease which have not been generally adopted, I submit the results of their application, to a considerable extent in my hands, as confirmatory testimony of their value.

I was first led to experiment upon the safety and expediency of prescribing the salts of quinia in large doses in the autumn of 1839, while performing the duties of acting assistant surgeon at Poinsett Barracks, near this city. Several companies of the second artillery being transferred from Fort Gratiot, Michigan, to this port, intermitting fever was rife among the newly arrived troops. The majority of those sick with this disease not being received into hospital, owing to the limited accommodations at that time, the inconvenience of the patients coming from their quarters hourly, and the uncertainty of trusting the medicine to their own administration, suggested the trial of prescribing the whole quantity which it was desired should be taken during apyrexia, in one or two doses. Commencing with five grains, and repeating in twenty or thirty minutes, the amount was increased until twenty, thirty, and in one case, even forty grains were administered within a half hour. After satisfying myself not only of the safety, but, in many cases, the superiority of this plan of treatment, my usual course was to prescribe eight, ten, or fifteen grains, and if no unpleasant results followed, repeating it in from twenty to sixty minutes, whenever doubt was entertained concerning the ability of the patient to bear the whole quantity which I wished to administer during the apyrexia. But experience having shown that no inconvenience of any moment followed the exhibition of twenty or thirty grains within a short space of time, I was afterwards in the habit, in the majority of cases, especially when the patients were not retained in hospital, of prescribing, at once, these quantities.

At this period, I commenced keeping a record of the cases which fell under my observation, which I continued until seventy-one cases were collected. As I did not immediately adopt the method of large doses in private practice, forty-three only of this number will come under this class; and of these, thirty-six were soldiers. On referring to the notes of these cases, I find three are incomplete. The remainder I have analyzed with reference to numerical results. The cases in private practice are not included. Some of these will afterwards be noticed specially.

*Analysis of thirty-three cases occurring at Poinsett Barracks treated with sulphate of quinia in large doses.—Three* only of these cases were primary attacks. In *eleven* cases the disease had occurred only once previously. Of these, in one instance, the first attack preceded by four years; in one, six years; in all the others a few weeks or months only had intervened. In *seven* cases the disease had occurred twice previously. Of these, the first preceded the third two years, in one case; eight in one case; and in all the others the two previous attacks were of recent date. In *ten* cases the disease had been of long date, and had recurred numerous times. In *two* cases no record was made of the previous history.

*Of the Type.*—*Twelve* of the cases were of the tertian type; *thirteen* were of the quotidian type. In *eight* the type was not definitely known, the disease being checked after a single paroxysm. This latter circumstance could hardly have occurred excepting at a military station, where application for relief is almost invariably made on the first access of disease.

*Complications.*—*Thirteen* of the cases were complicated with catarrh; *one* with diarrhœa; *one* with otitis. In *seven*, the pulse in apyrexia is recorded accelerated; in *four*, the tongue coated: in *five*, the tongue furred; in *seven*, anorexia is recorded; in *eleven*, lassitude; in *five*, cephalalgia. In *two* cases, pain in the chest on full inspiration existed; in one of these sulphate of quinia, ten grains, in conjunction with a sinapism, was prescribed, and the next day this complication was relieved; in the other the quinia alone was prescribed, and the patient was returned for duty on the fifth day.

As the details of these cases were not made with any view to this analysis, it is probable that the minor complications, or more properly, symptoms, such as the state of the tongue, appetite, &c. were not always recorded when the morbid deviations existed in a mild degree.

1. *Of the doses of medicine exhibited on the first day after being received on the sick report, and the character of the disease determined.*—Five grains repeated in 20 minutes in *one* case; five grains repeated in 30 minutes in *one* case; ten grains repeated in 30 minutes in *one* case; ten grains repeated in 4 hours in *one* case; five grains morning, noon, and evening in *three* cases; eight grains morning, noon, and evening in *one* case; five grains morning, noon, and evening in *one* case; twenty grains morning, noon, and evening in *nine* cases; twenty-five grains morning, noon, and evening in *five* cases; fifteen grains morning, noon, and evening in *four* cases; forty grains morning, noon, and evening, *one* case. Number of cases 28.

2. *On the second day.*—Ten grains repeated in 30 minutes in *one* case; ten grains repeated in 2 hours in *one* case; ten grains repeated in 1 hour in *one* case; eight grains repeated in 1 hour in *two* cases; twelve grains repeated in 1 hour in *one* case; ten grains repeated in 1 hour in *one* case; twenty grains repeated in 1 hour in *four* cases; fifteen grains repeated in 1 hour in *eight* cases. Number of cases 19.

3. *On the third day.*—Ten grains repeated in 30 minutes in *one* case; ten grains repeated in 4 hours in *one* case; five grains morning, noon, and evening in *three* cases; fifteen grains, and in 4 hours ten grains in *one* case; ten grains repeated in 4 hours in *one* case; ten grains repeated in 2 hours in *one* case; ten grains repeated in 2 hours in *four* cases; twenty grains repeated in 2 hours in *seven* cases; fifteen grains repeated in 2 hours in *three* cases; twenty-five grains repeated in 2 hours in *one* case; eight grains repeated in 2 hours in *one* case. Number of cases 23.

4. *On the fourth day.*—Eight grains morning, noon, and evening in *two*

cases; eight grains morning, noon, and evening in *one* case; ten grains morning, noon, and evening in *four* cases; fifteen grains morning, noon, and evening in *three* cases; twenty grains morning, noon, and evening in *two* cases. Number of cases 12.

5. *On the fifth day.*—Eight grains morning, noon, and evening in *one* case; fifteen grains morning, noon, and evening in *two* cases; twenty grains morning, noon, and evening in *two* cases; twenty-five grains morning, noon, and evening in *two* cases; ten grains morning, noon, and evening in *three* cases.

6. *On the sixth day.*—Eight grains morning, noon, and evening in *one* case; fifteen grains repeated in 30 minutes in *one* case; ten grains repeated in 30 minutes in *two* cases; twenty grains repeated in 30 minutes in *two* cases; five grains repeated in 30 minutes in *one* case. Number of cases 7.

7. *On the seventh day.*—Ten grains repeated in 30 minutes in *one* case; twenty grains repeated in 30 minutes in *one* case; five grains morning, noon, and evening in *one* case. Number of cases 3.

The quantity of quinia thus administered to the patients collectively, amounts to 1684 grains. The mean quantity administered to the patients severally, will therefore be $51\frac{1}{3}$ grains. The maximum quantity administered to any patient is 103 grains. The minimum quantity 10 grains.

*Of the immediate effects of the medicine.*—No unpleasant effects worthy of record followed the administration in *nineteen* cases. Nausea occurred, apparently in consequence, in *four* cases; vomiting in *one* case; headache in *four* cases; temporary deafness in *four* cases; giddiness, or dizziness, in *nine* cases; buzzing, or ringing in the ears, in *eight* cases.

*Effects upon the paroxysms.*—In *nine* cases no paroxysm occurred after the first day of the administration of the specific; in *eleven* cases one subsequent paroxysm only occurred; in *five* cases two only occurred; in *one* case three occurred; in *one* four occurred, the last of which is recorded extremely light; in no case was the treatment unsuccessful.

*Of the time of remaining on the sick report.*—In three cases the date of return to duty is not recorded. Of the remaining *thirty* the average period of continuance on the sick report is a trifle more than $5\frac{1}{2}$ days. The minimum period of any particular case is 3 days. The maximum period is 11 days.

When discharged from the sick report, these patients returned immediately to their duty. They were not ordered into hospital, unless from some complication, or the unusual severity of the paroxysms. The greater number attended at the morning call and remained in quarters. Excepting when in hospital, no alterations or restrictions whatever upon diet were made. In *thirty* of the cases no preliminary treatment was pursued; in *two* cases bleeding ℥xii was practised at the commencement of the last stage; in one of these cases the patient had two paroxysms after the bleeding, and was on the sick report *five* days; in the other, *three* subsequent paroxysms occurred, and the patient was on the sick report the ultimum period, 11 days;

sulphate of quinia, sixty-one grains, were administered to this patient. It should be added that bleeding was not prescribed in these cases from the severity of the disease, or any peculiar indications, but at the suggestion of a medical friend, who has been led to form the opinion that this measure lessens the liability to relapses. In two other cases, which will be reported at length, venesection was employed; and with these exceptions, and one other, I do not recollect ever to have had recourse to this measure in this disease.

It may be important to remark, that none of the patients were probably aware that they were taking medicine in an unusual quantity.

As the case in which the largest quantity of the sulphate of quinia was administered may possess particular interest, I present the details as recorded in my case book.

*Bailey*, seized with chill and rigors, about two minutes before his name was called to present himself for examination. Sulphate of quinia, twenty grains, was prescribed and administered immediately. In a few moments said that he felt better; chill and rigors, however, still continued. Directed repetition of the same dose, making forty grains. In a few moments said he felt dizzy and nauseated. Gave him a bed in hospital. An hour afterwards examined him. He complained of deafness, dizziness, and nausea; did not vomit; pulse now much accelerated, moderately full; skin warm. Hospital steward reported the subsequent day, that deafness and dizziness continued for several hours. Found him on this morning with aspect bright, and said he felt quite comfortable; slept well. Two days afterwards he had had no recurrence of the paroxysms. No farther medicine was exhibited; desired to go to duty, and was returned accordingly.

It is an interesting subject of inquiry—at what period of the apyrexia may the specific be exhibited to exert the most efficiency? It is generally supposed, that the nearer, within a certain limit, to the time of the expected recurrence of the paroxysm it is administered, the greater will be the probability that the paroxysm will be averted, or its severity diminished. In the records of the preceding cases, I was not careful always to note this relation. I will state, however, that the usual course was to have it administered directly after its prescription, in the majority of cases, for the sake of convenience, without having any reference to the period at which the patient expected a paroxysm to recur. Shortly before I was relieved of my attendance at the barracks, however, this point suggested itself, and I proposed to make it the subject of some observations, by exhibiting the quinia in a large dose at an early period of an intermission, and omitting it during the latter period. This was practised in four cases only, a brief account of which is as follows.

Case I.—Sulphate of quinia was administered in dose of fifteen grains *ten* hours before the period when the paroxysm regularly would have occur-

red. The patient had no subsequent paroxysm. The same dose was repeated three successive days, and the patient discharged.

Case II.—Sulphate of quinia, ten grains, was administered *six* hours before time of paroxysm; the paroxysm was not prevented. The same dose, with the same interval, was repeated on the ensuing day; no paroxysm occurred on this day. This case was complicated with otitis.

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Case III.—In this case sulphate of quinia, fifteen grains, and after 30 minutes ten grains, were administered *thirty-seven* hours previous to the time of the paroxysm. The paroxysm did not occur. No farther medicine was administered to the patient, and he was returned for duty on the seventh day. Seven days afterwards he returned with relapse. He was then bled ℥xii in the hot stage, and treated with ten grains morning, noon, and evening, for the first day; eight grains morning, noon, and evening second day; six grains morning, noon, and evening fourth day. No paroxysm afterwards occurred while on the sick report, but subsequently he relapsed.

Case IV.—In this case twenty-five grains were administered 34 hours previous. Paroxysm was not prevented. The same dose was similarly administered on the day after the paroxysm. The paroxysm did not occur, and the patient was discharged on the fifth day. This case was complicated with catarrh and pain under the sternum on full inspiration. No other treatment than with the quinia was pursued.

Another inquiry connected with this branch of the subject possesses interest, viz.—In how far will the quinia exhibited at the commencement of a paroyxsm, tend to avert it, to mitigate its severity, or shorten its duration? This method has been recommended as the most efficient for the administration of the specific. And on the other hand, the late Dr. Eberle states, that in a single instance under his observation, it appeared to be followed by dangerous results. I made trial of this procedure in seven cases, one of which has been already presented. I will subjoin a brief account of the remaining six.

Case I.—Patient had suffered paroxysms for two successive days without treatment, and irregularly for some time previous. Sulphate of quinia, five grains, was exhibited at the commencement, and repeated in fifteen minutes. The cold stage continued twenty minutes; the preceding had been of an hour's duration. Pulse at the commencement was frequent and small; twelve minutes after the first dose it became more full. Felt no inconvenience from the medicine; fifty-five minutes after the commencement of the cold stage began to perspire; sweating stage was profuse and lasted two hours; had pain over the eyes after the sweating stage; slept well, and reported feeling well the next morning. Ten grains were directed if he had another paroxysm; none however occurred. No quinia was afterwards administered. In six days he was returned for duty. This was a primary attack.

Case II.—This patient was registered catarrh, and on the same day of his being received on the sick report, had a paroxysm of intermitting fever. On the second day took sulphate of quinia, one grain, hourly, up to the time of paroxysm, which retarded a half hour, and was less severe. On the third day complained of lassitude and cephalalgia, and took sulphate of quinia, two grains, hourly, from nine A.M. to four P.M. Chills, &c., at five P.M., retarding a half hour from the last paroxysm. Fourth day, rigors commenced at nine A.M. during my morning visit. Directed sulphate of quinia, two grains, hourly, until nine P.M., and as often as practicable during the night. On the fifth day paroxysm occurred at 20 minutes before five P.M. Sulphate of quinia, grs. v, was administered at commencement and repeated in 20 minutes. Cold stage continued 20 minutes, being one half the duration of the one preceding; began to perspire in a half hour after the expiration of the cold stage; felt some distress, and a sense of tightness across the chest after taking the quinia. Sixth day, headache; anorexia. Directed the same doses to be given if he has a paroxysm. None occurred. Seventh day, some appetite; complains only of languor. No medicine. Eighth day, no paroxysms; reports quite well, and is returned for duty.

Case III.—This patient had had the disease for some time of the tertian type. Began to experience the access of rigors, and applied immediately at the Hospital Dispensary during the hours of my attendance. Directed, at once, sulphate of quinia, five grains, and if the chill or rigors continue, to be repeated in 30 minutes. Saw him at the expiration of this time, and he reported warm and comfortable. Applied again three days subsequently. Had had no return of paroxysms, but complained of languor and debility, for which tinct. cinchona was prescribed. He regained his accustomed strength without any recurrence of the paroxysms.

Case IV.—This patient had one paroxysm previous to his coming on the sick report. Directions were given to administer sulphate of quinia, twenty grains, when the second paroxysm commenced. The disease proved to be of the tertian type. The sulphate of quinia was administered as directed. The cold stage continued one hour, quite as severely as previously. The day after this paroxysm directions were given to administer only tinct. opii camph. ʒi, if he has a paroxysm, all other medicine in the mean time being omitted. Paroxysm did not occur; complained afterwards of lassitude and anorexia, and quinia, twenty-five grains, was prescribed; the next day he reported quite well; quinia, twenty grains, was, however, prescribed. The next day he was returned for duty.

Case V.—This patient presented himself at the sick call for catarrh, and while awaiting his turn for examination was seized with chills and rigors. Directed immediately sulphate of quinia, twenty grains. In five minutes chills and rigors ceased entirely, and he expressed himself perfectly comfortable; fifteen minutes afterwards, skin felt cool, pulse of natural frequency and rather small. Second day, reported that he perspired freely

during the night; was comfortable during the preceding day; feels well this morning. Sulphate of quinia, fifteen grains, was prescribed. Third day, no recurrence; reports well. Fourth day, returned for duty.

Case VI.—This patient had had two paroxysms, quotidian, without coming on the sick report. Reported to hospital steward after rigors of the third paroxysm had continued for three quarters of an hour, who administered sulphate of quinia, twenty grains. Cold stage continued an hour afterwards; no inconvenience was felt from the medicine. On the fourth day subsequent, a very light paroxysm occurred; no prescription being made in the interval or at this time. Fifth day, complained of lassitude and debility. Directed sulphate of quinia, twenty grains. Paroxysm occurred on this day, cold stage continuing an hour. Sixth day, directed sulphate of quinia, twenty grains. No paroxysm. Seventh day, returned for duty.

The inferences to be drawn from these cases are, that sometimes the paroxysm may be arrested by exhibiting the sulphate of quinia during the cold stage, and its severity and duration diminished in other instances; but neither of these results ought to be confidently expected. It would seem from cases No. 1 and 2, that when the paroxysm is not strangled, the effects of the specific upon the subsequent continuance of the disease is not less than when administered in the apyrexia. In none of these cases, were any alarming or injurious effects produced. It is not, however, presumed to state these inferences as facts established from such a limited number of cases. A larger collection of observations, with reference to this subject, is much to be desired.

I proceed to present a few cases selected from those which have been treated in private practice. The two first are only interesting from the fact that the subjects were females of delicate constitutions, and from the second case being complicated with gastric irritability, which rendered the exhibition of a tonic in small doses, frequently repeated, impracticable, but admitted of its administration in larger doses without inconvenience.

Case I.—Mrs. P., ætat. 25, constitution extremely delicate, was attacked with intermitting fever of quotidian type, which was speedily relieved by Carpenter's precipitated extract of bark (an article which I have much used, and found to possess equal, if not superior virtue to the sulphate of quinia) in doses of one grain hourly during the apyrexia. As soon as the paroxysms were interrupted she discontinued the medicine, contrary to advice. Several weeks afterwards she was again attacked with the disease of the tertian type. She had had three paroxysms previous to my being requested to visit her. Without preliminary treatment, sulphate of quinia, in doses of five grains morning, noon, and evening of the day of apyrexia, was prescribed. Visiting her in the evening, I ascertained, that mistaking the directions, she had taken the powders hourly, until the whole number written for (five) had been taken. She had thus taken twenty grains within five hours. No unpleasant effects were produced, excepting slight nausea, and some ringing in the ears, which it did not occur to her to attribute to

the medicine. She had no recurrence of the paroxysms. She continued to take four grains daily for six days. Ten months have now elapsed, and this lady has experienced no return of the disease.

Case II.—Mrs. S., ætat. about 28, delicate constitution; after returning from a visit at Toledo, Ohio, was seized with intermitting fever of quotidian type. The paroxysms produced great prostration, complete anorexia, with restlessness and watchfulness during the apyrexia. Carpenter's extract was prescribed in doses of one grain in solution hourly. This occasioned so much nausea, that pills of the same, containing grs. iiiss were substituted during the next apyrexia. The same effect followed to such a degree that it was impossible for her to continue them. On the next day sulphate of quinia, five grains, repeated in 45 minutes, was prescribed. She took both powders with slight inconvenience, and the paroxysm of this day was much less severe. The next day she took five grains, and escaped the paroxysm. For three days subsequent she took grs. iiss, and rapidly recovered her appetite and strength. Several weeks afterwards this lady had severe intermittent neuralgia, which was cured by a resort to the same method.

The two following cases are given as affording illustration of the safety and advantage of employing the specific in doses sufficiently large to arrest the disease as soon as its intermittent character is determined. An idea seems to prevail to a considerable extent, both among patients and physicians, that if the paroxysms be permitted to continue for a certain period, the liability to relapses is less than if immediately checked. The late Dr. Eberle advocated this idea. I have known repeated instances, in which patients have resigned themselves to an endurance of this distressing malady for a long period, under the impression that if it be allowed to "wear itself out," they would thereafter be secure against its return. My experience is directly opposed to these views. The cases most difficult to manage, and in which relapses have been most frequent, have been among those who, from necessity, or the erroneous idea just mentioned, have not early resorted to means of relief. And on the other hand, the cases in which I have earliest succeeded in interrupting the paroxysms, the immunity has been the most permanent. I have entertained the conjecture that careful attention in many of these cases which terminate in remittent fever, at their primary stages, would disclose periods of intermission, when the specific may be administered in large doses with entire safety, and arrest the progress of a disease, which otherwise might become confirmed and continue for weeks. Cases resembling the two which follow, have seemed to encourage this impression.

Case III.—S. N. H., ætat. 30, about a week after returning from a journey through Michigan, previously having been in good health, began to suffer from feelings of general malaise on the evening of the 11th September, 1840. I was requested to visit him on the 12th. Found him with pulse somewhat accelerated, (his natural pulse is about 50,) rather small;

tongue coated at the root, and furred throughout; pain in the head and loins, eyes appeared swollen and reddened, and their motion produced pain; anorexia; complained of irregular chilly sensations; has never had intermitting fever. He had taken some cathartic pills, which had operated twice; no prescription was made until afternoon, when the pain in the loins and extremities being severe, and the other symptoms remaining the same, pulv. Doveri, ten grains, was prescribed, which relieved the pain and was followed by some perspiration.

13*th.* Passed a restless and watchful night; skin throughout the night hot; had some chilly sensations on going to bed; pulse this morning considerably accelerated; skin hot; severe pain in the head immediately over the eyes, especially on motion; pain in the loins and joints. Venesection ℥xii. At 1 P. M. pulse more full than in the morning and not less accelerated; skin continues hot; pain in the joints diminished, in the head the same. ℞.—Calomel grs. iv; pulv. ipecac. grs. ii, which was followed by slight vomiting and pretty free perspiration. Afterwards pain in the head somewhat diminished. 4 P. M., sleeping; skin moist; pulse still accelerated but less full. At 4½ P. M. infus. sennæ comp. ℥iii, and at seven P. M. enema salt and water.

14*th.* Much better; fever appeared to subside entirely at about midnight, and moderate perspiration succeeded; afterwards slept tranquilly; now, pulse moderately accelerated, not hard nor full; slight occasional pain in the forehead; pain in the joints has ceased; tongue coated; anorexia; had numerous dejections, eight or ten, during the night, and frequent disposition to go to stool still continues. Enema of starch with elixir opii, M'Munn's, ℥i. P. M., pulse much accelerated; skin hot; restlessness; nervous system much excited. Sol. sulph. morphiæ, gr. ⅛ repeated *pro re nata.*

15*th.* Passed a restless and uncomfortable night; mind in a half dozing state, constantly occupied with business and other matters; pulse now accelerated; skin natural; pain in the head continues; this pain is accompanied with a sense of stricture over the eyes, and soreness of integuments; at times it is acute, and suddenly, for a short time, he is entirely free from it; appears to be very irritable, and easily excited. P. M., pulse more accelerated than in the morning; skin hot; tongue furred; constant thirst; occasional nausea. Took a Seidlitz powder which produced two free liquid dejections of a dark brown colour. This afternoon sulph. morphiæ; enjoined quiet; ice water allowed freely; blister, five by five, to the epigastrium.

16*th.* Sweat profusely during the last night; this morning pulse moderately accelerated, irregular, and intermitting; skin moist; tongue coated; thirst diminished; took a little bread with relish, no pain but soreness in the head; eyes bright, and general aspect improved. No prescription. At ten A. M. began to have pains in the region of the frontal sinus, and in the limbs; pulse more accelerated, and skin hot; the symptoms increased toward evening; I remained with him during the night; from ten until half past one A. M. he lay in a half somnolent state, constantly muttering; skin intensely hot; frequently groaning and shifting his position from pain in the limbs; at half past one A. M. began to perspire; afterwards became quiet; frequency of pulse diminished, and he slept tranquilly until six A. M. Began to administer sulphate of quinia in doses of three grains; at eight A. M. twelve grains had been administered. Tongue this morning furred in the centre and red at the edges; after eight he slept, and awakened in an hour with profuse perspiration; desire to evacuate the bowels, and a peculiar

indescribable sensation in his head which alarmed him. A little brandy and water was administered with relief. He complained throughout the day of buzzing in the ears. He had no access of fever.

18*th*. Passed a good night. At six this morning, agreeably to directions, began to take Carpenter's extract, in doses of three grains half hourly; he took fifteen grains between the hours of six and eight A. M.

19*th*. Passed an uncomfortable night; complains of pains in the scalp and limbs, and certain indescribable sensations worse than pain; has to-day some fever; pulse accelerated, and thirst. Took of Carpenter's extract nine grains this forenoon; at three P. M. directed enema of starch with M'Munn's elixir opii ʒi, which produced complete tranquillity. At eight A. M. began to perspire; perspired moderately.

20*th*. Commenced taking the tonic at midnight; between twelve meridian and nine A. M. twelve grains; at twelve meridian took five grains, to be continued every four hours. No unpleasant effects followed the medicine excepting slight nausea; slept well during the night; skin moist and cool; no headache nor pain in the limbs, but frequent disposition to gape; pulse not accelerated; tongue moist and coated; no redness at the edges; no appetite.

22*d*. Omitted the medicine in the afternoon of the 20th, and commenced it in the afternoon of the 21st; took seven grains before eight A. M., and afterwards through the day eighteen grains. This morning commenced at one A. M. and took twelve grains; discontinued it after eight A. M. No fever, nor pain in the head or loins; but appetite does not return; tongue furred; medicine produces slight nausea.

23*d*. Took this morning eighteen grains. Much better; up and dressed; moderate appetite; from this date he rapidly recovered appetite and strength. Eight months have now elapsed, and although his business and active habits have involved much exposure and fatigue, he has had no return of the disease. He continued the use of the tonic for some time after the last date.

Case IV.—H. H., ætat. 40, of very full habit. Has always enjoyed robust health. Was taken with a severe chill on the evening of the 26th September, 1840, which was followed by high fever continuing through the night. In the morning he had recourse to an emetic, which operated freely and was followed by free perspiration. Previously to this he had taken some cathartic medicine, which had purged freely.

28*th*. Had no chill; was restless and uncomfortable; had much pain in the back of the head and neck, which was somewhat relieved by the application of a mustard sinapism.

29*th*. This morning had probably a slight cold stage; no distinct chill nor rigors, but some feeling of chilliness, and his extremities were observed to be cold. I was requested to visit him at two P. M. I found him with pulse much accelerated and full; restlessness; tongue coated, moist; lassitude; anorexia; thirst; skin hot and dry. Venesection ℥xii, and pulv. Doveri eight grains. Half-past nine, P.M.; skin now moist, and he expresses himself comfortable; began to perspire at eight P. M., and had perspired freely; pulse now moderately accelerated. Directed Carpenter's extract, four grains now, to be repeated once in the night, and again early in the morning.

30*th*. Comfortable; passed a good night; pulse natural; tongue covered with a very white moist coat; no inconvenience from medicine. Directed four grains at nine A. M., and afterwards omitted. P. M. Passed a restless day; pulse accelerated. Had eaten beefsteak and chicken, under the

idea that, by forcing it down, he should recover strength more rapidly. Said he felt great oppression after eating; the restlessness and acceleration of pulse are probably to be attributed to the irritation of the ingesta, rather than to a recurrence of the paroxysm. Directed medicine to be taken in the night and morning as on the 29th, sixteen grains.

*October* 1. Passed a comfortable day; pulse slightly accelerated; skin moist; no appetite; tongue covered with a very white moist coat. Continue use of medicine as previously.

2*d*. Good night; no inconvenience from the medicine. P. M., had been up, dressed, and out of doors. Some appetite; had taken a few oysters with relish, and without oppression. Seidlitz powders at noon. From this date he rapidly regained his appetite and strength. The tonic was continued for several days.

Up to the present date his health has been perfectly good, without any recurrence of this disease.

*General remarks.*—The majority of the cases of intermitting fever which occur in this city, are contracted in other localities. The disease was formerly rife here, but is now confined in its origin to a few contracted districts; and in these, the quantity of malaria seems to be insufficient to induce an attack, excepting in those peculiarly predisposed, or in conjunction with other concomitant circumstances. From the commercial character of the place, however, and the general habit which prevails among the business portion of the community, of travelling more or less during the summer season, through the western states and territories, the occurrence of the disease is very frequent. We are also constantly in the way of observing it in returning emigrants and travellers of all classes.

Not having resided in any locality where the disease is endemic to a greater extent than here, I cannot speak of the success of remedial measures where the patient is exposed to the continued concentrated action of the morbific principle. I can state, however, that of a large number of cases, of a very miscellaneous character, which have fallen under my observation for the past five years in this place, in private practice and at the almshouse, as well as the military station located near the city, I cannot recall a single instance, in which the paroxysms were not promptly interrupted whenever the patients could be made follow the directions given.

Unfortunately, a prejudice against the use of the invaluable specific for this disease, appears to prevail extensively throughout all malarious regions. It is thought to injure or undermine the constitution; and this deplorable error is diligently promoted by a host of unprincipled individuals, who are interested in the diffusion of various empirical nostrums, the potency of which is generally wholly derived from the very article which they endeavour to discredit. Such an impression pervading the common mind, affects the views of many physicians; they hesitate to employ the remedy with sufficient promptitude and boldness, and fearful of latent mischief, administer it with a degree of caution and delay, which serves to countenance and confirm that prejudice which is so much to be regretted. The preceding

cases will, I trust, be sufficient to demonstrate that the sulphate of quinia may be exhibited in doses sufficiently large to ensure prompt relief without any fear of unpleasant consequences. Having employed it also in other affections, especially some forms of neuralgia, in doses equally large, and continued its use much longer than in any of the cases of intermitting fever which have been presented in this communication, I have satisfied myself that it may, with entire safety, be given in large doses and repeated for a length of time, which it is presumed will be sufficient, in any case, to accomplish the end which is desired.

Many practitioners are deterred from the prompt exhibition of the quinia, by the impression that the system requires some preparatory processes for its reception; especially when there are present a thickly coated tongue, with other evidences of general disturbance of the secretory functions, and more particularly if gastric derangement is a prominent difficulty, the indefinite idea expressed by the term "bilious" is invoked, and regarded as an insuperable obstacle to its administration. I have been led to regard these symptoms as oftener the effects than purely the adventitious concomitants of the disease. In a large proportion of cases, we find there is a tendency to irritation of the gastro-duodenic mucous membrane, indicated by nausea, vomiting, anorexia, &c. This is increased and confirmed the longer the disease is permitted to continue. Under this view, the most rational policy is, manifestly, to strike at once at the *fons et origo* of the difficulty. There will be cases, it is true, where the specific will not be easily borne; but it will often be retained with slight inconvenience on exhibiting a second dose when the first was either rejected or created much irritation; and may, as we have seen, sometimes be borne well in a large dose, when it is insupportable in small quantities. At any rate, it is difficult to conceive in what manner the irritation of emetics and cathartics, in conjunction with the continued recurrence of the paroxysms, is to communicate a better state of preparation than had previously existed.

Other and more serious complications may sometimes exist, or their existence be suspected, when it may seem that the excitant properties of the quinia, in sufficient doses to effect a speedy cure, may expose the patient to more dangerous results than would follow from the unchecked paroxysms. In such cases, the instructions of some standard authorities are, first, to relieve the concomitant affection by appropriate measures, and afterwards, the intermitting fever. We are to be guided, as it appears to me, in such cases, by the considerations which will arise from the following inquiry:—Will the excitant properties of the tonic tend more to exaggerate the accompanying disease, than the series of morbid actions which constitute the paroxysms of intermitting fever? I am disposed to think that the cases are very few in number, in which the true answer to this inquiry is affirmative. In my own experience, I have not, as yet, met with an instance in which I have hesitated to employ ample means to interrupt the paroxysms as

promptly as possible; nor have I ever found reason to regret, in any instance, having pursued this course. Undue apprehensions on this score have, I suspect, been among the unfortunate influences of the doctrines of Broussais. Indeed this author states, (Chronic Phlegmasiæ,) that in certain cases "nothing in medicine presents more difficulties than the treatment of intermitting fevers." "On the one hand," he adds, "the series of vital actions which constitute the intermittent fever, may tend to produce inflammatory nucleii in the lungs;" and on the other hand, he presents cases to show, that the tonic medicine necessary to effect an immediate cure, may cause an incurable phlogosis of the stomach. I can hardly conceive of this latter result being produced, for I have often administered this remedy in considerable doses where the stomach was irritable, and after a short period of increase of the symptoms, have witnessed the irritability rapidly subside, so that subsequent doses were borne without any unpleasant effects. In such cases, if we were to shut out of view the existence of the intermitting fever, we might almost come to the conclusion, that the quinia was an appropriate remedy, in certain cases, for gastric irritability; and, assuredly, if it ever tends to produce phlogosis, we should presume that this tendency would be especially exerted when a state of great irritability was already present. The general excitant effects of the quinia exerted upon the nervous and circulatory systems, certainly bear no comparison with the several stages of an intermittent paroxysm. In fact, in the majority of cases, when exhibited in moderate doses, these effects are hardly perceptible. Even when administered during the intense febrile excitement of the hot stage, (I have been informed by a highly intelligent medical friend who practised in a malarious district, and was in the habit of continuing the use of the specific throughout the whole of this stage,) the symptoms are not increased, nor any unpleasant effects produced. I cannot imagine, then, that the coexistence of even a well marked phlogosis of any organ beside the stomach itself, is, in reality, a sufficient obstacle in the way of the administration of this remedy. On the other hand, apprehending far more evil from the repetition of the paroxysms than from the excitant properties of the tonic, I should not hesitate, were a case of this kind to fall under treatment, to administer the remedy in doses sufficiently large to arrest the recurrence of the paroxysms as speedily as possible, employing, in conjunction, such depletory and revulsive measures as the character of the local affection, under other circumstances, would demand. If the gastric mucous membrane itself were in a state of inflammation, from the nature of the direct action of the medicine, it would, of course, be interdicted; and in such a case, it seems to me, that it would be proper to administer it per enema, as suggested by Professor Elliotson.

After having exhibited the quinia in sufficient quantities to arrest the recurrence of the paroxysms, if it be omitted, or continued in inefficient doses, the patient will be found frequently to remain in a state somewhat

intermediate between health and illness for an indefinite period. The appetite does not return: muscular strength, and bodily and mental activity are not regained; and, in short, he is not well, without being able to indicate any particular source of suffering or trouble. I have known such a state continue for ten weeks, and vanish in a few days after the proper indications were acted upon. This condition calls for the continuance of the specific, or its exhibition in larger doses. Under such circumstances, a large dose of quinia will oftentimes produce an immediate internal change of sensation, which the patient cannot well describe, but which is not less striking to himself than to the physician—and from this time, the appetite and strength rapidly return.

I have also observed several instances, in which the disease may be said to be present in a latent form. I mean by this a condition which sometimes occurs after exposure in a malarious region, where it is presumed that the amount of morbific influence imbibed by the system, is not sufficient of itself, or by means of collateral influences, to develop either intermittent or remittent fever. This condition is characterized by anorexia, and in general that combination of symptoms which is commonly expressed by that very convenient term "*bilious*," without any particular evidences of the liver being the organ chiefly affected. Connected with these symptoms, I have remarked a symptom which, when present, appears to me almost pathognomonic, viz:—a thin, moist coat, equally diffused over the tongue, of a remarkable whiteness. I have characterized it, in my case book, frequently by the term *chalky*. It is not easy to describe the peculiarity, but when I have observed it, without inquiring the history of the patient, I have often, at once, pronounced the character of the difficulty.

If the symptoms of these patients be closely inquired into, there will be found irregular variations of sensation as it regards temperature, and also of the circulatory system, which will render the diagnosis more positive; and the immediate and striking benefit derived from the quinia verifies its correctness.

I will remark in this connection, also, that patients, after having experienced intermittent fever, will sometimes complain of troublesome night perspirations, without any other unpleasant symptoms. This seems to be a sequela of the disease, and is readily relieved by the quinia in doses of five grains at night.

It is of consequence (to what extent I am unable to judge) to connect the views which have been presented relative to the disease under consideration, with the geographical position of the place at which they are written. As the general characters of the climate of this place are probably sufficiently known, I will not lengthen this article by their description. It is highly probable, that from this source are derived influences upon the character of the disease, and the method of treatment, which are of great importance, and differ widely in different localities. This is a subject deserving atten-

tive consideration; and it is much to be desired, that with reference to this point, physicians located in different sections of our country where the disease prevails, would present the results of their experience, so that a comparison might be instituted. Upon this subject the following remarks of Broussais are valuable. "In the *damp* and *cold* climate of Belgium and Holland, advantageous results were obtained from the immediate administration of bark. At Udine, situated in a *dry*, *hot* country, where I have since practised, I never succeeded in cutting short a single case of fever, from the month of August to the autumn, without observing a succession of those symptoms of inflammatory sensibility of the alimentary canal, of which I have spoken. The climate of Belgium destroys the irritability of the gastric mucous membrane, and enables it to support much stimulation. The atmosphere of Italy being more charged with caloric and electricity, communicates a sensibility to the organs which does not permit the use of irritants."—*Chronic Phlegmasiæ*, vol. i. Translation by Drs. Hays and Griffith.

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The tendency to relapse in intermittent fever, after a greater or less period, is universal. Almost invariably, patients who once experience the disease, sooner or later have recurrence of the paroxysms. They are apt, in consequence, to express impatience, and to utter complaints against the remedy which relieves only for a season. This is, to say the least, in bad taste. There ought, on the other hand, to be felt the highest gratitude, that for a disease prevailing so generally over large portions of our country, and which, if not susceptible of relief, would be an almost insuperable obstacle in the development of the resources of our national domains, we have a specific which, whenever it occurs or recurs, will, almost invariably, produce speedy relief.

In this latter point of view, it becomes a matter of immense consequence that the efficacy of this invaluable remedy should be fully known, and that the unreasonable prejudices which exist in the common mind against its use should be removed. These considerations chiefly have induced me to report the results of my experience, which, I am well aware, has been limited when compared with that of thousands in different sections of our country; and should the facts and views which I have presented, fortunately induce others to publish the results of longer and more extensive observations of a disease, which (when we consider its intrinsic importance, in connection with the unlimited means for its study) has occupied by far too small a portion of the medical literature of our country; and the etiology, pathology, history, and therapeutics of which are still sadly deficient in definite, established principles, my object will be attained.

Buffalo, *May* 19*th*, 1841.

## Art. II.—*On the Endemic Influences of the United States.* By Samuel Forry, M.D., of New York.

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Believing that the subject of *endemic* diseases presents a field that well deserves to be farther cultivated—that a knowledge of those peculiarities of physical circumstances, the aggregate of which constitutes climate, which coexist with certain forms of disease, is a department of medical science that includes some of its essential principles—the attempt has been made, in two articles published in this Journal (Nos. 1 and 3, New Series), to supply, so far as the data would allow, this desideratum in our professional literature. Were the facts sufficiently precise and numerous for scientific generalization, it would prove a profitable inquiry to trace the various relations of the endemic diseases of different countries, with all those physical causes and moral agencies which influence the human organization. This has been attempted in part, as just observed, by a comprehensive induction of facts in regard to pulmonary and rheumatic affections, intermittent and remittent fevers, diarrhœa, dysentery, &c.; but as in these researches, the influence of climate as modified by the nature of soil was not sufficiently considered, the object now in view is to generalize these isolated facts, which are only valuable so far as they tend to establish general laws.

*Endemic influences* are recognised rather by their effects than demonstrative properties; and as they are the result of the conjoined operation of physical phenomena and moral conditions which constantly vary, the effects are correspondingly modified. When we reflect that endemial influences are the consequences of a multiplicity of causes, as temperature, prevailing winds, locality, as regards elevation, or the vicinity of large bodies of water, geological formation, soil, vegetation as respects culture or a state of nature, &c., in their various conditions and combinations, in connection with the influence exerted on the human frame by occupations, modes of life, and moral agencies, the diversity and importance of the resulting effects can no longer excite surprise. In investigating endemic causation, it is necessary to consider the social, moral, political, and intellectual conditions of the inhabitants—their privations and comforts—their states of filth or cleanliness—as well as the agency of these diversified causes in developing or counteracting one another. Thus the influence of locality is exhibited in the comparative effects of mountainous situations and low malarious positions upon the physical and moral condition of their inhabitants respectively; and conversely, these moral and physical conditions, as has been demonstrated, both in the old and the new world, are improved by the alterations effected in the face of nature by the march of civilization. A similar result is witnessed in the beneficial effects of change of air from a crowded city to the

open country. No sooner does the permanent resident of a large city, labouring under that deterioration of health which has been termed *cachexia londinensis*, leave the

> "Chaos of eternal smoke
> And volatile corruption from the dead,
> The dying, sick'ning, and the living world,"

than the etiolation or blanching stamped upon his countenance vanishes, and the glow of ruddy health usurps its place. As in the corporeal structure, different effects result from the dry and restless air of the mountain, compared with those evidenced in the moist and sluggish atmosphere of the valley; so, as regards the mental manifestations, the observation of the poet is founded in nature—

> "An iron race the mountain cliffs maintain,
> Foes to the gentler manners of the plain."—*Gray.*

As climate, in its medical signification, constitutes the aggregate of all the external physical circumstances pertaining to each locality in its relation to man, it becomes necessary, in the investigation of this subject, to study well the nature of the soil, and the geological formation peculiar to such locality. As the emanations dissolved in atmospheric moisture, which arise from the stratum of comminuted mineral substances and organic remains, composing the crust of the globe, not only influence health but modify the organism, the importance of the geographical descriptions here presented will appear in the sequel.

In the United States, the face of the country presents the variety of plain, mountain, valley, and table-land, having primitive, transition, secondary, and alluvial formations. From New Brunswick to the mouth of the Hudson, with a trivial interruption in the peninsula of Cape Cod, the sea washes a coast of primary rocks often presenting bold projecting cliffs. This region, as far to the northwest as the St. Lawrence river, consists of primary rocks, if we except three narrow belts of secondary strata. This primary region, following the course of the highlands, extends into Pennsylvania, and then continues, under formations of a more ambiguous character, as far as Alabama, having for its eastern boundary the tertiary and cretaceous strata of the Atlantic Plain, and for its western the great valley lying at the base of the Blue Ridge, and farther to the southwest one of the parallel mountain groups.

The great secondary deposit lies chiefly to the northwest of the Alleghenies, extending to the lakes and westward beyond the Mississippi. The alluvial deposits cover vast tracts, the most considerable being that interposed between the Atlantic shore and the Allegheny mountains. This extensive level tract, little elevated above the level of the sea, and gradually widening from a few miles in breadth in the north to upwards of 150 miles in the south,

has been appropriately named the *Atlantic Plain.* A ledge of primary rocks over which the rivers fall, and to which, in the northern section, the tide penetrates, marks very distinctly the western limits of this tract, along which line are found Trenton, Philadelphia, Baltimore, Georgetown, Fredericksburg, Richmond, Smithville, Camden, Augusta, Milledgeville, and Columbus.* At the last named point, the ledge recedes to the northwest through Alabama and Mississippi, until the Atlantic Plain is merged into the valley of the Mississippi. Among the physical features which characterize this plain, which slopes gently down to the ocean, are extensive morasses and swamps, sluggish streams, and wide arms of the sea penetrating far inland. It is composed of tertiary and secondary cretaceous deposits, the former consisting of alternating beds of sand, clay, and sometimes marl, all abounding in marine fossil shells. As the soil, formed of the alluvion brought down by the mountain streams, is of a humid nature and abounds in organic remains, it follows that effluvia noxious to man are generated in a ratio with the increasing temperature of season and latitude. This alluvial zone, which skirts the coast from the Hudson to the Lower Mississippi, extends along the banks of that river beyond the confluence of the Missouri.

As the physical aspect of a country, the nature of the soil, and its vegetable productions, are intimately connected with the character of climate, a detailed description becomes necessary, to be enabled to estimate properly its endemic influences; but, in the present instance, the country to be described is of so vast an extent as to preclude anything beyond the most general outlines. Following, to some extent, the classification adopted in the two preceding articles, the *Northern Division* of the United States will be first described.

The *New England States*, notwithstanding much of the soil is fertile and tolerably well adapted to the cultivation of maize, wheat, rye, and other cereals, have the general character of ruggedness and sterility. Of *Maine*, *New Hampshire*, and *Vermont*, originally covered with dense forests, the greater portion still continues in its primeval condition. The last two are hilly and mountainous, the elevations in New Hampshire rising in height as they recede from the ocean, until they finally swell into the lofty grandeur of the White Mountains, the great central knot of which consists of rocky pinnacles shooting up to the altitude of from 5000 to 6500 feet. Encircling the base is a forest of heavy timber; then succeeds a belt of stunted firs; next a growth of low bushes; and still further up only moss or lichen, or lastly a naked surface. On these summits snow lies during ten months of the year. *Massachusetts*, *Rhode Island*, and *Connecticut*, partake of

* The fact that nearly all the principal cities of the Atlantic states have arisen upon this boundary, from the obvious motive of seeking the head of navigation, affords a striking example of the influence of geological causes in distributing population, and thus determining political relations.

the general character, the last having some rich alluvial tracts. Of *New York*, the greater part of which lies on the great Allegheny table-land, most of the soil is of a useful quality, and much is highly fertile. The central part of the state, extending from the valley of the Mohawk westward to the lakes, is the district of wheat, which is the great agricultural staple.

Passing over a description of the great inland seas, which constitute one of the most striking characteristics of the physical geography of the United States, *Michigan* comes next under notice. The Lower Peninsula is, in general, slightly undulating, a great part of the surface being densely covered with forests, which are interspersed with "oak openings," plains, and occasionally prairies. In point of fertility, it is not, perhaps, surpassed by any other tract of equal extent in the world, the alluvial lands in the southern part consisting of a rich vegetable mould from 3 to 6 feet in depth. Of the Upper Peninsula less is known, there being some lofty ridges which are said to rise nearly 2000 feet above the level of Lake Superior. The vast tract of *Wisconsin* and *Iowa*, exceeding in dimensions, by one third, the whole kingdom of France, is a part of the great central table-land of North America. It has a general elevation of from 800 to 1200 feet above the level of the ocean. In the northern part, much of the soil is of an inferior quality; but the southern section contains fertile prairies, which, forming wide expanses, stretching as far as the eye can reach, are only here and there interrupted by a belt of woodland skirting a river, or by a small grove or clump of trees resting like an island in the midst of the ocean. The whole unwooded tract of the northwestern states, constitutes one vast prairie, partially intersected by strips of woodland, forming a striking contrast to the immense forest, which, extending from Hudson's Bay to the Gulf of Mexico, and from the Atlantic to beyond the Mississippi, is even now but slightly encroached upon by the labours of man.

As the states belted by the Atlantic Plain possess many features in common, they will be reserved for the last in description. Passing then by New Jersey, *Pennsylvania* demands our notice. Stretching quite across the great Allegheny system, it is naturally divided into three strongly marked regions, *viz.* the Atlantic slope, the Central mountain region, and the Ohio and Erie table-land. Abounding in noble rivers, this state has inexhaustible agricultural and mineral resources. It may be here remarked, that in regard to a classification of soils, the nomenclature commonly received, will be adopted; such as the term, *sandy* or arenaceous, *clayey* or argillaceous, *loam*, which is a medium soil composed of clay and sand, and lastly, *vegetable mould*, which contains a large quantity of decomposed vegetable matter. *Ohio*, *Indiana*, and *Illinois*, possess some characters in common. Consisting of table-land elevated from 500 to 1000 feet above the level of the sea, whilst the surface seldom presents any considerable elevations above this general

level, these states, as regards the nature of the soil, exhibit, in popular acceptation, four principal varieties, *viz.*—1. The alluvions of the river valleys, called bottoms; 2. The forests, consisting of a dense growth of gigantic trees, and a thick undergrowth of shrubs and vines; 3. The prairies, or unwooded lands, richly covered with grasses, and a gay profusion of flowering plants; and 4. The "barrens," or "oak-openings." The prairies are more extensive and numerous in Indiana than in Ohio, and still more so in Illinois. The "oak-openings" partake of the character of the forest and prairie, being covered with scattered oaks, interspersed with other forest trees springing from a rich vegetable mould. The soil is everywhere, even to the summits of the hills, productive, and in general, exuberantly fertile. On all the streams are belts of rich alluvion of exhaustless fertility. The productive industry is almost exclusively agricultural, such as wheat, Indian corn, hemp, and tobacco. The state of *Missouri*, with the exception of the south-west portion, which is traversed by numerous ridges of the Ozark mountains, presents similar features. *Kentucky* and *Tennessee* are both mountainous in the eastern portion. In many parts, the soil is exceedingly fertile; and much of it, in its primitive state, was densely wooded with a forest of majestic trees, and a thick undergrowth of gigantic reeds, called cane-brakes. In *Arkansas*, the eastern border to the distance of from 30 to 50 miles from the Mississippi, consists of low grounds, interspersed with numerous lakes and swamps, and annually overflowed, with little exception, by the inundations of the Mississippi, Arkansas, and other streams. The surface of this swamp presents in ordinary times a succession of lakes, bayous, cypress lands, and marshy ground. The ponds, whose depth does not ordinarily exceed 3 or 4 feet, are mostly filled with very large cypress trees growing in the water. The marshy ground is covered with trees of immense size, principally gum and sycamore in the lower places, and in the higher and more dry, whiteoak and hickory, and occasionally dense cane-brakes rising to the height of 30 feet. The valleys are often inundated to the depth of from 15 to 25 feet.

The states skirted by the Atlantic Plain, which will be found to play an important part in the production of endemial causes, remain to be described; and of these the descriptions will be as brief as practicable. Of *New Jersey*, the northern portion is traversed by several mountain ranges, whilst the southern section consists of the low plain to which reference has just been made, being covered with extensive pine forests, not, however, without many patches of good land. *Delaware*, with the exception of the northern part, lies wholly on the Atlantic Plain. The soil, which is generally light and sandy, is occasionally rendered productive by marshes and the river deposits. These river deposits, consisting of a black mud composed chiefly of vegetable fibre, sometimes attains a depth of 50 feet. As the lowlands are very flat, with an argillaceous substratum impervious to water, the ponds which originate

from rains and springs, as they become dammed up by fallen trees, leaves, and brushwood, naturally expand into broad basins, termed marshes. These are covered with a black vegetable mould from one to six feet in depth, in which the proportion of organic matter is so great, that the soil, if accidentally ignited during a dry season, will continue to burn until extinguished by rain. These phenomena, observed in this state, are no doubt common to the entire Atlantic Plain, or rather augment with the decrease of latitude. In *Maryland*, we meet at the falls in the Susquehannah above Port Deposit, and in the Potomac above Georgetown, the first well-defined ridge, which, separating the lowlands from the Atlantic Slope,* may be regarded as a step to a higher plain. In *Virginia*, as the limits of the state extend quite across the great Appalachian chains, four natural divisions are presented, *viz.*—1. The Tide-water region below the falls of the rivers; 2. The Middle region, between the falls and the Blue Ridge; 3. The Great Valley between the Blue Ridge and the Allegheny Mountains; and 4. The Trans-Allegheny region, west of that chain. The Atlantic Plain exhibits the usual features of deep ravines scooped out by the action of running waters, through which flow broad and sluggish streams; and the primary ridge over which the rivers flow into this low country, is about 150 feet high. In each of these divisions, the phenomena of vegetation are modified in accordance with the diversity of climate on the same parallels. On the lowlands, tobacco is the chief staple; in the Great Valley, its culture succeeds only in the southern portion; and beyond the Allegheny, it ceases to be cultivated. In the first only is cotton cultivated, and in the southern part quite extensively. The *Carolinas* and *Georgia* are divided into three strongly marked regions. In North Carolina, the Atlantic Plain, extending from 60 to 80 miles from the sea, forms, as it were, a chaos of land and water, consisting of vast swamps traversed by sluggish streams, expanding ever and anon into broad basins; whilst in South Carolina and Georgia, it is covered with a forest of pines, known under the name of "pine barrens," dotted with numerous swamps and savannahs. In North Carolina, the Middle region gradually merges into the mountainous country farther west, where the table-land has an elevation of perhaps 1000 above the sea, upon which rise many crests, one of which, the Black Mountain, has an elevation of 6,426 feet—the highest summit on this side of the Rocky Mountains. In South Carolina and Georgia, the Middle region consists of a zone of sand-hills, from 30 to 40 miles wide, interspersed with swamps and valleys producing shrubs and trees indicative of a more generous soil. In the three regions of these states, there are found great diversity of climate and corresponding difference in the vegetable kingdom. The hilly and mountainous region, irrigated by clear, rapid,

* The term *Atlantic Slope* ought to be confined to the district, which, commencing with the abrupt rocky limit of the lowlands, extends gently upwards to the base of the mountains.

and pleasant streams, and blessed with a mild climate and productive soil, contrasts strongly with the hot, sultry, and malarial region of the lowlands. The geographical description just given is applicable to *Alabama* and *Mississippi*. Here the Atlantic Plain recedes in a northwest direction; and from being in New Jersey only a few miles wide, it has gradually attained a width of 150 miles. The western border of Mississippi, skirting the river of that name, consists mostly of swamps, marshes, and lagoons; and between Memphis and Vicksburg, the broad and extensive low grounds are subject to frequent inundations, to the distance of 10, 20, and even 30 miles from the Mississippi. This extensive tract, called the Mississippi or Yazoo Swamp, assumes, during the prevalence of high floods, the character of a marine forest more than that of a woodland bottom. The soil of Mississippi presents three well-defined varieties:—1. The bluffs adjacent to the Mississippi overflow; 2. The alluvial margins of the rivers; and 3. The pine-forest lands.

There remain yet to be described the *Floridas* and *Louisiana*. Belonging entirely to the Atlantic Plain, no part of Florida rises more than 200 feet above the level of the ocean. South of latitude 28°, it consists chiefly of a vast morass called the *Everglades*. North of this point to the Georgia line, the surface is mostly a dead level, with scarcely an undulation. The ridge dividing the waters east and west, is not more than 150 feet high, and disappears at Lake Tohopkalika. This northern portion is an extensive pine forest, interspersed with ponds, swamps, low savannahs, and hammocks, which last are rich bottoms overgrown with trees and a redundant underwood. The barrens are covered with forests of pine with little undergrowth, and are composed principally of silicious sand, more or less mixed with calcareous and vegetable matter; but a rich soil for cultivation is found along the coast, on the banks of rivers, or in those dense jungles, called hammocks, which seem to have been once lakes. The savannahs, which are covered with a tall grass, are inundated during the wet season. The river-swamps are wooded with a variety of heavy trees, whilst the pine-barren swamps are mostly overgrown with cypress and cypress-knees. The nature of the rock formation—a kind of stratified rotten limestone—explains the phenomenon of the frequent bursting forth of full-grown rivers from the surface. The Natural Bridge on the Santa Fe, for example, is a shelf of calcareous rock, beneath which the river disappears, and, after flowing for the distance of three miles, again emerges from its dark labyrinth; and to the same cause are owing the numerous cavities in the ground called *sinks*.* Although Middle and Western Florida partakes of the same features, yet the soil is more productive. In consequence of the extremely modified climate of the

* Many of these phenomena were witnessed by the writer in 1836–7–8. Since then, the waters of Lake Tuskawilla, perhaps a mile in length, near the post of Micanopy, suddenly disappeared subterraneously, leaving its inhabitants upon dry land. Orange Lake is running off in a similar manner, about 10,000 acres having been completely drained.

Peninsula, the indigenous vegetation is exceedingly various, comprising, besides the vegetable productions of the southern states, many of a tropical character. The palmetto, or cabbage-palm, the liveoak, the deciduous cypress, and some varieties of the pine, are common farther north; but the lignumvitæ, mahogany, logwood, mangrove, cocoa-nut, &c. are found only in the southern portion. Here also the fig, date, orange, lemon, citron, pomegranate, banana, olive, tamarind, papaw, guava, &c. as well as cotton, rice, sugar-cane, indigo, tobacco, maize, &c. find a genial climate.

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*Louisiana* belongs nearly altogether to the lowlands ,the surface presenting numerous depressions, with some hilly ranges in the northwestern part. Below latitude 31°, the greater portion of the surface, with the exception of the tract lying between the Pearl and the Mississippi, and north of the lakes, is not elevated ten feet above the level of the Gulf of Mexico, and is mostly inundated by the annual floods of the Mississippi, or the spring tides of the Gulf. The delta of the Mississippi—a name to which its configuration gives it no pretensions—is an alluvial plain covering an area of 12,000 square miles, having an extreme length of 230 miles, and an extreme breadth of 140 miles. The sea marsh extends westward to the Sabine, varying in breadth from 15 to 40 miles, being nearly on a level with the waters of the Gulf. As the region of the Lower Mississippi is of comparatively recent formation, it may not be unimportant to determine some of the laws which obtain here relative to the deposition of alluvion. A discoloration of the water of the ocean from the deposits of the Mississippi, when thirty miles distant from its debouchement, is perceptible. As the coast is approached, it is found that the bed of the ocean rises one fathom in every mile—the result of the alluvial deposites from the river. As the bed of the ocean in deep water is not disturbed by the force of the billows, this law is found to hold generally. In shallow soundings, however, the soft deposit is thrown, by the force of wind and wave, into ridges and ravines. The delta of the Mississippi, according to the account of a pilot who has lived there nineteen years, has advanced by its deposits, during that period, two and a half miles into the Gulf of Mexico. As the outlets of the Mississippi comprise a line of about 100 miles along the coast, the alluvial lands between these mouths give an addition of 250 square miles, in nineteen years, to our continent. The bar at the mouth of the river keeps pace with this encroachment upon the ocean. Nineteen years ago it was two and a half miles further inland, with twelve feet of water. In its present position it has fourteen feet, whilst the place of the former bar has thirty feet of water. By the operation of the same law, we find at New Orleans, at which point the shallow bar of the river, some centuries ago, may have existed, water thirty fathoms deep. Following out this theory of the deposition of alluvion, it would be interesting to determine the change produced in 5000 years. When these deposits of alluvial matter once rise to the surface of the water, vegetation rapidly suc-

ceeds. Under the genial influence of the sun, all the seeds germinate; those of an aquatic nature live and flourish, whilst the rest quickly perish. As the deposits of mud are now more effectually intercepted, the soil becomes more dry and firm; plants of various kinds begin to spring up, and by and by large trees appear; whilst here and there are still found marsh and swamp, intersected by lagoons and bayous. Thus has the Mississippi constantly pushed forward her delta, gradually encroaching upon the domains of Neptune. Thirty or forty yards from the Mississippi is what is called the second bank, which is higher than the lands behind—a feature common to all rivers. This admits of a ready explanation. Whenever the river overflows its banks, the water, no longer confined to its channel, is diminished in velocity; and as the transportation of alluvion depends upon this rapidity, it is at once deposited—a result favoured by the stems and leaves of vegetables, which perform the part of so many strainers. As this alluvial soil presents the most luxuriant vegetation, it is here that the pioneer of civilization first strikes his axe into the mighty oak of the forest; and it is here that the destroying angel makes his most desolating visitations under the form of febrile endemics. The low lands contiguous to the plantations which border the Mississippi, are annually inundated, and likewise the plantations, when the levee or embankment, made from a few miles above the Balize to the high lands about Baton Rouge on the east, and to Point Coupée, seven miles above Natchez, on the west side of the river, gives way. As the floods subside, much the greater part is left to disappear by absorption and evaporation, and consequently an abundant source of malaria is generated. New Orleans, for example, is not elevated more than eleven feet above the level of the ocean; and when the Mississippi becomes full, the streets are three or four feet below its surface, protected from inundation by the dyke or levee. The insalubrity of this city during the season of high temperature, ought not then to excite our surprise. The water of the Mississippi, though excessively turbid when taken from the river, becomes, when filtered, or allowed to deposit its sediment, clear and palatable.

Having completed the general descriptions in regard to the geological formation of the United States and the character of its soil, reference will next be made to the fact that in proportion as the health and constitution of the natives of a particular locality are modified by its physical circumstances, does the native frame become so assimilated to the climate as not to be injuriously affected by its endemic influences. On the western coast of Africa, for example, the climate is excessively destructive to the British troops, whilst it is genial to the African constitution. So decidedly hostile is the influence of this climate on European constitutions, that two-fifths of the white troops are annually cut off by fevers, whilst the blacks are almost exempt, the mortality of the latter, from all causes, on an average of nineteen years, being only three

per cent. The fact, as reported in the British army statistics, that at certain posts at which the strength of white troops was maintained at 1000, there died in one year 1500, seems to surpass credibility. This susceptibility of the animal economy to be injuriously impressed whenever exposed to endemic influences to which it is unaccustomed, is evidenced by all races of man, and in all changes of locality when this change involves a change of the physical conditions of nature. Man, at the same time, is a cosmopolite. Although more readily assimilated with particular climates than any other animal, yet the natives of every region do not possess the faculty in an equal degree. The natives of tropical regions, on the one hand, and of polar countries, on the other, are speedily cut off by removal to the opposite extreme. The constitution of the negro, for instance, is little fitted to adapt itself to foreign climates. When those from the interior serve at Sierra-Leone, on the sea coast of their own continent, the mortality, according to the British army statistics, is double the ordinary ratio of other troops serving in their native country. In 1817, a regiment of black troops was sent from the West Indies to Gibraltar, on the ground that their services would be especially important in relieving the British soldiers from such duties as require exposure during the heat of the day; but it was soon discovered that the constitution of the negro is unfitted for that climate, as the annual mortality was four times greater than among the European troops during the same period. The inhabitants of the middle latitudes, on the contrary, owing to their habitual exposure to extremes of temperature, and consequent greater vital energy, manifest, in the highest degree, that pliability of functions by which man is rendered a cosmopolite. This susceptibility to the impression of endemial influences is most marked in early years, diminishing with the advance of age; but at the latter period, when the change is made to a more unhealthy locality, the powers of life sink more readily.

As respects the effects resulting from locality, we find, on comparing the inhabitants of northern and intertropical climates, certain peculiarities of organization and functions, that must strike the pathologist as having an intimate relation with the character and treatment of their diseases respectively. In the natives of the torrid zone, the skin assumes a more extensive function than in those of northern regions, thus compensating by its activity for the diminished operation of the lungs, liver, and kidneys, as compared with the northern man. This general connection of climate with the development and activity of these functions, we discover in our own country, on instituting a comparison between our northern and southern regions, or even between the warm, moist, and malarial atmosphere of the Atlantic Plain, and the parallel mountain regions. In the warm and moist climate, the changes produced by respiration are diminished, whilst those effected by the cutaneous and intestinal mucous surfaces are increased. In the opposite locality, an augmented activity of all the functions is experienced; in the

nervous and circulating systems, increased tone is evinced—respiration is performed most effectively, and animal heat is generated with a rapidity corresponding with the expenditure on the external surface—thus giving to the constitution a phlogistic diathesis. An explanation of the effects arising from change of locality is thus afforded. The human frame as last described, not being assimilated to the warm and humid atmosphere, and consequently not adapted to its endemic influences, some functional lesions will necessarily ensue. The cutaneous surface not being so constituted as to be qualified to perform the compensating action, the liver evidently acts with increased energy, eliminating the effete elements which accumulate in the circulation. The system of the negro, as his skin is a much more active organ of depuration than that of the white man, is consequently better adapted to the warm, moist, and miasmal climates of the tropics; but, at the same time, we find that this condition of the skin renders him peculiarly liable to the diseases of that tissue, from which the white troops in the West Indies, and on the western coast of Africa, are comparatively exempt. In the cold and dry atmosphere, on the contrary, muscular frames and plethoric habits of body predominate, giving to diseases the sthenic character—phenomena which plainly point for an explanation, when we consider the relative electrical states in the opposite system of climate, to an accumulation of positive electricity in the human organization.

*Chief Sources and Effects of Endemic Influences.*—These have been pointed out to a considerable extent in two previous articles. In the number of this Journal for January last, it was satisfactorily shown that the class of pulmonary diseases, with the exception of tubercular phthisis, is dependent chiefly on atmospheric laws. That the ratio of catarrhal affections, pleuritis, pneumonia, and chronic bronchitis, increases and decreases in proportion as the seasons are contrasted, thus maintaining a direct relation with the extreme range of the thermometer as connected with the seasons, seems to have been fairly demonstrated; or, in other words, it would appear to be a law that in proportion as the high temperature of summer makes an impression upon the system, do the lungs become susceptible, so far as phlogistic diseases are concerned, to the morbific agency of the opposite seasons. These constitute the *predisposing* causes, to which the *exciting* ones of moisture and variability of temperature are subordinate. The error of ordinary observation has arisen from the circumstance that the former are less obvious than the latter. As vicissitudes in temperature are more appreciable by our senses, it is to such that our attention is most attracted; and it could not have been *a priori* inferred that the effects thus produced are of less importance than the predisposition arising from the law just stated. Hence we have an explanation of the fact that the diseases of the pulmonary organs generally are less rife along our northern frontier than in the middle States, and less prevalent in our northern region in the moist and changeable cli-

mate peculiar to the sea-coast and large lakes, than in the dry atmosphere of the opposite locality; and hence, too, is afforded a rational explanation of the advantages to be derived from change of climate in the way of a winter residence.

So potent is the influence of early opinion, that the ideas of phthisis and a changeable climate seem almost inseparable. In countries, however, in which the disease occurs most frequently, "those who are *least* exposed to its influence are precisely those *most* exposed to the vicissitudes of the climate."* Now as it has been satisfactorily ascertained that the maximum of liability to phthisis in England is found among those who suffer the least exposure to climatic variations, it follows that the influence of the latter must be regarded as secondary to the action of other causes, as, for example, occupation, food, and habits. Although it cannot be doubted that a changeable climate exercises an evil influence on constitutions predisposed to phthisis; yet, as we find that the most variable climates are best adapted for the development of the various mental and bodily powers, it is apparent that the agency of this cause in the production of phthisis has been much exaggerated or much too exclusively considered. Confirmatory of these remarks is the observation of Dr. Rush, that among our Indians and the frontier inhabitants, phthisis is very uncommon. In further corroboration of the general views expressed in relation to the class of pulmonary diseases, it may be stated, that notwithstanding moisture, of all the physical qualities of the air, has been regarded as the most injurious to human life, it is also stated in the Appendix to Louis on Phthisis, that as regards its agency in the production of this disease, all evidence "tends strongly to expose the fallacy of theoretical opinion."

In regard to rheumatic affections, the laws developed in the article just referred to, bear a close analogy to those of the lungs; but this analogy would, no doubt, be more marked, if the inquiry were limited to cases of the acute form, the term rheumatism being generally loosely applied to a host of disorders having no character in common save that of pain. Of the fact that the application of cold, more especially when combined with moisture to the body when unusually heated, is the chief exciting cause of acute rheumatism, there can be little doubt; but when we reflect that for every instance of rheumatism so induced, numbers continually endure a much greater exposure to the alleged causes with impunity, it follows that still more depends on the predisposition. Now this predisposition is said to be given by many circumstances, as age, temperament, climate, and even hereditary liability. As regards the influence of climate, it would appear that acute rheumatic affections, like those of the lungs, are less dependent on mere variations of temperature, than upon its extreme range as connected with the seasons, the former being an exciting and the latter a predisposing cause.

* Cowan's Additions to Louis on Phthisis.

In the July number of this Journal, the class of diseases investigated are those of malarial origin, which are dependent not only on purely atmospheric causes, but some of the other physical phenomena which concur in forming the climate of a locality, as the geological formation, the nature of the soil, the abundance and exuberance of the vegetable creation, and the state of agricultural improvement. The soils most productive of endemic diseases are those abounding in organic remains, as low marshy places and grounds subject to inundation—the deep alluvial earth found near the level and shores of the sea or large lakes, on the banks of rivers more particularly at their embouchures, and in the bottom of valleys, more especially if these soils have an argillaceous substratum—and lastly, thick wood or jungles, particularly in warm climates. But the development of these influences has a close relation with the degree of temperature, the condition of moisture, as well as the extent of exposure to the direct rays of the sun. Rice grounds are found to be particularly insalubrious, from the circumstance that a low, wet, and rich soil, abounding with vegetable matters undergoing decay, is exposed, after repeated irrigations and inundations, to the action of a powerful sun. Whilst the inhabitants of our northern States are much subject to endemic diseases, when exposed to localities in our southern States, which admit only of a rice cultivation, the dark races, owing to the adaptation of their organization to these physical circumstances, are little liable to them. Inundations producing an admixture of fresh and salt water, from the circumstance that the latter contains a great quantity of animal matter, are supposed to render low grounds, when the surface becomes exposed to the sun's rays, particularly insalubrious.

A low, moist, and rich soil, when exposed to the action of the sun, by being cleared of its vegetable productions, especially in tropical climates, emits more noxious emanations than in its unreclaimed state, until it is completely brought under cultivation. The history of the United States, in every portion furnishes numerous proofs of the position that, although cultivation renders a climate drier and more salubrious in the end, yet for some years after the forest is cut down, and the ploughshare turns up the soil to the action of the sun, its endemic diseases assume a more severe form. Protected, in a great measure, from the sun's rays by the exuberant vegetation, which also by the evaporation and transpiration from the leaves diminishes the temperature, the surface yields less noxious exhalations, (a great portion of which seldom rises above the higher foliage of the trees,) than when the earth itself, in its cleared state, becomes exposed, during our intense summer heats, to a much more exalted temperature. Added to which, the constituents of the soil, so far as regards animal and vegetable remains, are much richer than the decayed vegetable matter on the surface. It is remarked by Dr. Rush, in reference to the endemics of Pennsylvania, that intermittents and mild remittents were converted, from this cause, into

bilious and malignant remittents and destructive epidemics; and that it was not until after years of cultivation, that general salubrity followed. With the advance of civilization, analogous results, epidemics being grafted on endemics as the parent stock, have been observed throughout the United States. That our troops suffer less from disease in the region of East Florida, which is still in a state of nature, than in the cultivated district of our southwestern posts, can, therefore, be easily understood. It is true that this may in part be ascribed to the circumstance that in the latter the summer heats are higher; but, on the other hand, we find that in the cultivated portion of East Florida bordering on Georgia, as well as in Middle Florida, disease is more rife than in the Peninsula generally.

Among the various circumstances connected with the production and diffusion of noxious exhalations from the soil, it is generally believed that the presence of dead animal matter, when mingled with vegetable remains in a state of decay, gives rise, in warm countries or in the hot seasons of temperate climates, to miasms, especially during humid states of the atmosphere, of a more deleterious character than those resulting from vegetable remains alone. The same causes which render vegetation luxuriant, bring into existence immense swarms of insects and reptiles, the exuviæ and dead bodies of which mingle with the decayed vegetation. In addition to high temperature and humidity favouring decomposition, they, in conjunction with richness of soil, produce succulent plants, which, as they contain largely of saccharine and oleaginous principles, rapidly pass through the alternate processes of growth and decay. Moreover, marshy places and alluvial soils, in warm countries, yield vegetable productions which contain less of tannin, resin, the terebinthinates, &c., than in cold climates, in which these antiseptic principles abound; whilst the former also contains a much greater proportion of animal matter undergoing decomposition.

Many of the circumstances connected with the production and diffusion of malaria, as the degree of atmospheric temperature and humidity, and its state as respects the winds, were noticed in the last number of this Journal. Sometimes the most pernicious exhalations arise when there is no humidity in the atmosphere, but then the protracted dryness has caused fissures in the upper strata of the soil, through which the noxious moisture of the lower, especially if absorbent or argillaceous, is exhaled. If the atmosphere is often renewed, the concentration of the effluvia emitted, however productive their sources may be, is prevented. High winds and thunder storms are the means employed by nature to dilute or entirely dissipate these noxious agents. It has been long since observed, especially in warm climates, that when the air, hot and moist, has been long undisturbed by these violent commotions, endemic diseases assume the most aggravated character. Electricity also seems to have an intimate connection with endemic causes. If the atmosphere is warm and moist, there arises a disturbance in the equili-

brium of its electrical conditions, as well as its electrical states relative to the animal economy. These diversified circumstances just enumerated, which operate with such intensity in our southern low lands, are not devoid of influence, especially during the high temperature of summer, in our northern regions; but here, during low ranges of the thermometer, and particularly in the system of climate characterized by great dryness of the atmosphere, the human frame no doubt enjoys a complete immunity from terrestrial emanations; and here, as an accumulation of positive electricity in the human frame is experienced, the activity of all the functions is increased, the constitution acquires the phlogistic diathesis, and diseases present the sthenic form.

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As regards the effect of endemial influences respecting malarial causes, these were illustrated in reference to several forms of fever, diarrhœa, dysentery, &c., in the last number of this Journal. Endemic fevers are modified, from the mildest intermittent to the most malignant remittent, by the particular circumstances in which they originate, and by the constitution and predisposition of the patient. As these vary, so do intermittents present every type and complication, and remittents, numerous grades and forms. The one may pass into the other, and either be followed by dysentery or other lesions. They may commence mildly and insidiously, passing rapidly into dangerous complications; they may begin in great excitement, and terminate speedily in death or recovery; they may present great depression, *ab initio*, the powers of life never rallying, with a tendency to rapid dissolution of the body as soon as respiration ceases.

The facts developed in regard to intermittent fever are of more than ordinary interest. As the region of New England, New Brunswick, and Nova Scotia, as established by the American and British army statistics, is exempt from this variety of fever, whilst in that of the great lakes it is very prevalent, and as the coast of the former exhibits climatic features similar to the other, so far as regards temperature and humidity, it follows that a solution of the question must be sought in the admixture of terrestrial emanations dissolved or suspended in atmospheric moisture. Not only does the coast of New England, along which the military posts are situated, possess an immunity from ague, but likewise the interior; for it is stated by Dr. Smith* that "on the Connecticut river, from Northampton in Massachusetts to its source, a distance of more than 200 miles north and south, and on all its tributary streams on both sides for 100 miles in width, there has been no instance of any person having contracted the intermitting fever, from the first settlement of the country to the present time." Now it is apparent that these diverse results must be influenced not only by the nature of soil, but the geological formation. If the latter consists of the *debris* of sandstone and other rocks, forming a coarse and gravelly substratum through which the rain percolates

* Dr. Smith on the Etiology of Epidemics, New York, 1827.

and flows off, favoured still more by the undulating surface of a soil which is dry, sandy, and gravelly, no deleterious agents will be exhaled; but if the geological structure consists of tertiary and cretaceous secondary deposits, with a deep, rich, clayey, and absorbent soil, more especially if low and flat, with an argillaceous substratum impervious to water, it will yield by evaporation nearly all the rain which falls upon it, thus carrying into the atmosphere a portion of decayed animal and vegetable matter, (the decomposition of which its moisture promoted,) or perhaps some new resulting compound. Now as the region of New England, with little exception, has a primitive formation with a sandy and sterile soil, whilst that of the lakes consists of a secondary formation, having not unfrequently an alluvial superstratum composed of a rich vegetable mould, from three to six feet deep, it is not difficult to deduce the correct inference. In the former, the geological formation is destitute of organic remains, and the little contained in the sandy soil does not find enough of moisture to induce the necessary chemical action; whilst in the latter, not only is the geological structure of secondary origin, but the deep, rich soil is sufficiently humid, when a high temperature acts upon the organic remains with which it abounds, for the development of the morbid poison, called malaria. If we follow the Atlantic Plain and the parallel mountain region from the Delaware to the Mississippi, the same law in regard not only to intermittent fever but all other malarial diseases, is found to obtain: for the one has a temperate climate, a soil comparatively free from organic remains, and a surface which allows no stagnant waters; whilst the other, consisting of tertiary and secondary cretaceous deposits, all abounding with marine fossil shells, with an argillaceous and alluvial soil, dotted with marshes and furrowed by sluggish streams, has a hot and sultry atmosphere. A similar contrast within limits still more circumscribed, is afforded in the well known fact that the resident of our southern lowlands is peculiarly subject to malarial diseases along the margins of streams, lakes, and marshes, whilst he is exempt in the adjacent sandy pine woods; and this observation finds farther illustration, from the writer's personal knowledge, in portions of two adjoining counties of Maryland, *viz.*, Frederick and Baltimore, the former with an exceedingly fertile soil being very rife with diseases of malarial origin, whilst the other, termed the "barrens," with a sterile, sandy, and undulating surface, being wholly exempt. And proceeding up the Mississippi and its tributaries—a valley of secondary formation and alluvial soil—we find that malarial diseases still prevail; and on the prairies of the far west, and even the table-lands of Ohio, the summits of whose highest hills are rich in organic remains, but more especially along the margins of streams, the same class of diseases are dominant.

In regard to the relative prevalence of the different *varieties* of intermitting fever, it is impracticable to furnish any statistical results, inasmuch as all the cases of fever of this type among our troops were reported under the

*specific* term. Again, each type is liable to certain modifications, having their origin in idiosyncrasy, or on what has been termed atmospheric temperament; but to describe the symptoms by which these modifications are characterized does not comport with the object now in view. Suffice it to say that *simple uncomplicated* ague almost exclusively prevails in our northern latitudes. The *inflammatory* variety occurs throughout the United States, but more especially in warm climates during the cold season, and in persons of a previously healthy constitution. Owing to its common occurrence in sound constitutions, it yields readily to active treatment; but when neglected, or improperly managed in hot climates, it passes rapidly into the remittent type. Intermittents partaking more or less of an *adynamic* character, occur rarely in our northern States; but they are often met with in our southern latitudes among the debilitated and intemperate, especially northern persons who have long resided in this region. They are rarely observed uncomplicated with visceral congestions, constituting the *malignant* form of some writers. These complications may be with the abdominal, the pulmonary, or the cerebral organs. As *masked* or *anomalous* intermittents occur most frequently in localities in which the disease is very rife, or seasons in which it is very prevalent, so they are met with more frequently, under like circumstances, in proportion as southern latitudes are reached. They assume diversified forms, numerous diseases, especially those of the nervous system, putting on an intermittent type. In regard to the consequences and terminations of intermitting fever, it may be said that it seldom continues long, even in the simple form of our northern States, without materially impairing the vital energy of the viscera of the large cavities, particularly those of the abdomen. Hence arise the complications just referred to, the supervention of the remittent or continued type, or a fatal issue in consequence of an insurmountable congestion in the cold stage; and as sequelæ, we observe chronic diarrhœa and dysentery, dropsical effusions, inflammation, and structural changes of internal organs. Whilst in our southern regions, death frequently takes place during the paroxysm, in consequence of the vital powers being overwhelmed; in our northern, it sometimes occurs, when the disease is prolonged and obstinate, the vital powers being worn out by the effects of some local lesion.

That intermittent fever has a tendency to septenary revolution is a fact that was frequently verified in Florida under the writer's observation; and this too in a manner so unequivocal, that it attracted the notice of the common soldier. At these septenary periods, either after the seventh, fourteenth, or twenty-first paroxysm, the disease has a disposition to terminate spontaneously. It is at these periods that febrifuge remedies act with the greatest success; and as regards relapses, it is then, too, that a vast majority occurs—a circumstance of such frequent occurrence in Florida, that soldiers would voluntarily come to the hospital to obtain medicine to prevent its return.

The causes productive of *remittent* fever, as in the intermittent form, as was shown in the July number of this Journal, are generated most abundantly under a high temperature, the third quarter of the year presenting invariably the highest ratio, and the annual average increasing with the decrease of latitude. Some of the cases included in this class were reported under the term *congestive* fever, which has been generally substituted for *bilious remittent*, of late years, by the physicians of the south and west; but whether this is owing to an improved pathology, or a change in the character of the disease, is uncertain. Perhaps both causes have operated in producing this change of nomenclature. We know, at least, that in a country partially cultivated, deleterious agents are generated, causing endemics of a character more malignant than when the surface was in a state of nature. As congestion, however, may be associated with intermittent, remittent, or typhus fever, giving each a marked character, it does not serve to designate a fever, so much as it does a modification which may occur in any variety of fever, and at any period of it. Identical with the malignant or pernicious remittents, or the intermittent ataxic fever of continental Europe, it is yearly met with in the south of Europe; and as such was long ago accurately described by Torti and Riverius, and in our own day by Rubini and Bailly. The accounts of these writers, more especially those of Italy, as well as Cleghorn, Lind, Pringle, Johnson, &c., in other regions of the world, would be readily taken as highly descriptive of congestive fever on the Mississippi. Congestion of a morbid kind is common in nearly all fevers, and is not limited to any organ. Thus in winter epidemics, the thoracic organs are the chief sufferers; and in autumnal ones, the brain and abdominal viscera experience the greatest lesions.

As regards remittent fever, if we define it to be a disease attended by distinct paroxysms of fever alternating with remissions, its affinity to intermittent fever is apparent; and if, on the other hand, it be defined as a variety of continued fever, characterized by very evident and distinct exacerbations, it seems to have a like affinity to the latter. That it is, however, intimately allied with intermittent fever, is clearly established by statistical results—an opinion confirmed by their analogous origin, their associations, their organic lesions, and their tendency to assume each other's character. In our northern regions, remittent fever usually assumes the simple and inflammatory character; whilst in the districts of southern latitudes, in which the miasm is generated, every form of the disease prevails, and in places near its origin, or in low ill-ventilated localities, the malignant form more especially is experienced. But individual constitution also exerts a great influence, both in regard to primary susceptibility, and the subsequent character of the disease. Generally speaking, in those of a plethoric habit, the inflammatory variety prevails, and among the weak and languid, those debilitated by previous disease or intemperance, the malignant form is most apt to supervene. The

adynamic or malignant form, more especially if complicated with congestion and inflammation of the viscera of the large cavities, is one of the severest and most fatal of endemic fevers, being observed in places in which the endemic causes are intense, and concentrated relatively to the state of predisposition, and being ushered in by a prolonged sense of cold, and a universal collapse of the vital powers, and of vascular action. In warm miasmatous climates, the inflammatory variety frequently attacks sanguine plethoric individuals from northern latitudes, attended in the most severe and unfavourable cases, with yellowness of the skin, or vomiting of matters resembling coffee-grounds, or both. This, as well as the modification referred to above, are considered by many as differing essentially from epidemic yellow fever.

In regard to *Yellow Fever*, there has always existed great contrariety of opinion, both in reference to its nature and origin, arising mainly from the fact that its phenomena are much modified by climate, and especially by temperature, season, and locality. By some, it is associated with typhus fever; and by others, it is regarded as a variety of remittent fever. It is now, however, with few exceptions, viewed as a specific disease, some referring it to lesions of the solids, and others to disorganization of the fluids. Without reference to individual liability to this disease, as influenced by age, sex, constitution, and occupation, it may be said that the development of its causes requires a climate in which the mean summer temperature is not less than 75°, and perhaps 80°; and hence the localities liable to its occurrence include almost every point in the vicinity of the ocean between the latitudes of 40° N. and 20° S. of the equator. That yellow fever is never found above the height of 2500 feet, was long since observed by Humboldt. At Stony Hill, in Jamaica, elevated 1300 feet above the level of the sea, and with a mean annual temperature of 70°, it is only of occasional occurrence, and rarely epidemic. At the height of 4200 feet, where the vegetation of the tropics gives place to that of temperate regions, the inhabitants enjoy a complete exemption from the scourge of yellow fever, and the violent bilious remittents which cut off thousands annually along the coast. The opinions in regard to the causes of yellow fever, may be arranged under three heads: —1. That it is a disease induced solely and essentially by contagion; 2. That it is essentially of endemic origin; and 3. That being of endemic origin originally, it becomes contagious.

The doctrine that not only intermittent and remittent, but yellow fever, assume, according to circumstances, more or less the type of one another, has been extensively entertained. In the British and American army statistics, nearly every case of *febris icterodes* characterized by black vomit, is reported under the head of "*remittent.*" Believing them to arise from similar causes variously modified, to assail the system through the same avenues, and to require the same general treatment, these fevers are re-

garded by this class of reasoners as essentially the same, modified by the intensity of the cause and peculiarity of constitution. This position is strongly confirmed by the oft observed fact, that the natives of our southern cities, in which yellow fever is endemical, possess, in a great measure, an exemption from this malady; for, whilst intermittents and mild remittents prevail among the old inhabitants, yellow fever manifests itself so exclusively among those lately arrived from northern latitudes, that it has received the name of "*Stranger's Fever.*" Some of our most experienced writers, as for instance Dr. Rush, have sustained these views. We are not justified, however, in the present state of our knowledge, to assert that the same miasma which produces remittent fever, excites, in its more virulent state, yellow fever, or indeed that the latter is of paludal origin.

The opinion that yellow fever is communicated by contagion, now scarcely finds an advocate in the United States—a fact which, at New Orleans, the experience of almost every year exemplifies. Situated on a mighty river's bank, formed of the alluvion of its own current, this emporium may be regarded as a healthy locality during nine months of the year. As the summer temperature increases, yellow fever appears almost with the certainty of the varying seasons, and disappears as regularly when the scale of the thermometer indicates its decrease. Although vessels laden with fugitives from malarious pestilence, ascend the stream by hundreds at this period; yet the disease, notwithstanding the fatal *black vomit* appears on the decks as they pass along, is never manifested among fellow passengers from uninfected regions; nor is it, under like circumstances, communicated to the inhabitants of the district to which they may fly. It is, therefore, purely a disease of season and locality. It may be worthy of observation, that whilst at New Orleans and Gibraltar, the same individual is seldom twice attacked by yellow fever, in the West Indies and on the west coast of Africa, it is said to secure no subsequent immunity.

Whether certain fevers which have, or are supposed to have, their source in vegetable miasms or in effluvia from marshes, ever subsequently spread by contagion, is still a disputed point. In regard to yellow fever, it has been observed that its imported causes engendered in the holds of ships navigating in hot climates, when suffered to escape at the wharves of our northern cities, will affect those only who come within the sphere of its influence, the disease being never known to spread epidemically. A cause of this kind would no doubt fall harmless upon the inhabitants of a salubrious country locality.

To develope this malignant fever, seems to require the conjoint operation of both local and general causes, constituting an *endemico-epidemic*, which is unsusceptible of propagation by specific contagion; and in the summer atmosphere of a crowded city, more especially if a maritime position, there appears to exist some peculiar agency favourable to its development. In

these cases, there is generally found an "infected district," which slowly and regularly extends its boundaries, rendering all who come within its limits, subject to this form of fever. In our northern cities this has been repeatedly observed. Whilst the common remittent fever is found in the United States wherever intermittent fever prevails, the true yellow fever is nearly altogether confined to the Atlantic Plain or tide-water region extending from New York to New Orleans. The experience of several centuries teaches us that the cause of this fever is perennially present in our southern cities. Indissolubly connected with climate, it seems to maintain the same relation towards the human system as the other malarious emanations of our southern lowlands, and to be liable, at any time, to be developed, in different grades of intensity, by the combined operation of heat and other agents. Amid the conflicting evidence in regard to the etiology of this disease, the following conclusions seem to be fairly warranted:—1. That it is solely and essentially of endemic origin. 2. That it is never contagious under ordinary circumstances of cleanliness and ventilation; and 3. That as regards the local causes, at least in the United States, a soil rich in organic remains, and an atmosphere more or less modified by the sea, appear to constitute necessary conditions.

One of the strongest predisposing causes of this as well as other epidemics would seem to be the summer atmosphere of a crowded city—a result doubtless owing to a diminution of vital energy, as evidenced in the condition of the system termed *Cachexia Londinensis*, though by no means peculiar to that metropolis.

*Continued fevers* are modified by such varied combinations of causes, both in respect to the individual and external agents, that every attempt at arranging them must necessarily be more or less conventional. The classification into synocha, synochus, and typhus, is perhaps as good as any other. From the statistical results furnished by the writer in the last number of this Journal, it appears that these fevers are uninfluenced by the seasons and climate generally. To the majority of American physicians, the fact will appear strange that in the British Islands probably not above one practitioner in fifty entertains any doubt of the infectious nature of continued fever, comprising synocha, synochus, and typhus. In France and Germany, however, the opposite doctrine is generally adopted. The arguments in favour of contagion are drawn chiefly from personal observation, during many years, of the fever at Edinburgh, as well as from the history of epidemics of fevers in other large towns. As no connection can be traced with season, temperature, moisture, winds, barometric pressure, or any other appreciable condition, the opinion that it is irreconcilable with any supposition but its transmission by communication from the sick to the healthy, seems favoured. It is maintained that all the forms of primary continued fever are communicable; and that even synocha or pure inflammatory fever, when

prevailing with synochus and typhus in the epidemic form, constitutes no exception. The infection of continued fever is, however, generally, by no means virulent, cleanliness and ventilation being sufficient to prevent its propagation.

That the purely inflammatory fever of our own country is never infectious, can scarcely be doubted, and the same may be said of the ephemeral synocha of all other regions. The peculiar character given to acute diseases among the working classes of the British isles, by the influence of predisposing causes productive of debility, as will be more fully shown, is happily among us unknown. *Ephemeral* fever with us arises from exposure to the sun, vicissitudes of temperature, excessive muscular exertions, emotions of the mind, &c. *Inflammatory* fever, in cold and temperate climates, especially elevated situations, is apt to arise from atmospheric vicissitudes and other causes; but in warm countries, during dry seasons, this variety of fever, in a severe form, may be said to be endemic, more particularly among those from northern latitudes. Those lately arrived in the West Indies, more especially soldiers and sailors, are peculiarly liable to attacks of severe inflammatory fever. The predisposing causes of inflammatory fever consist, *first*, in that condition of the frame known under the name of the inflammatory diathesis—high irritability and tonicity of fibre, more especially when conjoined with vascular fulness and imperfect performance of any of the secreting and excreting functions; and *second*, of those states of season or climate which tend to produce this diathesis. Hence they occur chiefly among the vigorous and plethoric, and are most prevalent in cold and dry, or very warm and dry climates or seasons. The *exciting* causes are—1. Whatever *directly* stimulates, in an inordinate manner, the nervous and vascular systems, as the intemperate use of stimulating liquors, especially in connection with atmospheric heat or vicissitudes—great bodily exertion—violent mental emotion and excitation—change of climate, more particularly from cold or temperate to very warm and dry regions. 2. Whatever *indirectly* induces great excitement or vascular action, as the impression of cold when the body is overheated and perspiring. Among our troops lately arrived in southern latitudes from northern regions, it is apt to occur after having lain upon the ground, or in the open air, especially when exposed to the night dews—results favoured by inattention to the bowels during the voyage, and the use of salt provisions and vinous or spirituous liquors.

*Typhus* fever—a term subject to vague and arbitrary application—has also been shown, as just remarked, to be uninfluenced, in the United States, by any appreciable atmospheric conditions. It is regarded by some as comprehending all those fevers in which the characters of adynamia or nervous depression, present themselves as the predominant feature of the disease from first to last; whilst others embrace the still more numerous class of cases in which such symptoms show themselves before the close of the first

week. Typhus thus regarded is not less important than synochus in point of frequency. Of late years, it has constituted in many epidemics, for example in Britain generally and in France, almost the sole prevailing type. In some epidemics, the symptoms of cerebral congestion manifest themselves so generally, and at so early a period of the disease, as to impart a peculiar character to it, described under the distinguishing name of *congestive* typhus. The predisposing and exciting causes of typhoid fevers are not considered to differ specifically from synochoid fevers, the former being more severe. They appear sporadically or epidemically, the animal economy being rendered susceptible to the impression of the exciting causes by whatever depresses or exhausts the vital and moral energies. *True* or *contagious* typhus is often confounded with synochoid and nervous fevers. Of true typhus, the chief cause is animal miasm, generated by a number of persons confined in a close air, or by the disease itself. Of synochoid and typhoid fevers, the causes prevail more especially in the large manufacturing towns of England and Scotland, and among the poor of Ireland.

In reference to *Diarrhœa* and *Dysentery*, it was shown in the last number of this Journal, that the ratio, like that of intermitting and remitting fever, augments with the decrease of latitude and the increasing temperature of the seasons. North of the 40th degree of latitude, a death from dysentery is very unusual. As these affections, in France and England, generally assume a very mild type, and yield readily to ordinary remedies, we find that the writers of those countries pass over them with comparative neglect. In the United States, however, which has in summer a tropicoid climate, these diseases prevail most extensively in all malarial localities. Without attempting a description of these lesions, it may be remarked, that dysentery in temperate and tropical regions, presents characters so distinct as to merit separate consideration. The distinction lies in the extent of bowel implicated, a larger portion of the intestine being affected with inflammation in tropical climates. This refers to uncomplicated dysentery, the grades of intensity of which vary from the slight sporadic case, which threatens no danger to life, to the fatal epidemic which has so often proved the scourge of fleets and armies. The complications of dysentery are frequently met with in our southern regions. In East Florida, the ratio of diarrhœa and dysentery is nearly the same in each season—a result arising mainly from the great prevalence of chronic diarrhœa, which supervenes upon febrile affections, continues throughout the year, and ultimately in many cases proves fatal. The complication of dysentery with typhus, which occurs under the operation of debilitating causes, as want of food, and neglect of cleanliness and ventilation when many persons are crowded into a small space, has often proved more fatal to the garrison of besieged towns than the assaults of the enemy. Cleanliness is, therefore, the life of an army—the

Jewish code, enjoining ablutions and purifications as religious rites, having been fitly quoted as a system adapted to a camp.

In regard to *Hepatic affections*, it was also shown, in the paper just referred to, that, on comparing the statistics of the United States, British America, the United Kingdom, the Mediterranean stations, and the West Indies, they appear to be little influenced by tropical temperature. It is in the East Indies that hepatitis finds a climate peculiarly favourable to its development. It is now known that the calculation of Mr. Annesley, that the annual per centage of hepatitis in the East Indies is at least treble what it is in the Western hemisphere, falls far short of the reality. It is obvious, however, that the elevated temperature of tropical regions, independent of other causes, is positively detrimental to health. The absorbents of the intestines being maintained in a state of erethism by the constant evaporation by cutaneous and pulmonary transpiration, a morbid condition is readily assumed under favourable exciting influences. Diarrhœa, dysentery, and those bilious derangements which accompany fevers, as well as cholera and hepatitis in a less degree, are consequently prevailing affections.

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It has been thus seen, that whilst the southern region of the United States is productive of diseases affecting chiefly the abdominal viscera and the circulating and secreted fluids, the northern districts favour the development of disease in the thoracic viscera, and in the muscular and circulating systems—a contrast also observed on the same parallels when we compare the Atlantic Plain with the elevated, temperate, and dry localities lying adjacent. In the one, as the passage of electricity from the earth to the clouds is favoured, the vital powers are lowered; and in the other, as it accumulates in objects on the earth's surface, diseases of a phlogistic character are induced, as fevers of an inflammatory type, and inflammation of the lungs and the serous and fibrous structures. In conformity to a law of the animal system, that its natural susceptibility to be influenced by morbific agents diminishes by a gradual and protracted exposure, we find that among the acclimated in warm countries, the agency of malaria may be compared to a slow and concealed combustion, whilst in the unacclimated, its effects are evinced in a raging and rapidly consuming flame. Those assimilated to the climate are consequently liable mostly to agues, affections of the bowels, enlargement of the spleen, &c.; but those who have removed thither from cold or temperate regions, are subject to fevers of a violent and often malignant character; and, *vice versa*, the endemic influences of mountainous districts are most deleteriously exerted upon those who have recently migrated from warm malarious situations.

It is said that although the white races of the human family may reach, in warm countries productive of endemial influences, advanced years; yet their offspring will seldom attain maturity, or if so, will very rarely arrive at old age. In these localities, as is often observed in the tide-water region

of our southern States, the human frame is weakly constituted or imperfectly developed, the mortality of children is very great, and the mean duration of life is comparatively short. Along the frontiers of Florida and the southern borders of Georgia, as witnessed by the writer, as well as the lowlands of our southern States generally, may be seen deplorable examples of the physical, and perhaps mental, deterioration, induced by endemic influences. In earliest infancy, the complexion becomes sallow, and the eye assumes a bilious tint. Advancing towards the years of maturity, the growth is arrested, the limbs become attenuated, and the viscera engorged. Boys of fifteen years may be seen bowed down with premature old age, a mere vegetating being, with an obstructed, bloated, and dropsical system, subject to periodical fevers, passive hemorrhages, and those other forms of disease which follow in the train of malaria. But these are extreme cases, which consequently afford no warrant for the exaggerated statement made in two recent British works of deservedly high repute. In the Cyclopædia of Practical Medicine, we are told that "in the marshy districts of certain countries, for example, Egypt, Georgia, and Virginia, the extreme term of life is stated to be forty; whilst we learn from Dr. Jackson, that at Petersburg, in the latter country, a native and permanent inhabitant rarely reaches the age of *twenty-eight.*" And in Copland's Dictionary of Practical Medicine, the same story has received an additional shade of exaggeration, thus—"Dr. Jackson states that white persons, born and residing in the more unhealthy districts of lower Georgia, seldom live to forty; and that at Petersburg, in Virginia, they rarely reach *twenty-five.*"

That the continued operation of these endemic influences, as in the lowlands of our southern States, would ultimately depopulate the country, might be naturally supposed. Observation, however, has taught us that, as in epidemics which cause great mortality, the population is only temporarily diminished; for, as the means of subsistence for those who survive have become more abundant, the void is filled up in a few years by a much greater annual average of marriages and consequently of births, as well as by an influx of strangers. Between endemics and epidemics there is a close relation, most of the wide-spreading diseases having the character of endemico-epidemics, the latter being grafted on the former as the parent stock. Destructive epidemics occur most frequently and most violently in low situations and crowded cities—a fact observed in our own country in regard to epidemic cholera. Whilst these influences increase the deaths and diminish the mean duration of life, they tend directly, as just remarked, to augment the ratio of marriages and births; in addition to which, as the means of sustenance and employment, in low alluvial regions, are more abundant than in barren and mountainous districts, the excess of deaths over births is equalized by the influx from more healthy parts. This statement is well illustrated by the following statistical table, furnished by M.

Bossi, Prefect of the Department of Aix, in France, which he has divided into four zones in accordance with its topographical features:—

| Locality. | One Death Annually to Inhabitant. | One Marriage Annually to Inhabitant. | One Birth Annually to Inhabitant. |
|---|---|---|---|
| In the hilly districts, | 38.3 | 179 | 34.8 |
| Along the banks of rivers, &c. | 26.6 | 145 | 28.8 |
| In cultivated grounds, | 24.6 | 133 | 27.5 |
| In marshy places, &c. | 20.8 | 107 | 26.1 |

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Now, did we possess the data requisite to enable us to institute a comparison between the sterile and healthy region of New England and the fertile and less salubrious western States, or between the Atlantic Plain and the parallel mountain regions, these laws would doubtless be confirmed statistically, as they are already by ordinary observation.

As regards the influence of the seasons in the production of fatal diseases, a comparison of our northern and southern latitudes shows a marked distinction. In the July number of this Journal, it was shown, that whilst in the former there is little disparity in the mortality of each month, in the latter the inequality is great in close relation with the increase and decrease of temperature, the ratio increasing from April to September, and then gradually decreasing until the reappearance of the former month. The influence of malarial causes upon mortality is thus illustrated; for, notwithstanding this morbid poison may be generated in our northern regions, yet the diseases developed, as for instance intermittent fever, exert no fatal tendency. As malarial diseases are dominant in southern Europe, so the aphorism of Celsus, conformably to the rule laid down by the Greek and Roman authorities, accords with the relative salubrity of the seasons in the United States, and more especially in our southern latitudes; thus—*saluberrimum ver est—proxime deinde ab hoc, hiems—periculosior aestas—autumnus periculosissimus.* In London, at the present day, according to the "Registrar-General of Births, Deaths, and Marriages," we find this order of salubrity nearly reversed, the fatality of the seasons standing thus—winter, spring, autumn, summer. This is, however, not the case in our northern cities, as for example, Boston, New York, and Philadelphia; and as regards our northern military posts, it is also found that in the malarial region of the great lakes the ratio of morbility is always highest during the summer, whilst at the posts on the coast of New England, which is exempt from malarious causes, there is little difference in the ratio of cases reported each quarter, the winter being often the most insalubrious season. At Fort Gibson, Arkansas, on the contrary, the ratio of sickness is twice as high in summer as in winter. The same degree of temperature will consequently produce very diverse results; for to the agricultural inhabitants of a non-malarial soil, or to the residents of a city equally favourably situated, winter may prove the most unhealthy season, whilst in marshy districts, or

cities abounding in dead organic matter, summer will be the most insalubrious. According to Mr. Farr, as shown in the First Annual Report of the Registrar-General of Great Britain, in which a comparison is made among seven millions of persons, one half of whom dwell in towns, and the other half in counties, the mortality from epidemic diseases and disorders of the nervous system is doubled by the concentration of population in cities. In towns, as compared with counties, the mortality from consumption is increased thirty per cent.—from childbirth, seventy-one per cent.—and from typhus, two hundred and seventy-one per cent.

The influence of very cold climates on the human constitution is, to destroy the feeble and invigorate the strong; for if the source of animal heat is enfeebled or exhausted by the effect of low temperature acting on the surface of the body, the constitution will be correspondingly enfeebled or life quite destroyed; but if the source of animal heat is so powerful as to resist this external agency, the powers of life will be invigorated. This explanation, for which we are indebted to Professor Pelletan, is equally satisfactory in regard to the phenomena of what is called *reaction* against cold, as well as the effects of cold as a hygienic agent in strengthening the human frame.

There are other agencies, which do not fall within the preceding descriptions, productive of diseases *sui generis*. That the base of lofty mountains constitutes a locality favourable to the development of *bronchocele*, was well known even in the days of Juvenal, as appears by the line

"Quis tumidum guttur miratur in Alpibus?"

but its etiology is equally inexplicable now as then. This disease, which has been observed in many parts of the world, prevails endemically in our own country in Vermont, the western portion of New York and Pennsylvania, on the great lakes, and in Virginia. To the same class of endemic diseases, the causes of which are generally no less inscrutable, belong—the pelagra of Italy, the cretinism of the Vallais, the hepatitis of Coromandel, the elephantiasis of Malabar and other places, the plica of Poland, the beriberi of Ceylon, the tarantulism of Apulia, the frambœsia or yaws of the negro race in Africa and the West Indies, the ophthalmia of Egypt, &c. Of these affections, none has been observed United in the States, with the exception perhaps of the *yaws*, which has been seen by the writer among the negroes of Florida. Some of these disorders may be imputed to obvious physical causes, as the ophthalmia of Egypt to the reflected heat and the impalpable sand in the air—pelagra to dirty habits and unwholesome food, &c. Lesions of the nervous system, frequently implicating the mental manifestations, occur oftener in large and crowded towns than in the country, and much more frequently than in states of society not completely civilized—effects resulting from a confined and impure air co-operating with

the exhaustion arising from dissipation or mental exertion, the luxuries of refinement, and the excitement of the various passions and moral emotions.

Besides the endemics here enumerated, there are several others observed in our own country deserving of notice. For example, *nyctalopia*, in our most northern and southern latitudes, especially in Florida, may be regarded as endemic. The pathology seems to consist in an exhaustion of the power of the retina in consequence of exposure to strong light during the day, or in other words, vision ceases because the retina, after being exposed to a long and brilliant sunshine, is not excited by the feeble light which continues after sunset. The disease is, therefore, rarely met with except in southern latitudes, or those regions in which the ground is covered many months with snow. In the West Indies, Europeans, more especially those who are soldiers and sailors, suffer much from this affection. The same causes operating here are found to obtain in Florida, such as the full glare of a vertical sun in an unclouded sky, and the reflection of solar rays from the surface of water or a sandy soil. In Florida, according to the observation of the writer, its duration varies from one night to six or twelve months, whilst relapses are frequent.

*Scorbutus* is another endemic with which, in its more aggravated forms, we are fortunately in the United States but little acquainted. Our army within the current century, has, with the exception of two periods, been nearly wholly exempt from its ravages. In 1809, this disease complicated with malarial disorders, that is, as the sequelæ of febrile affections, produced dreadful havoc among the troops on the lower Mississippi, 600 having fallen victims. It raged with violence again in 1820, at two of our western posts, *viz.* Council Bluffs near the junction of the Platte and Missouri, and Fort Snelling at the confluence of the St. Peter's and Mississippi. The number of men reported at the former post, on the first of January 1820, was 788, and at the latter 228, making an aggregate of 1016. The total of cases of all diseases reported for the quarter ending the 31st of March, at these two points, was 895. Of these, 503 were of a scorbutic character; and the number of deaths from this cause was 168, of which 157 occurred at Council Bluffs. It appears that both commands were exposed to many of the causes, both predisposing and exciting, of scurvy. During their progress from St. Louis up the Missouri, and from Green Bay up the Mississippi, they were not unfrequently obliged to labour in the water beneath the rays of an ardent sun. Sleeping in their wet clothes, and exposed to a damp atmosphere impregnated with malaria, they became reduced by disease; and in this state of predisposition to scurvy, they began late in the season the establishment of their winter quarters. The weather during the winter was exceedingly cold, the mean temperature for January at Council Bluffs being 8°. 62, and at Fort Snelling 0°. 17 of Fahr. They were destitute of groceries, and vegetable food, except flour and corn, which were more or less damaged from having been wet; and their animal food, which was princi-

pally salted, they were obliged to eat during a portion of the winter in a putrescent state. This condition of the meats, however, was as far as practicable corrected by washing and boiling with charcoal.

The following table, exhibiting the number of cases of scurvy, and the consequent deaths in the army, during a period of 20 years, shows the comparative infrequency of the disease:—

| Years. | Cases. | Deaths. | Years. | Cases. | Deaths. |
|---|---|---|---|---|---|
| 1819 | 7 | | 1829 | 6 | |
| 1820 | 734 | 190 | 1830 | 16 | |
| 1821 | 86 | 5 | 1831 | 3 | |
| 1822 | 4 | | 1832 | 7 | |
| 1823 | 29 | | 1833 | 5 | |
| 1824 | | | 1834 | 15 | |
| 1825 | 8 | | 1835 | 9 | |
| 1826 | 4 | | 1836 | 17 | 3 |
| 1827 | 2 | | 1837 | 59 | 1 |
| 1828 | 8 | 1 | 1838 | 159 | 1 |

The cases reported in the last three years occurred, nearly all, either in Florida, or amongst troops that had served in those campaigns. The relation of cause and effect is here very apparent; for it can be readily perceived that a diet, consisting mainly of salt provisions, in a constitution deteriorated by repeated attacks of remittent and intermittent fever, diarrhœa, and dysentery, will develop scorbutic and cachectic symptoms. The ration of our soldier, regarded in all its component parts, no doubt disposes the system to scurvy in warm countries; and in these campaigns, whenever it proved deficient in any respect, it was always found to be so in reference to the vegetable portion.

From the writer's own official report, made at Fort King, E. Florida, in 1837, the following is an extract:—"Several cases of scorbutus have been presented. The disease manifests itself with most of the symptoms by which it is generally described. Muscular power is completely prostrated, the gums are swollen, spongy, and livid, the legs are anasarcous, and covered with blotches of extravasated blood, and the nates sometimes, but very rarely, become the seat of bloody abscesses. These lesions gradually yield to the plentiful use of lemon acid and vegetables with vinegar. The only therapeutic means employed in conjunction is, the sulphas quinine dissolved in elixir vitriol. When stationed at Fort Armstrong, several cases of this disease occurred. Deprived of vegetables, they grew worse from day to day, until the free use of wild pepper-grass, (*lepidium virginicum*,) found in a neighbouring swamp, was prescribed. At this post, we have the good fortune to find in great abundance *purslane*, renowned among the older physicians as an antiscorbutic."

In the narratives of the early English navigators, particularly in those of

Sir Francis Drake, Davis, and Cavendish, the destructive ravages of this disease are awfully portrayed. Until the year 1796, it may be said to have been the universal scourge of the sea, having destroyed, it is supposed, more sailors than the terrific consequences of naval warfare and the various accidents incidental to a maritime life combined. It is mentioned by Sir Richard Hawkins that he had known, within his own naval experience, of 10,000 men perishing by the scurvy; and in the course of his voyage around the world, Commodore Anson lost more than four-fifths of his men. Land scurvy, which is a form of disease precisely analogous to that developed at sea, was also of frequent occurrence in besieged towns and garrisons, under the united circumstances of defect in the quantity and quality of food, fatigue, anxiety, and exposure to the influence of a cold and damp atmosphere. In the account of the siege of Thorn, at which nearly 6000 of the garrison, besides a great number of the inhabitants of the town, were cut off by the disease, whilst the besiegers, (the Swedes,) were wholly exempt from it, a memorable instance is presented. The prevalence and even great fatality of scorbutus, at a former period, in our own country as well as in England, though now happily a very rare disease, are abundantly proved by the records of medicine; but even at the present day, it is occasionally endemic in Iceland and the northern states of Europe, particularly on the shores of the Baltic, where vegetable products form a very insignificant portion of the diet of the inhabitants. This general salutary change may reasonably be ascribed to the united influence of the drainage of the country, the habitual use of fresh vegetables by the people, and to those improvements in our national economy which render the use of fresh meats available at all seasons of the year; and as regards the soldier and the sailor, the operation of these causes is still further promoted by their improved condition in every other respect. The want of fresh vegetables in England, even at the beginning of the sixteenth century, is evinced by the historical fact, that, to procure a salad, Katharine of Arragon, queen of Henry VIII, was obliged to despatch a messenger to the Netherlands.

Another endemic peculiar to the western portion of the United States, being seldom or never observed east of the Alleghenies, is a disease known under the appellation of *Milk Sickness*. This name had its origin in the circumstance that the disease is frequently communicated to man by the use of the milk of an infected animal, though it will be as readily produced by eating the flesh. Beef cattle, horses, goats, and sheep, are the animals in which it has been mostly observed. In cattle, in consequence of the trembling motion manifested by the voluntary muscles, the disease is generally known by the name of the "*Trembles*." Sometimes, the first symptom observed is, that the animal staggers and falls, when death may immediately supervene; or in less fatal cases, life may be prolonged several hours, or recovery eventually take place. The disease, however, may exist in a latent condition, the animal evincing no morbid manifestations, whilst its

flesh and milk will cause the development of the disease in the human system. In man the disease is generally developed from the third to the tenth day from the period of the reception of the morbid poison. The disease is preceded by a peculiar and indescribable fœtor of the lungs as a premonitory symptom; and so constant is this symptom in its appearance, that it may be regarded as pathognomonic of the forming stage. The general symptoms vary much. Most usually there are at first loss of appetite, restlessness, pain in the head, and intolerance of light, followed in a few days by violent and distressing vomiting, obstinate constipation of the bowels, and general febrile action. A change of volume in the tongue, which quickly attains an inordinate size, being soft and flabby in its texture, and filling the mouth completely, may be considered as characteristic of the second stage. With the disappearance of the peculiar odour from the lungs, the disease no longer presents any specific characters; but now either the vital powers evince mere extreme prostration, or a low typhoid form of fever supervenes. A large majority of cases terminate fatally; and when recovery does ensue in severe attacks, convalescence is very tedious, and often the constitution never regains its former vigour. After recovery, nothing which transpired during the progress of the disease, and even for some days prior to its active development, can be called to mind by the patient.

In regard to the etiology of this singular disease, nothing certain has been determined since it was first noticed by the French missionary, Father Hennipin. It has in turn been supposed to be of mineral, vegetable, and aerial origin; but all observations tend to show that it is somehow indissolubly connected with the nature of soil. Occurring at all seasons of the year, the limits of its prevalence are often confined to an isolated spot, comprising an area of one or two hundred acres, but more commonly to a narrow tract extending even a hundred miles; and the boundaries separating the healthy from the infected districts are the same now as at the first settlement of the country; nor has any locality previously exempt been ever known to acquire the property of causing this endemic. Amongst the early immigrants, whole communities, on account of the prevalence of this malady, were often compelled to seek another location; and even at this day, those who venture within the boundaries of an infected district, are constrained, as a condition of their residence, to abstain from the flesh of the cattle living within the same limits, as well as their milk and its preparations. Of the milk of an infected cow, or the butter or cheese made of it, a very small quantity will suffice to develop the disease in the human system. It is believed to have been produced even by the cream used in the coffee drunk at a single meal. In some of these infected districts, it is said that the inhabitants, with a recklessness of human life that seems incredible, carry the butter and cheese, which they dare not themselves venture to eat, to the markets of the western cities; and that thus are induced morbid symptoms, and even death, regarded by the unsuspecting medical

attendant as some new or anomalous form of disease.* Notwithstanding the infected localities are usually distinctly circumscribed, and the inquiry in regard to the cause of the disease has been prosecuted with much zeal, large rewards having been held out by legislative bodies as an inducement to its successful investigation, yet the endemic agent remains shrouded in mystery.

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Equally involved in uncertainty is the pathology of this disease; and in regard to the proper therapeutic means, so much discrepancy exists that it can be accounted for on the supposition only that the morbid manifestations are modified by the nature of the endemic influence. So unsuccessful are practitioners generally in the treatment of this disease, that by many of the inhabitants of infected districts dependence is placed entirely on domestic remedies.

In regard to the mode in which endemic influences produce their effects on the animal economy, there is of course as much difference as there is in the nature of the causes operating. One of the most important circumstances connected with this subject is, the remarkable predisposition given to acute diseases by the previous influence of causes productive of debility; such as excessive and exhausting excitement, as watching, fatigue, or intemperance of any kind; or deficiency of the natural excitements of the human system, as impure air, deficient exercise, imperfect nourishment, long-continued heat or cold, or permanent mental depression. These various influences have been fully illustrated by statistical inquiries into the health and probability of life of the different classes of the community in France and England, and of the inhabitants of towns as compared with those of the country; thus demonstrating that the operation of these debilitating causes, applied long prior to the commencement of any morbid action, gives rise to a great amount of disease and mortality. Hence it follows, that in all epidemics, as, for example, malignant cholera, the permanent residents of cities are peculiarly susceptible; for, in all epidemics, it may be laid down as certain, that whatever tends to disturb the balance of health, favours an attack of the prevailing disease. In respect to endemic influences which constitute the exciting causes of disease, an equally wide field is presented. By Cullen they were supposed to be direct sedatives, not merely depressing the vital powers, but also inducing spasm of the extreme capillaries; and that to overcome this spasm, reaction supervenes, unless the vital energy be completely overpowered, and thus fever is developed. That malaria acts as a specific poison inducing specific phenomena, there can be little *doubt*; but the endemic causes of mountain regions productive of such diseases as have their origin in a phlogistic diathesis, cannot be regarded as *of this* character. By Magendie and Stevens it is maintained, that fevers produced

* See the interesting account of this disease by Dr. Graff, in the number of this Journal for April last.

by marsh miasm have their origin in a disorganized state of the blood; but that this is the first link in the chain of morbid phenomena, has not been clearly established. We know at least that the effects of malaria on the living body, both immediate and consecutive, are evinced in depression of the vital powers, contamination of the circulating and secreted fluids, and diminution of the cohesion or vital affinity of the soft solids. And its effects upon dead animal matter is somewhat analogous; for not only has the body, in some malignant forms of endemial fever, a tendency to run rapidly into dissolution as soon as respiration ceases, but in all dead animal matter, in malarious localities, decomposition advances with rapidity, and even articles fabricated of animal substances, as silk or wool, very speedily undergo decay and lose their cohesive property. These effects, however, doubtless have their origin in part in the same causes which favour the generation of malaria.

When we consider the multiplicity of endemial causes, and their various combinations, it follows that the branch of the subject having reference to the preventing of their production and the counteracting of their effects, is one of very great extent. A few words, however, must suffice. As abject poverty is the soil in which most endemic diseases spring up, so they diminish with the progress of civilization and the increase of the comforts of life. It is a remark of the learned Dr. Mead "that it has never been known when the plague did not first begin with the poor,"—a remark confirmed by every pestilential epidemic subsequent to his time, and strengthened by the history of yellow fever and cholera in every country, and of the epidemic fever in the British isles, particularly in Ireland. The diminution of endemial diseases is more especially observable in prisons, in hospitals, and on board of ships, resulting chiefly from stricter attention to diet, cleanliness, and ventilation—circumstances to which the less prevalence of scurvy, dysentery, and cutaneous affections, is mostly ascribable. A host of physical evils, for example, among the poor of the British isles, might be avoided, if luxury would but make a trifling sacrifice of self-indulgence to the public good; and thus by relieving want and suffering, prevent the operation of those debilitating causes which lay the foundation of much disease and mortality. Fortunately in the United States, in which equal rights obtain, these endemic influences arising from the oppression of man by his fellow-man, are not evidenced. With us the chief endemics are of strictly climatic origin; as those of the class of pulmonary organs, with the exception of tubercular phthisis, arise from atmospheric conditions without reference to the nature of soil, whilst those of malarial origin are the result of both conjoined.

From what has been already said it is obvious that if malaria is exhaled from marshy grounds, the most efficient means of preventing it, is either to drain them or to inundate them completely;* but it must be borne in mind

* This mode of prevention is of very ancient origin. Empedocles, the Sicilian phile-

that the mud and soil exposed to the action of the sun's rays, are at first fruitful sources of endemic influence. If inundations from the sea or a river give rise to the marshy locality, the means of prevention will be found in an embankment. In regard to clearing the soil of its vegetable products, it has been seen that the insalubrity of a district is thus, for a time, greatly aggravated; and hence this measure will be beneficial only in the end, and the sooner in proportion as the mode of cultivation requires less irrigation. In a newly built city in a malarious locality, as for example New Orleans, the development of this poison may be prevented, in a great measure, by protecting the soil from the action of the sun by a closely laid pavement—by removing the exuviæ and other impurities, by means of drains and sewers, so as to obviate the escape of emanations from them in the confined locality of a dense population—and by having places of sepulture beyond its outskirts.

Besides preventing the production of malarial poison, there are means of counteracting its effects. Thus high houses or walls, or a range of trees, may serve as a protection. That trees absorb the noxious exhalations, was remarked by Pliny; but whether they actually absorb the malaria, or simply obstruct its transit, or act in both ways, the fact as to the result is indisputable. Consequently the removal of screens which confine the exhalations to their sources will often cause great insalubrity. From this cause, many localities recognised by the ancients as the causes of malaria, and guarded against accordingly, have become more unhealthy; but this increased unhealthiness may also have been promoted by the accession of alluvial soil washed down from higher grounds, in the event of a decrease of population and consequent neglect of drainage and cultivation, or by the accumulation of organic remains and mineral detritus at the mouths of rivers. It has been remarked, and no doubt correctly, that the climate even of Egypt, when it was formerly well cultivated, was more healthy than that of Rome in its decline.

Besides these means, there are others which both destroy and counteract the causes of endemic maladies. For instance, in the case of impure water, the filtering of it through charcoal; and when drains, sewers, &c., cannot be removed or completely covered, the use of the chloruret of lime.

As our chief endemics are of malarial origin, it may be remarked further that the healthiness of a locality, especially in warm climates, depends much on its relation to the course of prevalent winds. The bad effect of a position to the leeward of a malarious source, even temporarily, has been often experienced by encampments or ships at anchor. In the choice of residences, where the winds blow from particular quarters at certain periods of the year or day, and especially at night, a position to windward of the prin-

sopher, according to Diogenes Laertius, freed the Selinuntians from pestilential diseases, by conveying two streams of running water into the stagnating river round their city.

cipal sources should of course be selected. When exposed to noxious exhalations, the diet should be nourishing and easy of digestion. Animal food should be sparingly used, and wine and liquors not at all. Attention should also be paid to the due regulation of the mind; for as the equable state opposes most successfully the impression of both endemic and epidemic influences, so the depressing passions and all undue excitements should be avoided. The susceptibility to infection, in a word, is increased by fear and the depressing passions, general ill health, derangement of the digestive organs, and whatever else impairs the vital powers.

It may be well also to mention a fact of practical importance in relation to yellow fever and other endemico-epidemics. According to the medical reports of the United States army, it is found that the removal of the troops but a short distance from the locality in which the disease originated, frequently caused its sudden cessation. Remarkable instances of this kind are also furnished in the history of the epidemic fevers at Gibraltar; and the statistics of the British troops further show that, in the West Indies and Ionian Islands, whilst one station suffers severely from yellow fever, others within a few miles are entirely exempt. In the epidemic cholera at Montreal and Halifax, the removal of the troops but a short distance was followed by the most happy effects. As the morbific agency manifested in the epidemic form, seems to be often limited to particular localities, it were always advisable on the part of the officer having charge of troops, on the sudden invasion of any serious disease of this character, to take into immediate consideration the expediency of a removal of the command.

In bringing to a close these statistical researches, continued through three articles, the writer may justly claim the indulgence of the reader. Climate, according to the definition of Cabanis, constitutes—*l'ensemble de toutes les circonstances naturelles et physiques, au milieu desquelles nous vivons dans chaque lieu.* But upon most of the branches of meteorology, what is the extent of our positive knowledge? And in regard to the influence which these complex agents, acting upon living organs still more complex in their functions, exercise, what has been effected by the boasted application of the Baconian philosophy to medicine? There are doubtless physical circumstances which cause the shape of to-day's cloud to differ from that of yesterday, but these circumstances, like many endemic causes, have thus far defied our limited powers of observation. It is a noble thought and nobly expressed: *Pulchra sunt quæ videntur, pulchriora quæ sciuntur, sed longe pulcherrima quæ ignorantur.* But will it never be permitted to man, in his present state of existence, to penetrate the mysteries of nature more deeply? It will. As the "possible is immense," so the human mind, if the legitimate object of all science, which is to observe facts and to trace their relations and sequences, is kept steadily in view, will be continually verging towards truth in the investigation of physical causes.

ART. III.—*A Report of Cases treated in the Second Surgical Department of the New York Hospital, during the six months ending July* 1, 1841, under the direction of JOHN WATSON, M.D., Attending Surgeon. By THOMAS M. MARKOE, M.D., House Surgeon.

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THE second surgical division of the New York Hospital embraces about sixty beds, and is mostly appropriated to seamen. Into one of the wards, however, are also received the lower class of patients from the city, particularly night cases. The average number under treatment through the year is perhaps a little over fifty.

I propose in the following pages to give a brief account of some of the most interesting cases which have occurred in our wards during the past six months, and in particular, some very severe cases of *erysipelas.*

This disease, during the winter and early part of the spring, prevailed in the hospital to an unusual extent, attacking patients in almost every ward, not by any means confining itself to surgical cases, or such as were affected with wounds or open sores. The disease was most extensive in the latter part of the winter, and before the warmer weather of spring allowed free and constant ventilation. About the same time the typhus fever broke out quite suddenly on the medical side of the house, attacking some fifteen or twenty patients and nurses, and in several instances proving fatal. As soon as it was discovered that these diseases were originating in the house, the patients, as far as possible, were removed, the house thrown open and stop thoroughly cleansed and whitewashed. This proceeding put a complete to the spread of the fever, and the erysipelas was very much checked by it.

The cases of erysipelas of sufficient severity to require active treatment, amounted to thirty-nine. Of these there were of patients brought in with the disease, sixteen; and of cases originating in the house, twenty-three. Both in the cases brought in, and in those originating in the house, the affection showed a remarkable preference for the face and head, thus:—There were, of the head or face, twenty-one cases; of upper extremities, seven cases; of lower extremities, nine cases; of scrotum, two cases. In several of the cases in which the disease affected the head, other parts of the body were also attacked; thus, there was one case in which the head and arm, and another in which the head and leg were simultaneously attacked. In almost every case in which the disease affected the extremities, it appeared first in the neighbourhood of some ulcer, wound, or contusion, while, on the other hand, of all the cases occurring in the head or face, there was but a single one in which a slight cut seemed to be the exciting cause, and one other in which there existed on the head an eruption attended with small ulcerations.

The great majority of the cases occurring on the extremities proved mild

and easily managed, involving more or less extensively the integuments of the affected limb, attended with moderate constitutional disturbance, and running their course in five days. A few were more severe, the inflammation taking on a phlegmonous character, with general symptoms of great severity. These cases were early treated with deep and free incisions; and in no case has sloughing occurred to any great extent after the patients were admitted to the house. It has often been remarked that when erysipelas attacks the neighbourhood of old, indolent ulcers, which have long resisted treatment, it sometimes proves a most effectual cure, and that as soon as the disease subsides the ulcer rapidly cicatrizes. Of this fact we have had many remarkable examples. One patient, whose whole leg was covered with large ulcers of a very unhealthy appearance, and of two years standing, had been in the house about a month when he was attacked with this disease in the sore leg. During the time he had been in the house under local and constitutional treatment, his ulcers had slowly improved, but most of them were still open. The attack of erysipelas proved pretty severe, but about the eighth or tenth day, when the swelling had begun to subside, the ulcers were found firmly cicatrized, and did not reappear. Another patient had suffered for many months with an eruption on his head, at first of a pustular character, degenerating into small but deep ulcerations, which had resisted every method of treatment. He was attacked with erysipelas in the head and face, and as it passed off, the numerous ulcers were perfectly healed. Besides these, we have had numerous other instances of the same kind, and we generally look upon erysipelas rather as a friend than an enemy to callous and indolent sores.

The most interesting of our cases, as well as the most numerous and dangerous, have been those affecting the face and head; not on account of any greater severity of inflammation, or its local consequences, but on account of the cerebral complication so commonly attending them. The disease has usually shown itself after a chill, generally a marked and protracted rigor, followed by high fever, pains in the limbs, great uneasiness and sense of oppression at the præcordial region, and restlessness, particularly at night. Indeed, from a very early period of the attack, we have found it necessary to watch our patients very closely through the night, for though they might appear rational and quiet during the day, yet at night they would become exceedingly restless, getting up and wandering about the house if not prevented from doing so. With these symptoms the tongue has been always furred with a deep yellow coat, becoming thicker as the disease advances, and the bowels constipated. In the course of from twenty-four to forty-eight hours from the period of the attack, redness and swelling appeared, attended with a tingling, burning pain in the inflamed part. This generally appeared first on the nose, spreading rapidly to the eyelids and over the whole face; the eyelids became tightly closed from infiltration of their loose cellular textures; the nose became distorted, and the whole

face, in some instances, so completely disfigured, that one would scarcely recognize the human physiognomy. In this early stage the pulse was full, quick, and frequent, and the skin hot and obstinately dry. It has been said by some that the skin in erysipelas, when the disease is on the advance, is always dry, and that the main indication in the treatment is to restore the cutaneous perspiration. The skin is indeed generally dry, but to show that suppressed perspiration is not an essential feature of the disease, we had one case in which the weather being warm, the patient perspired freely throughout the whole course of the disease, which was of more than usual severity. This state of things generally continued for three or four days, and then the inflammation began to subside, the skin became moist, the tongue cleaner, and the patient was in a short time convalescent. If, however, the case was one of severity, a low stupid delirium gradually set in, in which, although the patient would answer questions when spoken to loudly, yet he was with difficulty roused, and soon relapsed into an uneasy sleep. The cerebral symptoms in some of these cases very closely resembled those attending moderate compression of the brain. The great swelling of the eyelids prevented a satisfactory examination of the pupils; but the partial stupor, the wandering of ideas when roused, and the relapse into stupor when left to themselves, are just the symptoms which we find in patients who have received an injury of the head producing pressure on the brain, and before profound coma is established; the pulse now began to lose in force and gain in frequency, the skin generally remaining parched, but more often moist in this than in the first stage. The fur on the tongue became first dry, then brownish in the middle, sordes began to collect on the lips and gums, the respiration generally hurried, and in short the patient fell into a state exactly resembling one in the advanced stages of typhoid fever. There was much difference as to the time when these symptoms showed themselves, sometimes as early as the third or fourth day, and sometimes not until much later, sometimes coming on very rapidly, and sometimes in the most gradual manner. In every case the inflammation has begun to subside on the fifth to the eighth day, leaving the face for the scalp, and sometimes running down upon the body. Indeed the entire subsidence of the inflammation has not by any means been a sign of the commencing improvement of the patient; on the contrary, some of our patients passed their most critical period some time after all inflammatory appearances had begun to subside. In one very severe case, as the inflammation left the face it ran up over the scalp attended with very great swelling, and terminating in the rapid formation of an immense abscess undermining nearly half the scalp, and discharging daily a pint of pus. Small abscesses in the eyelids occurred in several cases.

The first symptom of improvement was generally the tongue becoming moist and clean at its edges. The pulse gained in force and diminished in frequency, the intellect became brighter, and the patient would have inter-

vals of quiet and refreshing sleep. When convalescence was once established it generally went on very rapidly, the appetite and strength returning, and the patient soon gaining all he had lost in the course of his disease. In one or two of the cases, however, and those not the most severe, after the first attack had entirely passed away, the patients were subject to frequent relapses of slight inflammation from the most trifling causes. In one case in particular, the patient recovered readily from a moderately severe attack of the disease, but at five different times in the next month he had a return of the redness and swelling about his eyes, which would sometimes pass off in a day or two, but sometimes continued, in a slight degree, for a week or more. Even in the intervals of these attacks, the integuments of the cheeks and eyelids did not perfectly regain their natural appearance and feelings. This was accompanied with a pale flabby tongue, loss of appetite, constipated bowels, and general debility. He was put upon a full tonic course, and as soon as he was able, was directed to go into the country.

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The *treatment* of this disease has been at different times as much varied by prevailing theories as any in the nosological catalogue. Without entering into its history in former days, we may say that there are at the present time two principal methods of treatment in use which differ essentially from one another. All surgeons acknowledge this to be what is called a constitutional disorder, but some, although they make this acknowledgment, nevertheless direct their principal attention to the inflamed skin itself, and there attempt to combat and subdue the disease. Some endeavour to accomplish this by local depletion, with cups and leeches and superficial scarifications; some by local stimulation with blisters, astringents, and escharotics; and Baron Larrey even went so far as to treat the disease in its phlegmonous form with light touches of his favourite remedy, the red hot iron. Another class of surgeons, viewing the disease an affection of the whole system, are guided in their treatment by this view, and while they content themselves with mere palliatives to the external inflammation, their first care and attention are given to the state of the general system, standing ready, if necessary, to assist and support it through the struggle.

Looking upon the inflamed skin as merely the external manifestation of a constitutional disorder of a specific character, we have been guided in our treatment by much the same general principles as those which are now universally received in respect to the specific contagious diseases, smallpox, scarlatina, &c. Our first care has been to remove all irritating causes which might aggravate the disease or unfit the patient to bear its progress. The deeply furred tongue and constipated bowels showed that the stomach and intestines were seriously at fault. In almost every case, therefore, we have begun with a brisk emeto-cathartic, usually ipecac. and antimony, combined with a few grains of calomel. After the full operation of such a dose, we have generally found the patients express much relief from their previous restless and uneasy feelings, while the act of vomiting was in itself beneficial

by inducing profuse perspiration. If after this the excitement ran high, we used some mild depressing remedy in order to moderate it. A very common prescription was a tablespoonful of spirits of mindereri, containing one-eighth or one-sixteenth of a grain of antimony every two hours. Frequently nothing was used but the effervescing draught. If during the inflammatory period of the disease the brain seemed to suffer particularly, a cupping from the temples was found of service, though we rarely had occasion to resort to it. With regard to the local treatment we have generally used a warm opiated wash kept constantly on the part, or the same cold, if the patient preferred it. At the commencement of the inflammation superficial scarifications with a lancet were frequently resorted to with apparent advantage. The nitrate of silver in substance was occasionally used to circumscribe the erratic form. These simple remedies were all that were required in a great proportion of cases; but there were a large number which seemed to call for much more active and decided measures. Every now and then a case would occur, as mentioned above, in which the powers of nature seemed to give way under the violence of disease, the pulse would begin to flag, the strength to fail, and the patient give signs of great prostration. At the earliest approach of this condition of things we have thought it necessary to commence with stimulants and tonics, increasing them as the case required, and sometimes administering them with the greatest freedom. Under this view, as soon as the pulse began to flag, and particularly if the tongue became dry and brown, we have commenced with the camphor emulsion, a tablespoonful every two hours. If the patient continued to sink we have not hesitated, without regard to the inflammation of the skin, to make free use of the more powerful stimulants, as wine whey, wine or brandy, to the extent that seemed indicated, taking care to administer at the same time a sufficient quantity of simple nourishment. Wine whey, wine or brandy, milk punch, eggnog, we have generally preferred as combining both stimulus and nourishment in the same preparation. When the brain gave evidence of great oppression or congestion, either with violent delirium or profound coma, purging, stimulating enemata, and counter-irritation applied directly to the scalp, were resorted to. In these cases the aq. ammon. fortissima was found a very valuable vesicatory. A piece of lint wet with this preparation applied to the scalp, and covered with oil silk to confine the fumes of the gas, will produce a perfect blister in from three to five minutes, and perhaps the suddenness of its operation should give it a preference over the more slow cantharides. By following these general principles of treatment we have had the good fortune to see all our cases of erysipelas of the head recover. As the pulse and tongue improved, the stimulants were gradually diminished, and stronger nourishment substituted as the appetite returned. The following cases were selected from the most severe that occurred, and will suffice to illustrate the above remark.

Case I. John Picket, ætat. 21, native of New York, seaman, was received into our wards from the medical side, February 17, 1841, with erysipelas of the face. He had been admitted to the house only a few days before on account of a slight inflammation of fauces. Erysipelas appeared on his face on the 15th, and he was transferred to our care as a surgical case. At this period the disease occupied his whole face, which was enormously swollen and distorted. He was already disposed to coma, and when roused, his answers were quite wandering: at times he was extremely restless and uneasy, throwing himself about the bed and trying to get out of it; his tongue was deeply furred, dry in the middle, skin hot and dry, and pulse frequent, but rather below the natural standard of force; his bowels had been fully opened by a dose of calomel administered the day before in the medical ward. The warm infusion of opium, which he had been using as a wash, was continued, some arrow root with a little wine in it was given him warm in the evening; pulv. Doveri grs. x, to procure sleep and induce perspiration.

*Feb. 18th.* He has passed a very restless night, constantly delirious and without sleep. He appears this morning somewhat brighter, answers questions more readily; he complains much of his throat, which is inflamed and much obstructed by mucus, so that it is difficult to get him to swallow anything. He was given a weak solution of yest and honey, to which was added a little wine, a tablespoonful to be given whenever he would take it. In the afternoon he again became more delirious and restless, pulse more feeble, and tongue dry and brown. As prostration was evidently increasing, a little brandy toddy was administered through the night, and Dover's powder, in grs. v doses was given until he took grs. xx, but without any calming effect.

*19th.* Is much worse, constantly delirious and trying to get out of bed; the inflammation of the face is evidently subsiding, but the tongue has become dry and black, the lips and gums covered with sordes, and the breath exceedingly offensive; the pulse is quick and extremely feeble; extremities cold, and he cannot be sufficiently roused to swallow anything. His feet were immediately put in hot mustard water up to the knees; sinapisms were applied to the thighs; a blister to the back of the neck, and a stimulating enema given; by these means he was sufficiently recovered to get down by degrees a glassful of warm brandy toddy, soon after taking which, natural warmth returned to the extremities, and he became more quiet; the brandy was pushed through the night, together with a free allowance of warm gruel, flavoured with wine, which he took readily and seemed to like.

*20th.* No improvement, and but little change; the night was very restless and sleepless; the inflammation of the face is subsiding, but all his other bad symptoms persist; the pulse is more feeble than yesterday, occasionally intermittent, and at times so small and rapid as scarcely to be distinguished; he is perfectly insensible to ordinary sounds, but still when shaken and spoken to loudly, he will take his drink; sordes has increased about the mouth, but he will not show his tongue. Mustard to feet and legs, and toddy changed for milk punch, and given ad libitum.

*21st.* Still lies in the same condition; pulse a mere thread; it is becoming more and more difficult to arouse his attention. The brain seeming to bear the whole force of the disease, the scalp was shaved, and disregarding the erysipelatous affection which had crept over this part, the skin was blistered over a space six or seven inches square with the strong aq. ammoniæ; after

this he was given a large stimulating enema, the operation of which brought away a great quantity of fæcal matter. Immediately after the operation of the enema he fell asleep and slept quietly for half an hour; on waking he would answer questions more readily, and seemed partially to have regained his senses; the rest of the day and night were passed more quietly than any since he came into our ward. Stimulants continued.

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22*d*. There is a marked improvement in his condition this morning; he seems quite to have regained his senses; his pulse is stronger, and the tongue, though still black, is moist at the edges, and the sordes clearing away from his teeth. A small fluctuating spot over the right parietal bone was punctured and a tablespoonful of pus discharged; stimulants continued in less quantity, and some arrow root given at regular intervals.

24*th*. Does not appear so well; is quite wandering, and pulse fallen in force; the abscess over the right temple has much increased in size, and the opening having closed, the matter has again accumulated. A free counter opening was made and kept open with a tent. The bowels are free. Stimulants increased.

27*th*. Still lies in a half stupid state, though more rational than on the 24th; the abscess under the scalp has increased enormously, occupying nearly one-half the whole surface of the head, and discharging daily more than a pint of pus; the pulse continues extremely small and feeble, and he seems in danger of sinking under the immense discharge from his head. The opening was enlarged, the matter evacuated, and the head dressed twice a day with a compress and bandage; he was given strong beef tea at regular intervals; brandy punch continued.

*March* 2. His improvement has been very satisfactory within the last few days; by keeping the abscess well evacuated, and the walls of the cavity in close contact by a tight bandage, it has diminished more than one-half; the pulse has improved; tongue moist and cleaning off; he is quite rational, and expresses a desire and relish for food.

10*th*. His right eye, which has all along been closed by the swelling, on being partially opened to-day, was found to have suffered from a severe attack of inflammation; the conjunctiva still much inflamed, and nearly one half of the cornea covered by a superficial ulcer. Cupped from temples, the eye washed frequently with warm milk and water, and acetat. of lead wash to reduce the swelling of the lids.

13*th*. Very great swelling has taken place round the eye, and an abscess formed in the lower eyelid, which was opened; otherwise he is doing extremely well, sitting up, eating with appetite, and sleeping well at night; the abscess on the head has entirely closed up; when the swelling of the lid allowed the eye again to be opened, the ulcer was found again to have penetrated the cornea, and prolapsus of the iris to have taken place. He remained in the house under treatment for his eye for some time, and was discharged perfectly well, with the exception of the impairment of vision in the right eye, April 25, 1841.

Case II. Niel Clausen, ætat. 30, native of Denmark, seaman, was admitted April 8, 1841, with a bubo in the left groin, following a chancre, which he had had a month before. He was under treatment for this disease, and doing very well, when he was suddenly taken with a sense of chilliness, followed by fever with headache, nausea, and furred tongue, and two days after, on the morning of the 29th, erysipelas showed itself on the left ear, and on the side of the nose. He had passed a very restless and feverish

night, and the constitutional symptoms ran very high; skin hot and dry; pulse 124 in a minute, with a good deal of restlessness and uneasiness about the epigastrium. He was given an emeto-cathartic of antim., ipecac. and calomel, which operated well both upwards and downwards; he was ordered to take a tablespoonful of sps. minder. every two hours, and a warm infusion of opium to the face.

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*April* 30. Night, exceedingly restless, but without delirium; the erysipelas has spread over the whole face, which is excessively swollen; tongue dry in the middle; pulse about as frequent as yesterday, and more feeble.

*May* 1. In the morning he expressed himself so much better that we hoped convalescence was about to take place; in the after part of the day, however, he became much worse, with wandering delirium, great restlessness and heat of skin, the tongue becoming quite dry, and the pulse now feeble. He was given a tablespoonful of camphor emulsion every two hours through the night.

2*d*. There was again a slight improvement in the morning, but as the day advanced he fell into a half stupid state, answering when spoken to loudly, but taking very little notice of what was going on. Tongue deeply furred, dry in the middle, and pulse extremely feeble. The bowels are open. Camphor mixture continued, with wine whey every two hours.

3*d*. Continues in the same state, the inflammation of the face beginning to subside. The dry fur on the tongue has become a black crust. Wine whey in larger quantities. Infus. serpentaria as a drink, which he seems to like.

4*th*. Passed a more quiet night; seems brighter this morning. Tongue moist at edges, and pulse less frequent and fuller. Swelling of face much diminished. Treatment continued.

5*th*. Very marked improvement in all his symptoms. From this date his improvement was steady. He had so far recovered as to be able to walk about his ward, when, in the morning of the 16th we found him worse than ever. He had been perfectly delirious all the night before, and still continued so. His pulse had become thready and very frequent, tongue dry and with difficulty protruded. The left arm was perfectly paralyzed, both as to sensation and motion; he moved the left leg rarely and with difficulty. Pupils natural, no pain in the head. He was given a large dose of pulv. purgans, followed by an enema, and a blister was applied to the back of his neck.

17*th*. Since the operation of the medicine there has been no active delirium. He lies in a semi-comatose state, without any complaint, and seldom speaking a word. Pulse extremely feeble, tongue brown and dry; extremities cold. He has not yet moved his left arm. The blister, which had not drawn very well, was dressed with ung. sabin., a stimulating enema given and mustard draughts frequently applied to the legs. He was also given small quantities of brandy gruel.

23*d*. He has lain in the same lethargic state since last date until last evening, when he began to wander a good deal and try to get out of bed. The scalp was shaved and promptly blistered with the strong aq. ammon. Immediately after this he fell asleep. This morning his intellects seem much brighter. When urged to move the left arm he is able to do so to a slight degree. Moves the leg readily.

24*th*. Slowly improving. Intelligence quite perfect, but still slow to answer or to speak of his own accord. He moves the arm to a right angle, and sometimes to his mouth. Tongue has almost cleaned off; appetite returning; pulse calm and of good volume. The first blister having healed,

another was applied; stimulants discontinued, and soup allowed. From this time he gradually recovered perfectly. The left arm continued numb and moved with some faltering for two or three weeks, but before he left the house it was as strong as ever. After he began to leave his bed he was troubled for a day or two with severe headache. This however was soon relieved by a dose of calomel, and having the scalp brushed over with the ammonia. He was discharged cured, June 30, 1841.

Case III. Thomas Poole, ætat. 22, seaman, a native of Maryland, was admitted January 26, 1841, suffering from the effects of a hard frolic, in which he had been much exposed to wet and cold, and had eaten but little. He complained of pain in all his limbs, great uneasiness in the stomach, with occasional nausea and vomiting. Tongue covered with a white fur, trembling when protruded. He had no appetite, and had not slept for several nights. He was given calomel grains x, and pulv. rhei grains xx, which operated well, and at night an anodyne. The next morning he said he felt better, but seemed very much dejected and indisposed to say anything. He continued in this way, complaining of nothing but slight pain in his back and limbs, seeming to shun notice, and never speaking until much urged. His pulse was somewhat accelerated, tongue lightly furred, and generally hot and dry. His bowels were kept regular by laxatives, and he was given a little effervescing mixture until something should develop itself.

*February 3d.* For the last two days the excitement of pulse has been greater, and his nights very restless. This morning erysipelas has shown itself on the right ear. Pulse more frequent, skin hot and dry, and tongue more furred. He still continues very dull in his intellects. He was given powders composed of cal. grs. ii, and pulv. antim. grs. iv—one every two hours until four were taken. Afterwards spts. mindereri, each tablespoonful containing the eighth of a grain of antim. tart.; opiate wash to the face.

*5th.* The inflammation has spread over the whole face. The excitement of pulse is moderate, but he continues almost perfectly comatose, though without anything like stertor. Treatment not altered.

*7th.* The erysipelas has begun to decline, and his other symptoms are improving. Tongue cleaner and skin more moist. He continues however in the same stupid state, with slight delirium occasionally at night. The bowels have been very loose for some days.

*9th.* The inflammation has almost entirely disappeared from the face, the tongue and pulse have much improved, but he is still delirious. The delirium is never violent, a mere incoherence of ideas, and the greater part of the day he lies half insensible, apparently sleeping uneasily. Pupils natural. No heat of head.

*12th.* Intellect slowly returning. Takes more notice of what is going on around him, and asks for food, which is allowed in moderation.

*20th.* Has steadily but slowly improved. He is yet feeble, but his mind has quite regained its power. Eats heartily, and improves daily. He remained in the house some time under treatment for varicocele, and was discharged cured, March 11, 1841.

Case IV. Robert Ridfer, ætat. 36, seaman, born in England, was admitted with delirium tremens, February 11, 1841. He was not an habitual drunkard, but had been engaged in a hard spree for several days. He was perfectly delirious, constantly talking and shouting, with much tremor of hands and tongue. He has had no sleep from his own account for a week.

He was given an emetico-cathartic of tart. ant. grs. ii, pulv. ipecac. grs. xx, calomel, grs. x,—M., which vomited and purged him freely. At evening, ʒi of tinct. lupulin was given in a glass of porter.

12*th*. Passed a restless night, without a wink of sleep, and this morning he is as crazy as ever. Tongue clean, no excitement of pulse. He was given an enema of starch with laudanum ʒii, which was repeated in four hours. After the second enema he fell asleep and slept until morning. Before he went to sleep he took some nourishment freely, and seemed to eat with appetite.

13*th*. Awoke more rational. Ordered an ounce of tinct. rhei, which was repeated at evening. In the afternoon he again became quite delirious, though less noisy. Without an anodyne he fell asleep and slept the whole night.

14*th*. He continues somewhat wild, though much improved. He was ordered to go into the open air and take exercise. Anodynes were continued at night. By these means he improved rapidly, eating heartily and sleeping well at night.

22*d*. The day before yesterday had a severe chill, followed by fever. This morning erysipelas has appeared on the nose and right side of face. He has again become quite wandering in his intellects. Exceedingly restless, and constantly trying to get out of bed. He has constant nausea, tongue covered with a thick white fur, skin hot, and pulse full and frequent. He was given the usual emeto-cathartic of tart. ant., ipecac. and calomel, which vomited him freely, and produced a free evacuation from his bowels. He was also given spts. mindereri.

24*th*. The disease has spread over the whole face. He continues much in the same condition, quite delirious when spoken to, and relapsing into stupor when left alone. Very restless at night. Bowels not open since 22d. Two Seidlitz powders were given, which operated freely. Face smeared with ung. hydrarg. At night an anodyne enema containing ʒii of laudanum

26*th*. Is much improved, though still occasionally delirious. Passed quite a calm night. The inflammation is rapidly subsiding. Tongue still deeply furred. H. calomel grs. x.

28*th*. The appearance of the tongue much improved. He is gaining rapidly, sleeps well, and eats with appetite. From this time his improvement was very rapid, and he was discharged cured, April 2, 1841.

The above cases are sufficient, as fair examples of the disease, as it affected the head in its worst form. The two first were the only ones in which we were obliged to resort to stimulants to any considerable extent; but in almost all, the patients suffered for a greater or less time under the same partial stupor, most commonly with more or less delirium at night, as in the cases described above. The next case is one in which the inflammation affected the scrotum, thighs and abdomen, and in which the prostration of the system was very great, requiring the free use of stimulants.

Case V. Francis Lissan, ætat. 26, seaman, native of Prussia, was admitted April 8, 1841, with a bubo in the upper chain of glans on the left side, to which he denies any syphilitic origin. It came on about a month ago without any assignable cause, though for some time before its appearance he had suffered much from rheumatic pain, principally seated in the left leg.

Several of the glands are enlarged, one of them fluctuating. The bubo was opened, the matter discharged, and a poultice applied.

14*th*. Has been complaining for a day or two of uneasy feelings, nausea and headache, and sleepless nights. Erysipelas has appeared about the wound in the groin, extending down to the scrotum, which is very much swelled. Considerable thickening and induration exists along the course of the urethra, which gives the case very much the aspect of urinary infiltration. He has no stricture however, nor difficulty in making water. The redness of the integuments and the constitutional symptoms ushering in the attack, show it to be erysipelas. The affection seemed to be slight, and the constitutional excitement moderate. Tongue furred with a light yellow coat, skin hot, and pulse somewhat accelerated. He was given powders composed of calomel grs. ii, and pulv. antim. grs. iv, one every three hours until four were taken. Also a tablespoonful of spts. mindereri, containing one eighth of a grain of tart. antim. every two hours. Superficial scarifications were made in the scrotum, and the part kept constantly wet with a warm infusion of opium.

21*st*. The attack has been quite moderate in severity until the present time, when it has begun to assume a more serious aspect. The inflammation has left the scrotum and is spreading over the abdomen and down both thighs; his pulse is feeble, tongue dry in the middle, and countenance indicative of great prostration. He was given a weak infusion of serpentaria as a drink, and a little wine mixed in his nourishment.

23*d*. Symptoms of prostration much more marked; pulse extremely feeble and quick, tongue brown and dry, with stupor of intellectual faculties, and wandering of ideas when roused. Given brandy milk-punch at regular intervals, alternated with the camphor mixture.

24*th*. Continues very low; tongue covered with a dry blackish crust, pulse 110 and extremely feeble, skin moistened with perspiration; expressed a desire for food, and accordingly some strong beef tea and some gruel flavoured with brandy were given him. Stimulants continued ad libitum; also sol. sulph. quinine gr. i, every two hours.

25*th*. No improvement. Lies in a state of the greatest prostration, passing his fæces involuntarily, and apparently moribund. Brandy punch as freely as he can be induced to swallow it.

26*th*. This morning gives signs of amendment. Answers questions when spoken to loudly, and says he feels better. The tongue has become a little moist at its edges. The pulse is much stronger than yesterday, though still very feeble.

27*th*. Improvement more marked. Slept a good deal during the past night. Tongue cleaning off, and countenance brighter.

29*th*. Convalescence perfectly established. From this time he rapidly improved. The stimulants are discontinued, and good nourishment allowed as he could take it. Discharged cured, May 19, 1841.

The next and last case was one of great extent and severity, and unfortunately fatal. This was the only fatal case of erysipelas that occurred in our wards through the whole season; and notwithstanding the feeble constitution of the patient, the extent of the disease and its dangerous complication with delirium tremens, he improved so much and so steadily for two or three days that we began to entertain hopes of saving him, when a sudden and fatal change took place, not easily accounted for.

Case VI. William Patterson, ætat. 33, born in Pennsylvania, labourer,

was brought to one of our wards with delirium tremens, June 16, 1841. He had been admitted to the other department two days before, supposed to have been sunstruck, with an ill-looking ulcer on his leg. He was attacked with delirium tremens the day after his admission, for which he was treated in the usual way, but becoming outrageous he was put into one of our wards on the lower floor. He was quite delirious and disposed to be very noisy, but without much tremor of the hands or tongue. Tongue deeply furred, pulse quick, and skin hot and dry. The ulcer, which was of long standing, was very much inflamed. A poultice was applied to the ulcer, and at night he was given a small starch enema containing ʒii of tinct. opii.

16*th*. Half an hour after the enema he fell asleep and slept without intermission until this morning. On waking he expressed himself as feeling better, and spoke quite rationally. Less excitement about the pulse; he was allowed through the day a bottle of porter. In the evening the pulse again became more frequent, with some heat of skin, dryness of the mouth and thirst. He complains of a good deal of pain about the ulcer, the integuments surrounding which are much inflamed and swollen; the poultice was continued to the sore, and warm infusions of opium applied to the inflamed skin. He was given the effervescing mixture, and at bedtime ʒss. of tr. lupuline in a glass of porter.

17*th*. Passed a very restless night, but without delirium: complains of great pain in the leg. The inflammation has assumed an erysipelatous character, with great swelling of the whole leg, and red lines running up the thigh to the groin. Skin hot and dry, tongue brown and dry in the middle, and the pulse frequent but quite feeble. The poultice was continued and the whole limb kept wet with the warm opiate wash; superficial scarifications were made on the most intensely inflamed part. He was allowed a little brandy milk-punch, which was continued and increased through the day until evening, when the pulse had risen so much in force that it was diminished, and at midnight discontinued altogether.

18*th*. The pulse still retains a good deal of force, though more feeble than last evening. The tongue is more moist, though deeply furred. The inflammation has extended up the outside of the thigh nearly to the groin. Great swelling and tension of the inflamed parts. Six or seven deep and free incisions were made in those parts of the leg and thigh where the swelling was most tense. No matter was discharged; but the patient expressed much relief after the incisions were made. Several spots on the foot only have a dark livid colour, threatening gangrene. Yest was added to the poultice, which was put over the whole foot and leg: at evening sol. sulph. morph. gtt. xx.

19*th*. Wandering delirium through the night; he lies most of the time apparently asleep, but is easily aroused, and then he is perfectly sensible, pulse 104, quite feeble; stimulants were recommenced last night in small quantities. Bowels freely evacuated by an enema. Anodyne at night.

20*th*. The inflammation has spread up to the groin, not much change in the appearance of the leg. The livid spots rather diminished. Last evening the pulse had again become so much fuller and stronger, with considerable heat of skin, that it was thought prudent to stop the stimulants. This morning the pulse is about 108, and of moderate force; respiration about 20 in a minute, each expiration accompanied with a sigh. Tongue much furred and livid at the edges. A small discharge of matter has taken place from one of the incisions. The opening was dilated, and the same treatment as before continued.

21*st*. Passed a more comfortable night under the influence of an anodyne draught. This morning he appears to labour under congestion of the lungs. His lips and tongue are purple, considerable acceleration of respiration, with rattling of mucus in the air passage. Pulse 108, nearly natural. Bowels opened with an enema.

22*d*. The inflammation has not spread above the groin, and on the whole the appearance of the leg is improved. Though not delirious he is occasionally wandering, and at all times in a state of partial stupor, though easily roused; pulse is 128, and again quite feeble. Notwithstanding the occasional fulness and force of the pulse, the patient is evidently in a state of extreme prostration. His countenance is sunk and pinched, his voice feeble, and his extremities frequently cold. Stimulants again recommenced in form of brandy gruel and eggnog. Quinine increased; continued other treatment, anodyne at night.

23*d*. More delirium, and evidently much weaker; pulse very feeble and quick. A good deal of sordes collects about the mouth. Stimulants *ad libitum*.

24*th*. No improvement. His whole aspect is that of a dying man. The lips and tongue however are not so livid, though the respiration is still quick. He had a passage last night without medicine.

25*th*. There seems to be a slight improvement this morning, though through the night he was very restless. His countenance looks a little brighter, and the pulse has regained considerable force, some moisture on the skin. The livid gangrenous spots on the leg have disappeared, and the inflammation on the thigh is not so vivid. Eggnog as much as he will take.

26*th*. General appearance much improved, answers questions much more readily and in a louder tone of voice. The tongue is quite moist, though still much furred. There is less difficulty of breathing, and he says he feels much better.

27*th*. He is evidently dying—countenance sunk, eyes glazed and respiration very laboured and obstructed with mucus. Died about 9 o'clock A. M. The watchers say that he passed a pretty comfortable night, but towards morning began to labour very much for breath, and the air passages became filled with mucus, which he did not seem to have strength to expectorate. No post mortem could be obtained.

During the period embraced in this report, our department has presented unusually little of interest in the way of operative Surgery. The following cases are selected from the Case Book, as presenting some points of interest to the profession, either in a therapeutical or pathological point of view.

Case I. *Frosted Feet, Pneumonia, Abscesses in the Lung.*—William Brown, ætat. 23, born in Scotland, seaman, was admitted January 11, 1841, with frosted feet, from exposure while at sea three weeks before admission. He continued to go about on his feet, although they were very painful, until four days ago. The upper surface of the toes, particularly of the left foot, which has suffered most, are superficially sloughing; the surrounding integuments on the dorsum of the foot much inflamed, and red lines mark the course of inflamed vessels up to the groins. Both groins are slightly tender; about a week ago he was taken suddenly with pain darting through his chest, headache, fever, loss of appetite and sleep. These symptoms have been growing worse, and he now complains of much pain and oppression about

his chest. His breathing is frequent and high, face flushed and of a livid hue; skin hot and dry, pulse quick and rather feeble, but very irregular as to force and frequency. No cough. Percussion dull over the lower and posterior part of right lung, over which part the crepitant rattle is heard. About the time of the attack there appeared just above the olecranon on the posterior part of left arm a large hard swelling, attended with much pain, which has now a feeling of fluctuation. A dose of mist. eccoprot. was given, six cups applied to the chest, and he was ordered to take in solution ¼ gr. of tart. antim. every two hours. In the afternoon an enema was given, the operation of which gave him great relief. He was given at bed time pulv. Doveri, grs. x. Poultices to feet and arms.

13*th.* Passed quite a comfortable day yesterday, but to-day the breathing is again more oppressed with much pain in the chest, slight crepitus in the posterior part of left lung; it has disappeared from the right. Pulse frequent and hard. He was bled ℥viii to faintness with much relief. In the evening the pulse having risen, and the pain and oppression become more severe, he was again bled ℥xii, and the tart. ant. increased to ½ gr. every two hours. Dover's powder, grs. x, and at bed-time, repeated about 1, A. M.

14*th.* Passed a very restless night, but is more free from pain to-day; skin moist, less excitement of pulse; continue antimony.

15*th.* Oppression and pain very severe all night. The respiration is very much embarrassed, and at every breath he seems to suffer great pain. Pulse very quick and feeble, countenance anxious, and he seems much prostrated. Cupped from the chest, and afterwards a large blister applied. Evening. Pain very severe on the right side; breathing very short, about 40 in a minute. Another blister to be taken off before complete vesication. No relief was afforded, and he seemed to be failing very rapidly.

27*th.* Moribund, pulse almost imperceptible, and countenance sunk—died at 12 P. M.

*Post mortem examination*, twenty-four hours after death.—Both pleuræ were in a state of inflammation. Recent coagulable lymph on both sides, with large serous effusion more considerable on the left side. The posterior parts of both lungs were in the first stage of inflammation. Scattered over the surface of both lungs were six or eight cavities immediately under the pleura, containing a reddish pus, from the size of a large marble up to the size of a large walnut. Around their purulent deposits the tissue of the lung was not more inflamed than in other parts; their internal surfaces were irregular, and they presented very much the appearance of the purulent deposits which sometimes take place in the lungs of persons labouring under phlebitis. The veins of the inflamed feet as well as the principal trunks were examined. Those in the immediate neighbourhood of the inflamed parts were found thickened, and their internal coat reddened, but no pus was found in any one of them. The other organs, as far as examined, were healthy.

Case II. *Fracture through the base of the Cranium, laceration of brain at the seat of contre-coup.*—Benjamin Rover, ætat. about 30, seaman, born in Maine, was brought to the hospital at 5 P. M. April 7, 1841, having fallen, about half an hour previously, into the hold of a vessel about twelve feet, striking upon the back part of his head. He was in a state of complete insensibility, motionless, almost pulseless, and extremities cold; pupils dilated, and insensible to light. There was a large contusion over the back part of his head, but no wounds, or any evidence of depression of bone. He was

placed immediately in a horizontal posture; hot bottles were applied to the feet, and sinapisms to the legs, thighs and abdomen. The arms and chest were rubbed with a mixture of tinct. capsici, and strong aqua ammonia. As he could not swallow, an injection containing half a pint of brandy was slowly introduced into the rectum, and retained. The use of these means was followed by gradual reaction. Towards morning the extremities became warm, he became restless, and arterial reaction was fully established.

*8th.* He continued extremely restless through the day, though so perfectly insensible that nothing could rouse him. Cold was applied to the head, he was cupped from the temples and upper parts of the spine, and an enema administered. The pupils from being dilated gradually became contracted, both equally so, and both insensible to strong light. He did not seem to move his right limbs so readily as his left; the right eyelid drooped, and the mouth was slightly drawn to the left side. He lingered along without any alteration, and died about 2 A. M. on the morning of the 9th.

*Post mortem examination*, ten hours after death.—Great ecchymosis under the integuments covering the posterior and left portions of the head. On raising the skullcap an effusion of clotted blood was found filling up the whole of the left occipital fossa, and extending up nearly two inches above the transverse ridge. The cerebellum and the posterior lobe of the cerebrum were separated from the cranium at least half an inch in some parts; the whole amount of extravasated blood being between two and three ounces. This effusion was all external to the dura mater. On the right side, over the anterior lobe of the cerebrum in a diagonal line from the first effusion, another was found less in quantity, but underneath the dura mater and extending into the substance of the brain, which for a space as large as a hen's egg was lacerated and completely reduced to a pulp by the blood effused into its structure. There was a fracture commencing just above the transverse ridge of the occipital bone, about an inch to the left of the median line, and running downwards to the foramen magnum, half an inch of the rim of which was completely detached; crossing the foramen magnum, the fissure extended about an inch towards the petrous portion of the temporal bone; a slight crack was noticed in the bone over the seat of contre-coup. The substance of the brain in other parts was natural. Chest and abdominal organs healthy.

Case III. *Compound comminuted fracture of the thigh, fatal from gangrene of the limb.*—George Cengoli, ætat. 40, German by birth, by profession a chemist, more lately engaged as an editor of a paper, (the Express,) a man of sedentary habits, and of a nervous irritable temperament, was brought in about midnight, May 7, 1841, with a severe compound comminuted fracture of the lower part of the right thigh-bone. The injury was received a short time before by a fall down a flight of ten stone steps. There was a small lacerated wound on the anterior part of the thigh about three inches above the patella, into which the finger could be easily passed, and the bone could be felt comminuted into a great number of small pieces. The surrounding muscles were very much lacerated, particularly the extensor mass, which seemed to be almost completely separated from the patella. The fracture was very near the knee-joint, but it could not be ascertained that it penetrated its cavity. There had been no considerable hemorrhage, and the temperature of the limb below was natural. The prostration of the system was not very great; the pulse was of fair strength, and the skin warm. A consultation of the surgeons was immediately held, and in view of the

great disorganization of the internal parts of the thigh, immediate amputation was recommended. To this however the patient would not consent. The limb was therefore put up loosely in the straight apparatus, and a compress of lint secured by a loose bandage was placed upon the external wound, from which venous blood was oozing in a considerable stream. An anodyne of tinct. opii, ʒi, was given. Cloths wet with cold water were placed around the thigh.

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*8th.* Slept but little, though he is free from pain or excitement, pulse of moderate force, and skin natural. He still continued in a condition favourable for amputation, but absolutely refused to have it performed. The cold applications were continued, and moderate nourishment allowed.

*9th.* The limb was put up permanently in straight splints, and moderate extension made. The pulse has not risen above 90 since the accident, and is now quite soft. Anodyne at night.

*10th.* Passed a very restless night, owing as he thinks, to confined bowels. He does not suffer any considerable pain in the injured limb, but it is much swollen, and its temperature increased. The wound looks very foul, and bleeds so freely that it is necessary to stuff in lint and confine it with a moderately firm bandage. Ecchymosis is taking place to a great extent. He was given some comp. infus. sennæ, which aided by an injection brought away a very large quantity of fæces.

*11th.* Passed a quiet night, free from pain, and expresses himself as feeling perfectly well this morning; but his countenance has a sunken expression, his pulse is very quick and feeble, and his extremities are cold. The spots which were yesterday supposed to be mere ecchymoses, have extended over the whole limb, and now present the livid brownish colour and crepitating feeling of incipient gangrene. The pressure of the splint was loosened, the wound opened and freed from discharge; balsam Peru was smeared over the whole limb, and wine given freely.

*12th.* The gangrene is extending towards the groin, and his pulse has become very feeble, skin bathed in a clammy sweat. The discharge from the wound is very profuse and very fetid. The knee-joint is distended with fluid, apparently coagulated blood. Bowels opened unconsciously. Stimulants given freely.

*13th.* There seems to be an attempt at reaction. His pulse is stronger, though very frequent, 140 in a minute; allowed soup, milk, and whatever nourishment he desires, and as much wine as he will drink. P. M.—The pulse has again begun to flag, skin still warm, but wet with very profuse sweat. Talks incoherently, though till now his intellectual faculties have been perfect. The discharge very profuse, bloody and fetid.

*14th.* Has lain in a state of unconsciousness since 12 o'clock last night, and is apparently dying; pulse a mere thread, sweat very great. The gangrene has extended up to the groin. He lingered through the day in a state of low delirium, frequently making efforts to get out of bed, until towards evening, when he fell into a sort of stupor, and died about 5 o'clock next morning. No post mortem could be obtained.

Case IV. *Congestive apoplexy from drinking cold water.*—Thomas Campbell, ætat. 40, an Irish labourer, was brought to the hospital about midday, July 1, 1841, suffering from the effects of drinking cold water. All that could be ascertained about him was, that a short time after taking a large draught of cold water, the day being extremely hot, and he at work on a building, he complained of feeling very sick, and soon fell into a state of in-

sensibility. He had complained the night before of being somewhat unwell, but got up in the morning apparently well, and eat his usual breakfast. He was represented to be a man of temperate habits. In about two hours after he was taken he was brought to the hospital. He was then in a state of complete insensibility, from which he could not be roused. The pupils were contracted to a mere pin hole, and perfectly insensible to light. His face was flushed and head hot. The skin of the body was of its natural temperature, but the extremities cold. Pulse almost imperceptible, and so quick as scarcely to be counted. Every few minutes a sort of convulsion of the whole body took place, and in the interval all the muscles were in a state of rigidity; at times the spasms were very severe, resembling opisthotonos. Sinapisms were applied to the legs, thighs and abdomen. A large enema containing tinct. aloes ʒi, was given. He was cupped freely from the temples, and the hair cut off and ice water constantly applied. At the same time, as the system was sinking under the shock of the disease, small quantities of warm brandy gruel were given him. These means however were followed by no perceptible effect. He sank gradually, and died 3½ P. M.

*Post mortem examination*, eighteen hours after death.—The head, chest, and abdomen, were thoroughly examined. The organs in the chest presented no marks of disease, except that the lungs were much congested with black blood. The stomach was reddened in irregular patches, the mucous membrane mamelonated and softer than natural. The other abdominal organs healthy. The brain showed marks of severe venous congestion in every part. The sinuses and large veins on the surface were swelled out with black venous blood. The surface of the membranes presented a uniform darkened appearance, and the whole substance of the brain, on being cut into, was dotted with innumerable bloody points. Very large quantities of blood flowed from the divided veins at the base of the cranium, and from the foramen magnum. There was no extravasation of blood in any part; consistence of the brain natural.

Case V. *Tetanus consequent upon burns from caustic potash—Recovery under the use of assafœtida.*—John Brady, ætat. 32, an Irish labourer, was admitted May 22, 1841, with tetanus supervening during the cicatrization of several burns on his feet. These burns were caused by caustic potash, upon which he accidentally stepped about five weeks before his admission. The injury was principally confined to the soles of his feet, but extended up between several of his toes. The caustic acted to a considerable depth, and the sores left by the eschars had scarcely filled up when the tetanic symptoms set in. The ulcers were then rather callous, improving very slowly and without much pain. He was admitted on the fourth day of the disease. The affection had come on in a gradual manner, with at first slight pain and stiffness about the jaws, and occasionally a difficulty in swallowing. When admitted the disease had not extended beyond the muscles of the jaws, which were firmly clenched, and could not be opened a fourth of an inch. He complained of severe pains shooting down the back of his neck and over the insertion of the temporal muscle. Any effort of swallowing or even speaking brought on spasm of the affected muscles attended with great increase of pain. He complained also of pain in the abdominal muscles shooting towards the spine. His pulse is not much above the natural standard as to strength or frequency. Skin bathed in a profuse perspiration. His bowels have been disposed to be costive, though freely opened yesterday by a dose of salts.

His nights have been very restless, and he has scarcely slept since the disease commenced. The feet were poulticed, and in order to give him a good night's rest he was ordered to take gtt. x, of solut. sulph. morph. every two hours until sleep was produced. He took in all gtt. l, after which he passed a comfortable night, sleeping seven or eight hours.

23*d*. Feels much more free from pain, though there is no improvement in the tetanic symptoms. He was put upon the use of assafœtida grs. v, every two hours, and every intermediate hour ʒss. of tinct. rhei, in order to keep his bowels free.

24*th*. Passed a very restless night. Says he feels more pain than ever about his jaws. The abdominal muscles are very tense, and he complains of great pain at the scrobiculus cordis. The spasms are more frequent and more severe, perspiration constant and very profuse, no change in the pulse. The tinct. rhei has been taken regularly every two hours, without any effect upon the bowels. He was given a common enema, which brought away an immense discharge of fæces, after which he felt much more comfortable, though without visible relaxation of the jaws.

25*th*. No marked change. He has occasionally a disposition to opisthotonos, though not severe. Profuse sweat still continues.

26*th*. The spasms have become more frequent and severe, and attended with excessive pain. Though he has continued the tinct. rhei regularly, the bowels have not been again opened. He was ordered to take one comp. aloetic pill every other hour, instead of the rhubarb, and to continue the assafœtida.

27*th*. He seems very desponding about himself, having passed another sleepless night. The spasms are more severe and frequent, affecting the muscles of the back. Sweat very profuse, and pulse rather more feeble, though not accelerated. Allowed a little brandy milk-punch with his nourishment, and an enema given. The enema as before brought away a large fæcal discharge, and immediately after its operation he felt much relieved. The jaws became so much relaxed, that he could protrude half an inch of his tongue.

28*th*. Spasms have come on again more severe than ever. He has bitten his tongue during sleep so severely that he can scarcely swallow a drink of the thinnest gruel. As he could no longer swallow, he was given every two hours a small enema containing ʒss. of tinct. assafœtid.

30*th*. No marked improvement while awake, but it was noticed that during sleep the mouth could be opened nearly to its full extent without pain. Bowels opened every other day with an enema.

*June* 3*d*. Since the last date there has been a decided improvement in his condition. The spasms are less frequent and less severe, and he complains less of pain about the umbilicus. He is able to sleep sometimes half an hour without being awakened by a convulsion. He is able now to resume the assafœtid. pills; injection of assafœtid. was therefore discontinued.

10*th*. Is rapidly improving; can open his mouth at times nearly as wide as ever. The spasms have almost ceased, and are very trifling when they do occur. His appetite is good, and he begins to chew soft food without difficulty. He is able to walk a few steps without assistance. In crossing the hall however this morning, he stumbled upon something, and a paroxysm coming on at the same time, he fell at full length perfectly stiff, striking his face against the floor and slightly wounding his lip. This is the worst paroxysm he has had for a week, and was probably aggravated by his sudden efforts to save himself from falling.

15*th.* No increase of disease has followed the fall, and he has continued regularly to improve. He now takes the assafœtid. pills only in the day-time, occasionally one or two pill. aloetic. comp. He eats hearty, sleeps well, and walks about without difficulty. He has now no spasms more than occasional slight cramps. The burns are nearly healed. From this time he continued to improve, and was discharged, cured, June 30, 1841.

I may remark, in conclusion, that this is the third successive case of traumatic tetanus which under Dr. Watson's care has recovered under the use of assafœtida. For the details of all the other cases in which his practice has been employed, see N. Y. Jour. of Med. and Surg. for Oct. 1840.

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ART. IV.—*Report of Cases treated in Wills Hospital.* By ISAAC PARRISH, M.D., one of the Surgeons of the Institution.

THE following report embraces a brief abstract of some of the more important cases treated at the Wills' Hospital during the first quarter of the present year, with some practical observations on the treatment of several of the diseases specified.

A considerable proportion of the cases admitted during this period, may be ranged under the head of the acute ophthalmiæ, and were induced by the variable and tempestuous weather which prevailed at this season. The influence of atmospherical agency in the production of this class of affections, is universally acknowledged to be great, nor is it confined to individuals who are exposed to the inclemency of the seasons, but extends even to those who are apparently most secure. Persons having weak eyes, or those who have once suffered from ophthalmia, are peculiarly liable to fresh attacks, although they may confine themselves to the house to avoid them. This fact has often been verified in our observation in the hospital; a sudden and remarkable change in the weather, giving rise to a corresponding change in the condition of our patients. Those who are rapidly convalescing, or on the point of being discharged as cured, will suddenly experience a renewed attack, perhaps equally violent with the first, notwithstanding they have been closely confined to apartments heated by a furnace, and kept at an equable and comfortable temperature.

This fact is noticed with a view of urging the impropriety of pursuing a system of close confinement and of medical discipline beyond proper limits. By such a course, the capacity of the eye to resist unavoidable external impressions may be so far diminished, as to render it extremely liable to disease. Thus, in ordinary inflammation of the conjunctiva, either simple or catarrhal, the practice of constant bathing, with relaxing lotions, confine-

ment to a dark room, careful exclusion of the eye from the air, &c., must often tend to protract the cure, and to debilitate the organ, besides inflicting unnecessary restraint upon the patient, and even causing his constitution to suffer.

A more rational method of treating these cases, would seem to consist in occasional bathing with cooling lotions, topical depletion if necessary, moderate purging, light diet, and astringent washes applied once or twice in twenty-four hours when the acute symptoms are reduced; the patient being allowed to move about with the eye uncovered, and in clear, mild weather to expose it moderately to the fresh air. Such treatment, modified of course to suit particular cases, will, I think, be found much more successful than the adoption of rigid measures.

It also becomes important for the physician to know when to cease his treatment. If an entire freedom from injection in the vessels of the conjuctiva is to be considered as the test of cure, he may go on teazing his patient with drops and ointments, and purgative medicines, for weeks after the necessity for their use has ceased. We are too apt to overlook the fact, that the conjunctiva, after having suffered from inflammation, requires time to regain its natural appearance and functions, and we mistake a weakened circulation, or an *enlargement* of the vessels, which admits of red blood, for *inflammation*, whereas this condition of the vessels is one of the consequences of inflammation, and can only be corrected by the gradual restorative powers of nature. Instead, therefore, of continuing medical treatment, we should advise our patient to resume his ordinary avocations, under such restrictions as prudence may dictate, trusting to the restoration of the organ in due time.

This remark is founded on my own experience of its truth, having been deceived in the appearances alluded to, and thereby led into an error in practice, against which I would guard others.

*Granular ophthalmia.*—Several cases of this disease were under treatment during my term of attendance. It is one of the most obstinate affections to which the eye is exposed, and from the frequency of its occurrence one of the most important. Its essential characteristic appears to consist in an enlargement of the mucous follicles of the conjunctiva which lines the palpebræ, producing a roughened appearance of this membrane, comparable to the granulations on the surface of a healthy ulcer, hence the name. The size and shape of these enlarged follicles vary. Sometimes they are so minute as to resemble the papillæ of the tongue; they are then called papillary; in other instances they are quite prominent and distinct from each other, while in a few cases they are still larger, and are attached to the membrane by a little peduncle. In whatever form they are presented, they must be considered as one of the consequences of inflammation of the conjunctiva, their peculiar character being determined by the natural structure of the part in which they occur. The most important practical consideration connected

with this state of the palpebral conjunctiva, is its effect upon the cornea, with the consequent impairment of vision. The tendency of these granular lids is not only to attract to the eye an undue quantity of blood, and to alter the structure of the conjunctival vessels, but they produce a degree of mechanical irritation, extremely unfavourable to a cure. By the constant friction of the lids upon the ball, new irritation is excited, the ocular conjunctiva becomes vascular and thickened, until the cornea is so completely obstructed as almost to destroy vision. In protracted cases the superficial layers of the cornea participate in the morbid action, rendering the opacity more deep and permanent. The appearance of the eye under these circumstances is quite characteristic, and to one familiar with the disease, would indicate at once that the seat of the mischief was to be found on the inner surface of the palpebræ. The whole anterior surface of the eyeball is covered with a network of vessels conveying red blood and traversing an opaque membrane. These vessels, although spread out in all directions, may be seen issuing from above and below, and are but the ramifications of those which supply the diseased surface of the lids.

When called upon to examine an eye presenting these appearances, we should therefore immediately evert the lids and inform ourselves of their condition; if through ignorance or carelessness we neglect this, in vain shall we prescribe for our patient. General remedies, or even slight topical applications will utterly fail to meet the case. Venesection, topical depletion, purging, low diet, &c., will torment the patient and debilitate his general system, without effecting any important change in the diseased organ. Patients have passed through this ordeal, and have come out of it with their eyes unimproved, and their constitutions shattered.

The main indication in the treatment of this affection consists in relieving the roughened or granular condition of the palpebral conjunctiva, and we shall find, that in proportion as this membrane becomes smooth, under our applications, the vascularity and opacity of the ocular surface will diminish.

Cases apparently almost beyond hope will soon furnish evidence that our efforts are not fruitless, and by steady perseverance we shall often witness an entire restoration of the organ. To accomplish the indication mentioned, several articles have been resorted to. Perhaps the most prominent of these is the sulphate of copper. A crystal of this article, presenting a smooth surface, is to be drawn several times over the everted lids, and to be continued every day, or in some cases at a longer interval, until the object is accomplished. Weeks, or even months, may elapse before the diseased membrane will assume its natural lustre and transparency, but if a slight improvement is manifest from week to week, we may persevere with a reasonable prospect of success.

Nitrate of silver and sulph. zinc. may be substituted for the sulphate of copper; they are to be applied in the same manner, and in protracted cases may sometimes be alternated with advantage. Diluted nitric acid,

applied with a camel's hair pencil to the diseased surface, has been found useful in some cases. The liquor sub. acet. plumbi of the London Pharmacopœia, dropped upon the eyes at intervals of several days, has sometimes succeeded where the ordinary remedies have proved unavailing. The sulphate of copper is however the most valuable article, and is applicable to a large proportion of the cases. In those which have been under treatment during the term of attendance under review, no other application has been employed, and the results have tended to confirm our former experience of its efficacy.

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*Scrofulous ophthalmia.*—Under this term is included a class of cases, more numerous than any other, of the various forms of ophthalmic disease. They form, in fact, a considerable proportion of the whole number who seek the aid of the hospital; occurring generally amongst children who are illy fed or clothed, and who inherit a constitutional tendency to scrofula. The disease presents several varieties, often assuming an eruptive form, the conjunctiva being studded with specks or pustules which encroach upon the cornea, so as to obstruct vision, and give rise to great alarm amongst those unacquainted with the disease, from an apprehension that sight will be permanently impaired, or that an operation will be necessary for their removal. This, however, is the simplest and most manageable form, and generally disappears under astringent washes, and a slight alterative and tonic course.

The most distressing variety of the disease, is that which is distinguished by a high degree of intolerance of light, either with or without corneal specks, and without much increased vascularity of the conjunctiva. This, as well as every other form of scrofulous ophthalmia, is connected with other evidences of constitutional derangement. The physical peculiarities supposed to indicate the scrofulous diathesis, are well marked, and occur with such constancy as to afford no slight confirmation to the generally received opinions upon this point. The subjects of the disease are almost invariably found to be born of parents, one or both of whom have had scrofula in some of its forms, or who belong to families in which it has appeared.

*Tinea capitis*, and other eruptive complaints, are often connected with the disease, and not unfrequently its occurrence may be traced to the drying up of an eruption.

Dentition, worms in the intestines, and the derangement of the digestive organs so common in early childhood, also occur either as a cause, or as an accompaniment of the local affection, and serve to indicate the disordered state of the general system upon which it is founded.

I propose at present to confine my observations to that form of the disease in which excessive intolerance of light is the most marked feature. Several cases of this kind have been under treatment, which, with many others occurring both in the practice of the hospital, and in private, have

afforded ample opportunity for observing the progress of this interesting disease, and of testing the value of remedial agents.

In the first place it may be remarked, that the extraordinary repugnance to light which marks this affection, is by no means indicative of an inflammatory condition of any of the tissues of the eye. It often occurs without being preceded by inflammation, and may continue for weeks, or even for months, without the occurrence of those lesions which are the result of this morbid process.

I have known patients who have been unable, for a long period, to endure the least ray of light, suddenly to improve, so as to be able to permit an examination of the eyes, the result of which has been, that the organ had suffered no structural lesion, the conjunctiva was but slightly injected, the sclerotic coat and cornea were apparently free from disease, and the vision of the patient, when placed in a feeble light, as perfect as before the attack. A little girl who was an inmate of the hospital for more than a year, was a striking illustration of this fact. She had suffered from repeated attacks of extreme intolerance of light, which rendered an examination of the eyes totally impracticable, and often caused much solicitude for the safety of the organ. But notwithstanding the severity of the symptoms, the structure of the eye never appeared to be seriously involved, and she was recently discharged by Dr. Fox, with good vision and perfect eyes. Many similar cases might be cited in confirmation of this fact, all tending to prove that the disease in question is not caused by, nor is it necessarily connected with, acute inflammation, but that it is rather the result of extreme irritability of the nervous apparatus of the eye, requiring, for its cure, a course of treatment far different from that adapted to the ordinary ophthalmiæ.

It is not denied, however, that there are some cases of the description mentioned, which are connected with corneal specks or opacities, and with a certain amount of inflammation of the conjunctiva; but these structural alterations are generally slight, and by no means commensurate with the violence of the other symptoms. After having met with a large number of cases of this disease, some of which have been very obstinate and protracted, I have rarely seen them followed by any permanent injury to the eyes, other than that which attends all organs which have suffered from severe or protracted attacks of disease, whereby their vital energies are impaired, and they are rendered liable to renewed attacks.

Entertaining these views of the pathology of the disease, our remedies are to be mainly directed to the invigoration of the constitution, and to the adoption of measures which shall elevate the tone of the system to its normal standard. Local remedies are always secondary, and from the irritation which they excite, are sometimes hurtful. Repeated attempts to examine the eyes are alike injurious—the resistance and screams of the child, with the powerful spasms of the orbicularis palpebrarum muscle, generally

preventing a satisfactory view, and tending to increase the irritability of the organ.

Our first object should be, to regulate the alvine evacuations; these will generally be found depraved and irregular, the discharges being often of a green or of a light colour, and more frequent than natural. This may be corrected by alterative doses of calomel and rhubarb; two grains of the former and five of the latter, may be given every other night with advantage, and followed up on the succeeding day by a dose of senna and manna tea, castor oil, or some other efficient cathartic, to be continued until the dejections assume a healthy appearance. This being accomplished, an improvement is often manifest at once, but we must not on this account relax our efforts. We have merely opened the way for more effectual and vigorous measures; we must now avail ourselves of the varied agencies which tend to counteract the strong constitutional tendencies of the patient, and to stimulate his organs into healthy activity. The practitioner must look beyond the materia medica, to those hygienic means which nature has so bountifully provided for the invigoration of the physical structure of man. Air, light, nutritious food, exercise, cheerful company, &c., all powerfully contribute to the desired result; and if they be neglected, under a belief that medicine, and strict medical discipline are alone necessary, the labours of the physician will prove worse than useless, and the sufferings of his patient may be protracted to an indefinite period.

There are few diseases perhaps, in which the inducements to pursue an injudicious course are stronger than in that under consideration. The inclinations of the patient, the prejudices of friends, and his own timidity all combine, to lead the unwary practitioner astray.

The patient clamours for seclusion in a darkened apartment, the least ray of light causes him to cry out, and he resists the most urgent solicitations to expose himself to the fresh air. If we propose the evening or night air, this is objected to for its dampness, and if we insist, some anxious relative will probably prevent our wishes from being carried into effect; or we ourselves may shrink for fear of evil consequences. Thus it is, our patient is cut off from the benefits of two of the natural elements absolutely essential to his recovery. He cannot obtain an adequate supply of fresh air, without a certain amount of light, and hence his system must languish, and the disease be aggravated in a corresponding degree.

Without these, the appetite flags, the functions of digestion and nutrition are impeded, and the frame becomes emaciated and enfeebled—scrofula, already developed, now flourishes luxuriantly, and finally the constitution is overpowered by its inroads.

The affection of the eyes, which was at first an object of primary importance, is almost forgotten in the more pervading ravages of the disease.

It becomes therefore a matter of primary importance, that the practitioner should early resist this desire for close confinement, and that he should urge

the necessity of exposure to the open air. If the intolerance of light is too excessive to be overcome by the firmness of the patient, the eyes should be completely protected by several folds of green gauze, or of some other light fabric, and the patient be taken out to walk or ride during twilight, or even after dark. A few trials of this kind prepare the way for more exposure, confidence is inspired, the dread of light is diminished, and in a little while a surprising change, in the susceptibility of the eyes to its influence, is discoverable. Every day adds fresh vigour to the patient, his spirits improve, his appetite increases, and in proportion to the revival of his general health, an improvement is manifest in the diseased organs.

Many cases illustrating the truth of these remarks might be cited, did the limits of the present essay permit.

Every practitioner of experience must be able to call to mind cases of this disease, which have resisted his best directed efforts for months, and have finally recovered, after medicine has been laid aside, and the patient been permitted to emerge from a confined and darkened chamber, into the open air. In some obstinate cases a change of air is highly beneficial, especially if patients are located in cities during warm weather.

In several instances I have witnessed the most marked improvement, from an excursion upon the opposite side of the river, at the decline of the sun, and during the evening. The air of the pines of New Jersey, and of the sea-shore, are both well adapted to this class of patients, especially the former, in which the advantage of shade is combined with a highly salubrious atmosphere. In one patient who had been excluded for many months from the light, and who conceived herself totally unable to endure it, the most rapid improvement followed her first efforts to go abroad; in a few weeks she was able to undertake a long journey, which completely restored her to health. A sea voyage to Florida, cured one of the most protracted cases, which I have ever witnessed. The patient had been carefully treated at the Wills Hospital for more than a year, and had frequently been benefited for a time; his eyes, however, were extremely irritable, and he suffered from repeated relapses. On his return from Florida, his general health was greatly improved, and he was able to bear the vicissitudes of weather and the different degrees of light to which he was exposed without inconvenience.

In addition to air and exercise, attention must be paid to the surface; the patient should wear flannel next the skin, and should be frequently immersed in a salt bath, or rubbed with a salted towel. This is a powerful auxiliary to other measures, tending greatly to invigorate the frame, by improving the powers of digestion and nutrition, and giving tone to the nervous system.

A nutritious diet of light animal food, should also be directed, while vapid and indigestible articles should be carefully avoided. In fine, all those means ordinarily employed for conferring strength and vigour upon a frame enfeebled by disease, or from natural conformation, should be steadily persevered in, until our object is attained. We should, in fact, look to this as

a primary object, considering the disease of the eyes as but a local manifestation of a general disorder, which is to be relieved by constitutional treatment. Astringent applications to the eyes are not to be neglected, when they can be made, without causing undue irritation; amongst the best of these, are the solutions of nitrate of silver, and of sulph. zinc. in the proportion of from two to four grs. to the ounce of fluid.

*Injury of the eyes from the explosion of Gunpowder.*—The exposed situation of the eyes renders them peculiarly liable to suffer in this class of accidents; and the cases which are the result, are certainly amongst the most deplorable which can be presented to the surgeon. In addition to the ravages of inflammation, foreign particles become deeply imbedded in the transparent tissues of the organ, prolonging irritation, and increasing the risks of irremediable opacity, or of disorganization.

Several cases of this description were under treatment in the hospital, in two of which no benefit resulted, and they were discharged as incurable.

In two others, a condition of the eyes was apparent, to which I shall briefly advert, in connection with a question of much practical interest. The eyes in these cases were not disorganized, but so far injured as greatly to impair vision. In one patient the left eye presented a large deep opacity covering the lower half of the cornea, and increasing in density towards the centre and in front of the axis of vision; the other portion of the cornea was clear, and through it the iris could be seen adhering to the capsule of the crystalline lens behind, which was opaque; the pupil was larger than natural, and of course irregular; but so general was the opacity of the capsule, that no vision could be enjoyed. The right eye presented a more favourable appearance. A deep opacity extended through the substance of the upper portion of the cornea, to the inner surface of which the iris was attached, giving to the pupil an angular form, and causing a considerable diminution in its size, from the large portion of the iris which was adherent. The effect of this adhesion is, that the fibres of the free portion of the iris are so restrained in their movements as to prevent vision under particular circumstances. Thus in a strong light they are drawn up so near to the adherent portion as almost to obliterate the opening, and the patient is prevented from seeing objects in a bright sunlight, while in a feeble light, and when the pupil is dilated by belladonna, his sight is tolerably good. In another case, an opacity of an oblong shape occupied the lower half of the cornea of the left eye, the capsule of the crystalline lens was opaque, and the iris was adherent to it around its whole margin. A view of objects through this eye was of course entirely obstructed, but a perception of light remained. In the right eye the iris was also adherent to the capsule of the lens behind, but the central portion of the capsule retained its transparency, leaving a small opening through which light was admitted, and a good degree of vision enjoyed.

The treatment in these cases, during my attendance, consisted chiefly in

efforts to diminish the opacity of the cornea, and to promote the absorption of the lymph which formed the bond of union between the iris and the surrounding parts. Various astringent applications were used to meet the first indication, and an ointment composed of the ung. hydrarg. fort. and ext. belladonna, in equal proportions, applied to the lids, was chiefly relied on, to promote absorption and loosen the adhesions. In slight or recent cases these remedies may prove highly useful, but when these structural lesions have existed for several months, as in the present case, we cannot expect much improvement from their use. When all hope of farther amendment from these applications is at an end, the propriety of interference by an operation becomes a question of serious importance, requiring for its correct decision much deliberation and judgment. If, as in the case first cited, a certain amount of vision remains, subject to variations dependent on the degree of light to which the eye is exposed, and preventing an individual from pursuing avocations which will expose him to these changes, ought we to attempt to enlarge the pupil by cutting loose the adhesions of the iris? Is it justifiable to risk the danger of inflammation which may follow the operation, and the effect of which would be to throw out a fresh supply of lymph into the pupil, for the prospect of benefit which the operation, unattended with any such result, might reasonably afford? When we consider the immense value of even a moderate degree of vision, contrasted with total blindness, we may well pause before we put this in jeopardy, in the hope of securing for our patient still greater advantages. Should we not, under these circumstances, rather exhort him to submission to his lot, than hold out the prospect of relief by such a doubtful and hazardous procedure? If, however, the sight is entirely destroyed by an opacity of the lens or its capsule, with adhesions of the iris, no doubt could exist as to the propriety of separating the adhesions, and of breaking up the lens by one or more operations. In one eye, in the case referred to, this operation has been twice performed by my collegaue, Dr. Fox, with every prospect of ultimate success. The iris has been loosened, and a portion of the opaque lens has been absorbed, thus giving a free passage to the rays of light within. The central opacity of the cornea is the only obstacle in this case to the complete restoration of vision.

*Wound of the cornea—Hernia of the iris—Cure.*—William Pentridge, aged about 4 years, was admitted 1st mo. (Jan.) 20, 1841, for a wound of the eye, received on the day previous. While at play he was struck upon the eye by a fragment of glass, which divided the cornea transversely from its outer margin, to near its centre.

The consequence was an immediate discharge of the aqueous humour, and a prolapsus of the iris through the wound. When admitted the conjunctiva was slightly injected, but the patient experienced no pain, and but slight intolerance of light. He was placed in a moderate light, and treated with cooling lotions to the eye; an occasional purge and light diet. In about ten

days the wound had united; but a small portion of the iris still projected and was adherent to its edges, causing the pupil to be lengthened in its transverse diameter.

The prolapsed portion of iris was touched several times with solid nitrate of silver, and soon disappeared, leaving the vision as perfect as before the accident.

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The method of treating these cases generally recommended by authors, is to return the prolapsed iris; to pursue a antiphilogistic course to prevent inflammation, and to act upon the pupil by means of belladonna applied to the lids with a view of preserving the shape of the pupil. In several cases of hernia of the iris from wounds of the cornea, which have fallen under my notice, I have found it impossible to return the projecting portion, and to preserve the form of the pupil. Indeed it is difficult to conceive how this is to be accomplished by the methods recommended. Every attempt made to push back the protruded iris through the wound must necessarily be attended with the discharge of the aqueous humour; this being absent the iris is deprived of the support by which it is retained in situ, it again falls forward, and reappears at the opening, from which we are attempting to thrust it. If the wound be very small, or if the layers of the cornea be cut, so as to form a flap, the operation might possibly succeed; but I presume, in the large proportion of cases, any attempt to preserve the form of the pupil will be found abortive. Long continued efforts to effect this object are indeed injudicious, from the risk of inflammation of the iris, and the effusion of lymph into the anterior chamber, and between the transparent tissues, which they produce.

The indiscriminate application of belladonna or stramonium to the lids, which is generally practised in these cases would also seem to be objectionable. Where the wound of the cornea is extensive, and the protruding portion of iris is large, the relaxation of that portion which remains within the anterior chamber, could have no other effect than to prevent its tonic contraction, and consequently to promote, rather than to prevent farther protrusion. This remark applies to the early period of the case, before inflammation has been established, and the iris has contracted adhesions to the edges of the wound; but even after this necessary process has been instituted, there would seem to be no indication for thus acting upon the iris, unless the inflammation exceeds its natural limits, and threatens the closure of the pupil. As a general rule, if the constitution of the patient be good, simple wounds of the cornea, with hernia of the iris will, I think, pursue the course of incised wounds in other parts of the body; with the exception of the difficulty occasioned by the presence of the iris, between the edges, which causes delay in the cure. The inflammation is restorative, and not destructive, and the only duty of the surgeon is to guard the patient against all those causes which counteract the efforts of nature. Nor is the injury to vision so serious as might be imagined; simple irregularity of the pupil, unconnected with any other structural alteration of the eye, is not necessarily attended with a de-

fect in the visual function. The organ has the power of accomodating itself to the altered form of the pupil, and the sight may continue as perfect as before the change.

Hence we should avoid active interference with the efforts of nature in this class of cases, unless the symptoms should actually demand it; and should be careful how we increase the risk of internal inflammation and adhesions by unavailing efforts to preserve the natural form of the pupil.

*Effect of belladonna upon an irritable eye.*—A female of highly nervous temperament, who had been blind from cataract, and had been the subject of several operations for its cure, applied for advice for a diseased condition of the left eye, which followed the removal of cataract, and formed a serious obstacle to vision. The operation, which was performed upon this eye more than a year since by myself, had been followed by a severe and protracted attack of rheumatic ophthalmia, which resulted in a thickening of a portion of the capsule of the lens which had not been absorbed, and an adhesion to it of the pupillary margin of the iris, forming an enlarged and irregular pupil. The lens was probably entirely absorbed, and the thickened capsule was perforated by two orifices, one toward the inner and the other toward the outer canthus, through which the patient could see by directing the eye outward or inward, although she was unable to distinguish objects directly in front of her. In the right eye the iris was movable, the pupil clear with the exception of a minute portion of the lens which appeared in front, and the sight good, the patient being able to read large print without difficulty. Previous to a critical examination of the eyes, I directed (as is usual) the application of ext. of belladonna to the lids at bed-time, intending to inspect them in the morning of the following day. At this time I found the pupil of the right eye (which was the better of the two) largely dilated, but the patient was complaining that her sight was much worse since the application. She was troubled with muscæ volitantes, and other illusive appearances indicative of partial amaurosis; I trusted that these symptoms would disappear, as the effect of the belladonna went off, but they have continued more or less to the present time, a period of several months, much to the annoyance of the patient, who complains bitterly of the change effected in her sight since this application.

The danger of the free application of belladonna or stramonium in cases where there is the least tendency to amaurosis, has been suggested by some authors; while by others, amongst whom is Lawrence, such fears have been considered groundless. The case cited is the only one in which I have remarked any strikingly injurious effects from it, after having seen it used freely and extensively prior to the operation for cataract. That the powerful atonic effect which this article is capable of producing should, however, promote the tendency to amaurosis, where it exists, appears reasonable, and should induce caution in its use where we have doubts as to the soundness of the retina.

*Aneurism of the orbit.*—An interesting case of this disease occured in the person of Bernard Callahan, a lad of sixteen years of age, who was employed in a factory on the Brandywine, near Wilmington.

Dr. F. G. Smith, of that place, kindly furnished us with the following history of the case. About six years ago, the boy, in diving from the height of eight or ten feet, struck upon a stone at the bottom of the stream, without, however, being sensible of having received any injury until one of his companions remarked that his eye was bleeding. There was no external wound, and the hemorrhage was inconsiderable; the stone upon which he struck was probably large and smooth. On that day, or the day following, he perceived a small elastic swelling about the size of a pea, under the conjunctiva of the lower eyelid, immediately below the external canthus. This continued slowly to increase for about four years, without, however, causing him much uneasiness, until the latter part of that time, when he applied to Dr. Smith; this was in the summer of 1839. A consultation was held upon the case, when it was determined to attempt the removal of the tumour by a ligature. Three ligatures were applied successively to portions of the tumour. After the third operation the boy was taken sick, and farther proceedings were suspended; the effect of these operations was to diminish the size of the tumour, and to afford temporary relief. No hemorrhage ensued after the ligatures came away, nor was any pulsation discovered in the tumour. Since this period the swelling has been gradually increasing, and has recently become painful.

The wood cut conveys a tolerable idea of the appearance of the disease at the time of the patient's admission. The diseased vessels are here represented as distended with blood, the upper eyelid is everted, and the eyeball is thrown down towards the internal canthus. A morbid vascular structure occupies the external angle of the orbit, from which a set of enlarged and varicose vessels issue, running nearly parallel to each other, and extending laterally. The rounded prominence below is connected with this diseased mass on the ocular conjunctiva, and indicates a bloody sac situated under the skin of the lower lid, and deriving its blood from the deep-seated vessels of the orbit.



When the eye is in a passive state, these varicose vessels are covered by the palpebræ, and the sac below is empty, so that the morbid structure is scarcely visible; but on everting the lids, and making pressure upon the large blood-vessels of the neck, its true character becomes manifest. The circulation through the diseased mass being obstructed, its vessels are distended, and the sac fills. No thrill or pulsation could be discovered after the most careful examination; attempts were made to test the effect of pres-

sure on the external carotid artery, and upon the external jugular vein separately, with a view of determining how far the supply of blood to the tumour, was received through both sets of vessels; but from the intimate connection existing between these trunks, it was found impossible to arrive at a satisfactory conclusion upon this point. It seemed highly probable, however, that arteries and veins were alike involved in the disease, and that nothing short of the arrest of the circulation in both of the main vessels, would cut off the supply from the tumour.

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Under these circumstances it was agreed in consultation not to interfere in the case, especially as the patient did not appear to be in immediate danger from the disease. He was accordingly discharged, and still remains under the notice of Dr. Smith.

*Case of warts of the eyelids.*—Louisa Faree, aged 10 years, was admitted 2d mo. 3d, 1841, with two large warts upon the lower eyelid, one of which was situated close to the margin of the tarsal cartilage, and the other immediately below it. They were of unusually large size, the two together being larger than a hickory-nut, and their bases being closely united. The space which they occupied, rendered it probable that their excision by the knife would be followed by an ectropion, from the necessary contraction of so large a cicatrix. It was therefore determined to attack them with caustic. A piece of solid nitrate of silver was shaved down to a sharp point, and inserted by a boring motion, into the substance of the warts, where it was moved around several times and withdrawn. The effect of this simple process was admirable; in two or three days, sloughing had occurred, and by repeating the application several times, the whole mass was loosened and easily separated by the scissors; the diseased skin at the base of the warts was dressed with the following ointment—kreasote, gtt. viij, cerat. simp. ℥j—under which it rapidly assumed a healthy appearance, and the patient was discharged, cured.

This method of applying caustic to warts, possesses many advantages over the ordinary mode, of drawing the stick over the surface, and from the soft and yielding nature of this peculiar morbid growth, it can generally be adopted. I have since pursued it, in a case of several large warts upon the hand, with the same happy effect.

*Lameness.*—Several cases of scrofulous inflammation of the joints occurring in children, were admitted, but they were still under treatment at the close of my term of service.

An interesting case of club-foot was admitted and discharged, a brief report of which may not be without interest.

*Case of club foot—division of the tendo-achillis.*—George Fox, aged 10 years, was admitted, 1st mo. (Jan.) 16th, 1841, with a deformity of both feet; the right foot presented a well marked example of pes-equinus of the third degree; the left was affected with a varus of the first degree.

The history of the case was somewhat obscure; the mother of the boy was deceased; the father, who was a labouring man, stated that the limbs were perfect at birth, that the child walked well, until about three years since, when he was first discovered to limp, in consequence, as was supposed, of a sore upon the heel which caused him to raise this part of the foot in walking. Since this time, the deviation has been increasing, until it has assumed its present form. When admitted, the gait of the boy was peculiarly awkward. The heel of the right foot was drawn up almost in a perpendicular line with the toes, and in extending this foot in walking, the weight of the body was borne upon the base of the toes, instead of resting upon the whole flat surface of the foot. This rendered the patient's movements exceedingly awkward, besides exposing him to the constant danger of falling; in every effort to walk his body was thrown violently forward, and his foot twisted, from the weight which was thrown upon its extremity, while its whole flat surface was elevated above the ground. A rotatory motion of the knee-joint was also observable from the same cause.

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The fascia plantaris was tense and unyielding, and the tendo-achilles remarkably rigid. The muscles of the leg were shrunken and withered for want of use, rendering the limb much smaller than its fellow. In the left foot the deformity was slight, and of later origin, being probably dependent upon the deformity of the right; it was said to be steadily growing worse. It was determined to divide the tendo-achilles in the right foot, and to rely upon the use of instruments for the restoration of the left.

2d mo. (Feb.) 6th, I performed the operation in the presence of my colleagues, Drs. Hays, Littell, and Fox, and several medical students. The foot being drawn outward, so as to relax the integuments over the tendon, a fold of skin was pinched up, and a small scalpel, made for the purpose, inserted through it, with its flat surface toward the tendon. The cutting edge of the knife was now turned downward, and the foot drawn inward, by which the tendon was rendered tense and thereby brought into contact with the cutting edge of the knife. By this movement it was instantly divided with an audible snap, and its cut edges separated to the distance of about two and a half inches; no bleeding ensued, and the wound was immediately covered with an adhesive strap. The foot was now quite at our command; it was at once brought into a straight position, and secured by a gaiter and bandage to a splint, having a movable foot board attached to it. The angle of the foot was frequently varied by means of a strap which connected the foot board with the splint, and the dressings after the first five or six days were often removed and reapplied. The wound healed by the first intention, and at the end of three weeks the rigidity of the plantar fascia had very much yielded, and the patient could place the foot flat upon the ground. The common club foot shoe, with iron bands and leathern straps, was now applied to both feet, and the patient allowed to run about. A

slight inclination of the toe inward, with a little twist at the right knee joint, was the only remaining deformity, and this was in the course of improvement under the use of the shoes when I last saw the patient. I have not been able to obtain any intelligence of him for several months past; but the rapid improvement which followed the operation, and which seemed to be progressing after he began to walk, affords satisfactory evidence in favour of this valuable improvement in the surgical art.

PHILADELPHIA, *7th mo. 1st*, 1841.

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ART. V.—*On Paralysis sympathetic of Visceral Disorders.* By JOHN B. ZABRISKIE, M. D., Physician to the Kings County Almshouse.

To Mr. Abernethy the credit is due of first calling the attention of physicians to the subject of this paper. He relates many cases in his surgical memoirs, of paralysis proceeding from visceral disorders, but appears to incline to the opinion that they are caused by a morbid state of the spinal marrow and nerves, although no lesion of the spine, its contents, or of the nerves proceeding from it, could be found upon dissection. Spurzheim, while he corrects the error of Mr. Abernethy in viewing this form of paralysis as a disease of the spinal cord, considers it as proceeding from debility, and prescribes tonics, exercise, air, &c., for the treatment. The more rational view of visceral diseases adopted by the most celebrated pathologists, which considers the muscular debility accompanying them as indirect, and proceeding from the increased action existing in the diseased part, appears to have been overlooked in this disease. That an imperfect paralysis often accompanies certain diseases of the viscera, has long been known, and it has been constantly described as a symptom of these diseases by writers. Thus numbness of the lower extremities accompanies calculus in the kidneys, and is always enumerated among the symptoms of this disease. A numbness of the left side very commonly accompanies chronic gastritis, and a numbness of the extremities is occasionally felt in chronic rheumatism, which disappears with the original disease. The great connection between the viscera and the nervous system is known and duly appreciated by practical men. The oppression of a mass of crude and undigested food, will, in the sanguine, often cause distressing headache; in nervous females hysterical spasms, and in children convulsions; and in each case the patient is relieved by an emetic. The cramps, the anxiety, and during the intervals of pain, the unconquerable somnolence of cholera—the deli-

rium, stupor, and coma often accompanying bilious and gastric fevers, show the sympathies of the nervous system with visceral inflammation. The symptoms of hydrocephalus often supervene in the last stage of cholera infantum; and it is also a fact well attested by observation, that children have died with the stupor, the squinting, the palsied limbs, and all the other symptoms of dropsy in the head, which upon dissection exhibited no marks of cerebral disease, the whole brain being in a sound state. Andral, in the fourth volume of his *Clinique Médicale*, has given us six cases of persons who died from the effects of lead, and in no one was the brain, spinal marrow, or the nerves found to be diseased, showing us that the spasms, the paralysis, and other distressing symptoms produced by this deleterious poison, are symptomatic.

A ligature upon the femoral artery, it is well known, produces a diminution of sensation and of motion in the limb. The same effect follows some diseased states of the arteries, in which the circulation is much constrained by the thickening of the coats of the vessels, or by the deposition of any obstructing matter within their cavities. Certain forms of arteritis are constantly attended with paralysis of the extremity supplied by the diseased artery. Some well written observations on this subject may be found in the London Medical and Surgical Journal for September, 1834, by Dr. Stokes. Cases of a similar nature may be found in Rostan's work upon the softening of the brain, in which extensive disease of the arteries had been accompanied with paralysis before death, without any cerebral lesion.

The numbness which accompanies calculus in the kidneys and ureters might lead us by analogy to suppose that other diseases of the kidneys might give rise to similar symptoms. Recent observations have confirmed this. In the Medico-Chirurgical Transactions for 1834, is a very interesting paper by Mr. Stanley, of London, giving the history of a number of cases of this kind, which exhibited all the usual symptoms of caries of the vertebræ, but which, upon dissection, showed no traces of disease in the spine or its contents, while the kidneys were the seat of extensive disease. Dr. Stokes, in reviewing this paper, expresses his belief that all the symptoms of paralysis proceeded from the diseased state of the kidneys.

The following very interesting case, the history of which has been furnished me by Dr. Geo. H. Kissam, of Jamaica, L. I., illustrates this form of paralysis. "Mr. S. Williamson, of spare habit of body, came under my care on the 26th of December, 1839. He had been under medical treatment for more than a year for diseased kidney. He exhibited, in the most striking manner, the symptoms peculiar to this affection. His inability to walk erect, pain in the region of the kidneys and along the ureters, urinous odour in his perspiration, mottled and sallow appearance of the skin, particularly in the region of the kidneys, showed a diseased state of these organs; his tongue was foul, mouth slimy, breath fetid, bowels costive, and with difficulty moved by the most powerful medicines; he voided his urine

frequently in small quantities with pain, and the urine deposited a red sediment, variable in quantity. Frequently there would be gravel in considerable quantity, but not much mucus in the urinary discharges. He had been subject to severe attacks of pain in the region of the kidneys, accompanied with nausea and violent vomiting. By the use of anodynes and other appropriate remedies he was greatly relieved, so as to walk about, and even to attend a little to his farm. He remained under my charge with the same occasional benefits from medical treatment, until April 7, 1840.

"*June 8th.* I was again called in, and found him greatly reduced, and labouring under paraplegia; the power of voluntary motion was entirely lost in the lower extremities, but sensation was retained; the least effort made to move or rotate the head, produced convulsions and starting in the lower extremities. The pain in the legs was extremely severe, burning and pricking, and the miserable patient kept up a constant cry to have them moved, and he appeared to get more ease when they were strongly flexed upon the trunk. The catheter showed pus, gravel, and some mucus in the urine; the region of the right kidney was greatly enlarged externally, and tender to the touch; the right rectus abdominis muscle contracted and hard as a board; the skin on the right side of the abdomen very tender to the touch; brownish colour of the skin very much increased in the region of the kidneys; his appetite was so much reduced that he ate almost nothing; his tongue was foul and brown, and his pulse good; the perspiration was excessive, and his stools were not passed involuntarily; the absence of this usual occurrence in paraplegia was accounted for by the existence of a stricture in the gut. He remained in this situation with an occasional aggravation of the symptoms until the 1st of July, when his urine came away involuntarily, containing about one ounce of fetid, globular, pinkish pus, mixed up with mucus and gravel. This continued until death. He had frequently, for some time past, passed a quantity of sand by stool, exactly like that contained in the urine. About the 1st of July he complained more of pain about the back and bowels, and on the 8th he passed by stool, pus, blood, and gravel in profuse quantities, extremely fetid, resembling the discharge from a psoas abscess; from this time until the 10th, dark, excessively bilious matter, and expired on the morning of the last mentioned day.

"I was extremely anxious to ascertain the condition of the theca vertebralis, but no post mortem examination was permitted. Was this profuse discharge of pus and blood from the kidney alone, or were the bodies of the vertebræ involved in caries from absorption and ulceration produced by pressure of the enlarged kidney? His inability to support his body for three months in an erect position, the extreme tenderness over the dorsal and lumbar vertebræ, with the partial displacement of the spinous processes of these vertebræ, and accompanied with a profuse discharge of pus and blood, would appear to indicate the existence of a diseased state of the spine itself.

"I have compiled the above history, not from memory, but from notes taken at the bedside."

This was, in the first place, an organic disease of the kidneys, followed by paralysis, agreeing, in many respects, with Mr. Stanley's cases of paralysis symptomatic of disease in the kidneys, but which appears to have involved the spine probably from the pressure of the diseased kidney.

The paralysis of the lower extremities, in consequence of hepatitis, was first noticed I believe by Mr. Abernethy. He relates a number of cases in which complete paraplegia accompanied inflammation of the liver, in some cases removed at the same time with the hepatitis, and by the same remedies; and in other cases which died, no traces of any disease of the brain or spinal cord could be discovered, while the liver was extensively disorganized. In the following case the connection between the diseases may be more distinctly seen, from the manner in which the paralysis was relieved by the remedies used for the hepatitis.

Miss L., a young lady ætat. 16, was seized in the month of April, 1831, with acute hepatitis, characterized by pain in the right hypochondrium, extending to the right shoulder, great tenderness and enlargement of the right side, loss of appetite, pulse quick, tongue white and furred; there was an exacerbation of the fever every night, and a remission in the morning; the evening exacerbation was accompanied with great pain and a sense of pinching in the right foot. The disease did not readily yield to the usual remedies, and ran into the chronic stage, the same daily exacerbation still continuing, and was accompanied with amenorrhœa and severe pain in the loins; the pain in the right leg became less, and a numbness succeeded, with a loss of the power of motion in this extremity. This took place every afternoon, when she could not walk or otherwise use her leg, and all feeling was nearly lost. These symptoms disappeared in some measure during the morning remission, with the subsidence of the pain in the side and of the fever, the feeling and power of motion returned, so that she could walk during the apyrexia without much difficulty, except that arising from debility. Conceiving that there existed some disease of the vertebræ, or of the spinal cord, I applied cups, blisters and issues to the loins over the seat of the pain, but without the least advantage to the extremity; twenty leeches were then applied to the right hypochondrium, which she refused to permit during the acute stage, on account of the extreme tenderness of the side; they relieved the pain and febrile symptoms immediately, and with these the symptoms of paralysis also disappeared. She had, during the summer, frequent returns of the hepatic symptoms generally every month during the continuance of the amenorrhœa; these were always accompanied with the numbness of the right extremity, and were always relieved by leeches or cupping to the side, or a bleeding from the arm; at all times the paralytic symptoms appeared to be disconnected with the pain and numbness in the back, to accompany the pain in the side, and to be relieved by the same

remedies, and at the same time, with the hepatic symptoms. It was therefore evidently a symptom of hepatitis.

The frequent occurrence of a numbness in the right leg and arm in cases of chronic hepatitis, increasing with the violence of the disease, and disappearing with the pain in the side, must have been observed by every experienced physician, and is to be regarded as a symptom of the disease. Although this seldom amounts to paralysis, yet it shows the connection between diseases of the viscera and other serious nervous affections.

*Enteritic paralysis.*—We now come to the consideration of paralysis as symptomatic of enteritis. Mr. Abernethy, in his work on Local Diseases, describes several cases where inflammation of the intestines was accompanied with paraplegia. The eighth case is a very characteristic one. A female of twenty years of age, had an inability to move her limbs, supposed to proceed from caries of the vertebræ. The disease was paroxysmal; at times she could walk across the floor, and at other times she could not stand. The tongue was white; pulse natural; a slight diarrhœa sometimes occurred, which always relieved the paralytic symptoms, and they returned again as she became costive. Upon dissection the brain and spine were found to be perfectly sound, and the only disease observed was in the abdominal viscera. The chief morbid appearance consisted in an ulcerated state of the villous coat of the ileum. The internal coat of the large intestines was also inflamed. Mr. Abernethy gives several cases in which paraplegia accompanying dyspeptic symptoms were removed by remedies calculated to relieve the disease in the stomach and bowels. The following cases also illustrate this form of paralysis, and may serve to throw light upon the pathology.

Thomas Lynch, ætat. 28, of middle stature, sanguine constitution, and of temperate habits, came to the Almshouse in June, 1835, with complete paralysis of the lower extremities, all feeling and power of motion being entirely lost, so that wherever his limbs were placed, they remained motionless; the sphincters of the bladder and of the rectum were paralyzed, so that his urine and fæces were discharged involuntarily and continually; he complained of a weakness and tenderness of the loins, and uneasiness of the bowels, and there was a constant discharge of bloody mucus oozing from the intestines; there was a tenderness above the umbilical region. The colitis was treated with calomel and opium, and Dover's powder, followed by astringents; and for the paralysis were used the warm bath, frictions with flannel and stimulating liniments; cups, leeches, blisters, and issues were applied to the spine directly over the part where the patient complained of tenderness, and most of the other means were used which are commonly resorted to for the cure of paralysis, but all without any effect. After trying all these in vain, leeches were applied to the epigastric and umbilical regions over the transverse arch of the colon, to relieve the pain and tenderness which he complained of feeling there, and also for the

dysentery, which still continued. The next day I was surprised to find that he could move his legs, which he said he had been able to do the same afternoon after the leeches had been applied. From this time the dysentery ceased, and the sphincters recovered their power. The man appeared so well convinced of the good effect of the leeching, that he asked for it again; they were applied every few days for two weeks, and at the end of this time he walked across the room, experiencing the good effects of this application every time they were used.

The whole history of this case shows that it was a case of inflammation of the colon, accompanied by paraplegia, and having the latter depending upon the inflammation. The inefficacy of the remedies applied to the spine and to the extremities, the absence of all cerebral symptoms, and the immediate relief from the appropriate remedies for colitis, appear to point out the great intestine as the seat of the disease, while the peculiar symptoms of inflammation of the colon were unequivocally present, and were relieved by the leeches. The following interesting case illustrates this subject, and is very peculiar from its paroxysmal character.

An old lady, ætat. 78, who had been in delicate health, and dyspeptic for some time, was observed, on the 20th of August, 1833, after sleeping much longer than usual, to awake with a certain degree of stupor, and complained of feeling very weak. This gradually increased till the 22d, and she then presented the following symptoms. She appeared very sleepy and dull; her eyes were red, and appeared to have lost the power of motion and their sensibility in a considerable degree, though she does not complain of any feeling of numbness; the saliva flows from the left corner of her mouth, and swallowing appears somewhat difficult; the pulse was quickened, her tongue white, and the palms of her hands hot; she complains of no pain or bad feeling except weakness and sleepiness. A cathartic was given internally, and sinapisms were applied to the feet.

23*d*. She appears better; swallows with less difficulty; the fluids are retained in her mouth; pulse natural. Leeches were applied to her temples the same day in the afternoon. The pulse is quicker; there is more heat of the skin; the tongue is furred; the saliva is again running from the left corner of her mouth; she is very somnolent. Blisters were applied to her ancles, and acidulated drinks internally.

24*th*. She has less fever; more command of the muscles of the affected side than last evening, but still very somnolent. 2 P. M.—More fever than yesterday; she is very stupid; does not know her friends; her left arm and leg completely powerless; she cannot swallow; the saliva is constantly running from the left corner of her mouth; her pulse is quick; the skin hot and tongue furred. As the symptoms were evidently paroxysmal, having an exacerbation every evening, nine grains of sulphate of quinine were left to be taken in divided doses through the next day.

25*th*. Apyrexia; pulse natural; skin cool; she swallows, but not without

some difficulty; she cannot raise her arm; she has no pain or distress, and is sleepy, though not stupid as in the afternoon previous.

*26th.* The fever has been very high all this day, and the symptoms of paralysis much increased. A blister was applied to the epigastrium.

*27th.* She is without pain, and all the symptoms are less severe; she is very weak, but has more power over the affected side; she can swallow with less difficulty; she complains of heat in the stomach, and her tongue is covered with whitish aphthous crusts. Acid mucilaginous drinks were given internally.

*28th.* She is better; the tongue is very red where the crusts have fallen off; the inside of her lips is covered with the same crusts, and the mucous membrane of the whole mouth is red where it is bare; she complains of a soreness of her throat and stomach; she can raise her arm nearly to her mouth.

*29th.* She is improving slowly; the crusts have fallen off; her tongue and her mouth are sore wherever they have fallen off; she now swallows without much difficulty; retains the saliva in her mouth, and has more power over her limbs. From this time she gradually recovered; the fever continued daily, with an evening paroxysm, for three days, while the blister remained sore.

This was evidently a case of intermittent paralysis, having an evening exacerbation, and being more severe every second day, the paralysis depending upon the same cause as the fever, as it increased and diminished with it, and was relieved by the same remedies; and the whole course of symptoms show this disease to have depended upon gastro-intestinal inflammation. Boisseau, in his celebrated work on fever, has given us the history of a case of intermittent paralysis presenting many similarities to that given above. The following case is the only one in which I have been enabled to verify the diagnosis of this form of paralysis by dissection.

Ann Masters, ætat. 14, came to the Almshouse in 1837, with chronic diarrhœa, having a continual mucous discharge from the bowels. For this, many remedies had been used in vain. The diarrhœa continued obstinately, and she gradually became very weak in her lower extremities, and at length powerless and benumbed, being completely paralyzed; the sphincters lost their power of acting, making her a loathsome and disgusting object; the mental functions were perfect; she still retained sensation in her arms, the use of her tongue, and all the members of the upper half of her body; she gradually wasted away, and at length died.

The following were the appearances upon dissection. Body much emaciated; legs very thin. The stomach presented some patches of red upon the lining membrane. The colon was also somewhat inflamed, but the great seat of the disease was in the jejunum. The whole jejunum was in a state of high inflammation, the vessels being strongly injected. The mucous membrane was disorganized and pulpy. The spine was particularly

examined, but no disease could be observed in the vertebræ, in the spinal marrow, or in the nerves of the lower extremity, except that they were greatly reduced in size. No morbid condition was observed in the great sympathetic nerve or ganglia. All the other viscera were sound.

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This case clearly shows an enteritis, accompanied with paraplegia, and the only lesion found, was an inflammation of the intestines, the mental faculties being perfect, and the spinal marrow, vertebræ, and nerves being sound.

Mrs. V. S., ætat. 31, of nervous temperament, slender make, light eyes, and fair skin, was seized with bilious fever, after confinement, on the 1st of September, 1840, and after a tedious convalescence, had an attack of dysentery in first part of October. Being called to her on the 8th, she presented the following symptoms. A discharge of bloody slime from the bowels; pain; tenesmus; this was accompanied with a chill at 10 o'clock every morning, and followed by a febrile paroxysm; accompanying the fever the patient was troubled with tonic spasms of the muscles of the extremities, of the neck, face, and part of the trunk; two or three of the fingers of each hand were permanently flexed, while the others were extended during the paroxysm; this rigidity, although subjecting the patient to much inconvenience, was without the pain of ordinary cramps; the muscles of the tongue, of deglutition, of respiration were not affected; during the night these symptoms gradually disappeared, and in the morning were gone, to make their appearance again after the chill. Twenty grains of calomel were given internally; sinapisms were applied to the back and feet.

*9th.* The same; the spasms very severe; the calomel has operated well, and changed the appearance of the alvine evacuations. A blister was applied to the epigastrium, and the following powders given every three hours, calomel grs. ii; pulv. Doveri, grs. v.

*10th.* The spasms less violent, though still continuing; the colitis somewhat relieved, though the stools contained some mucus; the same powders continued.

*11th.* Better; the spasms much less; the symptoms of dysentery have disappeared; the gums slightly sore from the effects of calomel. From this time she quickly recovered.

The spasms were evidently symptomatic of the colitis, and were relieved by the remedies which removed the intestinal disease.

On the 16th of February, 1841, Mrs. V. was seized with dysentery again, but on this occasion instead of spasms, she had a numbness of the extremities; sensation and the power of motion were nearly, though not entirely suspended, in both arms and legs; she was entirely helpless; could not use her limbs, but could swallow or speak without any difficulty, and had command of the sphincter; there were no cerebral symptoms, and the paralysis had been gradually coming upon her for several days above the umbilicus, darting through to the back; a bloody slime was discharged from the bowels,

with tenesmus; she complained of a tenderness of the spine over the lower dorsal vertebræ. Twenty-five grains of calomel, and one of opium, were given internally, and a sinapism was applied to the epigastrium.

11*th*. The calomel has caused some dark-coloured fetid evacuations; the limbs remain in their helpless state. An ounce of castor oil was administered, and a blister applied over the seat of the pain.

12*th*. The bowels have been freely evacuated; the stools this morning are again slimy with tenesmus; the paralytic symptoms rather relieved, though still remaining. ℞.—Calomel, gr. i; pulv. Dov. grs. x, every fourth hour, and a sinapism to the spine.

13*th*. The dysentery appears relieved, and there is less numbness of the extremities; the patient can move her feet and use her hands. The same powders continued.

14*th*. The bowels appear in a better state; the discharges are of a more healthy appearance; the tenesmus has disappeared; there is a considerable tenderness over the umbilicus, and the paralysis still continues. Tartar emetic ointment was rubbed over the spine along the lower dorsal vertebræ.

16*th*. The back is very sore from the effects of the ointment; the pain appears relieved, and the paralytic symptoms are alleviated. She can walk across the floor with some assistance, and can use her hands.

18*th*. She is better; the numbness has nearly disappeared; the back is very sore. From this period she rapidly recovered the use of her limbs, using some mild tonics.

This was evidently a case of colitis accompanied with paraplegia. The symptoms of paralysis were preceded by, increased with, and were relieved by the same means as the inflammation of the great intestine. The total absence of all cerebral symptoms, the want of any aberration of the intellectual faculties, and the gradual manner of the attack show that the seat of the disease was not within the cavity of the cranium; and lest it might be supposed that the seat was in the spinal chord, from the pain in the back and from the effect of the counter-irritation applied over the spine, it should be recollected that the paraplegia extended to the upper extremities, the origin of whose nerves is far above the lower dorsal vertebræ, and that a counter-irritation to this part of the spinal column is often the most effectual mode of relieving the chronic inflammation of the stomach, and sometimes of the intestines.

The pathology of paraplegia has been the subject of much argumentation. The paralysis of the lower extremities was formerly considered as depending upon a diseased state of the spinal cord or nerves; but of late, many distinguished pathologists have contended that it originated in some part of the brain. Baillie, Abercrombie, Cooke and others contend for this position. There can be no doubt, however, at present, that paraplegia often arises from both causes—as dissection has discovered disease in some cases in the brain, in others in the spine. But as there are cases in which no

morbid appearances have been discovered in the brain, spine, or in the nerves, we are led to look for the seat of the disease in some other part. There is a very marked distinction between the symptoms of paralysis as proceeding from a morbid state of the brain and from other causes. Dr. Baillie observes, that there is always more or less disturbance of the intellectual faculties; the memory is impaired, and the organs of the senses are deficient in power. Frequently the sight of one eye is lost; the tongue becomes feeble in its motion. Dr. Calmeil, who examined a great many cases of this kind, considers it a thing impossible that the reason should long remain untouched in general paralysis where the brain is profoundly affected.

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An extremely interesting memoir upon this subject will be found in the American Journal of Medical Sciences (Feb. 1835, p. 299) by Dr. Waddel, of Tallahassee, who relates a case of paraplegia in which there was a complete paralysis of the lower half of the body attended with symptoms of diseased bowels. Dissection showed the spine and its contents sound. The mucous membrane of the stomach and intestines was highly inflamed, and the intestines contained a yellow pus. The duodenum was perforated by an ulceration half an inch in diameter.

Dr. Waddel considers this disease as residing in the sympathetic nerve, its branches and ganglia. This memoir shows that he has carefully examined the subject, and his arguments are very ingenious. He supposes the nervous system of the intestines highly inflamed, and in consequence of its exalted state, the conducting capacity of the sympathetic nerve was so elevated by disease as to divert the nervous principle from its proper destination and spend it upon the intestines. This argument, though ingenious, is unfortunately not based upon facts and post mortem observations.

In the very case which acts as the foundation of Dr. Waddel's argument, he could find no trace of inflammation of the sympathetic nerve; none was observed in the case of Ann Masters mentioned above; and in all the cases recorded by Mr. Abernethy and others that I have been able to find, there was observed no morbid state of the apparatus of the sympathetic nerve, while in every case there was found an inflammation or ulceration of the intestines. The very argument used by Dr. Waddel may be used against himself. For if it is fair to infer from the absence of all morbid appearances upon dissection in the brain, spinal cord, or nerves, of the absence of any disease in these organs, it is equally fair to infer from the absence of all morbid appearances in the apparatus of the sympathetic nerve, of the absence of all disease in these organs.

Lobstein, in his interesting and learned work upon the sympathetic nerve, has described many cases of inflammation of the ganglia and of organic diseases of this nervous system, but there is only one case in which these morbid changes were attended with paralysis, and in that case there was caries of the vertebræ.

It is therefore much more rational to consider the disease as enteritis, the paraplegia as symptomatic of the visceral inflammation, and the sympathetic nerve through its spinal branches the means of communication of this morbid action to the spinal apparatus. As the cerebral and spinal nerves are the nerves of voluntary motion, and the office of the sympathetic is visceral, being chiefly concerned in producing involuntary or organic motion, it is not rational to suppose that a morbid state of the sympathetic nerve would cause an entire suspension of all the functions of the spinal nerves.

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Besides, in all these cases the hollow muscles supplied by the branches of the intercostal nerve were not paralyzed, but only the muscles of voluntary motion which are supplied by the spinal nerves.

The reasons for believing this species of paralysis as sympathetic of enteritis may be briefly summed up as follows:—

1. The inflammation always precedes the paralysis, and often for some time. This took place in Dr. Waddel's case, in all the cases of Mr. Abernethy, and in all the cases observed by myself, the diarrhœa preceded the paraplegia.

2. From the absence of all morbid appearances upon dissection, the nervous apparatus appearing sound.

3. From the inutility of all remedies applied to the spine, to the brain, or to the general nervous system.

4. The remedies which gave most relief were those which relieved the inflammatory symptoms.

The diagnosis of this form of paraplegia may be attended with difficulty. But it may be distinguished from cerebral paralysis by the absence of all symptoms of diseased brain. From the paralysis arising from a disease of the spine by the absence of the severe pain, and tenderness upon pressure in a diseased state of the vertebræ, by the existence of visceral inflammation, by the effect of remedies used for enteritis, and by the gradual manner of its approach.

The practice which I have found most successful is that calculated to subdue the inflammatory symptoms.

Bleeding general and local to subdue the phlogosis, accompanied by evacuants, followed by mercurials when these symptoms abate, to change the morbid secretions, and, by counter-irritation, to divert the inflammation. When the inflammatory symptoms have somewhat subsided, strychnine forms an excellent and valuable remedy in paraplegia. Having used this substance very extensively, I would observe that it is of most use in paralysis which is symptomatic of visceral irritation. The nux vomica has been often used and highly recommended by European physicians in chronic dysentery and other diseases of the bowels, and therefore a part of the modus operandi of strychnine may be its effect upon the visceral disease, but it also certainly has an effect upon the nervous system independently of any remedial effect in enteritis. This is proved by its effect in cerebral and

spinal paralysis. Its beneficial effects here, though not as manifest as in some other varieties, are in some cases very well marked, while in others no benefit can be perceived. In paralysis, arising from the deleterious effects of lead, it is often a powerful remedy. In every case it should be given in small doses until its peculiar effects are produced upon the brain, when it should be discontinued for a short time until these effects have passed away, when it may be again administered if necessary.

FLATBUSH, *June 3d*, 1841.

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ART. VI.—*Case of Congenital Hare-lip; double, with both fissures extending through the roof of the mouth and palate.* BY N. S. DAVIS, M.D., of Binghampton, N. Y.

I WAS called, November 21, 1840, to see a boy five weeks of age, healthy and well formed, with the exception of the upper lip, jaw, and palate. Each nostril opened directly into the mouth throughout its whole extent, dividing the lip on each side, together with the bones and soft parts, which form the roof of the mouth, and palate: the uvula was divided also near the centre; the partition between the nostrils was complete, and had attached to it in front that part of the alveolar process which contains the rudiments of the two front teeth. This part of the jaw, which also contained a small triangular piece of lip, projected forward even with the end of the nose, to which it firmly adhered. This projection separated the small piece of lip at least one inch from the corresponding edges of the lip on each side; consequently it was impossible to bring the several pieces of the lip in contact without using unreasonable force. Indeed so wide was the separation, and so firm was the position of the middle piece, that the attending physician had informed the parents, that nothing could be done unless the middle piece of the lip and jaw was entirely removed, and the two lateral halves brought together. The child was unable to nurse, and it was with some difficulty that it took any nourishment, owing to the facility with which everything passed from the mouth to either nostril. The opening through the roof of the mouth and palate, on one side was one quarter of an inch in width, the other was equally extensive, but considerably narrower. One tooth had already appeared in the middle piece of the jaw, and was quite loose. Knowing that if the parts were left in this position until the child was one, two, or more years old (as directed by many surgeons), the bones would be so firm as to render it difficult, if not impossible to so depress the middle piece that the several parts of the lip could be united together; or even if union could be effected, still the pro-

jection of the alveolar process and front teeth would produce a very unsightly appearance; and that the fissures also in the roof of the mouth would be much less likely to close, I determined to operate at the earliest practicable period. As the first object was to so depress the projecting part, that the different parts of the lip could be readily brought in contact, I immediately made an incision two or three lines deep, separating the projecting part from the end of the nose; it bled profusely for a moment, but soon ceased. A small compress and bandage was then applied with moderate firmness; and secured in its place by tapes fastened to it, one by the nose and the other at the occiput, and then tied over the top of the head. By this means more or less pressure was almost constantly kept up for several weeks, the projecting portion strongly receded, until the edges of the lip on each side could be brought into contact with the middle piece, with tolerable ease. But in the mean time the parts became irritable, and slightly ulcerated; consequently simple dressings were applied, and the bandage used only occasionally, to retain the parts where they were. The child continued healthy, and the fissures through the roof of the mouth gradually filled up. About the age of six months, the ulcers having all healed, and the parts appearing free from irritation, I proceeded to perform the operation for a final cure. The surgeon whom I had expected would assist me, not being at hand, I undertook the operation alone. The child was placed in its mother's arms, with one or two assistants to hold the head, &c. The operation was commenced by making free incisions with the scalpel, to separate the lateral edges of the lip from the alveolar process of the jaw; these incisions were carried under the alæ or wings of the nose so as to allow the lip free play. The separated edges of the lip were then removed with a sharp pair of scissors, and the raw surface extended by carrying the incision into the floor of the nostrils, denuding the separated surfaces of the jaw with the scapel; the divided vessels bled freely, but a moment's pressure with the finger was sufficient to stop them. The assistant at the head was now directed to compress the cheeks in such a manner as to bring the cut surfaces of the lip as near in contact as possible, and after removing the clots of blood, two simple sutures were introduced, one close to the nose, and the other near the lower edge of the lip. The needle was passed directly through the middle piece in both instances, and the ends brought together and tied as though there was but one division in the lip. This brought the separated edges of the lip in contact, and kept them so in a perfect manner. The pressure on the cheeks was kept up by means of firm compresses, secured in their places by a sort of cap, with a narrow bandage passing from behind forwards, and another from the four corners, down under the chin. The lip was then secured against all motion from laughing, crying, &c. On the second day the child was slightly feverish and the lip considerably swollen; ordered castor oil to move the bowels. Third day, child well and playful; lip still some swollen; oil operated mildly. Fourth day, child still

well, bowels regular. While the compresses were held in their places by the hands of an assistant, the front part of the bandage was removed, and the stitches which had began to cause some ulceration around them were removed. Union by the first intention had taken place throughout. The bandage was replaced and the dressings worn four days longer, when they were thrown aside altogether; the lip having become entirely healed, to the great gratification of the child's afflicted parents. And now, one month after the operation, the deformity arising from the projection of the middle portion of the upper jaw is very slight; the upper and under lips shut together well; one of the upper incisor teeth have appeared and takes a good direction, and the fissures in the roof of the mouth have so far closed that very little food or drink now passes into his nostrils. The child is so young that the external scars will show but little after a few years.

I have had two principal objects in view in publishing the above case. 1. To add another fact to the already abundant testimony, that the use of pins or the twisted suture, which I find is still extensively practised in this country, is unnecessary even in the worst forms of hare-lip; and that the common interrupted suture is simpler, causes less irritation, is less liable to accidents, and is equally safe and effectual. 2. That it is not always best, particularly in bad cases, to delay operating until the child is one or two years old, as recommended by many. If the case detailed above had been neglected until the bones composing the roof of the mouth and jaw, had become dense and ossification complete, it would have been wholly impossible to so far reduce the projecting portion of the jaw, as to render its appearance even tolerable.

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ART. VII.—*Cases of Injury of the Head.* By A. B. SHIPMAN, M. D., President of the Cortland County Medical Society.

CASE VII.* *Fracture of the Cranium and laceration of the Dura Mater, with loss of a portion of Cerebral Substance—Operation—Recovery.*—Miles G. Hopkins, ætat. 7, of this town, was kicked by a horse May 12, 1839. The toe cork hit him beneath the eye on the right side of the face, cutting to the bone, while the heel cork struck him upon the left side of the frontal bone, one inch and a half above the superciliary ridge. He was taken up entirely insensible, and carried into the house. Dr. John B. Benton first saw him, and when I arrived an hour or more had elapsed: at this time he had partially regained his senses; had vomited once. There was

* The first six cases were published in the preceding No. of this Journal. These here related did not reach us in time for insertion with the others.—ED.

a small wound in the scalp where the cork entered, which was filled with coagula and brain, which gushed out when the patient struggled, while I was making an examination of the wound. With a bistoury I enlarged the wound in the scalp in two directions upwards, in the form of a letter V, and raised the triangular flap. This gave an opportunity for raising the bone which was fractured and comminuted. The dura mater was lacerated and the bone extensively depressed. Twelve pieces of loose bone were removed with the forceps, and the depressed edges of several others raised to their proper level with the elevator. There was much hemorrhage during the operation from the lacerated vessels of the brain and dura mater, nor did it cease until the scalp was laid down and the dressings applied: there was also some escape of portions of cerebral substance, in all perhaps two teaspoonfuls. The patient was now cold; the countenance livid, respiration was performed with difficulty, pulse scarcely perceptible. He was placed in bed, some warm wine given him, bottles of hot water to his extremities, and sinapisms of mustard to his wrists and ancles. This was at 5 o'clock, P. M.; at 12 some slight reaction, but his sleep was profound with laborious respiration.

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13*th*. Reaction has taken place, with a quick hard pulse, hot dry skin, eyes much swollen and ecchymosed, pupils contracted. Rational, answers questions, complains of much pain in the forehead. Bled him ℥x, gave a cathartic of jalap, which operated freely in the course of the day.

14*th*. Less fever than yesterday, but more swelling of the face and eyes; is rational; severe pain in the head, which is very hot; pupils cannot be examined from ecchymosis of lids. Antimonials, with cold applications to the forehead.

15*th*. But little fever, yet complains incessantly of the pain in the head; face and eyes much swollen. Apply blister to nape of the neck, cath. of ol. ricini, continue cold applications to the head.

16*th*. No fever, but swelling of face and eyes continues; calls for food; his diet thus far has been gruel.

17*th*. Is clamorous for food, wishes to sit up; but the erect position causes nausea and dizziness; swelling of the face subsiding; and a profuse discharge from beneath the dressings.

18*th*. Sat up a while in bed, is playful; calls for food; from this time, nothing peculiar occurred, he improved rapidly, the wound was dressed on the tenth day from the injury; a profuse suppuration continued three weeks, when the wound healed, and the patient was apparently as well as before the accident, and continued so until the 15th of August following, when he was struck with the tongue of a hand sleigh with which he was playing, directly upon the cicatrix, tearing it completely open and causing a profuse hemorrhage; it did not however lay him up at the time, but ten days afterwards he was seized with a powerful rigor, which lasted two hours followed by violent reaction, and profound coma; the pupils were fully dilated and

insensible to the stimulus of light, slow pulse, and laborious respiration. I bled him ℥xv, gave a cath. calomel and jalap, cold to the head and sinapisms to the extremities. In the course of the night the urine and fæces passed off involuntarily, nor could he be roused to consciousness. The next day there was less fever, but he was delirious, with picking at the bed-clothes and jactication, the pupils continued dilated, the wound on the head discharged a thin unhealthy sanies, with a puffy swelling of the scalp. A large blister was applied between the shoulders, and smaller ones to the calves of the legs. On the day following there was some improvement in the general symptoms, was more rational, and from this time the amendment was gradual. A more healthy suppuration took place in the wound, which did not heal entirely until December, during which time several small scales of bone exfoliated and discharged; he has had no relapses since, has grown finely, attends school, improves in his studies equally well as before the accident, nor does his intellect appear to have suffered in the least.

I have since remarked some phenomena in this case, which are somewhat interesting in a physiological point of view. There is a complete obliteration of the sense of smell in the left nostril, the most pungent odours cannot be recognised when the right nostril is closed and held to the left; yet the sense of touch is as perfect as in the other. By placing the finger on the cicatrix violent spasmodic twitchings of the eyelids immediately take place, which continues as long as the pressure is applied. This was a case where the injury was of a local nature extending but a short distance from the parts immediately wounded. There was undoubtedly considerable inflammation following the injury, but this too was of a local character, involving the tissues to a very limited extent; the suppuration which was profuse, found a ready outlet from the free opening in the cranium. These circumstances, together with the age and excellent constitution of the patient, account for the speedy and perfect recovery which followed.

The second injury must have broken off some small fragments from the edges of the fractured bones, as their subsequent exfoliation clearly indicated.

Case VIII. *Fracture with depression—laceration of dura mater—Trephining—Recovery.*—Thomas Parker, of Marathon, in this county, ætat. 22 years, while chopping wood, was struck by a large limb, which fell a distance of forty feet, upon the right side of the head; he was found a few minutes afterwards in an insensible state, and continued so while he was conveyed home, a distance of 150 rods; this was at three o'clock P. M., April 7, 1840. Soon after he was carried home he began to show signs of returning consciousness, vomited freely several times, conversed rationally with his friends, but soon relapsed into an insensible state. Dr. Barnes was called, who bled him a small quantity. I saw him at eleven P. M., eight hours from the time of the accident; he had been comatose six hours, with stertorous breathing, cold extremities, and slow pulse. By violent shaking

he could be roused to partial consciousness, but immediately relapsed into stupor. On examining the wound found an irregularly contused and lacerated wound of the scalp over the posterior and upper portion of the right parietal bone. The scalp was much tumified and infiltrated for some distance around the injury, the face was swollen and ecchymosed, so much as to close the eyes. As the laceration of the scalp did not admit of examining the state of the cranium with facility, an incision was made uniting in one continuous wound several ragged openings, which were in a line with each other. This was nearly in a straight line and parallel with the sagittal suture forwards towards the os frontis. At the bottom of the wound three fissures were discovered, one which appeared wider than the rest traversed the bone diagonally downwards and forwards, towards the temporal ridge, the fissure growing wider as it advanced; posterior it did not extend into the lambdoidal suture. The two other fissures were not more than an inch in length extending from the principal fissure upwards and forwards towards the other side of the head. The portion included between these two was much depressed. As the symptoms of compression were urgent, I applied a small sized trephine near the angle where the two fissures met. On removing the trephine the external table came away in the hollow of the instrument; on examining the inner table it appeared detached and loose, and pressure caused it to sink upon the dura mater. The instrument was applied a second time to the other angle of the fracture, and the outer table removed as before; then with the elevator the depressed bone was restored to its proper level, and a portion which was loose removed. This enabled me with the forceps to remove the detached portion of the inner table; which was an inch long and ten lines broad; beneath this was a coagula an inch broad, and two lines in thickness, which was also removed. Another small piece of the inner table was found loose, and carefully removed from beneath the piece from which it was detached. The fissure that extended towards the temporal bone was next examined. It was separated so as to admit the blunt end of a probe with blood oozing from it, and a laceration of the dura mater was discovered, commencing where the trephine was first applied, extending along immediately below the fracture as far as could be prudently examined. As the fracture extended towards the temporal bone it became more widely separated, and the hemorrhage from this opening was very profuse. The patient had been nearly insensible until the removal of the bones and coagula, when he became sufficiently roused to speak, appeared rational for a short time, but soon fell into a dozing state, from which however he was easily roused. The wound was now dressed by bringing the flaps together, and retained by adhesive plaster, with a night cap upon his head which was elevated, sinapisms to his extremities, with bottles of hot water to his feet. In the course of an hour his pulse became very rapid and weak, 140 per minute, the surface was cold, with a pale sunken countenance. This continued until four P. M. twenty-five hours

after the accident: after this, partial reaction came on with stupor and delirium.

*8th.* A cathartic of calomel and jalap was given which operated freely in the course of the day.

*9th.* Reaction came on, with a pretty strong pulse, with heat of skin and flushed countenance; eyes closed from ecchymosis into the lids; frequently starts; is restless with delirium; venesection to ℥xx, cold ice water to head, antimonials, gruel for diet.

*10th.* Continues in nearly the same state, gave a cathartic of calomel, followed by ol. ricini, epispastic to the back of the neck.

*11th.* Much fever with delirium; restlessnes, hot skin, quick hard pulse, wound discharges freely. Venesection ℥xvi; calomel gr. ii, ipecac. gr. iii, to be given every two hours, solution of tart. ant., crem. tart., with gruel for diet, blisters to the calves of the legs, continued cold applications to head.

*12th.* Calomel acted freely on the bowels, blisters drew well: yet the febrile action runs high, delirium continues, suppuration from wound so profuse as to loosen the adhesive plaster; continue calomel and ipecac.

*13th.* Less fever, is greatly disturbed by noises, eyes closed by the ecchymosis, delirium with startings continue; continue the same medicines, epispastics to the arms.

*14th.* Less fever, but is still delirious; restless; pulse not as frequent; bowels act freely from the calomel and ipecac. Continue the same treatment.

*15th.* Delirium continues, but the fever is daily diminishing; ecchymosis about the face and eyelids subsiding; pupils strongly contracted; blisters discharge profusely; wound suppurates freely. Continue the antiphlogistic regimen.

*16th.* Fever still diminishing; delirium continues; is impatient of light and noise; tries to get out of bed; pulls the dressings from his head. Apply a large blister between the shoulders: cathartic of sulphate of magnesia.

*17th.* Is more calm and quiet; but little fever; answers questions rationally; bowels moved freely through the night; blister drew well.

*18th.* But little fever; is rational; inquires for the first time for food; his gums are a little swollen, and a mercurial odour is perceptible in his breath; wound dressed and cleansed for the first time; has united, except a small portion from which a copious discharge of pus issues; says he has no recollection of anything which has transpired since the day he was injured.

The patient recovered his health perfectly without any other bad symptoms, and is at this time, (more than a year from the accident,) as well as usual.

In this case we had a strongly marked one of compression following a period of concussion. The short interval of consciousness immediately followed by stupor, rendered the diagnosis sufficiently obvious. The termination of the case was fortunate, as the nature of the injury led us to apprehend effusion not only under the immediate seat of the injury, but also at

the base of the brain. The inflammation which followed was severe, but a perseverance in the antiphlogistic course arrested it.

Case IX. *Fracture of Skull by bursting of a gun—Death.*—Lewis Crane, ætat. 21, of Solon, while engaged in *waking up officers* at McGranville in this county, on the morning of the 9th of September 1840, burst his musket, and a large fragment of the barrel struck him on the left side of the head, at the outer angle of the superciliary ridge, lacerating the scalp, and breaking the skull obliquely upwards, and towards the right side for more than six inches in length. I saw him three hours after the accident. Dr. Wiggins of McGranville was in attendance, and had removed several pieces of bone, including some small fragments of the orbitar plates.

The patient at this time was sensible, answered questions when spoken to, but was rather obtuse in his faculties.

On examining the wound found the skull extensively denuded of scalp, and a fracture extending from the outer angle of the superciliary ridge upwards and towards the right side for the distance six or seven inches. There were two other fissures which were irregular in their direction, one passing toward the temporal bone, and the other to the right. There was much depression of the bone, and the edges of the fracture overlapped each other.

From the lower part of the wound several loose fragments of bone were taken away with the forceps. One piece included most of the superciliary ridge and a portion of the orbitar process of the frontal bone. On tracing the fracture upwards, it was ascertained that some portions of the inner table of the bone were detached and lying loose upon the dura mater. And as they could not be extracted without fear of lacerating the dura mater, the trephine was applied near the coronal suture over the fracture, and a disc of the outer table removed. From this opening two loose fragments were extracted more than an inch in length and half an inch in breadth.

The depressed edges of the fracture were elevated to their proper level, the wound sponged, and the irregularly torn and lacerated scalp laid down as accurately as possible, and one or two sutures to retain the angles; adhesive plasters and a nightcap completed the dressings. The patient was completely sensible of the operation; the pulse was calm and regular. A profuse warm perspiration broke out, and he expressed himself as comfortable. Arrangements were now made to transport him to his father's residence, (a distance of three miles,) and while placing him in the carriage on a bed, he vomited freely, for the first time, and this was repeated several times while being carried home. The perspiration continued profuse until midnight when reaction came on with a hot dry skin, strong and hard pulse. Dr. Wiggins saw him at one o'clock A. M. on the 10th, and bled him 32 ounces, gave a cathartic of calomel and jalap, which operated freely in the evening. At six P. M., my partner, Dr. Daniel Havens, saw him in company with Dr. Wiggins; reaction was high; pulse strong and hard, with

much heat of skin; considerable stupor, but answers questions readily when spoken to; complains of his head; is extremely restless. Venesection again to 16 ounces; antimonials and saline medicines freely; cold applications to the head, and sinapisms to the extremities.

11*th*. Morning.—Delirium with complete hemiplegia of the right side, and constant motion of the left; will answer questions rationally when roused; much fever, skin hot and dry; pulse frequent and weak. A free and profuse suppuration has taken place in the wound. Evening.—Fever continues; delirium and stertorous breathing.

12*th*. Morning.—Complete dilatation of the right pupil, and contraction of the left; stupor; coma; constant motion of the left side; pulse weak and rapid. Death at one o'clock P. M.

*Post mortem* by Dr. Wiggins.—As the friends of the young man were not willing that a thorough examination should be made, the doctor merely examined from the wound, which was sufficiently extensive to observe probably all the morbid changes which had taken place. He found that a fissure had extended into the temporal bone, and also into the parietal, and far back into the orbitar processes of the frontal.

The *dura mater* was highly inflamed, particularly near the lower part of the wound, and was very red and vascular as far as could be seen. On laying the membranes open, pus well formed flowed out to the amount of a wineglassful or more, mixed with portions of softened and disorganized brain. No effused blood was found above or beneath the dura mater. All the anterior and left lobe of the cerebrum appeared broken down into a soft and disorganized mass mixed with purulent matter.

The early period at which inflammation developed itself in this case, and the rapidity with which it took on the suppurative process was somewhat peculiar. Great injury was undoubtedly done to the cerebral substance beneath the membranes at the time of the accident; and it is somewhat surprising that no effused blood was the result of such severe contusion. Paralysis came on in about 48 hours from the time he was wounded, and no doubt arising from suppuration and disorganization of the brain, the result of inflammation. Reaction came on within 24 hours with well defined symptoms of inflammation, and in less than 24 hours more it is probable suppuration had taken place with a rapidity of action not to be anticipated. The symptoms were promptly met at their first appearance by copious depletion and other antiphlogistic measures, but without the least apparent mitigation of their violence. The period at which inflammation supervenes upon injuries of the head is extremely varied, and their progress and termination also differ as widely. We see in case first (that of Fox,) a severe organic lesion of the membranes and substance of the brain followed by no signs of inflammation, as the *autopsy* verified. So also in case eight, (that of Thomas Parker,) inflammation was developed early, but it was probably confined to the meninges of the brain.

Cortlandville, *June* 8*th*, 1841.

## Art. VIII.—*On the Yellow Fever at Key West, East Florida.* By C. C. Dupré, M. D.

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The peculiar geographical situation of this Island is now so well understood, that it is deemed unnecessary to say more than will serve to correct the erroneous impression that it contains within itself, or upon its surface, that condition of things which is usually supposed to create fever. Instead of its being "a low, marshy cay, whose soil and climate nearly resemble those of Surinam," Key West is in lat. 24 26 N., on the Gulf of Mexico, and is of a recent limestone formation, thinly covered with a stratum of decomposed vegetable matter; and is so dry, that cattle annually perish on it for want of water. Its climate may be considered the most equable under the government of the United States. The results of the most careful observations throughout a series of years, show that the mercury is confined to a range of about 40 degrees, that the average temperature is about 75° of Fahrenheit, and that it is exempt from the extremes of heat and cold which are experienced throughout the United States. As throughout the West Indias generally, it has its wet and dry seasons; the former commencing about the 1st of July, and terminating about the middle of October; during which time there is generally a fall of about thirty-two inches of water. It is situated immediately in the track of the trade winds, and in every point of view is, decidedly, the best location for health upon the Gulf of Mexico. The above statistics are politely furnished by a gentleman residing for many years at Key West; and may aid in producing a more correct impression of its climate than is now entertained. Soon after Com. Porter, with our West India squadron, established his rendezvous here in 1823, the yellow fever appeared, and proved so fatal to his forces, that he was compelled to abandon it and remove to Pensacola. At that time, as is now the case, vast quantities of sea weed were deposited upon the beach, and its decomposition was assigned as one of the causes of the disease; and the attention of some intelligent physicians, among whom were Doctor's Hofman and Williamson appointed by our government to examine and report upon the causes of the fever at Key West, was drawn to this subject by Com. Porter. When a quantity of this weed is thrown upon the beach, its exposure to the sun, and the decomposition of the animalculi with which it abounds, creates an "acid cattiva" exceedingly offensive, and the south wind carries it over the town; and this perhaps is the cause why the old inhabitants of the place complain of headache during the prevalence of this wind. I will leave others to determine the influence of this agent in the production of continued fever. I am aware that the profession at large listen with distrust to the assignment of such a cause as even a participant in the production of continued fever; Magendie's experiments with the lower animals, in which

he produced an affection bearing considerable resemblance to the typhus of the human species, together with the results adverted to in the *Mem. de la Societé Royal de Medecine*, i, 97, admonish us not to dismiss this suggestion too hastily.

I understand that from the period alluded to, until the present time, the Island has continued healthy, with the exception of the summer of 1829. On my arrival here in May last, I believe there was not a case of disease on the Island; but the old inhabitants, and the intelligent resident physicians, assured me that the season had been unprecedentedly dry and hot, and that they apprehended a sickly summer. A circumstance which I learned considerably increased their apprehensions, was the discovering of myriads of flies dead upon the shores: and a similar event, they assured me, had characterized the advent of the yellow fever here in 1829.

These apprehensions were soon realized. Early in June I was called upon to visit a seaman who had been sent ashore from a vessel in the harbour, on board of which he had been taken sick that morning. He was a robust young man, of sound constitution, but had recently indulged in frequent intoxication. I may here remark, that upon the authority of Sir W. Pym, an idea generally pertains, that this fever commences, in most cases, during the night, (according to Dr. Smith, in four cases out of five;) but my own experience, during a practice of some years in the West Indies, does not sustain it. The patient complained of great pain in the right side of the head, and in the back and legs; his countenance was much flushed; the eyes were yellow, unusually prominent, and of a dull heavy expression, accompanied by a dilatation of the pupil; the pulse was full, hard, and considerably accelerated; and the skin was very warm and dry; there was some epigastric tenderness, a continued irritation of the stomach, and a spasmodical affection of the abdomen and legs; he was exceedingly restless; his respiration rapid, irregular, and accompanied by sighs, and a tendency to throw the arms above the head; the tongue was flattened, pointed, the edges marked by a deep red border, having the appearance of raw beef, as if the blood were about to start from it, and only slightly coated with whitish brown fur. My experience, throughout a practice of some extent in hot climates, left no doubt on my mind that these were the initial symptoms of the vomito prieto, or yellow fever of Cuba, and that unless the most prompt and efficient course were at once adopted, it would rapidly progress to a fatal termination. I have ever found the antiphlogistic the safest and most successful practice, and its extraordinary efficacy in the treatment of the yellow fever in Cuba, during the present season, confirms me in the opinion which I have formerly expressed, that this is, in every instance, in warm climates, an inflammatory disease, becoming putrid as it advances; and that the antiphlogistic treatment should be vigorously resorted to. I accordingly took from this patient about forty ounces of blood, and administered to him thirty ounces of olive oil, in three doses during the first

three hours. In addition to this, I permitted him to drink as much pine-apple water as he thought proper, this being considered by many of the best physicians of Cuba as anti-febrile, besides which it is very grateful to the patient. It has always seemed to me important to counteract the irritability of the intestinal canal, and of the stomach, produced by an accumulation of their contents, by the use of those medicines which are least likely to offend or to irritate; and of all those, I consider olive, or almond oil, the least liable to objections.

The purgatives generally used are unsafe in this disease, in consequence of the irritability which, in ninety cases out of a hundred, affects the stomach, but the almond oil is the mildest, perhaps, that has been resorted to, and may at all times be freely used. In addition to this, I have known physicians in the first stage of the disease, to administer lime juice slightly diluted, with the happiest effect, but am unable to speak of it from personal experience. The patient in question, after taking the third dose of oil, and drinking freely of the pine-apple water, had a copious evacuation; his restlessness and excitement gradually subsided, the pulse and eyes were more natural, and the whole tone of the system was improved. No exacerbation took place during the night, and on the following morning his symptoms were in every respect favourable; the skin was soft, moist, and of moderate temperature; the perspiration free, the urine high coloured, and the prominence and yellowness of the eyes were disappearing. I administered ten ounces more of oil and left him, and on the third day he was entirely free from disease.

By far the greatest number of cases occurred during a period of ten days in July, when the mercury stood generally at 88° during the day, and at 80° at night, and when the trade winds were light or almost imperceptible.

During this period the efficacy of the treatment which has been recited was fully tested. In one case the patient first complained of a severe pain in the right arm and shoulder; he soon after became chilly and nervous, had pains in the back and legs, and his face and breast were marked by dark purple blotches. These symptoms he considered premonitory of the ague and fever, as he had been formerly afflicted with this disease. The fever and partial delirium succeeded immediately; the eyes and skin became yellow, the tongue pointed, flattened, slightly coated with a brown fur, somewhat resembling the first appearance of the black vomit, and marked on its edges by a deeper tinge. The pulse was strong, full, accelerated, and the skin dry, and he complained much of pains in the head and eyes. The friends of the patient had him bled copiously, and administered during the first 24 hours 60 grains of calomel in divided doses, assisted by enemas. This however failed to produce any mitigation of the disease; no operation had been produced; the irritability of the stomach still continued, the eyes were protruded, watery, and discoloured; there was great epigastric tenderness and pain in the region of the præcordia, and the mind was wandering. At

this stage, when the life of the patient was despaired of by his friends, I was called in. I applied six leeches at once to the temples, and two to the back of the neck, and prescribed ten ounces of almond oil, and the anti-febrile drink of cold pine-apple water—directing at the same time the patient to be kept well covered and his room closed. After taking the second dose of oil an evacuation took place, and the stomach and head were gradually relieved. During the following six hours his stools assumed a bilious and favourable appearance; the leeches were withdrawn; the head was entirely relieved; the senses were partially restored; the pulse maintained its strength; the skin became soft, moist, and its temperature moderate. During this period the patient drank plentifully of the pine-apple water, and continued to do so until completely restored.

The American and English physicians throughout the West Indies, use calomel freely in doses of from 20 to 30 grains, and this practice has been resorted to here with success. The obstinacy of the disease, however, particularly in feeble constitutions, or those previously impaired by sickness, not unfrequently resists its operation; and though dose after dose be administered, aided by enemas, the patient gradually sinks, inflammation of the præcordia and the mucous membrane succeeds, then come subsultus tendinum, coma and singultus, dark evacuations, the vomito prieto, and death. Where the constitution is unimpaired, and the disease taken hold of in time, I have rarely failed, by the aid of the lancet, olive oil, and cold anti-febrile drinks to obtain the control of it in 36 hours.

Since the first appearance of the yellow fever here, twenty-six have died out of a floating population of about three hundred and fifty, and in almost every one of these cases, the patient was not brought under the control of the physician until the disease had become well established or until it advanced to its second or last stage, and a great majority of those who died were of irregular intemperate habits. In these cases the initial symptoms were always violent, and defied the lancet, calomel, and all antiphlogistic treatment.

One singular feature of the disease is, that it has not attacked a single old inhabitant of the Island; but has been confined exclusively to strangers; and this too, notwithstanding the former have been unremitting in their attentions about the sick bed, to the dying and the dead. Nor can we seize upon a single fact to support the theory of contagion, but every one tends to establish the opposite doctrine. I am aware that the facts adduced by Stevens, Chisholm and others go far to sustain the contagious character of this disease; but my impressions are decidedly in support of the views of Dr. Chervin, who has most ably investigated and treated this subject.

It is a well established fact, that when the yellow fever appeared in New York in 1819, and the board of health cut off all communication with the infected district, by barricading it, and by other precautionary measures, the disease did not spread, but was confined to a small portion of the city; and

that those who were removed from the infected part of the city, with the fever upon them, recovered and did not communicate it.—It is also well known that the yellow fever exists every summer among the shipping in the harbour of Havana, and that though daily and hourly communication is had with the shore, there are few places in the West Indies so healthy as Havana.

Though much has been written upon the local and essential features necessary to produce yellow fever, no satisfactory result has yet been obtained; nor will the causes of its origin be ascertained with any degree of certainty until medical topography shall be more earnestly attended to by the profession. A brief view of the features of a limited number of places will show that the well understood causes of other fevers can have but little to do with the production of this.

The town of Galveston is situated upon the eastern extremity of Galveston Island, immediately adjoining the inlet of Galveston Bay. This Island is a low beach of pure silex covered with grass, which is annually burned. A few creeks or inlets from the sea exist throughout its whole extent of 30 miles, but there are no still lakes or pools of water, or any feature which might generate marsh miasma.* This town was settled in 1835 or 1836, and the yellow fever has already visited it twice.

St. Augustine, Florida, is built upon a tongue of land, one side of which is against the sea, and the salt water passes around in creeks, mixing with fresh, to the opposite side, and at the ebb and flow of the tide, a large extent of salt marsh and mud are left bare, exposed to the sun. In the town itself several ponds and low spots of ground exist, and a creek comes up into the midst of it, and with the receding tide leaves exposed an extensive noisome flat. The soil is a pure silex. The yellow fever visited this place in 1821 and in 1858.

The site of Savannah is low, in the immediate vicinity of fresh and brackish water, flats, and extensive rice fields; and ought, according to the theories of some, be a hot-bed of yellow fever. Yet a single case is rarely heard of there, whilst at Stony Hill, in Jamaica, which is 1300 feet above the sea, and has a mean climate of about 75° of Fahrenheit, it is frequently fatal;—whilst in St. Marks, Apalachicola and Mobile, it is but little known, it has repeatedly visited New Orleans and Pensacola.

From a fair consideration of all these circumstances, we are brought to the conclusion, that the elevation or depression of the site at which yellow fever appears, the humidity or aridity of its soil, and the existence or non-existence of marsh miasmata, exert but a secondary influence (if indeed they exert any at all), in the production of this disease. Where then are we to look for its origin? We cannot adopt the views of Dr. Stevens in relation

* This account of the topography of Galveston does not entirely coincide with that given by Dr. Ashbel Smith, Ex-Surgeon-General of the Texian army. See this Journal for February 1840, p. 499.—Ed.

to the change which the blood undergoes previous to this disease, its intermixture with poison, &c.

Though none more highly estimate his experience and ability, I am compelled to say that the series of experiments of Dr. Turner on the arterialization of the blood establish a set of facts in direct opposition to those views. Neither can we agree with Dr. Bancroft and others, who ascribe it alone to marsh miasma; for it appears where marsh miasma was never known and cannot possibly exist. The natural conclusion seems to be, that it is not primarily contagious, but is, in every instance, clearly an endemic. It seems also, generally to originate in, and to be confined to, places situated on the seashore or its immediate vicinity; and I know of no instance of its existence at any considerable distance from the sea. The local causes of its origin are doubtless atmospherical; but be they what they may, they are modified by the sea; but the extent and manner—whether for a time any one of the primary agents composing our atmosphere be modified or annihilated, or whether a new, temporary and local quality be superadded, I will leave others to investigate. The yellow fever is found chiefly, if not exclusively, to occur on or near the sea-shore; the influence of the sea upon its origin is therefore apparent; and with these points established, the science of the profession will ere long develop its hidden sources.

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ART. IX.—*Case of Paralysis of the Portio Dura, illustrative of a curious physiological fact.* By JOHN B. ZABRISKIE, M.D., Physician to the Kings Co. Almshouse, New York.

A CASE of paralysis of the portio dura lately occurred at the King's County Almshouse, which presented a curious physiological fact I have not seen noticed in any other case which I have met with.

J. Ward, a marine, aged 33, came to the poorhouse with secondary syphilis, for which the ordinary treatment, consisting of an alterative course with sarsaparilla, was successfully used. But upon the subsidence of the syphilitic symptoms he was suddenly seized with a paralysis of some of the muscles of the face. His mouth was drawn to the left side, the natural power of winking his right eye was lost, and he could not elevate the right angle of his mouth. As the senses of smelling, sight, hearing, the motions of the eyeball, the motions and taste of the tongue, and the motion of the

lower jaw were perfect on both sides, the paralysis was evidently confined to the portio dura of the right side.

But the most curious part of the case, and that for which I have been induced to relate it, is, that he could close the eyelids at will, while the involuntary winking was confined to the left eye, showing that the voluntary power of closing the eyelids is communicated by means of a different nerve from that which causes the natural winking, the latter depending upon the portio dura, while the former is probably derived from the ophthalmic nerve. This is confirmed by a case in the *Revue Médicale* of April, 1829, published by Duges of Montpelier, in which both the trifacial nerve and the eighth pair of the right side were paralyzed, and all power of closing the eyelids were lost. These two observations show that the voluntary motion of the eyelids is derived from the ophthalmic branch of the fifth pair, and the involuntary from the portio dura, and where both were paralyzed both motions were lost.

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# MONOGRAPH.

ART. X.—*On Diseases of the Fœtus. A contribution towards a better acquaintance with Intra-uterine Pathology.* By WM. C. ROBERTS, M.D., of New York. (Continued.)

THE first part of this essay appeared in the number of this Journal for August 1840. The latter portion could not then be got ready in time for the press, and owing to various circumstances, its publication has necessarily been deferred until now. This is, however, less to be regretted, as it enables the author to continue his quotations up to the present date.

*Pancreas.*—The only instances of congenital disease in this organ, with which I am acquainted, are related in Cruveilhier, *Anat. Path.*, 15 Liv. Pl. 1, Obs. 6 and 7, and Pl. 2d. In the first of these, the pancreas is said to have presented a lardaceous, non-glandular appearance, similar to that of a scirrhous breast, and was very large. In the second, it was in a state of scirrhous induration, and the case is pronounced by the author to be one of the most curious he knows of. In the third, it was large, indurated, not glandular, and of scirrhous aspect.

*Kidney.*—The malformations of this organ may be arranged as follows. 1st, their entire absence, one most commonly, the left according to Meckel, and very rarely both being absent. In the *Eph. Germ. Dec.* 1, Ann. 2, Obs. 22, is the case of a fœtus born at the full time, in which the anus was imperforate; *no trace whatever* of the *kidneys*, *ureters*, or urinary bladder was met with, but the rectum presented a sort of cæcal appendage, or round diverticulum, which occupied the place of the bladder. The supra-renal capsules were larger than natural. 2d, their misplacement, and, as is generally found in such cases; 3d, their fusion into one, forming the horse-shoe kidney. Supernumerary ones may be found. M. Petrequin, of Lyons, in a paper in the *Gazette Méd.* April 1st, 1837, entitled "A memoir on some remarkable cases of organic anomalies," mentions the case of a man aged 55, in whom the right kidney was provided with two ureters, and the left had two pelves, and two ureters. Of this, I have myself met with a case. M. P. cites Lauth and Lediberder for similar cases, and gives a second in which the ureters of one side bifurcated at their origin; and afterwards united into a single tube. In the 4th vol. of the *Am. Journal of the Med. Sci.* will be found, extracted from a German Journal, a case by Osiander of difficult labour from the great distension of the abdomen by the kidneys, *which were as large as in the adult.* A similar case is copied into the *Br. and Foreign Med. Rev.* for Jan. 1841, from the *Neue. Zeitschrift.* Band viii. S. 384. It is reported by Oesterlen. The fœtus was still-born and weighed 9 pounds; on opening the abdomen nothing was to be seen but two large bodies, one at each side of the cavity, which had forced the liver up close under the diaphragm. These were the kid-

neys. They resembled each other exactly in size, structure, colour, and form. Their shape was natural, and they were both divided into lobules, as is usual in the fœtus. They weighed 9 oz; were 5½ inches long, 4 broad, smooth, of a red colour, verging on violet, studded everywhere with little granules of a dark blue, or gray colour. These were *hydatids*, which, on dividing each kidney, were seen to occupy the whole of its substance. The smallest presented a diameter of less than ¼ of a line; the largest of about two lines, the former being towards the surface and the latter toward the centre, spherical and perfectly transparent.

The pelvis of each kidney was small and filled with transparent fluid. The only remains of the true parenchyma of the kidneys consisted of a firm fibrous reddish tissue, by no means abundant. They were well supplied with blood. The bladder contained only a few drops of a perfectly limpid fluid. All the other organs were natural. The labour was impeded by the size of the abdomen. Sœmmering, on the 76th p. of the catalogue of his Museum, has inserted the following. "Fœtus maturus, permagnus, abdomen renilus ingentitus tumidum."

The pathological conditions are as follows: 1, Ramollissement. 2, Calculus. 3, An encysted, or hydatid condition. 4, Granularity. 5, Inflammation. 6, Icteric discoloration.

I have elsewhere mentioned a dissection related by Morgagni, in which, on the slightest touch, the substance of the kidney was effused in the form of red poultice; and Billard states that he has often seen them "falling easily into pap." Hoffman, 6 vol. *Opera Omn.*, says Andral, in his *Anat. Path.* vol. ii, p. 705, relates a case of calculous concretion found in the bladder of a female child which died at 3 weeks old, whose mother, a German princess, presented all the symptoms of calculus in the kidney. It was as long as a large peach pit. Denis also found, in a child who died in a few days after birth from an intestinal disease, several calculi in the bladder, pretty large. In one of Billard's cases of diseased kidney yet to be mentioned, much fine sand was found in the bladder, in the urine, but he had never seen calculi properly so called. Prael, according to Grætzer, mentions a case where there were many congenital calculi in both kidneys. The child died when six months old. Orfila is, by the same author, said to have found them in the bladder in two cases, and also in the kidneys. The kidneys were congested and friable, and the bladder inflamed. (*Grætzer die Krank. des Fœtus. Berl.* 1837.)

*The encysted Kidney.*—Two interesting cases of this affection, I shall abridge from Billard, Obs. 53, p. 344, Stewart's Trans.—"A child, four days old, strong and florid, had a rounded tumour in the lumbar region, offering in its centre a reddish excoriation, and in its circumference, a hard, red, uneven ring. It died in a month, and on dissection there was found a considerable effusion of serum in the lateral ventricles, along the spine, and in the tumour which existed in the lumbar region, on a level with a separation of the spinous apophyses, of the last lumbar and first sacral vertebræ. The left kidney consisted of a mass as large as a goose's egg, of semitransparent globules irregularly agglomerated, forming as many cysts full of an inodorous fluid. These cysts all intercommunicated. Those nearest the pelvis opened into that reservoir, which was similarly filled. The kidneys presented nothing of its natural structure; near its fissure a layer of pretty thick, and as it were, condensed cel-

lular tissue was observed. In this tissue terminated, and even obliterated, the renal artery and vein. The pelvis, not communicating with the ureter, formed a true cul de sac. The ureter was well developed near the bladder, into which it opened as usual, but ascending towards the kidney it degenerated into two very thin, small cords, bifurcated and imperforate, and near the pelvis their filaments were multiplied, and applied themselves to the kidney in the form of the pes anserinus. The right was larger than usual. The bladder, very small, contained turbid urine, in which was found a great deal of gravel as fine as sand. The obliteration of the ureter was probably the cause of the dropsy of the kidney." Obs. 54, p. 345, Stewart's Trans. A male still-born child presented the following appearances. The belly, excessively inflated, formed a very projecting conical tumour. A vast pouch filled its cavity, and the intestines were pushed backwards and upwards. On the lateral parts of this pouch and rather in front, were attached and spread out the vesicula seminales, whose semeniferous ducts, very thin and much elongated, passed to the lower and lateral parts of the cyst, in which the testes were found. Lastly, near the summit of the so called cyst, and directly between the two seminal vesicles, the rectum, very large and much distended, with meconium, applied itself and adhered solidly, becoming obliterated, to the wall of this voluminous pouch, which was recognised to be the bladder, enormously distended by a white, inodorous, neutral fluid, containing flocculi of mucus with which its inner walls were lined. *The internal orifice of the urethra did not exist.* A probe passed in only half an inch; beyond this was only an elongated, narrow filament, lost in the cellular tissue of the perineum. Unless a reddish tissue placed on the bladder, behind the insertion of the rectum, could be considered as such, no prostate gland could be found. The ureters opened naturally into the bladder, and were large, and went on insensibly increasing up to the kidneys, which, on each side, were nearly as large as a hen's egg, and presented the same lobular structure as in the preceding case. The lobules, however, were smaller, less transparent, and were found, partly covered by the cortical substance, but the calyces and pelves were wider, and more distended than usual. A white, inodorous fluid filled the vesicular lobules, which all communicated and opened into the pelvis. The urachus was only a small obliterated duct. The rectum ended in a cul de sac adhering to the bladder, and there was no anus.

In a paper by Dr. Robert Lee, in the 19 vol. of the *Med. Ch. Trans.* on the functions of the fœtal kidneys, "it is stated, that Mr. Hay delivered a patient of a still-born child which had club feet, harelip, and a large belly which arose from an accumulation of fluid within the kidneys, produced by impervious ureters. The right, which resembled a cyst filled with a watery fluid, was larger than the head, and contained ℥ix of fluid. The left was half as large, and contained ℥iv; it resembled urine. In a MS. vol. of dissections of morbid parts, by Mr. Wilson, it is noted that "in Jan. 1787, Mr. Cruikshank delivered Mrs. Tylcotte, of Oxford Road, of a child apparently well, which, however, died in a quarter of an hour after it was born. He opened it the day after, and found both kidneys gone entirely into *hydatids*, (probably cysts, auth.) and enlarged both of them to the size of a man's. The ureters were exceedingly convoluted and distended, and filled with fluid, as was the bladder prodigiously enlarged; also the muscular fibres upon the stretch and exceedingly distinct, nearly

the size of a man's." In this case neither the ureters nor urethra are stated to have been impervious. Mr. Howship, in his Pract. Treatise on the diseases of the urinary organs, 1823, p. 376, relates a similar case. A male infant was born alive in the eighth month, and died the same evening. The lower part of the abdomen was occupied by a large circumscribed tumour. Dividing the parietes, this protruded, white, elastic and filled with a fluid. On each side was a long membranous tube, long as the finger and curiously contorted, evidently filled with fluid. The central cyst was comparatively dense, firm and opaque; the convoluted tubes much thinner, and nearly transparent. They terminated above, on each side the loins, in what appeared to be a mass of small hydatids; below they passed into the pelvis with the principal tumour. These were the bladder, kidneys, and ureters, excessively distended. The external orifice of the urethra was *imperforate*, and on introducing a fine silver probe from the bladder, it appeared that the canal was *impervious for a quarter of an inch*. The bladder contained seven or eight ounces of urine, its coat extremely strong and thick. Posteriorly it had given way, and a large pouch had formed. The kidneys had lost all appearance of natural structure, and resembled a congeries of small hydatids, no larger than peas, loosely connected by a cellular texture. Dr. Ivanove, of St. Petersburg, on examining Mr. H.'s drawings of the preparation, stated that he dissected a full grown child who lived forty-eight hours, when, *the urethra being imperforate*, the bladder was much and the ureters still more distended with urine. Sir B. Brodie informed Mr. H. that he had seen a full grown male child in whom the external orifice of the urethra was deficient from original malformation, in whom the bladder, ureters, and the infundibula and pelvis of each kidney were distended with urine.

Under the head of Scientific Intelligence, in the Transactions of the Dub. Path. Soc. (*Dublin Journ. Med. Sc.* 1840,) it is stated that Dr. Kennedy exhibited a preparation from the body of a new born infant in which there was enormous distension of the bladder and ureters, with *obstruction of the urethra*. The ureters were distended to a remarkable degree, an inch in diameter and exceedingly tortuous. The bladder was greatly enlarged and the left *kidney dilated*, the enlargement being produced by distension of its pelvis and infundibula, for the substance of the organ had been considerably diminished by absorption. No traces whatever of urea could be found in the fluids of either organ, after a most careful analysis. "The case," continues Dr. K., "seems to confirm the idea that the secretion of urine goes on before birth, for if this were not the case, how can the condition of the bladder and ureters be explained?" He adds, "the fact of the non-existence of urea is curious, and the case is perhaps the only one no record, in which the fœtal urine has been tested." From this remark I should infer that Dr. Kennedy was unacquainted with Dr. Lee's paper in the 19th vol. of the *Med. Chir. Trans.*, recently quoted, in which he deduces the conclusion that the kidneys of the human fœtus are in a state of activity and perform their functions previous to birth. In it is a letter from Dr. Prout, containing an analysis of the fluid found in them in Mr. Hay's case, which evidently contained urea, and proved beyond all doubt that it was of a urinary nature. In a case also cited from Mr. Howship's work, the urine was examined by Mr. Brande, and found to have the other properties of urine, but to have *no uric acid* in its composition.

In the *Gaz. Med.* for 1835, is related the dissection of an extraordinary monster, born at Boulogne, weighing 13 livres, who, among many other malformations, had the kidneys *granular* and hydatidous. Inflammation of the kidneys and bladder in the fœtus is considered by Billard as probable, but difficult of proof. Congestion and ecchymosis are common, together with red points in the mamillary substance, almost like petechiæ; and once he found petechiæ, properly so called. In icteric children striæ are seen of a dazzling yellow colour, owing to the discoloration of serum between the fibres of the mamillated structure. Betschler (*Diss. num a fortu urina secernatur et urina excernatur*, Berd. 1820, p. 48,) dissected a stillborn fœtus whose bladder contained a large quantity of puriform matter mixed with urine. The internal surface was white and smooth. The orifices of the ureters free and gaping. The left kidney, *inflamed*, was distended and degenerated. The pus which escaped from it had passed by the ureter into the bladder. Ochler saw a case of nephritis calculosa in a fœtus, where the kidney was very much inflamed. (Vide Prolegomena Bibliography in part preceding.)

*Capsula Renales.* M. Andral Jr., found one of the supra renal capsules of the fœtus of a woman who died of phthisis, in the sixth month of her pregnancy, inflamed and suppurated. M. Rayer, in a memoir in the Oct. No. for 1827 of *L'Experience* or *Journ. de Med. et de Chir.* entitled "Illustrations of the Pathology of the supra renal capsules," informs us that he has several times discovered a sanguinolent infiltration of the supra renal tissue, in new born infants who have died soon after birth. Twice he has met with the capsule transformed into a genuine sac, or pouch, as large as a pigeon's egg, and full of blood, and has seen one or two examples in the fœtus, of a small abscess being formed in its substance.

*Ureters.* The malformations of these organs are their being double, bifurcate, or united by a transverse duct, or their opening into an unnatural part; thus, Lieutaud has seen them open into the urethra itself. The following case of congenital enlargement of the ureters, by Dr. James Webster, occurs in a periodical which enjoyed but a brief existence, the *U. S. Med. & Surg. Journ.* June, 1835." A lady of Philadelphia, during my residence there, was delivered of a healthy child. Two weeks after birth, the child having made no water for two days, a large fluctuating irregular tumour was found, occupying the lumbar and iliac regions, *which disappeared next day after a copious flow of urine.* This occasionally recurred. At 18 months of age, the child died of long continued irritation. The ureters were enlarged to nearly double the size of the large intestines, and completely distended with urine. At their exit from the pelvis, they partially covered the kidneys, at their entrance into the bladder they were small, and their valvular structure entirely preserved. The bladder was larger than natural, but bore no appearance of inflammation." Of the condition of the kidneys nothing is said. It differs from Cruikshank's case in the healthy state of the kidneys and bladder, in neither were the ureters imperfect.

The following case is related by Mr. Thurnam, in the *Lond. Med. Gaz.* August 1837, p. 717. "In a male child, aged four months, it had been noticed that at birth a tumefaction of the lower part of the abdomen existed, looking like two or three bladders. When these were rubbed the bladder would swell and rise up under the hand, to the size of a large egg. He gradually wasted and died with aphthæ and diarrhœa. Upon laying open

the abdominal cavity, the urinary bladder was seen of at least treble its natural size, rising up nearly to the umbilicus. The right kidney was in a state of *complete atrophy*, less than a fourth of its proper bulk, its tissue presenting a granular hardness, and exhibiting no trace of division into cortical and tubular structure, and with no trace of supra-renal capsule. The commencement of an excretory duct was present, in the form of a very small pelvis, which contained a few drops of a dirty mucous fluid; below this, the ureter was represented by a thin impervious cord for about an inch, but the lower part of the ureter, for the length of two or three inches, was pervious, and of much greater calibre than usual, admitting, as it would, a large swan's quill. It opened into the bladder in the ordinary manner. The left kidney was about double its normal size, and presented, in a remarkable manner, the lobulated character; the fissures between the lobules being of great length. It was surmounted, as usual, by a supra-renal capsule. The appearance of cysts, filled with fluid, was seen to depend upon a *most surprising dilatation of the left ureter*, which had more resemblance to the small intestine than anything else. The dilatation was interrupted in three places by constricted portions; the central one of which, situated about midway between the kidney and bladder, was nearly half an inch in length, and was contracted to such a degree as not to admit a fine probe, and through this portion the urine could only be forced by considerable pressure. The other two contractions were to much less extent; the upper would have allowed the passage of the little finger, the lower, of a large bougie. By means of these three constrictions, the ureter was divided into four portions, or chambers, of irregular shape and size, which opened successively into each other. The whole canal was considerably lengthened, as well as dilated, being thirteen inches long, the dilated portions being folded upon themselves. This ureter communicated with the bladder by a larger and less oblique opening than normal. The muscular coat of the bladder was hypertrophied in a proportion corresponding to the dilatation of its cavity, and contained four or five ounces of turbid urine having an acid reaction. No case precisely or even tolerably similar to that above narrated, has been recorded. Sandifort, in his *Obs. Anat. Path.* vol. iii, table 4, gives an interesting description of a seven months fœtus, malformed in several respects, in whom the kidneys were united by a transverse band, and the left ureter was extremely dilated and tortuous, the dilatations alternating with slight constrictions, whilst, on the right side the dilatation was still more extensive, especially in the upper half of the ureter, which was more than two inches in circumference, and at its centre was of smaller calibre than natural. In the German *Eph.* Dec. 1, Ann. 1, Obs. 7, is the history of a double monster whose ureter was so excessively dilated as to look like a second bladder. In the same work, Dec. 2, Ann. 9, Obs. 12, is narrated the dissection of a girl aged three months, in whom the left kidney was furnished *with two ureters*, one of the usual size, *the other*, extraordinarily dilated. The kidney consisted of two portions, each having its own ureter and emulgent artery.

*Bladder.* The congenital malformations are, 1. Hypertrophy; 2. its division into compartments by septa; 3. supernumary pouches; 4. atrophy; 5. bifurcation (Meckel); 6. Ectropia, or Extroversion; 7, its total absence. I have already mentioned cases of its rupture, (Vid. the section on Peritonitis) and of its prodigious enlargement. I shall cite one from Andry, which he calls *inflammation*, but which to me seems in no respect to differ

from that seen by Cruikshank, in the encysted condition of the kidneys and great development of the muscular fibres of the bladder, accompanied by peritonitis. It is by Moreau, in *Mem. de l'Ac. R. de Med.* 1828. "A small child was born having a large belly inordinately distended with fluid. It died in 30 hours, and on opening it, near one pint of reddish yellow serosity was found in the peritoneal cavity, the intestines being no bigger than a lumbricus, and containing no meconium. The bladder was distended so as to reach above the umbilicus, its walls thick and hard, spotted with red points, the muscular columns fleshy. The ureters were as large as the little finger, and the kidneys very large and like too large cysts."

*Ectropia* is an absence of the anterior wall of the bladder, and consists in a red tumour of mucous appearance, situated at the bottom of the abdomen, in the place usually occupied by the linea alba, recti muscles and symphysis pubis, and having its margin continuous in the skin of the surrounding parts. The urine constantly trickles from the tumour, which is the posterior wall of the bladder. A very marked case of this malformation is detailed with his usual minute accuracy, by the celebrated Dr. M. Baillie on p. 167, vol. i, of Wardrop's edition of his works; and he mentions two others. A case universally quoted, is that by Dr. Duncan, in the *Ed. Med. and Surg. Journal* for 1805. It was first, however, described in Tenon in the *Mem. de l'Acad. des Sc.* 1761. Chaussier had seen it often, and Breschet's paper is made up of his observations and preceding cases. See also the *Dict. des Sc. Med.* vol. xiv. Schmitt, of Wurzburg, in 1836, published a work on this subject, in which very accurate information is contained as to the nature and varieties of this malformation; three cases are described, and a catalogue of those previously recorded, presented.* A bibliographical notice of this work will be found in the *Am. J. of Med. Sc.* for May, 1837, p. 184. Fleishman has recorded a case in which no trace of urinary apparatus was discovered.

Baillie had seen a case in which one vesicula seminales was wanting, and another in which both ended in a cul de sac.

*Testes.* These are sometimes originally very small, and one or both may remain in the cavity of the abdomen. I know of but two instances of their having been found diseased. One occurs on the 76th page of Soemmering's catologue, in the description of a large mature fœtus, of which, among other diseased conditions, it is said, *testiculi in hydatides conversi.* The other is a case of congenital hydrosarcocele in the Edinburgh Essays, so enormous as that it had to be punctured before the delivery could be effected. Hydrocele of the tunica vaginales is frequently congenital, and occasionally complicated with inguinal hernia in the fœtus. The testes have been found icteric and ecchymosed. Haller, in his Physiology, Liv. ii, 7, p. 412, mentions several cases in which four or five testes, were known to exist. Loder (Gottingen, Ann. 1802) exhibited to the Academy, a child in whom there were four testes, two penises and two scrotums. The malformations of the penis and urethra, and female genital organs,

* [See also *Med. Repos.*, (New York,) 2 Hex. vol. ii, p. 96; *Lancet*, April 11, 1840, p. 110; *Edin. Med. and Surg. Journ.*, an. 1808, p. 82, and Oct. 1839, p. 422; *Cyclopedia Anat. Phys.*, art. Bladder, Abnormal Anatomy; *Rev. Méd.*, July, 1833, p. 61; and the *Amer. Journ. Med. Sci.*, Aug. 1832, p. 481. Dr. Hayward showed us a case of extrophia of the bladder, some years since, in his wards in the Mass. Gen. Hospital, an account of which we believe he has published.—Editor.]

I shall pass over, as they do not come within the limits of fœtal pathology. I may just allude to those cases of congenital *phimosis*, in which the complete closure of the prepuce by a thin membrane, gives rise to a retention of urine after birth, and requires a slight operation for its removal, and, as it occurs in a work not generally known, and is somewhat peculiar, I shall quote from J. Cloquet's thesis on surgical pathology, Paris, 1831, the following mal-conformation of the prepuce. "The child, fifteen months old, was born with the deformity for which M. Dubois' advice was asked. The integuments of the penis offered a rounded aperture, through which the glans issued in the form of a red tubercle; the folded prepuce hung below it, and extended beyond the glans; it was imperforate at its extremity." With regard to the uterus, Boivin and Duges, vol. i, p. 202, of their treatise on the Dis. of the uterus, give three cases of antiflexion, presumed to be congenital. They speak also of a congenital coalescence of the labia, enclosing a loop of intestine, or omentum, resembling a testis; of congenital brevity of the vagina and congenital prolapses uteri; p. 105, vol. i. In Dr. Simpson's second communication he observes, p. 29: "I have formerly detailed a case in which some patches of coagulable lymph adhered to the right fallopian tube of a fœtus in utero, of seven months," and in a note on the same page, he says, "I have in my possession a preparation, showing a well marked anteversion of the uterus in a fœtus, in consequence of either an original, or a morbid shortening of its round ligaments."

Having completed my observations respecting the organs contained within the abdomen, I come next to the chest; and first, of *pleuritis*. Mauriceau first mentioned the possibility of the occurrence of this disease in the fœtus. The work of M. Veron, previously mentioned, contains a case of one which lived 15 hours, and presented the diverse alterations which characterize pleurisy, viz:—effusion of fluid into the right cavity of the chest, the formation of nearly completely organized false membrane, red and injected, on the pleura. The lung was compressed and crowded back, small and dense, and sunk in water. Billard (*Stewart's Trans., Obs.* 64, p. 398,) has detailed a case of congenital pleuritis. The child, aged two days, was pale, very thin, and breathed with difficulty; the pulse was remarkably irregular; the face at certain moments strikingly contorted. The chest gave a dull sound on its left side, and the vesicular murmur was scarcely audible with the stethoscope. It died in two days. The costal and pulmonary layers of the pleura were of a punctated, dull red. The former was as thick as a farthing, and adherent to the lungs by cellular adhesions, as solidly organized as they are found in the adult after eight or ten years. In the thickness of the pleura were many little granulations, and here the adhesions were more recent, being of an albuminous consistence. The tissue of the lungs was strongly congested. In the ileo-cæcal region were 15 follicular plexuses, very prominent and brown. This is one of the cases which strongly shows the necessity of endeavouring to ascertain the causes of congenital weakness. In the 15th liv. of *Cruveilhier's An. Path., Obs.* 1, is a case of double pleurisy in a child 36 hours old. The case was characterized by a lactescent effusion and false membranes; the base of the lungs inflamed. The *Med. Gazette* for Jan. 1840, contains the following case, read by Dr. Burgess to the Royal Med. and Ch. Soc.—"A child was born after only a trifling delay in the labour, pale and cold, its mouth drawn aside, its

hands clenched, and soon died. There was a large serous and bloody effusion beneath the scalp under the arachnoid, with injection of the plexus choroides, and also a very large quantity of serum in the pleural cavities." Dr. B. cites Gardien for a similar case.

*Lungs.*—The pathological states of these organs hitherto discovered, are tubercles, inflammation, (hepatization, suppuration, abscess,) and hernia. Husson, in *Commun. Orales à L'Acad.*, April, 1825, stated that he had recently observed two fœtuses, one of eight months, and one which lived eight days, in the former of whom there were tubercles in the lungs, softened and already suppurated, the latter in the liver. "In 1826," says Billard, "I met with four cases of pulmonary tubercles in children aged one, two, three, and five months; though born healthy, they soon wasted away." Were these congenital? Langstaff (*Cooper's Surg. Dict.*, vol. i,) had seen three cases of this kind. "I have met," says Andral, (*Path. Anat. Trans.* vol. ii, p. 539 and 703, chap. v, Diseases of the Fœtus and its Appendages,) "with several large abscesses in one lung having no resemblance whatever to tuberculous excavations. I believe that such an appearance has never yet been observed at any other age. He also mentions *petechiæ* of these organs and of the heart and pericardium—vol. i, 418. He had also seen two cases of hepatization. Billard remarks, that in three children who died on the first day after birth, he found an alteration of one of the lungs so profound as to make him believe that the disease had commenced intra uterum. In two particularly, the left lung was strongly hepatized at its base. The 63d obs., p. 397, Amer. edit. of his work, trans., is one of congenital pneumonia. The child was small, pale and thin, presenting all the symptoms of pneumonia. The right lung was hepatized in the greater part of its extent. At the base there existed a spot larger than a large nut, at which the tissue was reduced to a reddish pultaceous pap. The bronchi which entered it were inflamed and thickened, containing thick mucosities, puriform and gluey, mixed with streaks of blood. (Vide *Cruveilhier, Obs.* 7, post, "Cong. Bronchitis and Pulmonary Catarrh.") The 15th liv. of Cruveilhier's great work is rich in cases of this kind. Page four is devoted to "the Diseases of the Lung in the Fœtus," and he remarks that as many new born children die by the lungs as adults. Obs. 1, fig. 1, pl. 3, is one of lobular pneumonia disseminated infiltration of blood; death in 48 hours. Obs. 2. Lungs infiltrated with blood, and impervious in three-fourths of their extent; death in 20 hours; fig. 4, red and black induration. These cases he considers to have occurred at the moment of birth. Obs. 4 and 5. "In the state called the pneumonia of children." Obs. 6. Gray induration in four-fifths of their extent, dating several days back; child feeble, dying in 48 hours. Obs. 7 and 9. Some lobules infiltrated with pure blood, others with sero-sanguineous fluid; pulmonary catarrh, with thick mucus in the bronchia. (Billard mentions œdema of the lungs in conjunction with scleroma.) Obs. 10. A dozen little spherical masses (lobules) in the midst of them; depôtes of thick pus. Plate 2, fig. 1. Lungs of a new born child which died in 24 hours after birth; here and there masses of lobules infiltrated with blood, and impermeable; fig. 2, red induration; fig. 3, sero-sanguineous infiltration throughout; fig. 5, spherical, grayish, semitransparent induration, of varying bulk, very dense, disseminated in the thickness of the lung, a state between pneumonia and tubercles; fig. 6, the two lungs very voluminous and completely fleshy, (Camisiés;) the lobular form com-

pletely preserved. Each lobule presents a granulation analogous in appearance to the large glandular grains of a liver in a state of cyrrhosis. The last case is one of whitish-gray induration of the lungs, in the thickness of one of which was a cartilaginous kernel. The bronchi clogged with mucus. Rahn Escher, in a Zurich journal, republished in the *Gaz. Méd.*, July 1833, mentions a remarkable congenital contraction of the chest, and that the texture of the lungs was coarser than natural. The child had dyspnœa, and died of inanition in 20 weeks. Also a second case of congenital flatness, compactness and irrespirability of the right lung, which was not hepatized; and from this circumstance and the development of the chest, he considers it a case of anti-natal disease, occurring soon before birth. The child always laboured under dyspnœa, and died at two and a half years of croup. Haller remarks, that hernia of the lungs, from absence of the ribs, sternum and parietes of the chest, compared with that of the walls of the abdomen is rare, but cites instances, "ut nudum apparet, quale in pullo est," during the first days of incubation.

*Thymus Gland.* The congenital enlargement of this organ (Hypertrophy) is now well known to the profession, by the writings of Dr. Montgomery, of Dublin, and others. The paper of the first named author, may be found republished in the *Am. Jour. of the Med. Sci.*, for Feb. 1837, and I may refer to the Aug. No. of the same journal of the same year, and that for Nov. 1838, for cases which I have myself recorded, attended with peculiar circumstances, and also to one in the third No. of the *New York Jour. of Med. and Surg.*, Jan. 1840, to which similar ones are appended by Drs. Sweet and Clements. This organ has been found *inflamed* at birth. Cruveilhier's 15 liv. contains a case in which a purulent deposite occupied the thymus, which was very voluminous, filling the anterior mediastinum, called by him tuberculation, or chronic inflammation. The pancreas was indurated and the lungs impervious. In a six months fœtus, the thymus, according to the same author, was double its natural size, full of purulent deposits and tubercles. Fig. 2, of plate 2, represents a very large thymus, dense and of tuberculous appearance, which covered the heart. Fig. 3, a thymus containing cavities filled with white mucus, the walls infiltrated with concrete pus. In M. Veron's paper is mentioned the case of a child which lived a few hours, whose thymus was inflamed, large, and of a deep red, with pus in its interior. Billard (p. 452) had seen it in two instances, much tumefied, very red, and extremely friable.

*Heart* and *Pericardium.* The inexhaustible catalogue of malformations of these organs, except ectopia, I shall omit, and merely relate the pathological states which have come to my knowledge. These are, 1. Scirrhous tumours. 2. Aneurism. 3. Pericarditis.

*Ectopia Cordis.* This malformation is not very common, as it is not necessarily fatal, nor accompanied by other malformations, and is, in a physiological point of view, of extreme interest, as furnishing an opportunity of observing the heart's action by the eye, and discovering the causes of its sounds. I shall briefly allude to some cases of the kind. It may be met with under three conditions; 1. occuring within the body, and presenting no peculiar external signs. Thus Andral, *An. Path.* trans. vol. ii, p. 335, relates that Drs. Echamps, de Leval, *Journ. Gén. de Med.* vol. 26, found the heart below the diaphragm, occupying the place of the left kidney, in a middle aged man. 2. Where it protrudes externally some-

where, covered by integuments, more or less thin. Thus Andral also states, that a female infant mentioned in the *Journ. of Med. Soc.* of Bordeaux, 1825, had at birth a pulsating tumour formed by the heart, extending from the false ribs to the umbilicus. She lived two years and a half, and on examination after death, it was found that the heart had pushed down the diaphragm before it. In the *Bull. de la Fac.* vol. iii, p. 457, is a case of deficiency of the cartilages of the left side, which do not reach the sternum, leaving a considerable void, filled by the lung in full inspiration. The thorax on the right side projects in a convexity, within which the heart is distinctly felt to be placed. In the 4th vol. of the same work, p. 93, Chaussier describes a new-born child, who had at the upper and anterior part of the abdomen, a soft hemispherical tumour, an inch high and two wide, in which, by mere pressure, were very evidently to be distinguished the form and alternate movements of elevation and depression of the heart, and the dilatation and contraction of the ventricles. In a word, the child had congenital hernia of the heart. It could be pushed back into the thorax, but on taking off the pressure, returned with noise. The sterno-pubic muscles were either separated, or deficient, for the heart was covered only by the skin. The child seemed likely to live. The same illustrious anatomist saw a soldier, 27 years old, and capable of great exertions, who had a deficiency of the lower half of the sternum and cartilaginous parts of the second, third, fourth, fifth, and sixth ribs, in which oblong space, covered only by skin, was seen the heart, beating in the most perceptible manner. Ramel mentions a girl 11 years old, in whom the heart was situated in the epigastrium, below the diaphragm, and who was in tolerable health. *Journ. de Méd.* vol. 49. In the No. of the *Am. Journ. of the Med. Sci.* for Nov. 1838, copied from an English journal, (the *Trans. of the Prov. Med. and Surg. Ass.* vol. vi,) will be found a case of partial ectopia, by Dr. John O'Brien, in a child aged 14 days, which died at the end of three months. A soft, oval, semitransparent, unequal tumour existed between the umbilicus and lower end of the sternum. Through this diaphanous skin, in the upper quarter of the tumour, was seen the heart. This paper is of the highest pathological and physiological interest. In the same Journal, for Feb. 1840, is a case from a German journal, in which the heart, and under it the stomach, both separated by a partition, lay outside the thorax and abdomen, in a sac of skin nearly transparent. The lower third of the sternum, and upper part of the abdominal parietes, were deficient. The fissure was 5½ inches long, and 2½ broad. The child was living, and otherwise in good health.

The *third state* is that in which the heart is entirely naked and exposed. Thus, Vanbonasi, in the *Ac. des Sci.* 1712, describes an eight months fœtus, whose heart escaped by an opening in the upper part of the chest, naked and hanging from the neck like a medal. Haller, in his *Disput.* vol. 9, details a case seen at Madrid, by Martinez. Tourlette, in the 62d vol. of the *Journ. de Med.* describes one in which an opening existed at the lower part of the chest, through which the heart issued and reached to the umbilicus: all these children died soon. Dr. Robinson, in the 11th vol. of the *Am. Journ. of Med. Sci.* 1832–3, has described a case in a full grown child. Both clavicles and the sternum, and cartilages of the ribs were deficient, exposing the whole interior of the chest. The heart was small, on the right side of the chest, and acting with perfect regularity. Several other malformations existed, and it lived but a short time. In the

Feb. No. for 1840, of the same journal, from a foreign periodical, is a case seen by Pecchiola; the child was full born, the heart protruding through a nearly circular opening of about an inch and a half, the margin regular, and the pericardium absent. The heart hung by its vessels, like a medal. The upper piece of the sternum was absent. It lived twenty-six hours. Otto, whose work is very rich in everything relating to this and every other vice of conformation, cites Haan, *de Ectopia cordis*, cas. illust. Bonn. 1825, prolapsed and deficient pericardium. Also, on p. 275, note 9, Buttner; the heart prolapsed, the child born alive.

*Scirrhous Tumours.*—This case is related by Billard Stewart's ed. p. 509, Obs. 86. The child was three days old when seen, and externally *embonpoint*. The lungs healthy; the heart of its ordinary size, offering at its anterior part, and on the interventricular line, three whitish eminences of unequal size, flattened anteriorly, and very close to each other. The largest was near the base of the heart, the next in size nearest its apex, and the smallest between them, imbedded in the thickness of the wall of the left ventricle and interventricular septum. Their deep surfaces projected on the inner side of the cavity of the heart. They "cried" under the scalpel, and presented closely intersecting fibres, closely analogous to scirrhous tissue.

*Aneurism.*—Billard, p. 447, Obs. 77. A child two days old. The heart was as large as a hen's egg, the right auricle and ventricle, formed, as it were, themselves the whole organ. These cavities were very much dilated, their walls almost as thin as a sheet of paper, while the opposite ones were very much contracted, and the walls hypertrophied. The interauricular orifice was almost entirely obliterated; the orifices and valves free. (Passive aneurism.) Cruveilhier, Liv. 15. Aneurism of the right cavities of the heart, resulting from obliteration of the pulmonary artery. Enormous development of the heart, particularly on the right side. The right auriculo-ventricular valve fixed to the walls, and its edges granulated.

*Aneurism of the Ductus Anteriosus.*—For this case, I am again indebted to the industrious Billard, Obs. 78, p. 448. The child was two days old, and died in three days afterwards, the respiration was difficult and the face livid. The heart was hypertrophied. The ductus arteriosus was as large as, and of the shape of a cherry kernel, its transverse diameter 3½ lines and its circumference 9 lines. Looking at it exteriorly, one would have said that it opened widely into the aorta, but this appearance existed only on the outside, for the inside was full of fibrous clots, organized and arranged in layers, as in adults, leaving a canal in the centre scarcely allowing of the passage of a crowquill into it. A similar case had been seen by Baron.

*Pericarditis.*—"I found," says M. Billard, p. 451, "in a child two days old, adhesions between the folds of the pericardium, sufficiently solid to induce the belief that they were the old products of a pericarditis developed during intra-uterine life. In six other cases there was sero-albuminous effusion into the pericardium, white flakes adhering to the surface of the heart, and very slight bands between the two larger layers of the cardiac envelope. It is a common disease in newly born children, but cannot easily be diagnosticated. M. B. had seen 7 cases in 700 bodies of dead children at the Foundling Hospital.

The anomalies of the arteries and veins, I pass over in silence. Ochler

has mentioned lymph-like concretions in the heart and large vessels, as large as beans and adhering by fibres.

I come, lastly, to a consideration of some morbid states of *the Spine.* Of the commonest of these, Hydrorachis, I have already spoken briefly. I refer to Billard, who treats fully of it, and relates a case in which a little thin, reddish, flexible pouch, as large as a filbert, below the fourth ventricle, interrupted the communication between the fluid in the brain and that in the spine. In the 6th and 16th Liv. of Cruveilhier's Pathology, are cases, descriptions, and beautiful plates of this disease. Ollivier, on this, as on every other point in spinal pathology, must be consulted. The malformations of the spinal marrow, I shall leave untouched. The 1st vol. of Ollivier's work, p. 209, treats of "Kirronosis, or icteric coloration of the medulla spinalis" in the embryo. Passive congestion, he remarks, is very common. I cannot decide whether the ramollissement and induration, spoken of by him and Billard, are to be considered as diseases strictly congenital, or not. The 15th Liv. of Cruveilhier contains a case of spinal arachnitis, in a child who died in five days. The spinal arachnoid was infiltrated with pus, as also the annular protuberance and along the fissures of the brain. Andry states that Lechel found a cyst containing fluid, lying between the spine and the dura mater, which was sound, and to him I am indebted for the following case of dystocia, caused by a cyst along the spine, recorded by Deparcque, *Bib. Med.* vol. 73, p. 342.—"Mrs. B. having been in labour four hours, the shoulders had reached the vulva, but in spite of the contractions of the uterus, the efforts of the mother, and tractions on the axillæ, no progress was made. A soft tumour at the lower part of the spine, could be felt by the finger, and was mistaken for hydrorachis. It at length gave way, the child was removed. It remained asphyxiated for half an hour. A vast pouch as big as the child's head, arose from the lower and back part of the trunk, formed anteriorly by the integuments, which were flaccid and fell on the thighs. The base was bounded transversely by the trochanters, and reached from about eight lines above the anus, to the last dorsal vertebra. On the top, the integuments insensibly degenerated into a translucent membrane, one line thick, which had given way. The sac contained a few ounces of serous fluid; inside it was smooth, and seemed lined by a serous membrane. The integuments were enclosed in a ligature, and sloughed off, the cyst was injected, and the child recovered, but was soon after frozen to death, during the night, together with two other infants, while going in a cart to be placed out at nurse.

A more extended research, would doubtless have rendered more complete and copious, this summary of some of the instances hitherto observed, of disease, or malformation, in the fœtus; but I have already extended my paper to a length which endangers its being perused with patience. When I look back upon the facts which have been recorded, I regret that they are not of a more practically useful character, for they are certainly interesting. My task, however, has been, like that of the curator of a museum, to catalogue and arrange them, leaving to others the duty of employing them in the elucidation of fact, or the support of theory. Exclusive of their medico-legal value, one precept, at least, may be deduced from the cases thus assembled, that many of those cases of feebleness at birth,* apparently without cause, and generally looked upon as

* See Billard, Trans. p. 57, chap. 8, "of feebleness at birth."

hopeless, and treated by warmth, nourishment and the warm bath, in reality depend upon the actual existence of organic disease, of a congestive or inflammatory character, in some important tissue of the body, susceptible, in some degree, of appropriate treatment, and possibly, in some rare instances, of cure. One only, that of enteritis, related by Desormeaux, as yet exists. If, by the compilation of this article, I shall be so fortunate as to be the means of adding another to the list, and of exciting the attention of the profession to a more general and careful examination of the bodies of the still-born, or recently dead infants, the trouble it has cost me will be repaid. Little has yet been done; very much remains to do, and that, I trust, will prove both useful and interesting.

## ADDENDA.

To the section on *Tumours*, the following reference, omitted. WALKER, *sur les tumeurs graisseuses congénitales, et sur d'autres vices de conformation, avec deux figures de Leipomes monstreux, heureusement extirpés.* 8vo., Landshut, 1814.

In the article on the *Nose*, Andry is cited as having given from Voisin (thesis) a case of congenital polypus. For this, as for a very large number of the cases he has published, Andry is indebted to the article on the diseases of the fœtus, by Desormeaux, *Dict. de Méd.* 1st ed. vol xv, for which he does not make proper acknowledgment. The reader will find there a fuller account of this curious case, which abridged, is as follows. "The tumour was lobulated, of a purple colour, as large as a breakfast roll, covering all the anterior part of the face, filling the mouth completely, springing from the posterior fauces. It was a polypous mass, containing near its base a shapeless angular bone as big as a nut, with a sort of fleshy pedicle furnished with long hairs. Desormeaux is almost tempted to consider it as the debris of a fœtus *par inclusion*. Dict. 15, 403.

Abernethy (Lect. in *Lancet*, vol. x, 1827) knew a mother who had whooping-cough, to produce a child with the same disease at the time it first breathed.

*Eye.*—The Lancet for Feb. 8, 1840, contains an interesting course of Lectures on the diseases of the eye, by Mr. Walker, of Manchester, in the fifth of which is the case of a child attacked with purulent ophthalmia *before birth*, as far as he knows, the only one on record. When born, no inflammation existed, yet one cornea had sloughed; the eyeball had sunk. Half the cornea of the other one was opaque. He had also seen a child two or three days old, the cornea of each of whose eyes was opaque throughout, and unusually large and prominent. It subsequently resumed its transparency. He also speaks of congenital dropsy of the anterior chamber, citing Juengken, Ware and Lawrence, and Farar, in the *Med. Comm.* 1790, vol. ii, p. 463, who relates three examples in one family. Mr. W. has quoted Mr. F.'s own account, to which I refer. The curious reader will find these cases of Mr. Farar's elaborately commented on by Mr. Crompton of Manchester in the *Lond. Med. Gaz.* for Dec. 1840, p. 432, in opposition to an opinion of Mr. Middlemore's that they were merely the results of inflammation. Mr. Crompton also publishes two other similar cases, in brothers, about one of which scarcely any doubt can reasonably be entertained. I must refer to the article for further information. The right eyes of both were staphylomatous, the eyeballs imperfectly developed, and the left cornea opaque.

*Skin.*—Ollivier, note to Billard, Trans. p. 65. The dorsal surface of each foot in direct contact with the anterior part of the leg, and in the folds resulting from this forced flexion of the skin, two large ulcerations, gray at their bases, red and bloody at their borders, surrounded by areolæ of inflammation, and resembling burns.

*Brain.*—Billard, p. 474, Trans. M. Bérard, Jr., *Soc. Anat.*, 1828, had observed a case of true intra-uterine apoplexy in a fœtus of eight and a half months. The coagulum, about the size of a nut, was lodged in the substance of the brain. Quere? cerebrum.

Billard, p. 537. Congenital dropsy of the brain with a well formed cranium. See Breschet, sect. on Hydrocephalus.

*Breast.*—A lady whom I attended has no nipple surmounting the areolæ of her breasts, their place being occupied by deep fissures. Milk is freely secreted after each accouchement, but none ever escapes. She has just been delivered of her fifth child, a girl, who presents the same malformation as the mother. I presume the affection in the mother to be congenital, as she never knew herself to be otherwise.

*Ague.*—In addition to the cases cited by Elliotson and Russell, is that by Schurigius, cited by Desormeaux, in *Dict. de Méd.* During, and after the paroxysm in the mother, the fœtus was much agitated, and the disease lasted for seven weeks after its birth. F. Hoffman had seen similar cases. Graetzer cites *Van Siebold's Journal*, vol. xvii, p. 318, for a case of the same kind.

*Hypertrophy of the finger.*—A case of this kind, illustrated by an engraving, occurs in the *Dublin Journal* for 1840. It is, I think, the ring finger of the left hand, which is enormously enlarged.

*Fungus hæmatodes.*—A case is related by Dr. Flint in the *New England Journal of Med. and Surg.* vol. ix, 1820, p. 112, which he considers of this kind. The tumour was situated on the back of the head. On p. 103 of the Philadelphia edition of Montgomery, On the Signs and Symptoms of Pregnancy, the following passage occurs. "The writer lately attended a post mortem examination of a child which had lived only nine weeks; at birth an unusual fulness was observed about the perineum and anus, which increased rapidly until these parts became greatly protruded, and a tumour was formed of the size of a very large orange; convulsions came on, and the child died after much suffering. The tumour, on examination, was a perfect specimen of fungus hæmatodes, and the earliest instance of the disease known to the writer. In this case the mother was in the habit of eating brown paper during her pregnancy."

In this Journal for Jan. 1841 (N. S.) is a case of congenital fungus hæmatodes, by Professor Drake, in a child two days old. The disease occupies the whole of the left nates, which is swelled out into a great, shining, globoid tumour, rendered irregular by tuberous elevations. It extends from the perineum, anus, and vulva, to the sacrum and spine of the ileum, so as to involve the acetabulum. Its colour is deep red; many of the cutaneous veins are much enlarged. A portion of the skin had suffered abrasion, and considerable hemorrhage had already occurred. Some parts of the tumour are hard, others soft; the general mass felt hard; it was tender under the hand. The child was lean, but seemed to be in health, and was free from tumours or malformations elsewhere. *West. Journ. Med. and Surg.*, July, 1840.

*Congenital malformation of joints.*—Adams, in *Dub. Med. Journ.*, July, 1840, p. 503, of the bones of the elbow.

*Œsophagus.*—Warner, in *Lancet*, June 20, 1840, p. 463. The pharynx terminated in a cul de sac; the œsophagus also ended in one at a distance of an inch and a half upward from the stomach. In the intervening space no trace of it could be found. The child died on the fourth day.

*Stomach.*—A case of congenital scirrhus of the stomach, by J. Williamson, M. D., is recorded in the *Edin. Monthly Journ. of Med. Sci.*, No. 1, vol. i, Jan. 1841. A male infant died at the age of five weeks. Though born plump and apparently healthy, vomiting came on in a few days afterwards. During the last fortnight the bowels were obstinately constipated, the child emaciated, and died exhausted. The only disease was in the stomach. Its pyloric extremity felt hard and indurated, and its orifice was so much contracted as to admit scarcely a small probe. The mucous coat was slightly thickened, whilst scarcely a distinct remnant of the middle or muscular tunic existed. The submucous cellular tissue was so much hypertrophied and indurated as seemingly to be the only tissue contained between the mucous and peritoneal coats; transverse white bands appeared to stretch from the sub-peritoneal to the sub-mucous

cellular tissue through that which formerly constituted the middle or muscular coat. The parents of the child were healthy.

*Transposition of viscera.*—See this Journal for Aug. 1840, p. 443, 444, a case of transposition of the thoracic and abdominal viscera, with an unusual variety of the venous system, and a case of lateral transposition of the abdominal viscera alone. See also Reed in the *Ed. Med. and Surg. Journ.* for July, 1840, for some additional remarks.

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*Hernia.*—Of the fallopian tubes and ovaria. Refer to Deneux. *Rech. sur les Hernies de lá Ovaire*, Paris, 1813. Meckel, *Path. Anat.* vol. ii, p. 429. Busch, *Neue Zeitschrift für Geburtskunde*, vol. viii, heft 2, p. 272.

*Liver.*—Kyll. *Brit. and For. Med. Rev.*, Oct., 1839, a case of ascites and hypertrophy of the liver.

*Corrigenda.*—The case of poisoning of the fœtus in utero, quoted from the *Amer. Journ. of Med. Sci.*, as by Dr. Warren, is incorrectly cited as to date and as to the author. It appears in the 5th vol. of that journal, from a German one, and is by Dr. D'Outrepont, of Wurzburg. The mother had encephalitis, and recovered. The fœtus, after being repeatedly agitated violently in the womb, was born, had a convulsion, and shortly afterwards died. *The brain and spinal marrow were inflamed.*

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# REVIEW.

ART. XII.—*Mémoire sur l'empoisonnement par l'acide arsénieux.* Par M. ORFILA. Lu a l'Academie Royale de Médecine, Jan. 29, 1839. Annales D'Hygiène, vol. xxi.

*Mémoire sur un nouveau procédé pour constater facilement, dans nos organes, la présence d'une préparation arsénicale qui aurait été absorbée.* Par M. ORFILA. Ibid, vol. xxii.

*Mémoire sur les terrains des cimetières, sur l'arsenic qu'ils peuvent fournir et sur les consequences médico-légales que l'on doit tirer de l'existence possible d'un composé arsenical dans ces terrains.* Par M. ORFILA. Ibid., vol. xxii.

*Mémoire sur l'arsenic naturellement contenu dans le corps de L'Homme.* Lu a l'Académie Royale de Médecine, le 24 Septembre, 1839. Par M. ORFILA. Ibid., vol. xxii.

*Mémoire sur les moyens de s'assurer que l'arsenic, obtenu des organes ou il a été porté par absorption, ne provient pas des réactifs, ni des vases employés a la recherche médico-légale de ce poison.* Par M. ORFILA. Ibid, vol. xxii.

*Mémoire sur l'empoisonnement par l'arsenic; nouveau procedé pour retrouver l'absenic absorbé, &c.* Par M. ALPH. DEVERGIE. Ibid., vol. xxiii.

*Observations sur le dernier mémoire de M. A. Devergie.* Par M. ORFILA, Ibid, vol. xxiii.

*On the means of detecting arsenic in the Animal Body and of counteracting its effects.* By J. LAURENCE SMITH, M. D., of Charleston, S. C. Dated Paris, Dec. 6, 1840. (Silliman's Journal, vol. lx.)

*British and Foreign Medical Review*, No. xxi, *for Jan.* 1841. *Art.* 2—*Review of Orfila's Memoirs on Poisoning.*

THE primary objects of investigation in legal medicine during the last two years have been—the detection of the principal mineral poisons in minute quantities—and the nature of insanity as excusing from the responsibility of criminal acts. We propose in the present article to consider the first of these and to present to our readers, a condensed historical view of the discoveries, and improvements that have been made, together with a notice of the discussions to which they have given rise.

Prior to the period just named, the introduction of Mr. Marsh's apparatus was the most prominent recent improvement. This is in fact an apparatus for producing arseniuretted hydrogen, while by the combustion or that gas, metallic arsenic can be obtained and collected.

In a memoir read by Professor Orfila, before the Royal Academy of Medicine in Paris in Jan. 1839, the question which he proposed to consider was as follows. *When arsenious acid has been introduced into the digestive canal, or applied to the sub-cutaneous cellular tissue, can it be*

*detected in the blood or in the organs of the animal economy, with which it has not been placed in contact?* The following are some of his experiments.

*With solid arsenic in fine powder.* Twelve grains were inserted inside of the thigh of a dog and the wound was closed with several sutures. In three hours, vomiting occured and death followed during the night. The matter rejected gave no trace of arsenic with Marsh's apparatus, nor could any be detected in the urine, bile, or blood. The stomach, liver, heart, lungs and brain were then boiled for an hour in distilled water and the products examined separately, but with similar ill success. It now became a question whether the quantity absorbed might not be so small as to prevent its detection. A small bag, containing eighteen grains, carefully sewed up and dried was next applied to the cellular tissue as before, and the edges of the wound were united by suture. The animal died after vomiting in eight hours. The bag on being withdrawn and dried, weighed $16\frac{}{10}$ grs., having lost $1\frac{4}{10}$ of a grain of arsenic. In similar experiments with smaller and larger quantities, he found that about the same quantity was lost in each. It now occurred to our author that in the previous experiments, he might not have prolonged the boiling of the viscera sufficiently. He adopted the following course. Having applied two grains of solid arsenic as usual inside of the thigh, he after death, dried the brain, lungs, heart, liver, spleen, digestive canal, and kidneys separately in porcelain capsules, having previously added to each a few drops of the solution of potash in alcohol. Each of the viscera was then pulverized with its weight of nitrate of potash; the mixture burnt in small quantities in a Hessian crucible, and the ashes treated with water and sulphuric acid. All these liquids gave traces of arsenic with Marsh's apparatus. He then in another experiment, boiled all the above organs together, evaporated the liquor down to two ounces, and found indications of the poison. Again, the skin and bones of the same animal (but not the limb to which the arsenic had been applied) were boiled as before, and in order to get rid of the jelly produced, the product was boiled with nitro-muriatic acid and then evaporated almost to dryness. On adding water to it and employing Marsh's apparatus, arsenic appeared in eight minutes, and the quantity of it was sensibly larger than that obtained from the viscera.

*Experiments with arsenic in solution.* Eighteen grains dissolved in three ounces of water were introduced into the stomach of a young dog and the œsophagus was then tied. Death ensued in three hours. The digestive canal was immediately removed, without being wounded or discharging a drop of the fluid contained in it. The blood, urine and bile were then collected and tested with the apparatus, but no traces of the arsenic could be found. So also when the heart was boiled down with distilled water. He then boiled down with water the brain, lungs, liver, spleen and kidneys, and the liquor after being evaporated and concentrated to one-tenth of its volume was tested and gave indications of arsenic. Various muscles of the trunk and extremities were submitted to the same process, with a successful result.

The body of this dog had not however been subjected to these trials, until eighteen hours after death, and it might hence possibly be urged, that the poison had reached the parts in question by imbibition. To meet such an objection, he in one instance, destroyed a poisoned dog by hanging, at the time when it appeared to be dying, and in another killed it eighty-five

minutes after taking the poison. In both, the blood when treated as before, gave traces of arsenic, as did also the various viscera and the muscles.

Comparative experiments were instituted with the viscera and bones of dogs and man, known not to have been poisoned, or to have taken arsenic, and in no case, could he detect any traces of the poison with Marsh's apparatus.

In all his experiments, Orfila had used porcelain dishes of various sizes, whenever any animal substances were to be boiled. Aware however that these may not always be attainable, he repeated the processes both in copper and iron vessels, and with both succeeded in obtaining arsenic. He accordingly recommends their use, advising at the same time, to commence the investigation, with substances free from poison and to submit these to the usual tests.

He now proceeded to ascertain whether the process of Rapp is the most efficient for obtaining the largest portion of arsenic. One sixteenth of a grain in Marsh's apparatus produced upwards an hundred large brown spots on the porcelain capsules, but when the same quantity, mixed with some dried intestine had been deflagrated with nitre and then treated with water and sulphuric acid, the liquor gave only a few fawn coloured spots, showing evidently that a *notable portion of arsenic had been dissipated.* So also when the same quantity of arsenic, having been previously mixed with a drachm and a half of powdered glue was projected gradually on melted nitre for the space of fifteen minutes, the product treated as before gave scarcely a trace. But when to the same mixture, nitre was added and the whole triturated together and then burnt for five minutes, arsenic was distinctly manifested. Again, when nitre and arsenic were added to a mixture of broth and bile, and the same process was pursued, by evaporating the mixture to dryness, gradually burning it and then treating it as before, the poison was readily detected.

It would thus seem, that by adopting the process of Rapp, a portion only of the organic matter is perfectly burnt—some is merely carbonized, and a portion of the arsenic is hence volatilized. It is evidently preferable previously to unite the organic matter with nitre, so that both can be dried together.

The next point to which our author directed his attention was whether all the arsenic in a solution is precipitated by sulphuretted hydrogen. He boiled a portion of the human body with the eighth of a grain of arsenic—allowed the liquor to cool so as to separate the fat, and then treated it with sulphuretted hydrogen. A yellowish brown precipitate was produced, which after decanting off the liquor, he placed on the filter, washed it with solution of ammonia until it would take up no more, and then on applying heat to drive off the ammonia, obtained an impure sulphuret of arsenic. This was now boiled with nitric acid in order to procure sulphuric and arsenic acids, and the product placed in Marsh's apparatus indicated the presence of the poison.

The decanted liquor was next evaporated down to one-half of its bulk. It deposited additional organic matters, and when filtered was mixed with an ounce of nitre. This was reduced to dryness, burnt in a Hessian crucible, and the ashes were treated with water and sulphuric acid. The liquid, when submitted to Marsh's apparatus, yielded as much arsenic as the sulphuret had in the previous experiment. The same result was

obtained in several successive trials with various materials, and this even when the decanted liquor was not boiled, but allowed to stand for ten days in order to clear itself, and then mixed with nitre.

The inference to be drawn from these results is too manifest to need remark. We should always examine both portions—the precipitate and the remaining liquor.*

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*Process for discovering a soluble arsenical preparation when it has been absorbed.*—After washing the body with distilled water, the skin, muscles, blood-vessels and viscera should be cut into small pieces and the bones broken down into small fragments. Place the whole in a large copper or iron vessel, having previously added ten or twelve grains of solid alcoholized potash, and pour on distilled water sufficient to cover the whole mass. It must then be boiled for six hours, taking care to add water every half hour to supply the loss from evaporation. Filter the liquid carefully through fine linen, and when it becomes cool, and the fat has separated, divide this last again into small pieces and boil it in distilled water another hour to dissolve the arsenical acids or salts that it may contain. This liquid should be added to the other.

After slightly acidulating the fluid with muriatic acid, it should be submitted to a current of sulphuretted hydrogen gas for at least two hours. This process is not, however, according to our author complete, unless the whole be now boiled for ten or fifteen minutes, since, if the poisoning has been produced by arsenic acid, or an arsenite, or a soluble arseniate, the precipitate will not form except at a high temperature. After a proper time the liquor is decanted and the precipitate collected on a filter. The latter contains the sulphuret and organic matter. Wash it frequently with ammonia, and then add nitric acid sufficient to saturate the ammonia and to precipitate the sulphuret, which will now take on its characteristic yellow appearance. Remove all the fluid from it by a pipette and dry it. It may now be submitted to the usual processes recommended by writers, but if we wish to apply the apparatus of Marsh, this sulphuret should be heated in a porcelain capsule with a few drops of nitric acid, so as to convert it into sulphuric and arsenic acids. The dried product is then dissolved in distilled water, and is ready for the experiment.

The decanted liquor should now have added to it about a pound of pure nitre. Evaporate the mixture to dryness and then project portions of it in an earthen crucible heated to redness, in order to ascertain whether there is nitre sufficient to burn the animal matter. This we may suppose to be the case, if the ashes are yellow or green, but if they are black and carbonaceous, an additional portion of powdered nitre should be added to the mass. The whole is then successively deflagrated, and the product is found to consist of nitrate of potash in excess, carbonate of potash—arseniate of potash, (the arsenious acid having been converted into the arsenic,) with various other salts and insoluble matters. Wash the ashes with distilled water, add sulphuric acid from time to time until all effervescence ceases. The liquor now consists of sulphate of potash and arse-

* The action of sulphuretted hydrogen on arsenic mixed with animal matter is quite uncertain. In some instances it cannot be made to produce its characteristic yellow, and we must then resort to other processes. But in no case are we, according to Orfila, (*Médecine Légale,*) *immediately* to expect its effect. Many hours must frequently elapse before the change of colour takes place, and he has known a period of eight, nine, or ten days to pass before a precipitate was formed.

nic acid, and the nitrous gas that it contains must be driven off by boiling for ten minutes. Then allow it to cool, the insoluble portions and the greater part of the sulphate of potash will precipitate, and the decanted liquor will, on being tested by the apparatus of Marsh, exhibit indications of arsenic.

M. Orfila next proceeds to consider the apparatus of Marsh, mentions some objections to it, and proposes a modification. He also notices the stains produced by antimony, and how far they resemble those from arsenic. As this branch of the investigation will require a reference to the labours of other medical jurists, we postpone a notice of it for the present. If the presence of arsenic be suspected in the liquid vomited, or in those contained in the digestive canal, and if either be mixed with organic matters, let the liquor be filtered, and then pass into it a current of sulph. hydrogen gas, adding some drops of muriatic acid to assist the precipitation. Allow sufficient time for that purpose, and then reduce the sulphuret in order to submit it to the apparatus of Marsh, or apply the tests usually recommended. We must here also recollect that the fluid decanted from the precipitate still holds arsenic in variable quantities in solution; and in order to ascertain this, let it after filtration be mixed with pulverized nitrate of potash heated to dryness. The product must be incinerated, treated with water and sulphuric acid, and is then ready for the apparatus.

It may be useful to enumerate some of the conclusions deduced by Orfila from the above experiments. 1. Arsenious acid, introduced into the stomach, or applied to the subcutaneous cellular tissue of dogs, is absorbed. It passes into the blood and is carried into all the organs of the animal economy. 2. When it is placed in fine powder upon the tissue, no matter in what quantity, only a grain and a half will be absorbed, and this causes death. 3. That it is absorbed when taken into the stomach, either in a solid or fluid state. 4. That similar effects will be produced on man, although larger doses may be necessary to induce death. 5. That it is indispensable by chemical means to ascertain the presence of arsenic thus absorbed, and particularly so, if we cannot find it in the matters vomited, or in the fluids of the digestive canal. 6. For this purpose, we may treat several of the muscles, or one of the viscera of the body, previously well dried, but it is preferable to employ the whole or at least the half of the entire body, as the portion of poison absorbed is often so small as to yield an uncertain result with less. 7. That the presence of arsenic may be detected in the blood of a person poisoned, provided we act on a number of ounces. Venesection is indicated in these cases, not merely because it is an antiphlogistic, but as it also presents us with a means of withdrawing from the circulation, a portion of the absorbed poison. 8. The presence of arsenic, detected by the process described above, in parts of the body with which it was not originally placed in contact, proves incontestably that the poison was taken during life. 9. Although it may hereafter be proved, that there exists naturally in some parts of the human body an arsenical compound, yet it has been clearly shown by experiment that this compound is insoluble in boiling distilled water. The value of the process is hence not impaired.

In a subsequent memoir, published in October 1839, Orfila commences by conceding that the nitrate of potash process is complicated and tedious. He is hence induced to advise the substitution of another that he has found

more simple and expeditious. It is the carbonization of the organic matter after it has been well dried, with pure concentrated nitric acid.

Take the liver, lungs, spleen, or any other organ, or a certain quantity of the blood supposed to be poisoned, and dry it thoroughly. Then treat this with pure, concentrated, nitric acid in a porcelain vessel or capsule. The proportions which he advises are as follows:—For three ounces of dried blood, seven ounces of acid are required; for six ounces of dried cerebral matter, two pounds and four ounces; for both lungs dried, and weighing five and a half ounces, a pound of acid; for the heart weighing after drying one ounce six drachms, five ounces; for twelve ounces of dried liver, thirty-four ounces of acid; for the stomach and intestinal canal dried and weighing three ounces, nine ounces; and for muscle as dry as possible, and weighing twenty-two ounces, four pounds and four ounces. For the other organs, nearly in the same proportion according to their affinity to the parts already named.

The details of the process are thus given:—The whole of the acid is to be poured into the capsule, which is then placed over a gentle fire. Add gradually fragments of the dried organ until the whole is dissolved. Nitrous gas will be copiously evolved. If too much of the animal matter has been added at once, an enormous quantity of froth (*mousse*) is formed, which may boil over and cause the loss of some arsenic. The liquor, which at first was yellow, now becomes orange-coloured, and finally a deep red; it is also thickened. The process of carbonization commences on the circumference, but we must not remove the vessel from the fire, until a thick black smoke begins to escape from the whole mass. After allowing the vessel to cool, the charcoal, which is light, friable, and more or less greasy, must be collected and powdered in a mortar. It is then boiled for twenty minutes in seven or eight ounces of water, so as to dissolve the arsenic acid formed by the action of nitric acid on arsenic. The filtered liquor is then submitted to Marsh's apparatus.

The residuum of the charcoal may be mixed with a proper proportion of nitre, dried and then burnt in a Hessian crucible. If it be then treated with sulphuric acid and tested as already directed, we may occasionally find, even in this, minute traces of arsenic.

Our author states that he has successfully employed this method in the following instances:—A dog was poisoned with twelve grains of arsenious acid introduced into the stomach. The blood, heart, lungs, liver, spleen, kidneys, and the product of an aqueous decoction of the limbs were each submitted to the action of nitric acid, and the carbon obtained from their decomposition gave notable indications of the presence of arsenic. The stomach of Soufflard, a poisoned individual, was boiled in distilled water, and the liquid treated with sulphuretted hydrogen gas. At the end of three months there was a copious deposit of sulphuret of arsenic on the filter. The remaining liquor, almost transparent, was now evaporated to dryness, and carbonized by nitric acid. This dissolved in boiling water, and tested by Marsh's apparatus, produced a number of arsenical spots. A portion of the liver of Lorrin, who had poisoned himself, was submitted to the same process with similar results. Again, Mercier, a person supposed to have been poisoned, was disinterred a fortnight after death, and the usual chemical examinations were instituted without success. Four months afterwards, the body, in a state of putrefaction, was again raised. The liver and limbs were submitted to the carbonizing process, and a

great number of arsenical spots were obtained. Lastly, a female took arsenic in fine powder in a cup of coffee. Twelve hours afterwards she was bled. Orfila received about ten ounces of the blood from Casimir Broussais, dried it carefully in a porcelain capsule with four grains of alcoholized potash, and then decomposed the product, weighing two and a half ounces, with five ounces of nitric acid. The resulting charcoal, treated with boiling water, and submitted to Marsh's apparatus, gave numerous small arsenical stains, little coloured, but brilliant.

Remarkable as are these results, the reader must however understand that there are difficulties which may impede or prevent the success of similar experiments. Unless the organ be thoroughly dried, the process will be tedious, and so large a quantity of froth will be produced, as to endanger the loss of the arsenic. It would also seem that great nicety is required in the carbonizing process. From a number of experiments, Orfila deduces the following conclusions. 1. In using nitric acid to detect absorbed arsenic, we must avoid carbonizing the soft parts rapidly and with flame, or slowly, so as to disengage a pyrogenous odour; in either case the greater part, if not the whole, of the arsenic will be lost. 2. The loss of arsenic will be in proportion to the quantity of organic matter that is experimented on. 3. The best mode of extracting arsenic, is to carbonize the organs in an instant, without flame or ignition, and with the production of a thick smoke, and of a bulky and spongy charcoal. Even this, however, will not extract all the arsenic contained in the tissue.

It will be seen, from these cautions, that the author is not perfectly satisfied with the process in question. He is fearful of the loss of a portion of the poison, and therefore introduces a repetition of the sulphuretted hydrogen process given in the first memoir. After going through the preliminary steps, he advises the examination of the precipitate in the manner there recommended; but the filtered liquid, although no longer affected by sulph. hydrogen may still contain arsenic, and for the detection of this, he directs that it be evaporated to dryness and treated with the nitric acid process. The remains of the viscera left after making the decoction in water, should also be dried and submitted to the same test. If there are materials sufficient, both processes should be employed, and Orfila distinctly states, that in several instances, without resorting at all to the sulphuretted hydrogen process, he has proceeded at once to act on the dried organ with nitric acid.

We come next to the consideration of three memoirs by Orfila, in which the possibility of the presence of the arsenic, other than from poison, is discussed. The questions to be solved are the following. 1. *Does arsenic exist naturally in the human body?* 2. *Does it exist in the earth of grave-yards?* 3. *Is arsenic contained in any of the apparatus or reagents that we employ for ascertaining its presence.*

1. *Does arsenic exist naturally in the human body?*—Courbe, a French chemist, supposed that he had found it in the animal tissues, when in a state of putrefaction, but distrustful of his accuracy, requested the aid of Orfila in continuing the inquiry. That individual subsequently confirmed the fact, and conscious of the important bearing of this point on the new mode of analysis proposed by him, extended his experiments so as to meet all proper objections. The following are his deductions. Arsenic exists in human bones. If these be calcined, taking care not to raise the temperature too high, (this may volatilize the arsenic,) and also to avoid

contact with the fuel, an ash will be obtained of a grayish colour, mixed with black spots; this must be powdered and sifted, treated with sulphuric acid, three ounces to eight ounces of ash and water is subsequently to be added from time to time; after digesting for several days, the mixture is to be boiled, and taking care to supply the loss by evaporation with water. The filtered liquor is now submitted to Marsh's apparatus, and yields brown, brilliant, and thick arsenical spots. This result was obtained from the bones of the corpses of adults, who had been dead some days, or buried several months. When the calcination is effected at a white heat, no arsenic is obtained, nor is any procured from the bones of commerce reduced to a soft paste, but if they be subjected to heat, and to the processes indicated, (nitric acid, potash, and sulphuric acid,) a certain quantity of arsenic is obtained. Orfila infers from his series of experiments, (*a*) that the bones of the human adult, of the ox, sheep, and dog, contain minute portions of arsenic, which it is possible to discover with pure potash and pure sulphuric acid; (*b*) that the quantity of arsenic is not increased by long burial; (*c*) that it is preferable to employ the paste phosphate of lime in experiments, instead of the vitrified phosphate, as the arsenic is partly volatilized during the vitrification; (*d*) that the condition most favourable for the detection of arsenic, is when the bones have not been too intensely calcined, nor have been in contact with the fuel: (*e*) *that it is impossible to obtain an atom of arsenic when they are simply boiled in water.* In case this should be practised and arsenic should be discovered, we must believe that it has been absorbed in some way or other, and not that it belongs to the arsenic naturally found in the bones.

*No arsenic could be found in the viscera.*—All the organs of a dog were treated separately by the processes already described, but without any effect. The blood, brain, liver, spleen, intestines, and stomach of an adult gave no traces of it. At present, therefore, we may assert, that with the nicest tests no arsenic can be detected in the viscera. *It is not proved that the muscles contain arsenic.*—Twelve pounds, taken from the corpse of an adult, dried and then carbonized by nitric acid, and tested by Marsh's apparatus, gave some white opaque spots, and others of a bluish or yellowish tint, but they possessed none of the characteristics of arsenic. It is possible, however, says Orfila, that other processes *may discover it, and he therefore puts his proposition in the above terms.*

The application of these results to a medico-legal case, is evident. The viscera are the organs on which we should depend for decisive appearances, and our author advises, in order to avoid any cavil, that all the bones or fragments of them should be carefully removed before commencing our experiments.

2. *Is arsenic contained in the earth of grave-yards?*—It may happen that human remains require to be examined, after the coffin is decayed, and they have become mixed with the earth—or rain may have dissolved a portion of the superincumbent materials and united it with the body. In either case, the above question acquires some interest.

Orfila supposes that the earth of several grave-yards, containing, however, more or less of bony fragments, gave *slight* indications of arsenic, by boiling with sulphuric acid, evaporating and submitting to Marsh's apparatus. From others, however, he could not obtain a trace. But when the viscera of bodies found in the above arsenical earths were examined, no indications of the poison could be discovered. From experi-

ments, also, he deems it highly improbable that earth which contains a soluble arsenical compound, can yield it to a decayed human body, so as to give it the indications of poisoning.

If, therefore, a body be so much decayed that it forms part of the earth, and we find an arsenical compound soluble in cold water, and cannot, at the same time, detect the arsenic in the ground within a few feet of this spot, the safe opinion is, that the poison has been furnished by the body, and not by the earth.

3. *Is arsenic contained in any of the apparatus or reagents that we employ for ascertaining its presence?*—This constitutes the subject of an elaborate memoir. He notices the various articles in order. *Sulphuric acid.* Vogel of Munich, Wackroder, and Berthels, have each detected the presence of arsenic in this substance. The first of these concludes from his experiments, that it occurs more or less in the concentrated acid made in leaden chambers, but that it does not occur in the German fuming sulph. acid. Wackroder found it in an acid, called English, but which is probably from Bohemia, and is used extensively in commerce. (*Journal de Chimie Médicale.*) Again, Vogel asserts that distilled sulphuric acid is perfectly free from it; and lastly, he states, that arsenic, when present, always occurs in the form of arsenious acid.

The experiments of Orfila lead him to the following conclusions. Should arsenic be present, it probably exists in the form of arsenious and arsenic acids —a mixture of both. The arsenical sulphuric acid, if the poison be not in too small quantity, may be detected by introducing a portion of it, *with four or five times its weight of water*, into a vessel containing sulphuretted hydrogen gas. The liquor assumes a yellow tinge, and after a time deposits sulphuret of arsenic mixed with sulphur. Collect this on a filter—wash it repeatedly with diluted liquid ammonia, so as to dissolve all the sulphuret. The ammonia, if now treated with pure nitric acid, will abandon the sulphuret. These directions should be strictly followed, since the *concentrated* sulphuric acid, if used, may, by this operation, form yellow spots of sulphur.

In more minute quantities, the presence of arsenic may be detected by using Marsh's apparatus. But our author avows distinctly, that he has not yet been able to obtain any commercial sulphuric acid from which he could procure the spots in question. He was obliged to experiment with the artificial compound, and when two hundred and fortieth of a grain of arsenic was added to the acid, he succeeded perfectly.*

Sulphuric acid can be completely purified of this substance by passing sulphuretted hydrogen gas through it: after some time filter the liquor through plates of amianthus. The sulphurets of arsenic will deposit themselves on this in different layers. Then boil the liquor to expel the remainder of the gas and distil.

No arsenic has yet been detected in *nitric acid*, but we may, if doubtful, test it by Marsh's apparatus. *Nitrate of potash* is also free from it. But it may be decomposed with concentrated sulphuric acid, and after getting rid of all the nitric acid, saturate with potash—then heat it with three or four ounces of water, so as to dissolve any arseniate or arsenite of potash that may have been formed. Filter and wash off the sulphate of potash, and submit the residuum to Marsh's apparatus. *Zinc* is said

* There seems to be some contradiction here, as I certainly understand M. Orfila to say, in other parts of this memoir, that he has met with arsenical sulphuric acid.

to contain arsenic, so also *iron*. It is however remarkable that the same arsenical sulphuric acid, which readily produces spots, on being tested, will not present any when acting on zinc and a small quantity of water. In five hundred experiments with zinc, Orfila detected the presence of arsenic only three times. If any doubts exist concerning it, try it with water and sulphuric acid, and cause both a strong and feeble flame. It may be made perfectly pure by reduction from the sulphate of zinc. Our author could not detect the presence of arsenic in cast iron vessels that were employed in experiments, nor does he imagine it probable that they would give it up (if present) to the decoction of animal matter, particularly when the acids of this have been saturated, as directed, with pure potash. They should be well cleansed, after every trial, with a solution of potash and rubbed bright. So also with Hessian crucibles, porcelain vessels, glass tubes, &c. It is all important that they retain no arsenic from previous experiments. The glass tubes used in Marsh's apparatus should have a small and well rounded aperture, if otherwise, the arsenical matter may be condensed on them and not deposit itself on the capsule.

While engaged in the investigations from which the memoirs which we have now analyzed were prepared, several medico-legal cases occurred that called for their immediate application. Two of these, from the interest that they have generally excited, deserve a particular notice. The first has been already alluded to.

*Case of Mercier.*—Louis Mercier, the father of several children, one of whom was of weak intellect, married a second wife. The latter was very frequently heard to express her disgust at being compelled to live under the same roof with the idiot boy, whose habits were extremely unclean and revolting. On one occasion, the father was heard to say, in reply to some of her remarks, "Never mind, it will soon be over." On the 13th of December 1838, he purchased an ounce of arsenic at an apothecary's shop. On the 15th, his son was seized with vomiting: this continued for several days, but no medical aid was asked or given, and death ensued on the 22d. None of the matters vomited were recovered.

A fortnight after death the body was disinterred on suspicion. There was acute inflammation of the digestive canal, with minute ulcerations of the mucous membrane, particularly at the large curvature of the stomach. The liquid found in the stomach and intestines was carefully tested with sulphuretted hydrogen, and subsequently with Marsh's apparatus. Failing in the detection of any poison, the chemists of Dijon then took the stomach and intestines, cut them into fragments, boiled them with nitric acid, passed a current of sulphuretted hydrogen gas through the liquor, and subsequently applied the apparatus of Marsh, but in none of the experiments was there a trace of arsenic discoverable. The moral proofs of the poisoning, however, became stronger every day. Orfila was officially consulted, and by his advice, the body was again disinterred in April, four months after it had been first buried. The remains of the corpse were sent to Paris (eighty miles,) to be again examined. What remained of the intestinal canal bore no longer any trace of organic structure, and all the other parts were more or less disfigured. It was to this mass of flesh, half decomposed, that he had to apply his new method. He performed the examination with the assistance of Devergie, Le Sueur and Ollivier (D'Angers,) and obtained indications of the presence of poison, (arsenical spots,) not only from the liver and limbs, but also in the

fluid of the cask in which the body had been transported. They therefore gave it as their opinion, taking into account the symptoms, the appearances on dissection, and the present results, that Mercier the son had been poisoned. Devergie alone was unwilling to go thus far, but he conceded that there was a highly probable presumption of poisoning, provided Mercier had not used any arsenical medicines shortly before death, and also, if the ground in which he had been interred did not contain arsenic.

The advocates of the accused were not inactive. They invoked the assistance of Dr. Rognetta of Paris, apparently a bitter enemy of Orfila. He did not hesitate to assert that the appearances found on dissection proved nothing more than the presence of disease; and he deemed the results of the chemists of Dijon as conclusive against the existence of poison. By his advice, Raspail, the chemist, was consulted. His answers were so favourable, that he was summoned as a witness, and appeared before the Court of Assizes in that capacity, to the great astonishment of Orfila, (says the reporter,) who was not aware of his coming.

The so called deposition of Raspail is nearly equal in length to a three hours' congressional speech. It is in fact an address to the jury, in which the subject of poisoning by arsenic is elaborately argued. Every opportunity is at the same time seized to weaken or destroy the value of the experiments of the opposing witness. However the manner of this production, and its gross personalities may be condemned, yet it contains some remarks worthy of consideration.

He contends that when, after failing to detect either solid or fluid arsenic in the digestive canal, we proceed to look for it in the tissues, we must recollect, that the poison in small quantities may have been introduced either accidentally, or as a medicine. The arseniate of copper forms the principal constituent in the colour of green paper hangings. The emanations from this when damp may be inhaled. There are also many occupations—such as the whitesmith, the tinman, &c., in which small portions of arsenic may enter or pass into the circulation. Suppose, (says he,) you should put into Orfila's iron pot the body of one of the workmen in our silver mines which contain a notable proportion of arsenic, would it not produce, by his mode of proceeding, a vast number of arsenical spots?

Again—is it not possible that the poison may pass by infiltration into a body laying five months in the grave? At all events, these and many other causes may explain the presence of arsenic in *imponderable quantity* without necessarily resorting to the idea of poisoning.

In answer to a question of the president judge, asking his opinion of Marsh's apparatus, he replied that this was not a new discovery, but an improved instrument. Chemists had long known how to make arseniuretted hydrogen—they were acquainted with its inflammability, and that on being fired, it deposited metallic arsenic, or with a higher heat, arsenious acid. The apparatus of Marsh was intended to exhibit these effects on a small scale—to operate, in fine, on minute portions of arsenic, and this is accomplished by forcing the gas through a small tube and directing its flame on a plate of porcelain.

The tests formerly in use had failed in preserving their distinctive characters. The ammoniaco-sulphate of copper turned green with the juice of coffee not burnt as well as with arsenic. The phosphates and onion juice produced similar results with arsenic or nitrate of silver. Then Marsh's apparatus was announced. A single spot is deemed sufficient,

and this spot may be *antimony*. They are *visible* but *imponderable* spots. You throw aside quantitative tests and adopt infinitesimally small ones. This is *homœopathic legal chemistry*.

To these and many similar suggestions, Orfila replied that all the tests used by him had been most carefully examined previous to the experiments, that Marsh's apparatus was resorted to, only because the others had not proved sufficiently minute—that the spots obtained presented four distinct characters; they were brilliant, exhibiting the appearance of metallic arsenic, were volatilized by heat; they dissolved in nitric acid, and this being evaporated, left a yellowish white residuum, which when treated with nitrate of silver, gave a brick red precipitate, the arseniate of silver. If Raspail would point out any other substance, than arsenic, possessing these four characters, he would instantly tear his report in pieces and abandon his opinion.

If the doctrine as to grave-yards be admitted, we should be altogether precluded from ascertaining the presence of poison in any body after it had been disinterred. But he denied the fact altogether. He had disinterred two bodies from ground ascertained to be arsenical, and could not find a trace of arsenic by the tests in question. At four different times also, several pounds of the earth surrounding the body of Mercier had been analyzed, and on only one occasion was there a very slight trace of arsenic, and even here it was necessary to employ boiling sulphuric acid.

Orfila denied that coffee juice would produce a similar green, and even if it did, the garlic smell would be wanting. Raspail accepted the challenge of his opponent, as to the four distinctive characters. A vast number of substances (said he) are soluble in nitric acid—every substance of an animal nature when treated with it becomes yellow—while the alkaloids redden from its application. Again, let an essential oil, coloured, be mixed with phosphate of ammonia, a salt quite common in the animal tissues. This volatile mixture passed through the flame of hydrogen, will deposit spots on porcelain, having that metallic lustre which phosphoric acid gives to every substance half carbonized. These spots are soluble in nitric acid, which will colour them yellow. The phosphate will give a yellow precipitate with nitrate of silver; and the reaction of nitric acid on the organic matters present, may produce a brick red precipitate.

To these assertions, Orfila interposed a denial, and the court very properly closed the discussion, by directing an investigation of the spots on porcelain, which Orfila had obtained from the body, and now presented to the court as arsenical. Orfila, Sene, Payen and Raspail were appointed to superintend the analysis. Raspail acceded to this, protesting at the time, that although they were proved to be so, the charge of poisoning ought not to be considered as established.

At the end of a few hours, the commisson reported that they had compared the spots with others obtained that morning from a known quantity of arsenic—that they were identical—that they had noticed the garlic odour from both, and that on making comparative experiments with antimonial spots, the evaporated residuum after the action of nitric acid, gave a brick red with nitrate of silver to the arsenic, and a black to the antimony. They therefore reported that the spots presented by Orfila were arsenical.

Raspail indeed objected to this conclusion, and again addressed a long explanation to the court. He was followed by the advocates for the pri-

sioners, when the cause was submitted to the jury. They acquitted the female, but found the father guilty *with extenuating circumstances*, and he was condemned to imprisonment for life.*

*Case of Madame Laffarge.*—The trial of this female has awakened great interest, and its leading facts are generally known. I will therefore be as brief as possible in stating the moral circumstances. The chemical testimony will require more of detail.

Although it appears like prejudicing the reader, yet it is necessary in preserving the order of time to state that Madame Laffarge (aged 24) was accused, tried, and convicted of having robbed a countess of certain diamonds. She interposed an appeal to a higher court, and that tribunal set aside the verdict, on the ground, that the prisoner had been accused of *poisoning her husband*. The trial for this crime came on, in September 1840, at Tulle, before the Court of Assizes of the Department of Correze. The evidence ran thus. Maria Capelle was married in August 1809, at Paris to M. Laffarge, through the instrumentality of her aunt, neither of the parties having had much previous knowledge of each other. The next day, they repaired to Glandier, where Laffarge had iron works. His wife seems to have repented of her union in a very few days—and desired a separation, declaring that she loved another. This dislike however appears to have gradually worn off, and a reconciliation took place. In October, Laffarge made an improvement in his process for manufacturing iron, and he communicated it to his wife, as probably promising future profit. He shortly after made his will in her favour, and she at the same time, returned the compliment.

Laffarge went to Paris, to take out a patent. The parties kept up an affectionate correspondence. On the 16th of December, Madame purchased some arsenic from an apothecary to poison rats. She on the same day, requested her mother in-law, to have some *small* cakes baked, in order to send, along with her portrait, to her husband. On the 18th he received but one *large* cake at Paris, and immediately ate a portion of it. During the night he was seized with colic and frequent vomiting, and remained in bed during the next day. It appeared in testimony, that at the same time, Madame Laffarge in the country, expressed fears lest a letter with a black seal should be received by her, and asked how long widows wore their mourning in the country, and said that she would not wear her weeds above one year as at Paris.

On the 3d of January, the husband returned weak and ill. She appeared affectionate, and in the evening requested him to partake of part of a fowl and truffles; he did so and was immediately seized with colic and vomiting. A physician was sent for, who considered the symptoms as those of intussusception. Incessant vomiting continued, with burning pain in the throat, colic, coldness of the body and diminished action of the heart. On the 5th Madame Laffarge procured more arsenic, by desiring the attending physician to write for it, in order to destroy the rats. Subsequently she obtained another portion through Denis, a person employed in the iron works, and whom she had requested to preserve secrecy. She had before this made no secret of having arsenic in her possession.

The family began to suspect her. She had used an egg emulsion, and

* Gazette Des Hopitaux for Dec. 1839, and Jan. 1840; Lancet, Dec. 14, 1839; American Journal of Medical Sciences, vol. 25, p. 487, from the Gazette Médicale.

her husband requested some of the same drink to be prepared for himself. It was brought to her room, and Miss Le Brun, who was then in bed in the same room, saw Madame Laffarge empty in it from a paper a white powder and stir the same with her finger. She inquired what the powder was, and was told by madame that it was orange flower. It was then carried to Laffarge, who refused to partake of it. Miss Le Brun, in examining it, noticed a white powder on the surface, and this being communicated to Laffarge, he desired that it should be given to an apothecary chemist for analysis. He detected arsenic in it, and this was subsequently corroborated by scientific chemists. On the same day, another drink was prepared for Laffarge, consisting of a small quantity of wine mixed with water, sugar and some bread. Miss Le Brun was in the room with the prisoner, and saw the latter take the glass containing the drink to a cupboard, and then heard a noise like that of a spoon coming in contact with another vessel. Madame presented a spoonful to her husband, who was in bed. He had no sooner partaken of it, than he exclaimed, "Ah Marie! what have you given me? It burns me." Miss Le Brun went to the cupboard and observed a sprinkling of white powder and a small pot containing a similar powder. Another witness testified to the same facts. The drink and the powder were examined chemically and were found to contain arsenic. On the same day the same young lady observed a glass containing water and a white powder, in the room of Laffarge. Madame Laffarge said it was gum water, and adding much water to it, drank a little, by way of showing that it was similar to her usual gum water beverage. In the night, she was seized with colic and vomiting.

On another occasion the mother of Laffarge saw the prisoner mix a powder with the drink of her husband. Friction with flannel had been ordered for the patient over the stomach. Madame Laffarge covered it with laudanum, and olive oil, and a white powder. Arsenic was detected in this by chemical analysis

Another physician, Dr. Lespinasse, was called in on the 13th. The above circumstances were communicated to him, and he prescribed the hydrated oxide of iron. Laffarge before death, shuddered on seeing his wife approach, and would take no food from her hands. On the morning of the 14th he died.

It is also stated, that although Madame Laffarge had obtained arsenic professedly for the purpose of killing rats, yet when the paste prepared by her order for this purpose was examined, no arsenic could be found in it.

Dr. Tournadour, D'Albay, Massenat, Bardou, Lafosse and Lespinasse examined the various fluids. The egg emulsion was treated with sulphuretted hydrogen, a few drops of muriatic acid were then added, and a yellow flakey precipitate fell down. This was soluble in ammonia. It was then treated with carbonate of potash and charcoal, and reduced to the metallic state. The same results were obtained with the panada and the sugared water. Arsenic was also detected on the flannel. The fluid contained in the stomach, when decolorized by animal charcoal, was mixed with an equal quantity of water, in which a portion of the stomach had been boiled. These fluids were boiled in a mattrass with a few drops of nitric acid; the fluid was then saturated with carbonate of potash, then an excess of sulphuretted hydrogen gas, with a few drops of muriatic acid was added, and a flakey precipitate of a yellow colour was the result. It

was collected on a filter, upon which equal parts of water and ammonia had been poured. The liquid, when again filtered and heated on the sand bath, left on drying a yellow residuum which was introduced into a glass tube, with carbonate of potash and charcoal. *Unfortunately, the tube broke, in the process of heating, and the contents were lost.*

Orfila was asked, whether the yellow precipitate obtained as above, and soluble in ammonia, was a sufficient proof of the presence of arsenic. His reply was in the negative—adding that all medical jurists required as indispensable, the reduction of the precipitate to the metallic state.

The court ordered a new analysis. M. M. Dubois and Dupuytren (brother of the late eminent surgeon) were requested to perform it. They examined a portion of the stomach—some of the liquid found in the stomach, and a portion of the matter vomited. They employed the method of Marsh, but could detect no arsenic. A brown flaky substance was obtained from the fluids, which proved to be a salt of iron.

The next order of the court was that the body should be disinterred, and a new series of experiments instituted on its remains. A large commission was appointed for that purpose. They reported that the liver had been treated with nitric acid, the result placed in a capsule, and evaporated; the residue was mixed with three times its weight of nitric acid. This was evaporated. When treated with distilled water, it resembled charcoal, and weighed two ounces. It was filtered, and sulphuretted hydrogen gas was passed into it. A yellow precipitate fell, soluble in ammonia; ammoniacal sulphate of copper gave a greenish precipitate, and nitrate of silver, a neutral yellow one, and ammoniacal nitrate, a yellowish precipitate. These precipitates, when examined by the apparatus of Marsh, gave no indications of arsenic.

In this contradictory state of the evidence, Orfila, Ollivier, and Bussy, were required to undertake another and final examination. They took the fourth part of the stomach which remained, and portions of the fluid found in the stomach, and of the matter vomited. The whole were evaporated to dryness, and then carbonized by nitric acid. The resulting charcoal was subjected for an hour, to the action of distilled water, and the liquor resulting therefrom, when filtered, was introduced into Marsh's apparatus. A number of small brown, and shining arsenical stains were obtained.

They next took a mixed mass from the organs of the thorax, and abdomen—a portion of the liver and of the heart, a certain quantity of the intestinal canal, and a part of the brain. This was boiled with distilled water for four hours, the liquid was strained and evaporated, and a portion of the residue dissolved. This decoction was evaporated, and carbonized by nitric acid. When treated in Marsh's apparatus, it gave arsenical stains. A portion of the solid matter left in the filter, was then subjected to the same process, but it was found almost impracticable to carbonize it in consequence of the presence of much fatty matter. This was, however, affected by previous deflagration with nitrate of potash—then boiling with sulphuric acid, and saturating the last with potash. The decanted liquor finally obtained, gave large brown and shining stains, and they were proved to be arsenical, by subjecting them to the nitrate of silver, which produced the arseniate.

The winding sheet, and the earth above and below the body were examined, but no trace of arsenic could be obtained.

In consequence of these results, Orfila supposed that Laffarge had been poisoned, although he conceded, that the quantity procured was extremely small. He had no doubt, that metallic arsenic would have been obtained, if the tube had not broken, and as to the second experiment, he explained the want of success, from operating on too minute quantities. So also in the third one, where only a portion of the liver was tested.

Madame Laffarge was found *guilty with extenuating circumstances*, and she was condemned to exposure in the pillory, and hard labour for life. On appeal to a higher court, the sentence was confirmed.*

* Lancet, December 26, 1840. There are also very full newspaper reports of the trial, which have been consulted in preparing the above. A great deal of fictitious sympathy has been excited for this female, and it has been lately asserted, that facts recently developed, tend to prove her guiltless of the robbery. But can any one doubt, after reading this trial, and even putting altogether aside the testimony of Orfila, that she administered arsenic knowingly to her husband?

N. B. After completing this article for the press, I received through the kindness of Drs. J. K. Mitchell and Hays, the Memoirs of Raspail presented to the Court of Cassation for the reversal of Madame Laffarge's sentence, and also his *Refutation* (in part) of Orfila's answer to the above, published in the *Gazette de Hôpitaux*, for December, 1840.

Much of these are of course a repetition of what has been already stated in the text, drugged in every part with extreme bitterness and personality. It is, however, proper to mention some of the explanations and criticisms of Raspail.

He objects that the arsenic found in the house was not sealed up, and placed under the care of a proper officer, so that its identity could have been proved without the shadow of a doubt. He suggests that Laffarge may have died from intestinal strangulation—from tape-worm—or even from the large quantity of colcothar administered to him as an antidote, and he also throws out the idea that the arsenical spots may have been derived from the metal contained in that substance. The large commission of chemists, and medical men, who operated on the liver, stomach, &c., and could find no arsenic, are highly spoken of; yet he concedes (page 77) that *they* obtained arsenic from the different powders found in the rooms of Madame Laffarge, although in the early part of the memoir, he advocates the idea, that they were merely gum arabic.

On Orfila, however, the full measure of condemnation is heaped. He should not have been summoned—his high rank in the profession gave too much weight to his opinions, when placed in opposition to country chemists. His experiments are questioned. It seems that he brought some nitrate of potash with him from Paris, and used it in his manipulations. This is repeatedly condemned, but I cannot say with what view, except to insinuate that it contained arsenic. By referring to the narrative, it will be seen that in two of his experiments, nitric acid was used, and in the third, this nitrate of potash. In the former case, the spots produced were faint, and small; in the latter, they were more numerous and striking. And strange to say, adds Raspail, the solids in this case produced more spots than the liquids of the body. In reply to his repeated remarks concerning the Parisian nitrate of potash, it is sufficient to state that the chemists at Tulle, in not a single instance employed that substance, and of course the inference suggested fails.

It will be recollected that Dupuytren and Dubois experimented without success, with Marsh's apparatus. Orfila appears to have said that they were possibly not sufficiently familiar with it—that they pushed the flame too high, and thus volatilised the arsenic. This idea is repelled with great indignation by Raspail, and he speaks in the highest possible terms of their practical skill as chemists.

The tests of arsenic are also examined, and shown in many instances to be uncertain and equivocal. Sulphuretted hydrogen may deposit sulphur instead of arsenic. This is conceded by Orfila, but he requires, in order to make the experiment available, that the sulphuret be reduced subsequently to the metallic state. The value of the brick red arseniate, produced by the nitrate of silver, is also questioned. Raspail asserts that it will cause a precisely similar deposit when added to a mixture of phosphate of ammonia and acetate of iron, and also when poured on an alcoholic solution of iodine.

Even the garlic smell is a subject of grave contention between these individuals.

I have already mentioned that the court of Cassation rejected the appeal.

Excited probably by the discussions on these trials, and at all events desirous of demonstrating the correctness of his views, Orfila again brought this subject before the Academy of Medicine, late in 1840. It appears that he had not extended his experiments to antimony also, and these we will notice hereafter. But as to arsenic, he undertook to prove, or rather re-affirmed its absorption through the digestive canal, or subcutaneous cellular tissue, mixed with the blood, into all the organs—that it remains for a time in the viscera and muscles, where its presence can be demonstrated, but that from the time of the poisoning, a part of the absorbed portion leaves the tissues, and is eliminated by the *urine*—that this elimination continues for several days, until the tissues have been completely freed from the presence of the poison—that Marsh's apparatus as modified is the best mode for detecting minute portions—that there exists in the bones both of man, and of several animals, an arsenical compound, insoluble in water, and which differs from the absorbed arsenic—that from the muscles of the human body, may be extracted a matter, which Orfila believes, to be formed of an excessively small proportion of arsenic, sulphur, and an organic substance; and finally, that in the earth of certain grave-yards, there are found quantities of arsenic infinitely small, which boiling water will not dissolve, but when treated with boiling sulphuric acid, he obtained stains from it.*

He then proceeded with his experiments on dogs. Several were poisoned—some by the introduction of arsenic into the stomach, and others by placing it below the cellular tissue. The urine was immediately examined after death, and he urges that in all medico-legal cases, this should be the first subject of notice—both during life and after death. On being submitted to Marsh's apparatus, it, in all the cases of poisoning, yielded manifest signs of arsenic, whilst that of a dog killed by hanging gave none. A very small portion of the liver of a poisoned dog was next carbonized, and the liquor prepared from it tested with the apparatus. Multiplied spots of arsenic were presented. When nearly all the organs of the suspended dog were submitted to the same process, not the smallest trace could be observed. He further proved that arsenic was not developed in the soft parts by putrefaction. He took a liver that had been twelve days in the dissecting room, far advanced in decomposition, carbonized the whole, and subjected it to the usual experiments without finding an atom of poison.†

Having thus endeavoured to present a full view of the important investigations of Orfila, and shown the severe ordeal to which they were immediately subjected on the trials just related, it only remains to consider the additional comments or criticisms which have appeared concerning them. And in doing this, I shall adopt the following order:

1. As to the absorption of arsenic.
2. The existence of arsenic as a natural constituent of the human body.
3. Its presence in the earth of grave-yards.
4. Its presence in consequence of having been used as a medicine.
5. Its presence in the reagents or apparatus that have been employed.

* In another report, it is stated as an opinion of our author, that arsenic or antimony remains in the interior organs, the liver especially, even when no traces of it are longer to be found in the urine. This would seem to contradict one of the results maintained in the text.

† *London Medical Gazette*, vol. xxvii, p. 302, 330. *Lancet*, November 14, 1840.

6. Marsh's apparatus—the objections to it—the modifications proposed—and the character of the stains produced.*

1. It will be recollected that in the early experiments of Orfila he applied small bags containing a given weight of arsenic to the cellular tissue, and after death, dried, and again weighed these. His inference was, that less than two grains was sufficient to produce death. It is objected to this, and apparently with reason, that the unavoidable admixture of the blood of the wound with the bag must render the deduction somewhat inconclusive.

It would also appear from the failure in his early experiments, that too small a quantity of blood had at first been operated on, and again, that the minute portion of arsenic present in it was probably concealed and protected from the action of chemical agents by the organic matter mixed with it. Hence the value of the new process—viz., incineration by nitric acid—which destroys to a great extent the animal matter.

In several additional instances, perfect success attended the examination months after death. "The liver from the body of N. M., suspected to have died from poison, and which had been interred for five months, was carbonized by nitric acid. The aqueous decoction yielded an abundance of arsenical stains."

"I obtained from the heart, mesentery, omentum, and a portion of the intestines of M. Cumant, a small quantity of arsenic. This person died in December 1838, his body was exhumed in July 1839, and the organs above mentioned were examined in the month of December following."—(*British and Foreign Med. Rev.*, vol. xi, p. 49.

2. *The Existence of arsenic as a natural constituent in the human body.*—As to the *bones*, the testimony is discordant and unsatisfactory Devergie, in order to meet the objection that sulphuric acid might contain the arsenic, instead of those organs, took 1000 grammes (a gramme being equal to about 15½ grains troy,) of the commercial phosphate of lime, and submitted one half to the action of sulphuric acid, and the other to that of pure muriatic acid. In either case he obtained by Marsh's apparatus arsenical stains, and they perfectly resembled each other. (*Annales*, vol. xxiv, p. 153.)

* In this arrangement I do not include the repeated attacks on the originality of Orfila. These, if correct, may impair his character as an honourable man, but do not injure the value of his improvements. Indeed, we desire, in legal medicine, an accumulation of testimony.

The most serious charge is that by Courbe. He asserts distinctly that he communicated to Orfila the circumstance that putrefying bodies contain arsenic, and that he had constantly found it in the bones and putrefying remains of grave-yards. The idea of Courbe was that the phosphate of lime may contain arseniate of lime, as we often find these salts mixed together. Orfila, however, will only allow that Courbe *announced* without *proving* the existence of arsenic in the human body.—*Gazette des Hopitaux*, December 19, 1839; *Annales D'Hygiene*, vol. xxiv, p. 313.

Dr. Rognetta pursues his adversary still further. "Valentine Rose," (says he,) "at the commencement of the present century, directed that the stomach and intestines of a poisoned person should be cut into fragments and boiled with potash previous to the usual test experiments. Orfila's sole novelty is, that he takes the whole body.

"Again—Orfila claims the idea of the absorption of arsenic as original. But such was the opinion in the days of even Ambrose Paré; and it was thus alone that the fatal effects of arsenic when applied to the skin, the vagina, or the rectum were explained."

Be it so. "But this suspicion was founded on physiological inference, and not on any ascertained facts."—*British and Foreign Medical Review*, No. 21.

On the other hand, many eminent chemists have of late years analyzed bone without finding arsenic in it. Dr. Schafhaeult of Munich observes; that he has not analyzed modern bones, but in examining those from a tumulus of a German or Celtic tribe, as well as from a Roman tomb, he could not detect a trace.—(*Lancet*, November 18th, 1840.)

Dr. George O. Rees followed precisely the directions of Orfila in all respects, but could obtain nothing like the metallic ring, although the plate was held directly in the flame. He observed in some instances an opaque white crust resembling arsenic, but it proved to be phosphate of lime carried up by the burning hydrogen. Again—the sulphate of zinc was occasionally thrown upon the test plate in the form of oxide when the escape of the gas was at all rapid. On applying the ammoniacal nitrate of silver to it, there was a faint white cloud, not unlike the arsenite of silver before it collects and shows its yellow colour.

From comparative experiments on a portion of diluted arsenical sulphuretic acid, he proved that sulphuretted hydrogen was a more delicate test than Marsh's apparatus. He obtained a yellow precipitate with the one, while the other failed to yield any result. He then took 7000 grains of Bone ash, (double the quantity recommended by Orfila,) and having proceeded through the preliminary steps required by that experimenter, subjected portions of the filtered liquor to each of those tests, but in neither was there any indication of arsenic. (*Guy's Hospital Reports*, No. 12, p. 163.)

To obviate any difficulty in medico-legal cases, Devergie advises that we should carefully remove every portion of bone that may be present when we operate on the internal organs.

*The Muscles.*—Orfila leaves this in doubt. Devergie took fifteen pounds of flesh from the body of a person who died of pulmonary congestion, cut them in pieces, boiled, and then evaporated the decoction down to one pound five ounces. This was carbonized with four pounds of pure nitric acid, the product treated with water, and then submitted to Marsh's apparatus. From fifteen to twenty brilliant stains were produced which he confidently considers arsenical. Orfila, in his reply to Devergie, asserts that he is now satisfied that the muscles contain the poison, but in quantity excessively small.

Neither of these individuals, however, relies on this result as a proof, and Orfila expressly recommends that the examination should be omitted when we have the viscera to operate on.

Dr. Smith (*Silliman's Journal*, vol. xl, p. 281,) observes, that many have supposed these stains to consist of sulphur with an infinitely small portion of arsenic. Others ascribe them to sulphur or phosphorus.

The deductions to be made in the present state of our knowledge are then the following:—It is not proved that bones in the natural state contain arsenic—it is very doubtful whether the muscles do—and it is certain that the *organs do not contain the least trace.* The application of this in legal medicine is evident. The experiments should be confined to the viscera.*

* There is an idea advanced in the *Lancet*, (January 2, 1841,) which should certainly be communicated to both Orfila and Raspail. It is this. Orfila has uniformly found a small quantity of arsenic in the bones. May not this metal be a constituent in garlic, of which the French eat so much? "If so, it will account at once," (says

3. *The presence of Arsenic in the earth of Grave-Yards.*—It will be recollected that Orfila could not obtain a trace when he treated the earth either with cold water or boiling water; but succeeded by the use of sulphuric acid. The stains however were so small as to produce the suspicion that they were ascribable to the sulphuric acid. Devergie proposes to substitute muriatic acid, and he remarks that in every case the inquiry must be twofold—whether a soluble or an insoluble arsenical compound be present. In the one case a solution is made and then subjected to the subsequent processes; in the other, the earth must be treated directly with the acid. The action of arsenic on the earths is not much understood, but from a single experiment, it would seem that arsenite of ammonia decomposes sulphate of lime, and arsenite of lime is formed. Orfila denies this, and states that even on carbonate of lime the action of the arsenite is slow and difficult. Both seem to agree that in all cases, (except those where arsenical minerals are present,) the arsenic is derived from the fragments of bones decayed by long burial.

But can *earth containing either the soluble or the insoluble arsenical compound yield it to a body buried in it, so as to make it doubtful whether the case is one of poisoning or merely of imbibition?* To test this, Orfila dug a hole three feet deep in a garden, watered the bottom with eight grains of arsenic dissolved in three ounces of water, then placed on it a human liver, and covered it with two inches of earth watered as above; and then filled up the hole. Eight days after, he watered it with two gallons of water, and soon after with eighty grains of arsenic, dissolved in water, making a total of 96 grains. Nine days after portions of the earth on the surface, a foot below, and also that in immediate contact above and below the liver were examined, all contained arsenious acid, soluble in boiling water, but not a trace could be detected by nitric acid and Marsh's apparatus, in the liver, although putrefied, and the parts examined were from the upper and lower surface. Devergie pretends to contradict this, from having immersed various organs, such as the liver and the kidneys, in a solution of arsenic, and then subsequently obtaining it. The reply of Orfila is satisfactory on this point. He endeavoured to imitate what might occur in the ordinary course, to bodies interred. The penetration of arsenic when the organs are immersed in it, is a totally different matter.

On the whole, Devergie is of opinion, that the arsenical compounds found in the earth, are generally insoluble ones, as the arsenite or arseniate of lime, and that it is difficult to suppose that rain can carry this into the decaying body so as to make the matter doubtful. Recollect that the liver in poisoned individuals, contains the largest proportion of arsenic, a condition that could not occur from imbibition merely.

It is also asked whether a poisoned body may not after a long burial lose the arsenic that it contains. Both disincline to this opinion. Putrefaction converts arsenious acid into arsenite of ammonia, and there can be no reason assigned, why this should not continue in the remains, as long as any visible traces of them are to be seen.

4. *Will the detection of arsenic be of any value, if it has been used as a medicine?*—Devergie says not, and declares that we have as yet no

the correspondent,) "for the arsenical condition of the bones of that nation—and also for the garlic smell!"

means of solving the question satisfactorily. It hence is necessary in all cases, to make the inquiry whether arsenic has been employed for that purpose.

But a new difficulty has lately occurred, in consequence of the employment of hydrated oxide of iron as an antidote. Many kinds of iron, as we shall presently see, contain arsenic, and it has been urged that the stains may be produced by the antidote. To ascertain this, Orfila subjected both forms of the peroxide, (by precipitation and by heat), colcothar, and sulphate of iron, to Marsh's apparatus without any effect. But when he administered colcothar to dogs and afterwards destroyed them in one, two and three days, although he found no traces of arsenic in the viscera, yet the fluid of the stomach and intestines in one case and the urine in another, yielded the stains. Dr. Smith, from whom I take this (Silliman's Journal) remarks that it is thus proved that colcothar sometimes contains arsenic in minute quantities, so small however, that the organs scarcely retain it, but give it off by the urine.

The medico-legal examiner must therefore test the remains of the antidote, to ascertain whether arsenic be present. (It is not always found). And again, he is once more taught to rely principally on the examination of the viscera.

5. *The purity of re-agents.*—If these contain arsenic, all our experiments are useless. As to *sulphuric acid* the testimony against it seems to be increasing. Dr. G. O. Rees (*Lond. Med. Gaz.* vol. xxvii, p. 723) has found much in the commercial article, by computation 22.58 grains of arsenic in twenty fluid ounces. He even obtained it in sulphuric acid purchased at Apothecaries' Hall, but not in the high priced article. Mr. Watson of Bolton Le Moors (*ibid.* p. 784) confirms this, and states that he has detected much larger quantities, and he and Mr. Blair, a manufacturer of the acid, have obtained a patent for purifying it of the poison. Both these gentlemen ascribe the presence of arsenic, to the acid having been made from pyrites instead of Sicilian sulphur. Devergie seems doubtful whether we can by any process free it completely, and therefore recommends the employment of another acid, the muriatic. All that we can do, according to him, is to distil it three or four times. Dr. Rees and Mr. Watson however both state unequivocally that muriatic acid also, contains arsenic.

Orfila persists in asserting that sulphuric acid can be perfectly purified, and adds that he has proved this by experiments on a large scale. He could not obtain a stain from several pounds, used in operating on earths. It is evident in every case, the sulphuric acid, as well the other acids employed, should be previously tested by Marsh's apparatus. It is generally conceded that *nitric acid* is pure. *Muriatic acid*, if doubtful, should be distilled. *Zinc* should be tested like the acids. And it must be renewed with every successive experiment. Mohr and Liebig, found that during the decomposition of arsenic acid and the soluble arseniates by zinc and sulphuric acid, a portion of the metallic arsenic deposited itself on the zinc. (Devergie.) Dr. Geoghegan of Dublin has made a similar remark. (*British and Foreign Medical Review*, vol. xi, p. 46.)

The presence of arsenic in many of the best qualities of English, Swedish, and French iron, has been proved by the experiments of Dr. Schaffhaeult. (Report of the British Association, 1839, appendix, p. 52. *Lancet*, November 28, 1840.) It cannot indeed be denied, although it is

far from being universally the case. This, however, is not sufficiently to the purpose. I do not, says Orfila, deny that iron vessels contain arsenic, but the question is, whether the boiling of animal matters in them, in the manner proposed, will extract a single atom of it? It is highly improbable.

It is evident from this review, that no chemist, in a medico-legal case, should venture on an investigation, unless he has previously satisfied himself of the purity of his tests.

6. *Marsh's Apparatus.*—The reader who has followed us thus far will recollect that the notice of this was postponed, and I therefore resume, in the first place, the examination of Orfila's remarks on it. He does full justice to Mr. Marsh, but adds that he soon experienced great difficulty in the experiments. If the poison be mixed with organic matters, so large a quantity of froth (*mousse*) is produced, that the gas will not burn. Marsh was aware of this, and advised the pouring on of a stratum of olive oil, to prevent the formation of the froth, but even this was hardly effective. Devergie could not succeed with it, and employed as a substitute the essential oil of turpentine. A few drops were sufficient, but unfortunately it seemed to decompose the arseniuretted hydrogen, as no arsenic was deposited. It was therefore destructive to the experiment. The reviewer in the British and Foreign Medical Review states, that the production of froth is easily avoided by pouring a small quantity of pure alcohol on the surface of the liquid.

To obviate these impediments, Orfila resorted to the modes already mentioned of destroying the animal matter, first by nitre, and latterly by nitric acid.*

He also employed a simpler form of apparatus, which was suggested by Chevallier. Take a wide mouthed bottle and close it with a cork, which is pierced with two holes. Through one is passed a straight, funnel mouthed glass tube reaching to the bottom of the bottle, and through the other a tube bent at right angles, the perpendicular part ending just below the neck of the bottle, and the horizontal tapering to a fine point. From this last the gas issues. Test the purity of the materials by forming hydrogen alone, and after the mixed air in the bottle has been allowed to escape, fire that gas. Bring near to the end of the flame, a cold plate or capsule of porcelain. If, at the end of two or three minutes, metallic arsenic is not deposited, we may feel assured that the reagents are pure. Now add the suspected fluid through the long tube. We should endeavour to obtain a moderate flame, else the arsenic will volatilize and not

* Devergie proposes the following process, founded on the fixity of arseniate of lime, and its resistance to a high temperature. The animal matters may thus be burnt, while at the same time there is no risk of losing any arsenic by evaporation. He dissolves the animal matter with caustic potash. This produces arsenious acid and arsenite of potash. Add nitrate of lime in a proportion that represents two-thirds of the animal matter; pour water on it and the whole becomes of a pasty consistence. A double decomposition occurs. Arsenite of lime and nitrate of potash are formed. Dry the mixture and apply heat: the animal matter will burn at the expense of the nitric acid of the nitre. When the residue has become cool, pour on it, drop by drop, muriatic acid, until all effervescence ceases. Dilute with water, and you will have a liquid, blackened with carbon, which, on being filtered, must be introduced into the apparatus and treated with muriatic acid. *Annales*, vol. xxiv, p. 139. Orfila allows scarcely any merit to this process, and urges that the carbonization must be incomplete, and that a discoloured (red or black) liquid is produced. It is certainly more complicated than the nitric acid process.—*Ibid*, vol. xxiv, p. 299.

deposit itself. And again, the capsule should be held close to the flame where it issues, since if placed too near its extremity, the metal is apt to oxidize.

If the materials employed will furnish any additional gas, Orfila advises that a glass tube, two or three feet long, and from four to six lines wide, open at both ends, be presented horizontally to the flame. Arsenic will be deposited on its sides. When sufficient is collected, introduce a small quantity of nitric acid, pass it over the arsenic, and dissolve the whole by the heat of a spirit lamp. The liquid thus obtained should be evaporated in a porcelain capsule. Dissolve it in boiling distilled water, and treat it with sulphurretted hydrogen gas, to which a drop of muriatic acid has been added. (*Annales d' Hygiène*, vol. xxi, p. 452.)

Devergie prefers a bottle with two mouths, as he has found it less liable to break. He also advises the use of granulated instead of laminated zinc, as the acid acts more readily. Orfila denies this, and asserts that the granulated is less pure. If the quantity of arsenic in the suspected fluid be small, it will require, according to Devergie, at least eight, ten, or fifteen minutes, to procure the spots. As a general rule, the operation should be continued at least half an hour. The flame should not be more than two or three lines, otherwise the heat may be so great as to melt the extremity of the glass tube. If this happen, it should be carefully filed off. In using the porcelain plate, apply it successively to the extremity of the flame, its centre, and near the end of the tube. According as the stains are formed most brilliantly, there finally retain it. (*Annales*, vol. xxiv, p. 146.)

Lassaigne, an able analytical chemist, has also repeatedly signified his approbation of Marsh's apparatus. In a late communication, he states that the limits of its power is the detection of one two millionth (of a grain I presume) of arsenic dissolved in water, provided that we attend to the following circumstances—that the flame be not too strong or too feeble—that the porcelain plate be held so inclined as to cut off and intercept the flame—and that we seize the precise moment when the arsenic is decomposed and passes into the state of arseniuretted hydrogen. The precursor of this is the formation of a light gray irised spot. (*Annales*, vol. xxv, p. 223.)

*Nature of the stains.*—The next inquiry is, whether these are certainly arsenical. Can they be confounded with any other substance? Soon after the promulgation of Marsh's apparatus, Mr. Lewis Thompson stated, that if *antimony* was similarly treated, it would form stains strongly resembling those of arsenic. (*London and Edinburgh Philosophical Magazine*, vol. x, p. 353.) It is remarkable that his name is not mentioned by any French writer, except Raspail, that I have consulted. Mr. Thompson proposes the following comparative experiments. Treat the crust with nitric acid; this will dissolve both. Then pass sulphuretted hydrogen over a portion of the liquid, and if it consist of arsenic a ferment is produced, soluble in ammonia. Evaporate another portion to dryness, add a dilute solution of nitrate of silver, and expose the whole to the fumes of a stopper moistened with ammonia. If it be antimony, a dense white precipitate will be formed; if arsenic, canary yellow flocculi.

The characters assigned by Orfila, are as follows. The stains of arsenic are of a fawn brown, and extremely brilliant; if the arsenic be abundant, they are black and brilliant; those of antimony are of a deeper black and

less brilliant and never of a fawn brown, unless the quantity of that metal be extremely minute. An arsenical stain will be entirely volatilized by the flame of hydrogen gas, in from half a minute to a minute; antimony requires five or six minutes, and then changes to the white oxyd, which is volatilized, but a grayish yellow spot remains. Both dissolve readily in two or three drops of nitric acid, and on applying heat, the acid is drawn off, the arsenic presents a white residuum (arsenic and arsenious acids) and the antimony a yellow one (yellow oxide); if we add a drop of the solution of nitrate of silver to each, the antimony undergoes no change, but the arsenic presents a brick red arseniate, mixed with yellow arsenite of silver. If a drop of ammonia be now poured on the arseniate, the red colour becomes clearer, while if the same be applied to the oxide of antimony mixed with nitrate of silver, it instantly becomes blackened.

Subsequently our author has proposed the application of sulphuretted hydrogen to a separate portion, as advised by Mr. Thompson. Dissolve the residuum obtained with nitric acid in boiling water. The gas gives the yellow sulphuret of arsenic in the one case and an orange red precipitate in the other.

In his reply to Devergie, Orfila adds the following:—Arsenical stains do not evaporate sensibly in the cold—he has known them persistent on porcelain at the end of several years, with their brilliancy but little impaired. They do not attract moisture, neither do they redden litmus.

Devergie remarks that arsenical spots have three shades of colour, chocolate brown, slate brown and yellowish. The two first are peculiar to the metal. The last are probably not pure, but owe their shade to a combination of animal or vegetable matter with the arsenic. Antimonial stains are of a slate blue, occasionally brilliant, but generally covered with a black substance, of the appearance of charcoal. They are well defined to their edges, whilst the arsenical ones often diminish in intensity towards their circumference.

Unfortunately, Orfila has ascertained that numerous other substances produce stains, when similarly treated. In his first memoir (*Annales*, vol. 21, p. 455) he candidly states, that when the materials employed contain foreign and particularly organic matters, although perfectly free from arsenic, stains are produced, resembling it in colour. They are however, deficient in brilliancy, cannot be volatilized, and do not disappear by heat like those of arsenic. He called these *laches de crasse*, an appellation sneered at by Raspail on the trial of Mercier, who said that the term *crasse* was not to be found in any work on chemistry.

The attentive reader will also recollect the peculiar stains produced by the burning of muscle. They are exactly of that equivocal nature as to cause him to doubt whether arsenic did not exist naturally in it, and some suppose them to be a mixture of minute portions of sulphur and phosphorus.

The stains from *sulphur* are of a yellow colour, opaque, easily volatilized and insoluble in cold nitric acid. Those of *phosphorus* vary from brilliant yellow to red according to the quantity. As they almost constantly contain phosphoric acid, litmus paper is reddened by them. They also volatilize and are insoluble in nitric acid. *Iodine and bromine* also cause stains, but they are each yellow and extremely volatile. *Selenium* produces an opaque white spot, as does also *tellurium*. Even *iron* under some circumstances may cause one. It is described by Dr. Smith (*Silli-*

*man's Journal*) as black, slightly metallic, not volatilized by heat, soluble in nitric acid, and the nitric solution strikes a blue with ferrocyanuret of potassium.*

However positive the French chemists may be, that they can discriminate between these various stains, and particularly those of arsenic and antimony, yet it is not to be concealed, that others have not been so fortunate. As the quantity to be operated on, becomes more minute, the distinction diminishes, and yet this is precisely the case in which we need the most marked variety. For let it be remembered, that if any appreciable quantity collects on the stains, we are then able to apply the ordinary tests, or we may use them without resorting to Marsh's apparatus.†

To obviate these new difficulties, another modification has been proposed, Lassaigne and by Dr. J. Laurence Smith.

The former passes the gas disengaged from Marsh's apparatus into a solution of pure nitrate of silver, which it has the property of decomposing. The solution becomes brown and deposits oxide of silver in black flakes. Arsenious acid remains in the solution with an excess of the nitrate. After the gas has ceased to act, muriatic acid is added drop by drop to decompose the remainder of the nitrate and convert it into chloride. Filter and evaporate the solution which now contains arsenic and arsenious acids. Lassaigne has found this an extremely minute test. (*Annales*, vol. 25, p. 224.)

Dr. Smith proposes to pass the arseniuretted hydrogen through an alcoholic solution of iodine, which it also decomposes, and iodide of arsenic remains in solution. Evaporate this down until red fumes appear, and then add two or three times as much nitric acid as there is residue in the capsule. Applying heat again, when arsenic and arsenious acids will be found nearly pure. (*Silliman's Journal*, vol. 40, p. 291.)‡

Antimony.—Orfila has also published a Memoir on poisoning with Tartar Emetic. The following are his principal conclusions: 1. That tartar emetic, taken into the stomach or applied to the sub-cutaneous cellular tissues of dogs is absorbed and carried into all the organs of the animal economy, as Magendie had inferred, but not proved by his experiments. 2. That when inserted below the skin, two grains are sufficient to destroy a small sized dog, in from thirty to forty hours. 3. That it is not sufficient in suspected cases, to confine our examination to the matters vomited, or the fluid in the stomach and intestines, as the poison may be wanting in these and can still be found in other parts. 4. That among

* Even the porcelain capsules or plates may (as suggested by Dr. George P. Rees) if they are glazed with *lead*, cause mistakes. "If arsenic be present, the appearance obtained is liable to be in some measure obscured by the glazing becoming reduced—and when none exists, a dark metallic spot of reduced lead may readily be obtained by the action of the hydrogen flame on the glaze of the porcelain."

† Messrs. Danger and Flandin, in a paper read before the Academy of Sciences at Paris, Dec. 28, 1840, state, that they obtained stains with Marsh's apparatus—from sulphite of ammonia (made by saturating ammonia with sulphurous acid) to which a few drops of essential oil of turpentine had been added. These stains produced the garlic smell—and gave identical results to arsenic with nitrate of silver and sulphuretted hydrogen. Indeed when the mixture contained in addition, any trace of phosphite of ammonia, the experimenters could not discriminate between the two. *Gazette des Hôpitaux*, Dec. 29, 1840,

On referring to the trial of Mercier it will be seen that Raspail mentioned a somewhat similar result as obtained by himself.

‡ I have not thought it necessary to repeat Figuier's modification of Marsh's process, as it is stated in full in the last number of this Journal, p. 233.

the viscera, the secretory organs, and particularly the liver and kidneys are the parts in which it will remain longer than in any other. 5. That after having left the viscera, it is eliminated with the urine and probably with some of the other secretions. Tartar emetic passes off much more rapidly than arsenic. After the lapse of an hour, no trace of it can be found in the blood, while it may still be distinctly detected in the viscera and in the urine. 6. That if it be decomposed by the blood and the organs, this decomposition is not complete, since in treating these organs with boiling water, we obtain a liquid distinctly antimonial. It is possible indeed that the tartaric acid alone is decomposed and the salt itself reduced to a soluble hypo-antimonite of potash. 7. Several organs should be treated together in order to obtain as large a quantity as possible at once. Even when this fails, we may detect it in the fluid of the secretions, but particularly in the urine. 8. The process recommended is to carbonize the viscera, after they have been well dried, with pure, concentrated nitric acid; (as in the case of arsenic) to boil the carbon thus obtained, for half an hour, in muriatic acid, to which a few drops of nitric have been added; to filter the liquor and introduce it into Marsh's apparatus. Antimonial hydrogen gas will be produced, and on being inflamed it will deposit metallic stains, the nature of which may be ascertained by the distinctions already stated. In this operation, the tartaric acid is altogether decomposed, and the protoxide of antimony probably passes into the state of soluble antimonious acid, while the potash unites with the nitric acid.

In several cases, he succeeded in detecting the presence of the metal in human urine. To a patient affected with pneumonia, twenty-four grains of tartar emetic had been given in the course of twenty-four hours; Orfila obtained from the urine, a quantity of the metal sufficient to be exhibited to the members of the Academy. Again, the liver, spleen and kidneys, taken from an aged inmate of the Salpetrière, who died fifteen hours after having taken two grains, yielded distinct traces.

If metallic antimony be obtained by the above process from the viscera and urine of persons who have not taken its salts as a medicine, it proves that they have been poisoned, since neither of these otherwise contain a trace of it. (*Annales d'Hygiène*, vol. xxiii, p. 474. *Medico-Chirurgical Review*, vol. xxxvii, p. 431. *British and Foreign Medical Review*, vol. xi, p. 52.

Copper.—The novel points of inquiry relative to this metal, and indeed also, as to lead, are whether they are present in the human body in its natural state, and if so, whether there is any mode of discriminating between these, and their introduction as a poison? It may be useful to review our informatian on this subject, previous to stating the results obtained by Orfila.

Professor Christison, in the last edition of his valuable Treatise on Poisons (1836), observes, that Sarzeau, a French chemist, had just announced that a very minute quantity of copper may be detected not only in many vegetable substances, some of which are used for food, but likewise in the *blood and other fluids and solids of the human body*. Others, he adds, have not however been so successful. In an examination, made some years previous, he failed, although his means of analysis were ample, to detect it in the blood, muscles or spinal marrow of animals. Chevreul was unable to obtain the slightest trace in beef, veal or mutton. This discrepancy is attempted to be explained by the idea that vegetables will only

contain it, when it has been present in their manure, while animal bodies may thus also exhibit a trace, either from feeding on those vegetables, or from its being received from the copper vessels used in preparing or preserving them.

In October 1838, Devergie published a note, to the effect that having in two successive instances of supposed poisoning, obtained copper from the stomach and intestines, he was led to inquire how far this might naturally be present in a body free from all suspicion of poisoning. In conjunction with M. Hervy, the investigation was undertaken and they were greatly surprised to find both copper and lead, generally present in variable quantities. These metals were obtained from the bodies both of men and women, from persons dying of illness, and suddenly from hanging: also from a youth aged fifteen years, from children aged twenty months and twenty days, and in one case, in a new born infant. Several of the organs and tissues of the body were proved to contain these metals. In September 1838, he was directed with Orfila, Ollivier and Bayard to examine three several cases of poisoning, and in each of these, although arsenic was proved to be the cause of death, yet copper and lead were also found. (*Annales d' Hygiène*, vol. xx, p. 463).

Cattanei, Professor of Chemistry at Pavia, observing a notice of these experiments, proceeded to institute similar ones, with the assistance of Platner, professor of legal medicine.

Supposing it probable, that if present, the copper might have been introduced with the food, or from accidental sources, he determined to examine the bodies of infants that had died soon after birth and taken nothing but their mother's milk.

The stomach and intestines of a seven month's child, which survived only two days, the lungs and heart of another of the same age, living only two days, and the lungs, intestines, liver and spleen of a child at the full time, that survived twenty-five days, were each carbonized separately in Hessian crucibles, and the product incinerated, in one instance, with nitric acid, and in the others with chlorate of potash; acetic acid was now poured over these ashes, and its action assisted by heat. To this liquid, ammonia in excess was added. The fluid thus obtained, was tested with the yellow bicyanuret of potassium, with sulphuretted hydrogen and with a plate of polished iron. No effect was produced. The matter, obtained after decantation, was then tested for lead, with iodide of potassium, chromate of potash, sulphuretted hydrogen and a plate of zinc, but with equal ill success. He therefore concludes that not a trace of copper or lead existed in the viscera. It was his intention to have extended the inquiry to the bodies of adults, but he was deterred, by observing a notice, that the academy had reported unfavourably to the opinion of Devergie. (*Gazette des Hôpitaux*, May 21, 1840. *British and Foreign Medical Review*, vol. xi, p. 226.)

The subsequent experience of Devergie is however in full accordance with his first statement. In a communication, published in July 1840, he asserts that he has continued to find both the metals in the organs and in the blood, during multiplied investigations, in persons of all ages, dying either suddenly, or after a long illness. It would seem however that the proportion increases with age and probably also with disease. Four pounds and a half of healthy blood gave scarcely a trace of either, while a notable quantity of lead was present in one pound taken from a person

dead from a saturnine disease. In this individual also, copper was found in the fecal matters, although it was nearly altogether wanting in the intestinal tissues. The following are some of the results obtained:

| | Grammes. | Grammes. |
|---|---|---|
| | New born child. | |
| Intestinal canal, sulphate of lead, | 0.001 | Sulphate of copper, 0.001 |
| | Child eight years old. | |
| Stomach, | 0.004 | 0.005 |
| | Healthy Female. | |
| Stomach, | 0.020 | 0.025 |
| Intestines, | 0.030 | 0.035 |
| Intestines, | 0.040 | 0.046 |
| | Male. | |
| Gall bladder, | 0.003 | 0.002 |
| | Female, dead of Phthisis. | |
| Intestines, | 0.010 | 0.010 |
| Brain (one pound), | 0.006 | 0.010 |
| A male dead from cerebral disease consequent on colica pictonum. | | |
| Stomach, | 0.030 | 0.020 |
| Lungs (quantity imponderable.) | | |
| Kidneys (eight ounces), | 0.002 | 0.001 |
| Fæcal matter, | 0.029 | 0.030 |
| Gall bladder and bile, | 0.004 | 0.001 |
| Bladder, | 0.005 | 0.003 |
| Muscle (one pound), | 0.026 | 0.024 |
| Blood (seven ounces), | 0.050 | 0.044* |

The process now pursued by Devergie, is to dry the animal matter and then calcine it in a porcelain crucible, by a red heat, until the incineration is complete. To this, water is first added to dissolve the soluble salts, and afterwards muriatic acid. Heat is then employed to evaporate the major part of the acid, and the residue, slightly acid, is submitted to the action of sulphuretted hydrogen. The precipitate is of a chocolate colour or black, according as copper or lead predominates. After being allowed to subside, it is collected in a small porcelain capsule, with a little water, to which a few drops of muriatic acid, and one or two of aqua regia are added. The sulphur is thus removed; the liquor is then evaporated to dryness, to volatilize, the acid and the lead is precipitated by sulphuric acid, while the copper remains in the solution. Each of these are then separately dried or evaporated, in order to obtain their quantity by weight. (*Annales d' Hygiène*, vol. xxiv, p. 180.)

We now return to the investigations of Orfila, and the following case deserves the first notice, more particularly as it seems to have given rise to the extended researches on poisons, which form the main subject of this article.

Schneider, an oculist, and Rittinghausen, a lawyer, (doctor of laws,) travelled together, for a number of years, as friends and companions. The former was taken ill at Lyons, on the 7th of September, 1835, with feverishness, headache, nausea, &c. He was, however, able to travel to Dijon on the 11th inst., and where he arrived on the next day. The illness assumed a more serious appearance. Dr. Laplaigue, a homœopathist,

* A French gramme, since January, 1840, is equal to twenty grains. (*Medico-Chirurgical Review*, vol. xxvii, p. 529.)

was called in, who administered, during his attendance, six globules of aconite, eighteen globules of belladonna, in four doses, (38th dilution;) six globules of cinchona, three of arsenic in two doses, and two globules of rhus toxicodendron. On the 24th Schneider died. Rittinghausen had waited on him with great assiduity, until the 21st, when beholding the hopeless condition of his friend, he left suddenly for Neufchatel, in Switzerland. The body was buried, but disinterred eight months afterwards, on suspicion of poisoning. A commission, consisting of Sené, Payen, and Fleuret, were appointed to make a chemical examination. They reported that they had found copper and lead in the intestinal canal—and on this Rittinghausen was accused of murder. He was arrested in Belgium, by virtue of a demand from the French authorities, and committed to prison in Dijon. While in confinement he applied to Orfila for his opinion on the case, to which a voluminous, and on the whole, a favourable answer, was returned. The trial commenced on the 8th of August, 1838, and was continued on the 9th with the prospect (says Orfila) of an acquittal. On that night, however, the prisoner hung himself in his cell.

It is not necessary to analyze the communication of Orfila in detail. He renders it highly probable, from a comparison of the symptoms present, with those usually produced by copper and lead, that none of the latter had exhibited themselves, but that death had been caused by typhoid fever. He censures the medical examiners for neglecting to notice the condition of the viscera, since although considerable time had elapsed after burial, yet some inferences might still be deducible from their appearance. The main question however to be decided was, whether the presence of copper and lead in the intestinal canal was sufficient to prove that death had been caused by poisoning. Orfila inclined to the negative. The chemical examiners do not state the quantity found; it probably was small, and above all, it may have been taken as a medicine, in the form of a salt, or an oxide. Again, if the experiments of Devergie be correct, both these metals exist naturally in the tissues; and lastly, the lead present may have been derived from impure wines, used by the deceased before his illness, and the copper from bread and other vegetable substances, containing it, as proved by Sarzeau. (*Annales d' Hygiène*, vol. xxi, p. 127.)

The reader will appreciate the intention of these suggestions. So far as they throw doubts on the charge of poisoning, they tend to exonerate the prisoner. Devergie, however, expressly gives it as his belief, that the copper and lead found in the body of Schneider, was normal.

In compliance with his promise to the Academy, when relating the above case, Orfila pursued his examinations, and in June, 1840, read a memoir on the *method of detecting poisoning by copper, and how to distinguish this from copper naturally existing in the human body.* The following are the results of his experiments and observations.

The acetate and sulphate of copper, whether taken into the stomach, or applied to the sub-cutaneous cellular tissue of dogs, are absorbed and carried into every organ, and this is probably the case with man. In order to detect their presence, we must not confine ourselves to an investigation of the contents of the alimentary canal, or of the matter vomited, but should examine all the tissues into which they may have been absorbed.

Besides this absorption, and which is unequally distributed among the tissues, several organs (and particularly the abdominal viscera, if the salts have been introduced into the stomach) contain some of the salt, which

has reached them by imbibition after death. The nearer the parts are in contact with the stomach and intestines, the greater will be the quantity imbibed, and this will also vary with the period at which the body is opened. It is possible, in a majority of cases, to determine whether the cupreous salts have been introduced after death or during life, by attention to the symptoms, the structural lesions, and particularly by chemical experiments on organs remote from the digestive tube, rather than on one that is near it.

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The *absorbed cupreous salt* may be detected by boiling the viscera or the flesh for an hour in distilled water, drying the filtered decoction and decomposing it by nitrate of potash, or carbonizing it with nitric acid. It must however be understood that this boiling for an hour will not dissolve every trace of copper *naturally* existing in our frame, and hence the examiner has a right to conclude that some preparation of copper has actually been introduced during life, either as a poison or a medicine, if he obtains copper from an aqueous decoction prepared as above, unless it be proved that the copper penetrated the tissues, in consequence of imbibition after death.

It is best to boil, in the first place, the viscera which are distant from the alimentary canal; next these portions of the abdominal viscera which have not been in contact with the canal, and then the parts which have been in contact with the stomach and intestines. By this operation we are certain to obtain from the latter a greater quantity of poison, and at the same time, solve satisfactorily the question of imbibition.

Again, if the medico-legal researches, instead of being directed to the alimentary canal, are directed to the alimentary or excrementitious substances contained in it, or to the liquor vomited, these substances must also be boiled for an hour in distilled water, and the decoction is to be filtered, evaporated down, and then decomposed by pure nitric acid, or by nitrate of potash. The presence of copper, after this decomposition, permits us to affirm that a cupreous preparation has been taken. Although boiling water dissolves only a small part of the salts of copper when they are intimately combined with organic matter, yet the solution contains enough to coat a polished plate of iron. And after a comparison of the different processes, Orfila came to the conclusion that this deposit of the metal on iron is the best test, when it exists only in minute traces.

Such then is the mode proposed by our author to distinguish between *copper naturally existing* and *copper taken as a poison*. In the latter case it may be obtained in part from the viscera boiled in water for an hour; in the former this process has no effect, and to develop the presence of the metal, incineration is necessary. On this account he objects to the process of Devergie, although admitting with him, the existence of copper in the natural state. A difficulty of the following description may occur. The quantity of poison existing in the intestines of a *non-poisoned* adult does not exceed 46 milligrammes, (nine-tenths of a grain;) but even this, from the experiments of Devergie, is variable. If then we proceed to carbonize the whole of the animal matter, and estimate the amount obtained, it may happen that a small quantity left after poisoning by a cupreous salt, in the intestines, added to that naturally existing, may actually amount only to the maximum indicated by Devergie.

In the animals poisoned, and which formed the subjects of the experiments detailed in this paper, the following plan was resorted to for detect-

ing copper. "The viscera were cut into pieces, and boiled for six hours in a quantity of distilled water, acidulated with a few drops of nitric acid. The decoction was filtered, and evaporated to dryness. The dry residue was carbonized by heating it in strong nitric acid, and the carbonaceous ash was then treated with muriatic, mixed with a few drops of nitric acid. This was filtered, and again evaporated to dryness; the residue was then dissolved in water, acidulated with sulphuric acid. On introducing a piece of polished iron into this liquid, a certain quantity of copper was deposited on it in the course of an hour. Much longer time is, however, sometimes necessary, when the quantity is small."

In this way, copper was detected in the lungs, heart, liver, spleen and kidneys of animals experimented on, but there was no satisfactory evidence of its presence either in their blood or urine. (*London Medical Gazette*, vol. xxvi, p. 637; *British and Foreign Medical Review*, vol. xi, p. 55.*)

Lead.—As to this metal, a part of the observations made on it by Devergie have been already necessarily anticipated. The most striking additional fact adverted to by him, is, that there appears to be more lead present in the healthy state, than in the diseased, even when the disease has its origin from that substance.

Merat and Barruel, examined carefully the urine of an individual labouring under colica pictonum. The fecal matter passed during eight days by the action of purgatives, were also incinerated, and the ashes treated with nitric acid, but in neither case was a trace of lead to be observed. Tiedemann and Gmelin, obtained lead from the blood of the splenic, and mesaraic veins of dogs poisoned with the acetate, but could not detect it in that of individuals labouring under colica pictonum. Chevallier failed in a similar case.

In only a single instance, subsequent to the experiments of Devergie, has the search proved successful in the diseased, and that was a case of saturnine epilepsy. Guibourt calcined the brain, and acting on the ashes with muriatic acid, passed through the solution, a current of sulphuretted hydrogen. Sulphuret of lead was thus obtained.

Devergie infers from these results, that long protracted disease diminishes the quantity naturally existing in the body, and as but little food is then taken, it seems most probable that the source of the copper and lead, are the viands and vegetables, which are taken for nutriment. (*Annales d'Hygiène*, vol. xxiv, p. 187.)

The investigations of Orfila were caused by the Rittinghausen case, and the question which he particularly wished to examine, was whether, in an instance of poisoning by the salts of lead, copper, or any other metal, it could be ascertained that the poison had been introduced one hour or twelve hours—or two, three, fifteen or twenty days after death?

It is not necessary to go into the details of his experiments. Their results are thus summed up by him. In animals killed two hours after taking a small dose of the acetate of lead, white streaks and spots were visible to the naked eye, on the mucous membrane of the stomach, and sometimes

* There are some curious experiments by Lefortier, on the salts of copper, mentioned in the Summary of this number.

on that of the intestines, and these were found to consist of organic matter combined with salt of lead. When sulphuretted hydrogen was applied to them, sulphuret of lead was instantly produced, and although insoluble in both cold and boiling distilled water, yet with diluted nitric acid, they yielded nitrate of lead.

The same alterations were observed, when the animals were allowed to live four days only, but the points were less numerous, and visible only by the help of a lens. Sulphuretted hydrogen, blackened them. In a third class allowed to survive seventeen days, these appearances were no longer to be seen. Sulphuretted hydrogen produced no effect, but when the stomach was boiled for half an hour in diluted nitric acid, there was a notable product of nitrate of lead.

We may thus form an opinion approximatively of the period at which the poison has been taken, by comparing the parts with the conditions stated above, and we have also grounds for believing that after a certain time, the combination in question altogether disappears.

Orfila further infers that the alteration occurs, independent of vital action, as it was developed in a stomach detached from the body, and that the same result happens, whether the salt be allowed to act in greater or less quantity. In one instance, he noticed these white spots seventeen days after burial, and in another, after thirty-eight days' exposure of the stomach to the air.

If we admit with Devergie, that the digestive canal naturally contains a small portion of lead, we have here a ready mode of distinguishing between it, and the metal when introduced as a medicine, or a poison. In the former case, the white spots will be wanting—nor will the treatment with nitric acid develop its presence. But it will be unsafe in medico-legal researches, to rely on the *quantity* obtained, since so much may have been evacuated by vomiting or purging, as to make the residue, added to the variable normal portion, only equal to what sometimes is present in the healthy state. (*Annales d'Hygiène*, vol. xxi, p. 140. *Mémoire sur l' empoisonnement par les sels de plomb*, par M. Orfila.)

The following curious fact, related by Mr. Alfred S. Taylor, (*Guy's Hospital Reports*, No. 12, p. 175,) deserves a place under this head.

A cow swallowed a quantity of carbonate of lead which had been mixed for paint. It is supposed that she took about half a pound. Obstinate constipation, and a general paralysis of the trunk and limbs succeeded, and she was with difficulty recovered by sulphate of magnesia, sulphate of soda, and other remedies, at the end of ten weeks.

Soon after the animal had taken the poison, and while still labouring under its effects, a quart of milk drawn from it, was sent to Mr. Taylor for examination. An ounce deprived of cream was treated with hydrosulphuret of ammonia, and sulphuretted hydrogen gas, but in either case without effect. Judging from these results, that if lead were present, it must be in very small proportions, he passed the gas into about ten ounces of the milk. In a short time, the liquor assumed a faint brown colour, and after a few hours, a black flaky precipitate collected at the bottom of the vessel, but in so small a proportion that it was impossible to verify it by using any of the usual tests for sulphuret of lead. On adding, however, a very small portion of a diluted solution of a salt of lead to another quantity of pure milk, the effect produced by the gas was precisely similar.

From these results, Mr. Taylor is of the opinion that some traces of lead, but infinitesimally small, were present in the milk.*

T. R. B.

* The following case of poisoning with the acetate of lead, in which the poison was detected in the urine, by MM. Orfila and Villeneuve, should be added as a supplement to the above.

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"A girl, in a fit of despair, swallowed between eight and ten drachms of the super-acetate of lead. She was speedily affected with prostration of strength, paleness and coldness of the surface of the body and faintings, which symptoms were in a short time succeeded by vomiting and precordial anxiety. Sulphate of soda was given in large and repeated doses, and was followed by copious alvine evacuations. Under this treatment the poisonous symptoms went off, and the temperature of the body returned. The urine which the girl passed twenty-five hours after swallowing the poisonous dose was examined by M. Orfila, who extracted from it a considerable quantity of lead, showing that the poison which had been absorbed was thrown off from the system by means of the kidneys.

M. Lassaigne of Alfort made a number of experiments at the veterinary school there, with the view of ascertaining in what secretions or organs the lead with which animals have been poisoned is found. He constantly met with it in large quantity in the venous blood and in the urine of living animals, and in the liver and kidneys after death.

MM. Chevallier and Bricheteau have examined the urine of the workmen in the lead manufactories, especially at the time when they were affected by this metal, but have as yet, been unable to detect it even in the most minute quantity in that fluid. M. Orfila, also, was unable to detect its presence in the body of a child supposed to have been poisoned from breathing its vapours.—*Ed. Med. and Surg. Journ.* April, 1841, from *Bull. de l'Acad. R. de Med.* Jan. 1841.

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# BIBLIOGRAPHICAL NOTICES.

ART. XIII.—*The Library of Practical Medicine. A System of Practical Medicine, comprised in a Series of Original Dissertations.* Arranged and edited by ALEXANDER TWEEDIE, M. D., F. R. S., &c. &c. *Dissertations on Hemorrhages, Dropsy, Rheumatism, Gout, Scrofula, &c. &c., with a Formulary and General Index.* 8vo. pp. 514. Philadelphia: Lea & Blanchard, 1841.

IN this, which is the concluding volume of the series, are contained the histories of several diseases, which, as is remarked by the American editor in the advertisement to the volume, it was impossible to group together under any general head, and which have, therefore, been collected in a volume by themselves, with a formulary of prescriptions, and a treatise on the art of prescribing. Without dwelling upon the general character of the work before us, which has already been fully explained in the notices of previous volumes, we would merely remark, that there is one circumstance connected with these dissertations that adds greatly to the pleasure and interest with which they may be read: it is that they are all marked with a freshness and originality of thought which proves them to have emanated from the pens of men who are not only practised writers, but also thoroughly imbued with the subjects under consideration; so that although they have oftentimes to deal with matters trite and familiar to all, they yet invest them with new interest from the new combinations in which they arrange them. Indeed it is hardly possible to rise up from reading these papers without feeling satisfied that while in general nothing of importance has been omitted, it would be difficult to point out anything which could be taken away without marring, to a certain extent, the distinctness and completeness of the treatises. This is high commendation, but not greater than we think will be generally accorded to the volumes contained in the Library of Practical Medicine. But we must pass to a closer examination of the contents of the volume whose title heads this notice.

The important subject of *hemorrhage* occupies the first 100 pages, and receives from Dr. George Burrows that careful consideration which it so eminently deserves. Discarding from his remarks those cases which are the result of an injury to the blood-vessels, appreciable by the sight or touch, and consigning them to surgery as the province to which they properly belong, he confines his observations to those forms of hemorrhage, which, as they occur frequently without perceptible lesion of the part whence the blood escapes, are less easily and certainly controlled. "They arise from some pathological condition of the body itself, and may be entitled *spontaneous*."

In order to give a better idea of the pathology of these spontaneous hemorrhages, he reproduces the facts and arguments upon which is founded the doctrine first advanced by Bichat, and since generally adopted, that although in certain cases there may exist a rupture of some large vessel or vessels in the organ, in the great majority of instances they are the result of an exhalation from the minute ramifications of the blood-vessels constituting the capillary system, and occur through the same channels which pour forth the mucus, serum and sweat. Almost every structure of the body may suffer from these spontaneous effusions, which may constitute the whole disease, may be only the principal evidence of local disorder, or may be purely accidental. In the first case, being the evidence of constitutional disturbance, they may be either active or passive in their nature, whereas in other cases arising from some local affection,

they may be either symptomatic of disease in the organ whence the hemorrhage occurs, or they may be sympathetic of disease in some other part, causing obstructed circulation in the organ apparently affected. Upon their accurate diagnosis in the first instance, Dr. B. believes that the successful treatment of this class of diseases will mainly depend.

Having spent a few words upon the diagnosis, our author proceeds to a consideration of the pathology of the constitutional form of the disease. In this are arranged those cases which arise rather from peculiarity of constitution than from any pathological condition of the system. They are the habitual and occasionally periodical discharges which are found to have no deleterious influence upon the health while they continue, but of which the suppression is generally attended with evidences of derangement in the system, sometimes very serious in its nature, and very often requiring the interference of the physician to re-establish the usual constitutional hemorrhage.

Another form of constitutional hemorrhage, not apparently dependent on a pathological condition, but rather upon some family peculiarity, is a predisposition to its occurrence from various parts of the body upon the receipt of the slightest injuries, and of which there are now a number of instances on record. But besides these there are undoubtedly hemorrhages which are the consequence of constitutional disturbance, and which manifest an active or a passive type. A clear exposition of the circumstances under which they may occur is presented. These are a plethoric or distended condition of the blood-vessels observed in the active form, in consequence of which the "blood is urged through passages naturally impermeable by its coloured globules, but now mechanically dilated by the *vis-a-tergo;*" a probable "alteration of the pores or apertures through which the natural exhalations are transmitted from the capillary vessels," and a "supposed alteration in the consistence or composition of the blood itself, which becomes attenuated and capable of passing through channels or orifices that healthy blood cannot permeate." These two last conditions are peculiarly applicable to the passive forms of the disease.

The effects of these spontaneous hemorrhages having been next examined, several pages are devoted to the treatment of the constitutional form; the indications being in the periodical variety, to employ those means which will determine the circulation when the effusion has been arrested or suspended by any cause, to the parts from which it habitually takes place; to make use of venesection, purgatives, rest, and cooling regimen in the active form when the flow threatens to be excessive and to enfeeble the patient, and in the passive form, to adopt every means to arrest the effusion by tonics and astringents, and then to improve the state of health by an attention to the rules of hygiène, and by the cautious and long-continued use of the preparations of iron.

We have next an account of the symptomatic and sympathetic hemorrhages depending upon serious changes of structure in different organs. These lesions are, in the symptomatic variety—"1st, inflammatory congestions of parts; 2d, changes of structure induced by inflammation, as induration, softening and ulceration; and 3d, the development of new and morbid growths in the organs, as tubercles, carcinoma, &c." In the sympathetic there is a sympathizing connection between the part affected and that from which the hemorrhage takes place through their circulation, as we observe valvular disease of the left side of the heart causing obstruction to the pulmonary circulation, and consequent hemorrhage into the lungs, &c. In both instances they are "generally preceded and accompanied by symptoms referrible to the organ, the structural lesion of which occasions the hemorrhage." An attention to which will materially assist in forming a correct diagnosis, and, consequently, in applying the proper methods of treatment.

The remainder of the chapter is devoted to the consideration of hemorrhages with reference to their seat as they occur in the different tissues. They may take place "in the parenchyma of organs, in the cellular tissue, in the substance of the skin as well as from its free surface, from serous membranes, and especially

from mucous membranes." Each of these varieties is carefully examined, and many very interesting details are presented relative to the history more especially of cutaneous hemorrhage, both from the free surface and into the substance itself of the skin, of hemorrhage from serous membranes generally, and of hemorrhage into the pericardium, occasioned by the rupture of an aneurism of the aorta, a wound of it or of the heart, or severe inflammation of the pericardium, especially when occurring in a scorbutic constitution.

As a sequel to this chapter we have some interesting remarks by the American editor upon the connection between inflammation and hemorrhage, in which he endeavours to point out the distinction that may be observed between the two states, not only in the local signs arising from changes in the part itself, but also in the general circulatory system.

Hemorrhage is next specially considered in several chapters as occurring in particular organs or parts; of these chapters, the first contains a full account of the nature, causes and proper treatment of epistaxis, or bleeding from the nose. This is followed by an admirable digest of the history of hæmoptysis or hemorrhage from the lungs, a subject which within a few years back has been invested with peculiar interest, in consequence of the undoubted connection discovered to exist between it and the formation of tubercles in the lungs. Our author's remarks upon the diagnosis and sources of this effusion are full and complete, and show, that although in the great majority of cases the bronchial tubes are the seat of the exhalation, the vesicular structure of the lungs must often be regarded as the part into which the blood is poured; and particularly in that form of disease, first accurately described by Laennec, under the name of pulmonary apoplexy.

Though most authors admit the possible occurrence of an active constitutional hæmoptysis, without any discoverable alteration in the structure of the lungs, Dr. Burrows thinks that some latent physical lesion exists there, which will sooner or later manifest itself. Among these, undoubtedly by far the most frequent, is the tubercular diathesis, or according to our author, the existence of the tubercular deposition in the lungs obstructing the pulmonary circulation.

"This obstruction may give rise to hemorrhage in two ways; it may either compel an increased energy of the right ventricle, whereby the blood is thrown with undue force into the pulmonary vessels and thus induce hemorrhage; or the tubercles obliterating a considerable portion of the pulmonary parenchyma, there is no longer a just proportion between the quantity of blood circulating through the lungs and the capillaries of these organs, and thus a relative plethora is induced, and escape of blood into the bronchial tubes is the consequence. This accident is much more likely to occur, when the development of tubercles has been very rapid, and there has not been time for the heart to undergo that atrophy, so common in phthisis, nor the quantity of blood to have been reduced to the altered state of the system."

Dr. Burrows in this opinion does not allow for the occurrence of hæmoptysis in individuals evidently predisposed to phthisis, but in whom tubercles are either not yet formed or scattered about in small quantities. The American editor very properly fills up this omission by referring it altogether to constitutional causes in these cases, and says: "although the blood is discharged from the lungs, these organs are not always actually at fault, and there is no other connection between hæmoptysis and consumption than this fact, that the same condition of vessels disposes to both disorders. But as this condition does not necessarily give rise to consumption, although it predisposes to it, hæmoptysis may occur without the development of tubercles in one individual, while, in another, who is placed under similar circumstances, decided phthisis will follow."

The treatment of this affection in its early stages, must be the same as that recommended in all active hemorrhages; with this limitation, however, that, as the abstraction of blood by venesection will not cure the condition upon which the hemorrhage depends, or tubercles, we must take sufficient only to relieve the congested vessels, as, "any loss of blood beyond this is a serious dimin-

tion of the patient's strength, and is more likely to accelerate the progress of phthisis."

But hæmoptysis may also be sympathetic of disease in other organs, and more particularly of physical lesions in the heart; and the chapter closes with an account of this class of cases, which Dr. Burrows attributes with Dr. Watson, differing therein from Chomel and Dr. Law, to whatever obstructs the circulation through the left side of the heart, thus causing pulmonary congestion, pulmonary apoplexy, and consequent hæmoptysis. Whatever the pathology of the case, the treatment must be directed "to the relief of the oppressive congestion of the capillaries of the lungs by local depletion, by the application of cupping glasses near to the spot where we suspect the pulmonary apoplexy is forming; secondly, a return of this condition of the lungs must be obviated, by diminishing the quantity of blood, by the occasional application of leeches over the region of the heart, and by the administration of saline purgatives, diuretics, particularly, nitre, digitalis and bitartrate of potash."

For ourselves, we should in these cases prefer recurring to venesection as more likely to effect the unloading of the vessels, as it is almost impossible to ascertain where the congestion is taking place, and as this generally occurs in more than one spot at a time.

Hæmatemesis, or hemorrhage from the stomach follows next in order, and after a full and careful statement of the symptoms and means of diagnosing it more particularly from hæmoptysis, with which it may be confounded in practice, we are presented with a complete account of the causes of the disease and of the proper mode of treatment adapted to each form of it. The same may be said of melæna or hemorrhage from the intestines, which is considered in the next chapter. The same general plan adopted in the chapter on hemorrhage considered generally, is adhered to in these; the affection being studied as a result of constitutional disturbance, exhibiting itself in either an active or a passive form, as a vicarious discharge, as symptomatic of serious lesion of the stomach in the one, and of the intestines in the other, and as sympathetic of morbid alterations elsewhere, more particularly of the liver and spleen.

Hematuria or hemorrhage from the urinary organs, is a more uncommon form of affection than those we have already noticed, and at the same time is less well understood. Much care is given to the elucidation of the different circumstances connected with it, and the means are pointed out by which we may ascertain whether the effusion occurs from the urethra, bladder, or kidneys themselves. This is the most important point in the history of the disease, for the treatment must be in most cases directed to the cure of the diseased condition of the part, the hemorrhage being merely a symptom of derangement, and rarely an idiopathic affection.

The last chapter is occupied with hemorrhages from the uterus. Without entering into any examination of the author's remarks, which are admirably calculated to give an accurate knowledge of the affection, we would conclude this notice of the hemorrhages by reproducing a piece of advice, which cannot be too carefully remembered, when called upon to prescribe for a case of hemorrhage from the uterus. It is given in these words by Dr. B. "It is the opinion of Louis and some able pathologists, that hemorrhage from the uterus and other organs is one of the most constant symptoms of malignant formations. The frequent recurrence of uterine hemorrhage in a woman of middle age, should at once excite the suspicion of structural disease in that organ, and induce the practitioner to institute a careful manual examination of its condition."

The succeeding 52 pages contain an admirable historical and descriptive account of that once formidable disease, *scurvy*, from the pen of Dr. George Budd, physician of the Sailors' Hospital, Dreadnaught. This disease, which some two centuries ago, annually ravaged whole countries of the north of Europe, at the present day, by the general diffusion of agricultural knowledge, has been almost erased from the catalogue of diseases on the land: so that except in seasons of great scarcity, and among the inmates of prisons and asylums,

where pains have not been taken to provide proper food, scurvy may be said to be a disease peculiar to seafaring men. We shall content ourselves therefore, to referring those who are desirous of information on the subject to the dissertation of Dr. Budd, and shall proceed at once to the succeeding dissertations which treat of subjects of more general interest.

A complete treatise on *dropsy*, by Dr. Watson, follows in the next chapter, and although rather itself a symptom of disease than an actual disease, it demands a separate consideration, as it is often the only appearance of disorder we can detect. It is treated of as presenting itself in an active and a passive form, and the pathology of both of these types is clearly and we conceive unanswerably made out. The former, or the active form, which includes much the smallest number of cases, is thus accounted for:—A certain exhalation is constantly taking place from every surface of the body in a state of health. If from any cause this exhalation is arrested from any one surface, it must be replaced by a compensating increased discharge from some other, or suffering to the individual will result. If this increased excretion occurs from a surface communicating with the exterior, all will be well, for the blood-vessels will thus relieve themselves as by a diarrhœa, diuresis, &c.; but if this vent is found in a closed serous sac, or in the cellular tissue, dropsy ensues. In these cases the arterial system is more concerned than the venous, and the condition of the capillary system borders closely upon inflammation, and is intermediate between that at which healthy exhalation is maintained, and that at which inflammatory effusion takes place.

But a much larger class of dropsies are passive, or result from defective absorption. This process, it is now well settled, is carried on by the veins, at least so far as the removal of serous fluids is concerned. If, therefore, an obstruction to the venous circulation takes place, the veins and the capillaries below the point of obstruction become distended, and the further introduction of the liquid into the veins is prevented, and it accumulates in the tissues upon which it is exhaled. In this class, therefore, the venous system is chiefly at fault. The production of local dropsy in this way is constantly observed, and the same cause evidently is at the foundation of those cases resulting from organic disease of any part of the body which will obstruct the venous circulation, as in cirrhosis of the liver, and more particularly when the impediment is in the central organ of the circulation; as he explains fully in the chapter on cardiac dropsy, a consequence either of actual disease of the heart itself, or of a debility of the heart as observed in cases of chlorosis, preventing it from propelling the blood which reaches it with proper force.

The chemical composition of the fluid in dropsy, the phenomena of effusion, the prognosis and the general principles of treatment based upon the preceding considerations are briefly examined; after which our author proceeds to the history of general dropsy occasioned by disease of the heart, by disease of the kidneys, or observed in an acute febrile form, or following scarlatina. In the chapters on cardiac and renal dropsy, we have a full exposition of the manner in which it results from disease in those organs, and in that on renal dropsy, the whole subject of what is commonly called Bright's disease is fully examined with all the light which the recent investigations of Christison and Rayer have shed upon its history. The chapter closes with an account of the mode of treatment of general dropsy as modified by the causes from which it originates, and with some excellent remarks by the American editor upon the causes of dropsy in general.

Before dismissing this subject, Dr. Watson treats in separate chapters of cerebral dropsy or chronic hydrocephalus, thoracic dropsy, and abdominal dropsy; including in this term dropsy in the peritoneum or ascites, and ovarian dropsy; for an account of which last he refers to the fourth volume of this work. We can here only point out the sound doctrine of our author with respect to the operation of paracentesis of the abdomen, namely, that it is inexpedient to resort to it until it seems absolutely indispensable, that is, "unless the quantity of liquid is so great as to occasion painful distension, or cause great distress of breathing

by its upward pressure against the diaphragm, or give rise to some positive suffering or urgent inconvenience which the evacuation of the water may be expected to remedy.

In the next chapter on *scrofula*, Dr. Shapter has condensed the most important facts connected with this interesting subject. After giving a detailed account of the usual forms under which it manifests itself, and showing "that scrofula is a disease of a tuberculous nature, and the probability that the immediate origin of the characteristic deposit is due to a chronic, low, inflammatory condition of the interstitial cellular system, by which means albuminous deposit takes place from the blood," of so low a vitality that it is incapable of becoming organized, or only in a very low degree, he directs attention to the circumstances under which such a condition may be excited. Among the agents which certainly operate in this manner, hereditary predisposition is of primary importance; yet although such is indisputably the case, it does not exert the exclusive influence which some writers have attributed to it, and there can be no doubt in the present day that tubercular disease may be acquired without any hereditary taint. It is important, therefore, to ascertain how this may be effected, for the double reason of avoiding the causes which produce this tendency, and when once it has shown itself, arresting, as far as possible, their speedy operation.

Rejecting the idea that scrofula is contagious, or that it was introduced with the smallpox virus, or that it is a degeneration of the syphilitic virus, a doctrine which has recently been much in vogue, as unfounded and not based upon well ascertained facts, Dr. Shapter passes in review the external agents which have generally been regarded as exciting causes, namely, peculiarities of diet, situation and atmosphere. As regards the first, scrofula is seen to attack indiscriminately the well and the ill fed, though unquestionably to a greater degree the latter; "and no particular diet gives immunity from the disease; at the same time it is not to be denied, that when scrofulous action is excited, diet of an innutritious and unwholesome nature is exceedingly hurtful, and tends much to its aggravation." The variations and conditions of the atmosphere, the deprivation of light and warmth, the constant exposure to a humid and vitiated air, and particularly the latter, are seen to have more or less effect in the development of the disease when a hereditary predisposition exists; and when it occurs spontaneously, its origin may be generally attributed "to locality and errors in construction of houses;—ill ventilated damp houses and confined localities are much more frequently than is supposed fruitful sources of scrofula."

The attention of the practitioner should therefore be particularly directed to the means by which it may be prevented, and particularly where hereditary influence may be feared. These, as addressed to the mother during the period of utero-gestation, to the child during the early period of life, when either of the parents should have strumous predisposition, are laid down clearly and concisely. When this predisposition does not exist, and other causes, such as locality, occupation, &c. appear to threaten the development of the strumous diathesis in an individual, but one course can be taken with any prospect of preventing its formation—that is, to remove the patient from their agency. It is scarcely necessary to say, that where it is necessary to adopt medical treatment for the cure of the disease, Dr. Shapter gives his testimony to the universal experience of modern times in favour of the use of iodine and its preparations, which appear to act by correcting the general diathesis as evinced in a returning feeling of strength and in a generally improved state of health.

A short chapter on bronchocele or goitre follows, in which a good sketch of this unfortunate affection, and of cretinism with which in certain districts it is so often associated, is presented. Though little light is shed upon the exciting causes of either of these unseemly conditions, our author endeavours to reconcile the apparently conflicting statements respecting the impregnation of the water of infected districts with lime as a cause, by supposing "that the habitual drinking of calcareous waters strongly predisposes to bronchocele, and that there are other causes which have the same tendency, although few to an equal degree; but that the presence of some additional influence hitherto unknown, and proba-

bly of a more subtle and hidden nature, seems necessary for the development of the disease."

The subject of the next chapter, *Rheumatism*, has been of late years invested with new interest, in consequence of the connection between its acute attacks and cardiac disease, which though for some time vaguely known, was first clearly ascertained to exist by Bouillaud, who pointed out the true laws which govern it, and showed that the heart was affected by a direct attack and not in consequence of metastasis. Dr. Wm. Budd, the author of the treatise before us, has grouped together the general facts relating to this subject and has added the results of his own experience to the contributions already made towards its history. In these he corroborates the statements of Bouillaud in very many particulars, but more especially in respect to the frequency of the appearance of symptoms of cardiac disease in rheumatism, and to the greater prevalence of endocarditis over pericarditis in these cases.

He states that in forty-three cases of acute rheumatism, carefully examined, twenty-one presented unequivocal symptoms of rheumatic inflammation of the heart, five of which only were examples of pericarditis. "In all the cases of rheumatic pericarditis which we have seen, endocarditis was also present and was distinguished by its usual physical signs. In some cases, these existed before pericarditis came on; in all, they continued after the proper signs of that affection had ceased."

The doctrine of *metastasis*, which was formerly used to account for these cardiac symptoms, has been exploded, and it is now clearly ascertained, that the fibro-serous tissues of that organ are affected precisely in the same manner in which identical tissues in other parts of the bodies, are implicated. Our author also states that the affection of the heart is most frequent in severe cases. "Of twenty-six patients, in whom rheumatism occurred for the first time, the heart became affected in sixteen, or nearly two-thirds; but in five only of seventeen, in whom it had occurred once before or oftener; so that rheumatism of the heart was more than twice as frequent in the first as in the second series, and we have already seen that acute rheumatism is more severe in the first than in the subsequent attacks."

After a careful but brief examination of the pathology and causes of rheumatism, in which this affection is shown to consist in an inflammation, of a specific character indeed, yet still an inflammation, of the fibrous tissues of the joints and of the organs liable to its attacks, especially of the heart, and to be occasioned by only one known exciting cause, cold; the proper method of treatment is laid down, and consists mainly in the employment of antiphlogistic measures, at the head of which stands general bleeding, and more especially in those cases in which symptoms of cardiac affection have manifested themselves. Upon the importance of this remedy, our author dwells with much emphasis, though he recommends caution not to carry it too far in the first instance, as there may be a necessity for its repetition when cardiac disease supervenes.

"Much prejudice against bleeding has been kept up by the erroneous doctrine, that rheumatism of the heart is the effect of metastasis from the joints, which bleeding is supposed to favour. As this objection to blood-letting is speculative only, and necessarily falls with the error in which it originated, it needs no direct refutation. We may add, that in the forty-two cases already alluded to, in one-half of which rheumatism of the heart came on, blood-letting was not practised until the accession of the cardiac affection."

Chronic rheumatism, often the sequel of an acute attack, but often coming on independently of it, that reproach of the medical art, is judiciously treated of in a few pages, and the chapter closes with an account of muscular rheumatism, and particularly of its important varieties, lumbago and pleurodynia. Some excellent remarks are appended to the chapter by the American editor, filling up the description in the text.

*Gout* is next described, and from its close resemblance to rheumatism in many respects, and more especially in the seat of the local affection, namely the fibrous tissue about the joints and in other parts of the body, has often been mis-

taken for it and been described under the same name. Dr. Wm. Budd points out the error and also the distinction between the two diseases. Two characteristics especially mark a difference in the modus operandi of the peculiar causes of these diseases. These are the almost entire absence of cardiac affection as a complication of gout, and the formation of the gouty concretions, in consequence of the effusion of the lithate of soda, so peculiar to gout, and entirely absent in rheumatism.

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The pathology and causes of gout are examined with much care, and the former is stated in the following words:

"The effusion of the lithate of soda in various parts is a circumstance so peculiar to gout, and is in many cases so obviously an essential part of the disease, that there can be no doubt of its being an important element in all." But we have seen that it is also common for gouty persons to pass an excess of lithates in their urine, in the intervals of gouty paroxysms; and that these persons are more liable than others to gravel and calculus of lithic acid origin. However we may abstain from raising a theory of the proximate cause of gout on the foundation of these facts, yet we must consider the discharge from the blood, at various outlets, of so large a quantity of such a highly animalized principle, as a fact of paramount interest in the pathology of gout, especially when viewed in connection with those habits of life which we shall hereafter show to be a main cause of gouty diathesis."

Of the hereditary predisposition to gout in persons born of gouty parents, no doubt can be entertained; the immunity enjoyed by women, generally, is notorious, and the same may be said of those who to abstemiousness of habits and a temperate life join activity and habitual exercise. Indeed among the predisposing causes, all are nearly inoperative unless to them is added "high feeding, especially great consumption of animal food, habitual abuse of spirituous liquors, and sedentary habits." Facts innumerable might be adduced in support of this doctrine, but a few of them only are brought forward by our author. It is sufficient for our purpose here to allude to the exciting causes of an attack, to show that there is much foundation for the belief. These are most frequently, the indulgence in the pleasures of the table, and especially abuse of wine or spirituous liquors; and in persons predisposed to it, local violence, or violent exercise of a part, cold and moisture, &c. Leaving the question of pathology as one upon which authors are far from agreeing, we are next to consider the treatment of this painful disorder. The general symptoms and the local affection each demand attention, and while our author objects to the incautious use of bleeding for fear of favouring metastasis, (of which he thinks there is some danger in this disease, though there is none in rheumatism,) he recommends the use of purgatives and more especially the use of colchicum, which proves so beneficial in curing attacks of gout, after the acute symptoms are relieved.

Our author's recommendation of means of prevention may be repeated here, and is certainly well worthy of the attention of those who are afflicted with gout.

"We have seen that the chief causes of gout, setting aside hereditary predisposition, are free living and sedentary habits; it follows, therefore, that the surest means of prevention are temperance and active exercise. When hereditary tendency is present, temperance especially should be strictly observed, and a preponderance of vegetables in the habitual food is also advisable. In short, those threatened with gout should imitate, as far as practicable and consistent with comfort, the habits of agricultural labourers. The application of these principles must be rigidly enforced when the occurrence of an attack of gout has already declared the existence of gouty diathesis: Field sports furnish admirable exercise for the higher classes, and are advisable in all cases in which gout has not injured the structure, or impaired the functions of the joints. Perseverance in temperate and active habits will often wholly preserve from further attacks; but if it fail in this, still their frequency will be lessened, and severity much diminished. Much less can be done by the use of medicines."

The human body, like that of most other animals, is well known to be subject to a great number of parasites, both external and internal; the study of these

has occupied the time and attention of physicians from the earliest times, but without having as yet been productive of any general results which are universally received. An excellent account of the internal *worms* or entozoa, is presented to us by Dr. Farre, in the chapter on worms, which next claims attention. Of the theories which have been advanced to account for the origin of these internal parasites, he adopts that which certainly *à priori*, would seem most natural, that of their external origin; explaining their presence in cavities communicating with the external air, as the stomach, the intestinal canal, the urinary organs, and even gall-bladder, by the supposition that their ova have been introduced from without, and that they are not developed elsewhere, because the circumstances favourable to their growth, do not exist out of the body, or even of the part in which they are generally met with. But certain genera are found in situations which will not admit of this explanation; these, however, are known to be of so lowly organized a nature, that we know little of their method of propagation or even of their germs: they may, therefore, be supposed to have penetrated through the tissues, as is the case with the Guinea-worm, or their germs may be presumed to be so small, as in the case of the minute *trichina spiralis*, as to present no difficulty in supposing them capable of circulating in the blood, until they are deposited in a nidus suitable for their development.

The circumstances which favour their production, are equally obscure. It would appear generally that it is to a certain extent influenced by climate, season and locality. A moist and damp atmosphere is very generally looked upon as favourable for their production; and it is well known that certain worms are peculiar to certain districts of country, attacking strangers visiting them, as they do natives. Such are the Guinea-worm in parts of Africa and Asia; the *bothriocephalus latus*, in Switzerland, Poland and Russia; the *tænia solium*, in England, Holland, Germany and France; and both of these, in those parts of France bordering on Switzerland.

Apart from these general causes, others of more immediate operation must be looked for, in the nature of the ingesta and in a pre-existing favouring condition of constitution; though it is difficult to say, in any given case, how far the constitutional derangement observed, may be the cause of, or may have preceded, the existence of parasites, or how far it may have been brought about by their presence.

As regards the nature of the ingesta, it is remarked by Dr. Farre, that, "Where the food taken is of such a nature as to be readily digested, and no more chyle is produced than is readily absorbed, there appears to be but little chance of the development of worms; but the food being of an improper nature, and the powers of digestion inadequate to its due concoction, that state of the alimentary canal is induced which, from the imperfect absorption of the chyle and the too abundant secretion of mucus, is the most favourable to the nutrition of the parasites."

Having briefly examined all these points, our author proceeds to the detail of the symptoms and general treatment of the worms, directed both to the expulsion of the parasite and to improve the general health, so as to prevent them from developing themselves anew. The remainder of the chapter is occupied with a long and complete account of the different kinds of worms, and of the treatment adapted to each particular variety.

Had the Library of Practical Medicine been carried no further, it would still have been the most complete work of its kind in the English language, and would have formed a most valuable addition to the library of the practitioner, as well as to the text books of the student. In order, however, to render it still more perfect, Dr. Tweedie has appended to this volume a formulary of prescription, from the pen of Dr. Joy, consisting of an admirable digest on the art of prescribing, and of a formulary of extemporaneous prescriptions, arranged under the different heads of stimulants, narcotics, antispasmodics, tonics, astringents, diaphoretics, expectorants, emetics, cathartics, diuretics, &c. &c., each class being prepared by general remarks upon its nature, mode of action,

indication for use, and other considerations, connected with the employment of one of the prescriptions embraced in it.

The American editor remarks in the preface to this volume, that one alteration alone has been made in the prescriptions, "which adapts them to the custom of this country—that is, the translation of the directions for the doses and administration of the prescriptions from Latin to English; there is an obvious convenience in this change;" in the propriety of which all must agree.

A very copious general index to the five volumes is also presented here: upon the utility of which it is unnecessary to dwell.

We have thus passed in review the different treatises contained in this volume, and have endeavoured to give a general idea of the opinions of their authors, without entering much into discussions respecting the accuracy of them which might have rendered a still more extended notice necessary. Several of these doubtful points have been briefly examined and explained by the American editor in his notes, to whom the American practitioner will often find himself indebted for important remarks, scattered through the volumes of the Library.

Before closing this notice, we cannot but return our thanks to the liberal and enterprising publishers, who, by republishing this work, have placed it in the power of every practitioner and student in the country, to avail himself, for a comparatively moderate price, of all the information touching the diseases coming under the care of a physician, which, during late years, has so rapidly accumulated in Europe; and it is to be hoped, that they will be encouraged by the success of the present effort, to continue, as they propose doing, the publication of the series, announced as forthcoming in London, and embracing works on Midwifery, Surgery, Anatomy, &c. C. R. K.

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Art. XIV.—*A Practical Essay on some of the principal Surgical Diseases of India.* By F. H. Brett, Esq. 8vo., pp. 506. Calcutta: 1840.

To the readers of the Eastern medical publications the author of the above work is well known. For many years he has been a resident in British India, and has had vast experience in all of its populous cities from Calcutta to Lahore, the results of which have from time to time been communicated by him to the public. In the work before us we find inflammation and its sequelæ, parasitic growths, the Indian leprosy, diseases of the generative and urinary organs, diseases of the eye and autoplastic operations successively treated of, in as many chapters. Excepting diseases of the eye, no surgical affections appear to be of so frequent occurrence in India as tumours and calculus, and it is to the chapters treating of these, the best in the book, that we shall particularly direct attention. Hypertrophy of the scrotum and cellular tissue is not very unfrequent in India, seven operations having been performed by our author, for it, in 1837. Of these, two died of mortification of the wound resulting from it, both operations having been done during most sultry weather and in a very crowded hospital. The other five recovered. The aggregate weight of the seven tumours removed, divested of all fluid, was 280 pounds. These tumours do not appear to be confined more to the sedentary than the labouring classes. Our author believes them to be of inflammatory origin, and seems to agree with Dr. Wise in considering the affection as essentially an inflammation of the veins. It comes on with a feeling of pain and heat in the part, and is often ushered in with fever, followed by effusion of lymph in the scrotum, which becomes tumefied, and continues so after the subsidence of the other symptoms. "The fever frequently returns with inflammation and increased swelling. It may be successfully combated in the early stages by a persevering use of purgatives, issues, alteratives, local frictions, and a careful avoidance of the influence of the weather, particularly when combined with the local application of cold and moisture; but the natives can seldom be induced to persevere, and generally neglect the early

stages of the disease. The prepuce is sometimes simultaneously affected. The tumour now increases, but without pain, and not rapidly until it has attained a certain size. It gradually advances, and at length conceals the organs of generation. Its progress is now more rapid from the unresisting structure and pendulous position of the parts, so as at length to attain an enormous bulk. Its seat is in the cellular tissue of the scrotum, and it sometimes commences in the loose texture of the prepuce, though in the larger growths I have generally found the skin of the prepuce healthy, elongated and stretched forward."

A similar enlargement is by no means uncommon in the pudenda of females in Hindostan; a still more hideous form of disease of the same nature affects the prepuce alone; and the lower extremities are so frequently the seat of a like disease as to be observed almost daily among the Bengalese. This hypertrophied state of parts our author believes to have been erroneously termed elephantiasis, inasmuch as it has no connection with that tubercular disease. According to his observations it is a simple vascular sarcoma produced by the infiltration of lymph, and is the same disease with that which has been observed in the West Indies, Africa, Ceylon, and in two or three instances in Europe.

Calculus, according to our author, is a disease of frequent occurrence in India, he having had occasion to cut four patients in one day, all residing in the same village or its immediate neighbourhood, and upwards of one hundred cases having occurred to him during his abode in the East. Speaking of the lateral operation, for which he has a predilection, he says: "Individuals who have been exposed to the vicissitudes of life and privation are generally in the most favourable condition for operation; they therefore require little or no preparatory measures. A vegetable diet for a few days, and the administration of a saline purgative is all that is requisite, and will generally succeed in alleviating constitutional and local irritation. It must always be remembered, however, that the presence of a foreign body is the source of irritation, and that the sooner this is removed the better. In the natives of India, their systems are habitually prepared for operation, and the little advantage derivable from preparatory treatment is more than counterbalanced by fear and suspense. They come with confidence in the superiority of European skill from hearing of our success on other sufferers, and they seek for speedy relief from agonizing pain. The patient is infinitely more pleased by immediate operation, which when set about with the least possible ceremony is not looked upon at all seriously by him. Indeed, if the surgeon does not operate at once, but irritates and alarms him by the use of sounds, the patient almost invariably loses all confidence, and leaves him."

The result of the above practice in 108 cases gives the average number of fatal cases as 1 in 15, his last 70 having all been successful.

Of the 108 cases operated on, 70 were under puberty, of whom 68 were cured and two died, and 38 were adults, of whom 33 were cured and 5 died.

In the fatal cases death is stated to have taken place once one month after the operation, in consequence of impairment of the constitution by previous long-suffering, twice from tetanus, three times from peritonitis, and once in consequence of profuse hemorrhage.

Three instances of alarming arterial hemorrhage occurred out of the 108 cases; one of which, as has just been stated, proved fatal, the wounded vessel not having been secured; in the other two the bleeding vessels were secured by ligatures and did well.

Alarming venous hemorrhage followed the operation in two cases, both old men, in one of whom syncope and convulsions were the consequence, but recovery followed. The unfortunate accident of wounding the rectum, Mr. Brett states has occurred to him, though without any serious consequences resulting.

Agreeing with a great majority of his countrymen, Mr. Brett thinks that even under the present improved state of the instruments, lithotrity cannot supersede lithotomy, and considers it as applicable only to a small proportion of cases. In two instances where the calculi had been seized and broken, and large portions of detritus carried away, the patients refused further procedure and left him, though labouring under irritation. In one case where the stone was

pierced by the perforator, the patient's entreaties for lithotomy were urgent, and the stone completely perforated through, was removed by the process solicited.

We have now noticed the only chapters of Mr. Brett's book of which we can speak favourably: we have been sadly disappointed in the volume, and venture to predict that the reader after wading through his 500 pages will agree with us in saying that the arrangement of it is bad, its style loose and faulty, with but little of interest for an author who has had "numerous opportunities of treating surgical diseases and performed many thousands of operations." The success he has met with after his operations, however, show Mr. Brett to be a good operator, and the efforts first successfully made by him to establish surgical hospitals in Lucknow, Cawnpore, Saugor, &c., proclaim his benevolence and zeal in his calling. G. W. N.

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ART. XV.—*Army Meteorological Register, for the years* 1826, 1827, 1828, 1829, *and* 1830, *from Observations made by the Surgeons of the Army and others at the Military Posts of the United States.* Prepared under the direction of THOMAS LAWSON, M. D., Surgeon-General United States Army. To which is appended the meteorological register for the years 1822, 1823, 1824, and 1825. Compiled under the direction of JOSEPH LOVELL, M. D., late Surgeon-General of United States Army. [Published for the use of the medical officers of the army.] Philadelphia, Haswell, Barrington, and Haswell, 1840.

THE publication under this title contains 161 octavo pages, most of which consist of tabular abstracts from journals, of the atmospheric changes that have occurred during a long series of years throughout a very extensive range of the North American continent. The facts connected with climatology, established by exact instrumental observation under the direction of the medical department of our army, are of the highest interest, and reflect the greatest credit upon all concerned in their collection. The recent interest awakened in meteorological science will doubtless cause the Army Register to be sought after with great eagerness both at home and abroad.

The merit of having first established a system of meteorological reports from our various military stations, belongs to the late surgeon-general, Dr. Lovell, to whom the public service is indebted for the organization of the Medical Bureau, which has effected so much for that important department. The present efficient surgeon-general, Dr. Lawson, has followed up the system established by his able predecessor, and extended the limits of observation, so as to embrace many phenomena not formerly noticed, and which add much greater value to the recent reports. Dr. Lawson informs us in his preliminary remarks, that the meteorological abstracts, which have served as the basis of the general conclusions deduced, do not embrace more, perhaps, than a third of the materials collected in the surgeon-general's office; but inasmuch as the observations he has presented extend over the entire domain of our states and territories, it may reasonably be assumed that the results exhibit a fair expression of the general laws of our climate, which further research will ultimately confirm.

The following extract from the 6th and 7th pages of the Register, will not only make us acquainted with many of the laws of our climate, but with other facts of great interest connected with the atmospheric conditions and topography of our country.

"The climate of the United States may be studied under three grand divisions, each of which contains many subdivisions or systems of climate, determined by the influence of local causes. 1. The Northern Division, extending as far south as the 39th degree of latitude, a region characterized by the predominance of low temperature. 2. The Southern Division, in which a high temperature prevails; and 3. The Middle Division, which exhibits phenomena vibrating to both extremes. These divisions will be regarded, in a great measure, as arbi-

trary, and are intended, as well to facilitate description, as to express the operation of general laws.

"In reference to the sixty-five tables, embracing a period of five years, it may be necessary to remark, that the first twelve tables of each year give the mean of the observations of each month, and the thirteenth, the mean for the whole year. These tabular abstracts are the condensed results of the observations made at various posts situated between 27° 57′ and 46° 39′ of north latitude, and between 67° 04′ and 95° 43′ of longitude west of Greenwich; embracing an extent of 18° 42′ of latitude, and 28° 39′ of longitude.

"The first general division presents the greatest variety of climate. On the sea-coast of New England, the influence of the ocean modifies the range of the thermometer and the mean temperature of the seasons. Advancing into the interior, the extreme range of temperature increases, and the seasons are violently contrasted. Having come within the influence of the lakes, a climate like that of the seaboard is found; and proceeding into the region beyond the modifying agency of these inland seas, an excessive climate is again exhibited. The variations of the *isotheral* and *isocheimal* curves—the lines of equal summer and of equal winter temperature—thus afford a happy illustration of the equalizing tendency of large bodies of water. Hence the former division of the surface of the earth into five zones, as regards its temperature, has been superseded, in scientific inquiries, by a more precise arrangement; places having the same mean temperature are connected by isothermal lines—the spaces between them are called isothermal zones.

"A concise description of the chain of vast lakes or inland seas, which lie in the northern division, may be here properly introduced. The basin of the St. Lawrence is truly a region of 'broad rivers and streams,' containing, it is estimated, an area of 400,000 square miles, of which 94,000 are covered with water. From the western extremity of Lake Superior to the Gulf of St. Lawrence, the distance is about 1900 miles. These ocean lakes have been estimated to contain 11,000 cubic miles of water—a quantity supposed to exceed more than half of all the fresh water on the globe. Lakes Huron and Michigan, which have the deepest chasms, have been sounded to the amazing depth of 1800 feet without discovering bottom.

"The following table, which gives the mean length, breadth, depth, area, and elevation of these several collections of water, is taken from a recent report made by Douglass Houghton, Esq., State Geologist of Michigan:—

| | Mean Length. *Miles.* | Mean Breadth. *Miles.* | Mean Depth. *Feet.* | Elevation above level of the sea. *Feet.* | Area in square miles. |
|---|---|---|---|---|---|
| Lake Superior, | 400 | 80 | 900 | 596 | 32,000 |
| Green Bay, | 100 | 20 | 500 | 578 | 2,000 |
| Lake Michigan, | 320 | 70 | 1000 | 578 | 22,400 |
| Lake Huron, | 240 | 80 | 1000 | 578 | 20,400 |
| Lake St. Clair, | 20 | 18 | 20 | 570 | 360 |
| Lake Erie, | 240 | 40 | 84 | 565 | 9,600 |
| Lake Ontario, | 180 | 35 | 500 | 232 | 6,300 |
| St. Lawrence, | | | 20 | | 940 |
| | | | | | 94,000 |

"Having said that the northern division exhibits four striking inflections of the isotheral and isocheimal lines on the same parallel of latitude, corresponding to certain systems of climate, the data from which these results are obtained, will now be given; and the results of each year will be presented in detail. To illustrate the difference of temperature, more especially as regards its distribution among the seasons, between the seaboard and the interior remote from large bodies of water, a comparison of the following posts will be instituted:

| | | | |
|---|---|---|---|
| Fort Sullivan, lat. | 44° 41′ | Fort Snelling, lat. | 44° 53′ |
| " Wolcott, " | 41° 30′ | Council Bluffs, " | 41° 25′ |
| Mean East | 43° 06′ | Mean West | 43° 09′ " |

Upon comparing the seasons of the Atlantic, or eastern and interior, or western military posts, it appears that during the winter, the mean of the east is 8.38° *higher* than the west; during the spring 3.53° *lower;* during the summer 6.99° *lower;* and during the autumn 1.54° *higher.* But notwithstanding this striking contrast between the mean temperature of the seasons in the eastern and western sections of our country, when the mean temperature of the whole year is computed, the difference is a mere fraction.

In addition to the three systems of climate established by Dr. Lawson, namely, that of the Atlantic coast and of the lakes, which have the extremes of temperature modified, and that of the region beyond the lakes, characterized by strongly contrasted seasons, he has been enabled to establish another or fourth system, by means of instrumental observations made at West Point and Fort Trumbull.

"As West Point, New York, is on the same degree of latitude with Fort Trumbull (New London, Connecticut), and is distant only one and a half degree of longitude, no striking contrast in the results would be, *à priori*, anticipated. It is found, however, that the winters of the former are 4.67 colder, and the summer 1.00 warmer; and that although the mean annual temperature of Fort Trumbull is 1.56 higher, yet the heat is so equably distributed through the seasons that the difference between the mean temperature of winter and summer is only 35.89, whilst that of West Point is 41.56. It is thus seen that the isotheral and isocheimal lines, on leaving the coast, gradually diverge until they come within the influence of the lakes, when they again converge; and that, having passed beyond the controlling power of these inland seas, their inflexions are once more in adverse directions. Hence it is apparent, that although two places may have the same mean annual temperature, and thus be on the same *isothermal* line; yet, owing to the seasons being nearly uniform or violently contrasted, the climates may be very different."

Having thus adverted to some of the interesting facts connected with atmospheric temperature developed to us through the labours of our medical brethren of the Army, we will notice some of those relating to other points embraced by meteorology.

In regard to the proportion of fair weather prevailing in different portions of our country, it is ascertained that a wide difference is observed. Thus, on the sea coast, the annual ratio of fair days is 202, whilst in the western points it is 240; the cloudy days are as 108 to 77; the rainy days as 45 to 31; those of snow are as 9 to 16. These ratios, Dr. L. informs us, far from being accidental, result from the operation of fixed laws.

The number of wet and foggy days on the New England coast is one-half greater than in the dry and cold region beyond the lakes. "On the lakes," Dr. L. observes, "the annual ratio of fair days, is 117, and in the opposite locality, 215; the cloudy days are as 127 to 73; the rainy, as 68 to 46; and the snowy as 45 to 29. In the former, the prevailing weather is cloudy, and in the latter it is fair. The ratio of cloudy days is even higher on the lakes than on the Atlantic coast. As it is of great importance to determine the annual quantity of rain which falls on any point of the earth's surface, it is much to be regretted that more extensive observations have not been made at these posts on the pluviometer."

It is pleasant to find the conclusions drawn by our surgeon general, in relation to the sections of country bordering upon Canada, Nova Scotia, and the other possessions on our continent, amply sustained by the observations of the British army surgeons. "In Canada," he remarks; "the climate exhibis such sudden alterations of temperature that the mercury at Quebec has been known to fall 70° in the course of twelve hours. Cold weather sets in as early as Novem-

ber, from the end of which month till May the ground remains covered with snow to the depth of three or four feet. When the winds blow with violence from the north-east, the cold becomes so excessively intense, that the mercury congealed in the thermometer serves no longer to indicate the reduction of temperature. During winter, the general range is from the freezing point to 30° below zero. The seasons do not, as in more temperate regions, glide imperceptibly into each other. In June, July, and August, the heat, which often attains 95° of Fah., is frequently as oppressive as in the West Indies.

"The climate of Nova Scotia, although in similar latitudes, exhibits a striking contrast to that of Canada. The temperature is not only modified by its insular position, but the interior of the peninsula 'is so much intersected by lakes and bays, that nearly one-third of its surface is under water.' The thermometer seldom rises above 88° in summer, or sinks lower than 6° or 8° below zero in winter. Were it practicable to obtain the requisite data, it would be interesting to institute a comparison between the seasons of this region and those of Canada.

"The climate of Newfoundland is similar to that of Nova Scotia. The summers, however, owing to the meeting of the icebergs on the coast, are less warm; of shorter duration, and subject to more sudden vicissitudes."

The climate of the southern portions of our Union is free from the excessive vicissitudes which characterize the four systems of climate of the northern division. At Fort Snelling, one of our north-western posts, the difference between the mean temperature of the warmest and coldest month is 61.18°, whilst at Cantonment Brooke, East Florida, it is no more than 17.68°. In regard however to equability of temperature, the Florida Peninsula appears to be wholly peculiar, the course of vegetable growth never being arrested, and wild flowers springing up and flourishing in the month of January. The heat at Tampa Bay and St. Augustine is never so great as at more northerly points.

"As the western posts, Snelling, Gibson, Council Bluffs, &c., remote from inland seas, are remarkable for extremes of winter and summer, so do they exhibit the hottest and coldest days and the greatest range of the thermometer. Forts Brady and Mackinac, the most northern stations, show, by a lesser range of the thermometer, the equalizing influence of the lakes; whilst the Atlantic posts illustrate the controlling power of the ocean. In elucidation of the same law, we find that the mean summer temperature is greater at Augusta, Ga., than at St. Augustine, or Tampa Bay, Florida.

"In Africa, the mercury is sometimes seen at 125°, and in British India it is said to have been as high as 130°. In the table of the highest temperature observed in different climates, as given by M. Arago, it is noted at 130° in the Oasis of Mourzouk. In our own diaries it is marked at 116°, on the 15th of August, 1834, at Fort Gibson. As no register thermometers have been used at our posts, the range throughout the twenty-four hours may be greater than that given in the diaries."

The labours of the medical department of our public service, when connected with those of the numerous private and state observers spread throughout our country, have already in a very short period furnished a rich store of facts connected with the climatology of a vast region of territory. These facts are not only highly interesting at the present day, but extremely important when viewed as the means of future comparison for the purpose of ascertaing in how far climate is influenced by the arts of civilization applied to the clearing away of forests, and the extension of cultivation. G. E.

ART. XVI.—*Elements of Physics, or Natural Philosophy, General and Medical, written for universal use, in plain or non-technical language; and containing new disquisitions and practical suggestions. Comprised in five parts: 1st, Somatology, Statics, and Dynamics. 2nd, Mechanics. 3d, Pneumatics, Hydraulics, and Acoustics. 4th, Heat and Light. 5th, Animal and Medical Physics.* Complete in one volume, pp. 520. By NEIL ARNOTT, M. D., of the Royal College of Physicians; a new edition, revised and corrected from the last English edition, with additions, by Isaac Hays, M. D. Philadelphia, Lea & Blanchard, 1841.

It has always excited our surprise that a knowledge of Natural Philosophy should not be placed by our medical schools among the requisites for their diploma; and the more so too since they all demand of the student an acquaintance with Chemistry. Every one must admit that the former is as important to the student as the latter—is indeed essential to his comprehension of the very fundamental doctrines of our science, and to the judicious exercise of some of its departments. How indeed can the student understand the mechanism of the human skeleton, the proper treatment of various surgical accidents, or the application of numerous surgical apparatus without an acquaintance with the principles of mechanics? Is not a knowledge of other branches of the science equally essential for a comprehension of the mechanism of the circulation, respiration, the voice, digestion, vision, &c. the principles of hygiène, and many other subjects? All this is so manifest that it is unnecessary to urge the points in detail.

To the medical student then, we conceive that we cannot too strongly urge the study of Natural Philosophy; and as an aid in this pursuit he will find the treatise of Dr. Arnott extremely useful. The merits of this work are indeed so well established that it would be supererogatory to notice them here, and moreover it is the only one generally accessible in this country, designed for the use of medical students, and in which the applications of the principles of the science are directly pointed out.

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ART. XVII.—*Human Physiology; illustrated by Engravings.* By ROBLEY DUNGLISON, M. D., Prof. Institutes of Med. and Med Juris. in Jefferson Medical College, &c. &c. &c. Fourth edition with numerous additions and modifications. 2 vols. pp. 579 and 651. Philadelphia, Lea & Blanchard, 1841.

We have had occasion to notice with approbation the preceding editions of this work, and the present one is entitled to still further commendation from the additions and modifications it has received. The author observes in his preface that, "In the short period that has elapsed since the appearance of the third edition, the investigations of the physiologist have been so numerous and diversified as to render it necessary to make many modifications and additions. The extent of these cannot be appreciated by a cursory examination. They have imposed upon the author the necessity for considerable labour. The mere reference, indeed, to the various contributions—scattered through the journals of different countries, and languages, as well as contained in *ex professo* treatises—requires no little time and industry.

"The author has found it requisite to make the most numerous modifications and additions in the second volume.

"The subject of Histogeny or the development of the tissues, although much cultivated by recent physiologists, belongs perhaps more properly to general anatomy, and on this account has not been treated of *in extenso* in the present work. It was impossible, however, to pass over the recent labours of Valentin, Bischoff, Wagner, Martin Barry, T. W. Jones and others, without notice.

"The first part of the "Elements of Physiology" of Dr. Rudolph Wagner,

translated by Dr. Robert Willis, with notes by that gentleman, and others, has furnished the author much valuable matter.

"He has likewise added several engravings, to elucidate either topics, already touched upon in the work, or such as are new in the present edition, and has endeavoured to place it in all respects on a level with the existing state of the science."

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ART. XVIII.—*A system of Midwifery, with numerous wood cuts.* By EDWARD RIGBY, M. D., Physician to the General Lying-in Hospital, Lecturer on Midwifery, &c. &c. With notes and additional illustrations. Philadelphia, Lea & Blanchard, 1841.

This is a very complete and most admirable treatise on Midwifery, comprehensive in its scope, and at the same time free from wearisome and unprofitable details. We know of no better work, on this branch of our profession, to be placed in the hands of a student, or which a practitioner may refer to with greater advantage. Hereafter we propose to review it more particularly; in the mean time we bespeak for it, what we are sure it will receive, the favour of the profession.

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ART. XIX.—*Eighth Annual Report of the Trustees of the State Lunatic Hospital at Worcester.* Boston, Dec. 1840, pp. 100.

We are again obliged to the attention of Dr. Woodward, for the eighth annual report of the institution, over which he presides, with so much credit to himself, and with so much benefit to the cause of suffering humanity. If there is any one thing to which a son of Massachusetts can point as presenting the character of her people in a pre-eminently favourable light, it is the establishment of this noble charity; and if there is one circumstance in relation to that, which above all others, calls for peculiar thankfulness, it is the fortunate selection which was made of its superintendent. This is no idle boast or unmeaning flattery. It is the honest conviction of thousands of minds—of *all* who have made themselves acquainted, in any considerable degree, with this institution and its operations.

Interesting as many, as all indeed, of the Reports of the institution have been, none have been more so to us than the present one, and it has been a source of regret to us that it cannot go into the hands of the whole community. We should make copious extracts, if we could, but our limits prevent. We cannot, however, resist the inclination, to present our readers with the following testimonials to the character of the institution, from the report of the trustees—men, whose business it is to *know* how it is managed, and who are competent to form a just estimate of its benefits.

"The design of the State Lunatic Hospital, and the plan of treatment pursued in it, furnish a beautiful illustration of the successful results of the humane care and management of the insane.

"The Hospital building is a grand edifice, located in the heart of the Commonwealth, a fit emblem of the noble heart of the people, who generously founded and endowed it—spacious in its dimensions—as well ventilated, warmed, and supplied with pure water, and every other necessary and comfort of life, as any public institution in the whole world—with an infirmary for the sick, and a chapel for religious worship—with comfortable and airy apartments for the inmates, always kept clean and neat—with lofty open halls for their recreation and exercise, surrounded with ample grounds, and walks and trees—placed on a high hill in full view of the magnificent amphitheatre of cultivated and ornamented highlands, which overlook and surround the beautiful town of Worces-

ter—thus affording to the inmates of the hospital, a constant view of scenes well adapted to soothe, to delight and tranquillize their troubled minds. In this blessed refuge of mercy, for eight years past, the ministrations of humanity have been dispensed to more than eleven hundred and ninety of our unfortunate brethren, afflicted with all the various and terrible forms of mental malady—and, during the whole period, not a blow has been struck, not a chain has been used, nor a harsh word spoken, nor a hard look given. Everything has been done by the intelligence, benevolence and firmness of the master mind of that extraordinary man, who superintends and sways, with consummate skill, the discordant elements over which he presides, and who has raised the reputation of the State Lunatic Hospital to the rank of a model institution, alike admirable for its humanity, economy and success."

From the Treasurer's report we learn that the financial condition of the Hospital is such that no appropriation is necessary for the present year.

Dr. Woodward's report furnishes us the following interesting particulars.

"In the course of the past year, there have been in the Hospital *three-hundred and ninety-one* patients, *one hundred and ninety* of whom were males, and *two hundred and one* females. *Two hundred and twenty-nine* remained at the close of the year, *one hundred and thirteen* males, and *one hundred and sixteen* females.

"There have been admitted, in the course of the year, *one hundred and sixty-two* patients, *seventy-five* males, and *eighty-seven* females; *eighty-seven* of which were old cases, and *seventy-five* were recent cases.

"There remain at the end of the year, *two hundred and thirty-six* patients, *one hundred and twenty-two* of whom are males, and *one hundred and fourteen* females.

"The applications for admission at the Hospital, not received, have been *ninety-nine, fifty-eight* from this State, *twenty-nine* males, and *twenty-nine* females; *forty-one* from other states, *twenty-one* males, and *twenty* females.

"There have been discharged, in the course of the last year, *one hundred and fifty-five* patients, *sixty-eight* males, and *eighty-seven* females. Of these, *eighty-two* had recovered, *twenty-eight* males, and *fifty-four* females. *Twenty-nine* had not improved, but were discharged as harmless, and for want of room; of these, *nineteen* were males, and *ten* were females. *Fifteen* have died, *six* males, and *nine* females."

On page 79 of the Report is a very important typographical error. The word *chains* occurs twice where it should be *chairs*. No *chains* have ever been used in the institution.

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Art. XX.—*The Retrospect of Practical Medicine and Surgery, being a half-yearly Journal, containing a retrospective view of every discovery and Practical improvement in the Medical Sciences.*—Edited by W. Braithwaite, M.R.C.S., Surgeon to the Leeds General Eye and Ear Infirmary, &c. &c., Nos. 1, 2, and 3. London, 1840-1, pp. 200, 216, and 216, 12mo.

The design of this work is to present an analysis of the British and Foreign Medical Journals and Transactions; or, a selection of the latest discoveries and most practical observations in the practice of Medicine, Surgery and the collateral sciences, made chiefly with reference to the treatment of disease. Such a scheme well carried out cannot but prove a valuable aid to the country practitioner in keeping pace with the progress of science, and also much abridge and facilitate the labour of those who have access to the current sources of information. In the Nos. before us the editor has shown judgment and skill in the arrangement of the subjects, and in the selection, and condensation of the different articles. We shall enrich our summary with extracts from the work.

ART. XXI.—*Statistical Report of the Sickness and Mortality in the Army of the United States. Compiled from the Records of the Surgeon-General's and Adjutant-General's Offices—Embracing a period of twenty years, from* 1819 *to January* 1839. Prepared under the direction of THOMAS LAWSON, M. D., Surgeon-General. Published for the use of the Officers of the Army of the United States. Washington, 1840: pp. 346, 8vo., with a map.

THE highly interesting and valuable publication with the above title comprises a mass of statistical materials, medico-topographical observations, and investigations of the comparative influence of various systems of climate upon the human constitution. Since the establishment of the Medical Bureau in 1820, by the late lamented surgeon-general, Dr. Lovell, quarterly reports have been regularly made of diseases among the regular troops stationed at the various military posts in the states and territories embraced under our extensive government. The facts thus collected in detail have been collated and condensed by Dr. Samuel Forry, late of the United States army, under the direction of the present able surgeon-general, Dr. Lawson.

It is evident that the medical department of the public service, under its present efficient organization, is peculiarly qualified to obtain the necessary information for the investigation of the comparative influence of climate, modified as it is by the various circumstances existing in particular localities. These advantages are now made available by the "Statistical Report," a publication which has laid the medical profession at large under special obligations to their brethren connected with the army.

In the arrangement of the statistical materials, the collator has divided the subject into two parts, each embracing a period of ten years, and the extent of labour bestowed in the preparation of his papers may be estimated from the fact that he was obliged to examine about 4000 quarterly sick reports, and to obtain from the adjutant-general's office the mean strength for corresponding periods compiled from the post and regimental returns. G. E.

# SUMMARY

OF THE

# IMPROVEMENTS AND DISCOVERIES

IN THE

# MEDICAL SCIENCES.

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## ANATOMY AND PHYSIOLOGY.

1. *Ectopia Cordis—Motions and Sounds of the Heart.*—M. Cruveilhier has recorded in a recent No. of the *Gazette Médicale* (No. 32, 1841,) a case of ectopia cordis, with the interesting results of some investigations relative to the motions and sounds of the heart which this case afforded him an opportunity of instituting.

The subject of this case was born at the Maison Royale de Santé at 1 P. M., July 1841. When seen by M. Cruveilhier, nine hours after birth, it seemed full of life and apparently of vigorous constitution. "The upper part of the sternum," says M. C. "presented a circular opening, through which the heart had completely escaped from the cavity of the thorax; it was, indeed, as completely exposed as in animals from which the whole sternum has been removed; it was of a pale colour, so that, at first sight, I thought that the pericardium existed; but this was not the case.

"The position of the organ was changed at each change of position of the child. On placing the trunk in a vertical position, the heart hung down in front of the sternum, dragging the trunks of the great vessels through the opening; and causing considerable pain, which was indicated by increased pulsation of the heart and crying of the child. The axis of the heart was vertical, and not oblique; on touching it, or even pressing it slightly, no symptoms of pain were excited. The left ventricle formed the greater part of the body of the organ, the right ventricle being merely an appendix to it.

"In the natural position of the heart, no part of the auricles could be seen except the points; they appeared not to have attained their complete development.

"This remarkable case afforded an excellent opportunity for studying the sounds and motions of the heart. The following were the principal facts observed by myself, M. Monod, and the pupils who were present:—

"*Motions of the heart.*—1. The contractions of the ventricles were isochronous, as were also those of the auricles.

"2. The contraction of the ventricles coincided with the dilatation of the auricles, and the propulsion of blood into the arteries; the dilatation of the ventricles coincided with the contraction of the auricles and arteries.

"3. There are only two periods in the motions of the heart; one of contraction, the other of dilatation; the period of rest mentioned by writers does not exist; contraction succeeds *immediately* on dilatation, and *vice versâ*.

"4. The question relative to the order in which the motions of the heart take place, *i. e.*, whether the auricles contract before the ventricles, or the latter before the auricles, has no meaning when applied to the naked heart. The motions take place alternately, like the vibrations of a pendulum, and it is impossible to say which takes place first.

"5. The time occupied by the contraction of the ventricles is double the time of their dilatation; if we divide the total duration of the systole and diastole of

the ventricles into three equal periods, we shall have two periods for the contraction and one for the dilatation; for the auricles, we have two periods for the dilatation, and one for the contraction.

"6. During contraction the ventricles become pale, their surface is folded and crisped up like dried parchment; the superficial veins swell; the fleshy columns of the right ventricle are prominent, and the circular fibres at the point of the heart are more readily seen; the ventricles become shortened in every direction, but more apparently in the vertical one, because it is the greater of the two; the point of the heart, also, at the moment of contraction, describes a spiral movement from right to left, and from behind forwards.

"7. It is on this spiral motion, which is slow and gradual, that the shock of the point of the heart against the walls of the chest depends; the ventricular systole is not accompanied, as I had always previously thought, by a forward movement of the heart; it is this spiral motion which produces the shock.

"8. The diastole of the heart occurs in a sudden, sharp manner; it is so quick and energetic, that, at first sight, one would suppose that it was the active motion; it is difficult to imagine how powerful this act of dilatation is; the hand which grasps the ventricles is forcibly opened by it.

"9. The dilatation of the ventricles is accompanied by a projection of the heart downwards, and this is so great, that at first I thought the heart must strike against the chest during this dilatation; but on more careful examination, I was convinced that the shock takes place towards the end of the ventricular contraction.

"10. The dilatation of the auricles is also sudden, but is regulated by the duration of the ventricular systole; the contraction of the auricles, on the other hand, is as short as the diastole of the ventricles.

"11. During its dilatation the right auricle seems ready to burst, so distended is it, and so thin are the parietes; the left auricle does not present the same appearance in so marked a manner.

"*Sounds of the heart.*—1. On applying the ear to the heart the double sound is heard, but the first sound is much more feeble than when it is heard through the walls of the chest. Hence it is clear that the cause of these sounds is inherent in the heart, but that the first one is rendered more intense by the walls of the thorax.

"2. This double sound gradually increases as we ascend from the apex of the heart towards its base, and *vice versâ*; hence it is evident that we must seek for the cause of the sounds at the base of the organ.

"3. On applying the finger over the root of the pulmonary artery, we feel most distinctly a vibratory thrill, which corresponds with the collapse of the artery and the dilatation of the ventricles; it was feeble during the contraction of the ventricles, and consequent dilatation of the vessel.

"4. On what does this vibratory thrill depend? Being unable to apply the ear immediately to this point, I bethought myself of employing the index finger as a stethoscope, and on applying the ear to the finger, I heard a distinct *bruit de claquement*. This experiment I repeated several times with the same result.

"5. I sought in vain for any double sound; there was *one* clear sound only which coincided with the collapse of the artery, and consequently with expansion of the sigmoid valves by the column of blood.

"6. The cause of the second sound of the heart, evidently, then, depends on the vibratory thrill of the aortic and pulmonary valves, which are struck by the column of blood rushing back during collapse of the artery; the sound coincided with dilatation of the ventricle, and like it was short.

"7. It now remained to determine the cause of the first sound of the heart. Being prepossessed with the idea that this sound depended on the auriculo-ventricular valves, I passed my finger over every point of the base of the heart in search of a vibratory thrill, analogous to that emanating from the sigmoid valves; but nothing could be discovered by the finger or ear, and repeated trials convinced me that the mitral and tricuspid valves had nothing to do with the production of the sound.

"8. It now suddenly occurred to me that the first sound might depend on the same cause as the second, and be explained by the shutting of the sigmoid valves as the column of blood rushes from the heart into the great vessels. This idea seems to be confirmed by the following reasons:—1. The maximum of intensity of the first sound occupied the same point as that of the second. 2. The first sound was exactly of the same nature as the second, and only differed from it in intensity and duration. 3. If the first sound, like the second, depend on the sigmoid valves, it follows that all diseases of these valves must affect the two sounds; now this constantly takes place. In all the cases which I have examined relative to this point, it is mentioned that both sounds were altered; I speak, of course, of cases where the auriculo-ventricular valves remained normal. 4. We must not be surprised that the motions of the auriculo-ventricular valves are unaccompanied by any sound, since they are bound down so closely by the cordæ tendiniæ; besides, the ventricles contract slowly, the apex of the heart ascends gradually towards the base, and hence the auriculo-ventricular valves also ascend slowly, and without vibration. Besides, it is evident that in cases where these valves are thickened and vibration ensues, the sound must be confounded with that of the sigmoid valves. 5. But the following objection may be raised; if the sounds of the heart are caused by the sigmoid valves, why should the maximum intensity of the first sound exist at the apex, and not at the base, on a level with these valves? It is true, that when the heart contracts powerfully and throws the apex with force against the walls of the chest, that we have the maximum intensity at the apex: but when the organ pulsates feebly and the shock is weak, then we have the loudest sound behind the sternum, on a level with the roots of the aorta and pulmonary artery. It should not be forgotten that the first sound is a compound of two, viz., the valvular bruit, and that produced by the shock of the heart's apex, and hence in anæmia, chlorosis, and certain organic diseases of the heart, the first sound is so intense that it completely masks the second in some cases. Were the diaphragm composed of cartilage or bone, and thus resonant, we would hear the second sound most distinctly over the ensiform cartilage during the diastole of the heart.

"*Conclusions.*—It seems to result from the preceding observations, that the two sounds of the heart arise at the roots of the aorta and pulmonary artery, and depend on the motions of the sigmoid valves; that the first sound which corresponds to contraction of the ventricles depends on the depression of the sigmoid valves; that the second sound accompanying the dilatation of the ventricles, is caused by the spreading out or expansion of the same valves by the retrograde column of blood."—*Prov. Med. and Surg. Journ.*, August 14, 1841.

Two cases of a similar character to the above will be found in previous Nos. of this Journal. See Nos. for Feb. 1833, and Nov. 1838.

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2. *State of the Pulse in New-Born Infants.* By M. Trousseau.—A portion of the hospital Necker, set apart for the reception of nurses and infants, has for some time back been placed under the direction of M. Trousseau. One of the first points to which M. Trousseau turned his attention was the state of the pulse in infants; the following are the results of his observations:—

From the experiments of M. Jacquemier, made on infants of one day old, it would appear that the minimum of pulsations was 97; the maximum, 156; difference, 59; average, 126. According to Billiard, whose observations were made on 39 infants, of from one to ten days old, the pulse was in eighteen less than 80; in two, 86; in one, 89; in four, 100; in ten, 110 to 125; in one, 130; in two, 150; in one, 180. Hence, if we leave aside the three last cases, the pulse in infants of from one to ten days old, gives a medium of 90. M. Valleix also examined 13 infants of from one to ten days old, the minimum was 76; maximum, 104; difference, 28; average, 87; a result not very different from that of Billiard.

Thus it appears that, before birth, the medium pulse is about 133; at the moment of expulsion from the uterus it falls to 83, but in a few minutes ascends again to 160, but during the course of the first day falls to 127; and during the next ten days it gradually falls to 87 or 90.

The observations of M. Trousseau were made on infants somewhat more advanced in life, and from them it would seem that the pulse becomes less variable as the child gets older. It is unnecessary to mention that no children were examined except those who presented every appearance of perfect health. The author divides his observations into two categories, one confined to the last six months of 1840, the other to the first six months of 1841.

*Last semester of* 1840.—Fifty-four infants, (27 male, 27 female,) aged from fifteen days to twenty-one months, were examined; they were divided into four classes; viz., 1st, from fifteen to thirty days old; 2d, from one to three months; 3d, from three to twelve months; 4th, from twelve to twenty-one months. In the first class, (6 male, 5 female,) the maximum pulse was 152; minimum, 120; difference, 32; mean, 135. Second class, (5m. 5f.,) maximum, 156; minimum, 108; difference, 48; mean, 132. Third class, (12 m. 16 f.,) maximum, 144; minimum, 112; difference, 44; mean, 120. Fourth class, (4 m. 1 f.,) maximum, 140; minimum, 92; difference, 48; mean, 125.

*First semester of* 1841.—One hundred and six infants were examined with great care and attention during this period; M. Trousseau furnishes all the details, but we can find room for his conclusions only.

*Influence of Age.*—Age seems to exercise but little influence on the state of the pulse in infants; during the first month the mean is 137; second month, 132; from two to six months, 128; six to twelve, 120; twelve to twenty-one months, 118. The maximum frequency occurs during the first month, the minimum towards the period of weaning. The difference of frequency, however, is not much, being only 19 in the males, and 13 in the females, and from the third month forwards little or no variation takes place.

*Influence of Sex.*—During the first two months there is little or no difference of frequency between male and female infants; but after the third month, it assumes that character of greater frequency in the female which distinguishes it during the rest of life.

The influence of the states of waking and sleeping is infinitely more marked; in infants of fifteen days to six months the pulse during *sleep* was 121; during *waking*, 140; from six to twenty-one months, while asleep, the infant had 112 pulsations; while awake, 128; the difference is much greater when the child cries, is afraid, or struggles; the pulse will then mount from 112 to 160 or 180.

From the above observations, it follows that, in infants, during the first two weeks, the pulse may vary from 78 to 150; during the second fortnight, from 120 to 164; one to two months, from 96 to 132; two to six months, 100 to 162; six to twelve months, 100 to 160; twelve to twenty-one months, 96 to 140. These remarks show of how little value is the pulse as a sign of disease in infants.—*Ibid.*, from *Journ. des Connais. Med. Chir.*, July, 1841.

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3. *Imperforate Anus—Absence of Rectum.*—M. Dubreuilh relates, in the *Journ. de la Société de Méd. de Bourdeaux*, a case of this description. The subject of it was a child born at the 7½ month of gestation. It lived ten days. On examination after death the rectum was found deficient, while the colon, running exactly along the linea alba, terminated in the summit of the bladder, which was about the size of a hen-egg. A probe passed along the urethra entered the colon through the bladder; the opening between the bladder and colon was 12 millimetres in diameter. The bladder was full of yellow fecal matter; its mucous membrane was of a reddish-brown colour, and its parietes two millimetres in thickness. The ureters could not be discovered; the urethra was natural: the parietes of the colon, in the vicinity of, and for some distance above the bladder, were thin and transparent, but of natural thickness in the rest of their extent.

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4. *On Electric currents in the Nerves.*—Professor Bischoff and Jolly relate, in *Müller's Archives*, (H. I. 1841,) a brief series of experiments, the results of which corroborate entirely the conclusions drawn by most other physiologists from the facts already known. They establish, first, that even the most delicate galvanometers can detect no current of electricity in the nerves; although

they are such bad conductors of electricity, that its passage through them is not discernible even when its force is such as would act on very coarse galvanometers. These two facts together are conclusive against the existence of the supposed natural currents, since if they existed in such bad conductors, it is impossible but that the electrical tension would be sufficient to affect the galvanometer. But on the other hand, it is clearly proved that the nerves themselves are the most delicate of galvanometers, being so irritable to the electrical stimulus that muscular contractions are excited by a current too weak to be detected by the ordinary galvanometer-needle. Other experiments are alluded to which seem to prove that there is no free electricity in either the brain or spinal cord.—*British and Foreign Med. Rev.* July, 1841.

5. *On the Functions of the Anterior and Posterior columns of the Spinal Cord.* By Dr. Kuerschner.—The experiments here related, to establish that the anterior and posterior columns are respectively and exclusively motor and sensitive, are simple, and founded on the well-known phenomena of reflex action.

The facts that individual muscles can be voluntarily moved, and that isolated sensitive impressions can be perceived, prove that the nervous principle is conducted along the spinal cord according to the same laws as it is along the nerves themselves. Reflex motions, therefore, cannot take place when the supposed sensitive columns are stimulated at the top of a divided cord, for the sensitive fibres cannot conduct centrifugally, nor can any motions take place in consequence of stimulating those columns unless they contain motor filaments. But in several experiments, chiefly performed on decapitated frogs, no motions whatever were excited by stimulating the upper part of the posterior columns, though by the slightest touch of the anterior severe convulsions were produced. The same result was obtained in whatever way the experiment was modified, so that there can be little doubt that there are no fibres in the posterior columns which are capable of conveying impressions (directly) to muscles.

The converse, namely, that there are no fibres in the anterior columns, capable of conveying sensitive impressions, was proved in a similar manner. Thus, reflex motions occur only with the assistance of the centripetal nerves; and therefore when the posterior roots of the nerves of one of the legs of a frog are divided, irritation of the skin of that leg should cease to excite motion. And this in reality occurs; whenever the posterior columns, or roots of the nerves of a limb are destroyed, all reflex motion on irritating its skin is put an end to, although irritation of the anterior columns or roots still produces active muscular contractions.—*Ibid.*

6. *On a Peculiar Disposition of the Arteries of the Uterus.* By M. Briquet.—The arteries of the uterus during pregnancy, besides their increased diameter, also acquire an increased elongation, which renders them tortuous, even whilst the uterus is still filled with the products of conception. When the uterus, however, has expelled its contents, whether at or before the full period, the arterial sinuosities, in consequence of the contraction of the walls of the uterus, increase so as to touch each other by their convex surfaces. The plane of the circles to which these belong is then parallel to that of the coats of the uterus; but, as the uterus goes on diminishing in size, the sinuosities not being able to increase any further in that direction, bulge out in another, perpendicular to the plane of the coats of the uterus. In this state, the arteries, instead of forming simple bendings or sinuosities, present the appearance of spiral or helicine vessels, which retain this form during the whole time the uterus is returning to its former contracted state. M. Bricquet found that this helicine or spiral disposition of the uterine arteries, once produced, is retained ever after, and is not lost during life. He thinks this fact will prove a valuable addition to our stock of knowledge, as to the medical jurisprudence of pregnancy, as he asserts that this appearance is never produced but by pregnancy, and is never met with in the unimpregnated womb.—*Edin. Med. and Surg. Journ.*, from *Bull. de l' Acad. R. de Med.*, March 16, 1841.

7. *Case of Secretion of Air from the Human Skin.* By Sir Francis Smith.—An hypochondriac gentleman, 35 years of age, informed Sir F. Smith that he was liable to immense disengagements of gas from the stomach; that he also occasionally discharged air from the urinary bladder; and had observed an escape of air from the surface of his body when under water in the bath. Little attention was paid to the last of these statements till the 15th of May, 1840, when Sir F. Smith was hastily summoned to the bath to see the phenomenon of the disengagement of air from the skin of his patient. He was found in a bath at 79°, and his chest, abdomen, shoulders, and hands were literally covered with small air bubbles. When he removed his hands from the bath, the bubbles disappeared, but when he replaced them below the water, the air bubbles were observed to make their reappearance, at first very minute, but gradually increased in size till the palms of his hands became again coated with them. He frequently wiped away the bubbles from his hands and chest, but in every case they were soon replaced by others. The bubbles of air ran together, when pushed with the finger, like globules of mercury, without quitting the skin, or becoming loose in the water. This circumstance was observed for twenty minutes by Sir F. Smith, and towards the end of that time the margins of the upper end of the bath opposite where the shoulders had been, were coated all round for a depth of about two inches, with minute bubbles of air.—*Ibid*, from *Dublin Journ. of Med. Sci.*, Jan. 1841.

## MATERIA MEDICA AND PHARMACY.

8. *Ergot.*—"Mr. Wright inclines to the opinion which ascribes the formation of the excrescence to the combined influence of atmospheric warmth, and moisture. He is the more inclined to this belief, from the circumstance of the ergot being much more common in the district of Sologne than elsewhere, this district being possessed of those properties which favour such a conclusion, viz. moist rich soil, atmospheric warmth, and sheltered situation. Grains also occur, only one half of which are ergotted, the other half being healthy; an insuperable objection to the opinion, that ergot is produced by the growth of a fungus, which would equally attack all parts of the grain. Besides, from his own experiments, he found that ergot in powder or substance, sowed with rye, failed to produce the disease on the growing plant, nor did it even succeed, when he watered freely and daily, the growing plants with water, in which ergot had been steeped. The application of the powder of ergot to the growing ears of rye, likewise failed to produce ergotted grains. The excrescences remarked at the upper extremity of the grains he regarded as the stigmata altered by disease. Mr. Wright's conclusions were further confirmed by the fact of his discovery, that ergot contained a considerable quantity of fecula, 26 per cent., a substance which could not have been expected, if the disease were produced by a fungus, and which Mr. Wright has the merit of discovering, no previous analyist of the substance making mention of it.—*Edinburgh Medical and Surgical Journal*, January, 1841.

9. *Formulæ used in the Treatment of Tinea Capitis.*—The following are the formulæ commonly employed by M. Casenave in the treatment of this disease at the hospital of St. Louis:—

*Ioduret of Sulphur Ointment*—Ioduret of sulphur, 1 scruple; lard, 30 scruples.

*Depilatory Ointment*—Subcarbonate of soda, 8 scruples; lime, 4 scruples; lard, 30 scruples.

*Pitch Ointment*—Citrine ointment, 15 scruples; pitch ointment, 30 scruples—Or, powdered pepper, 2 to 4 scruples; lard, 30 scruples.

The ointment is applied every evening; in the morning the head is washed with the following lotion:—Subcarbonate of potash, 8 scruples; distilled water, 500 scruples.—*Prov. Med. and Surg. Journ.*, August 14, 1841, from *Journ. de Med. Pract.*

10. *New Method of Applying Iodine for the Cure of Phthisis Pulmonalis.*—The following is Mr. Leigh's method of using iodine. He directs the patient to apply a sufficient quantity of iodine ointment on the ribs, under both axillæ, and to cover the head with the bedclothes, to breathe the iodine volatilized by the heat of the axillæ. The ointment produces counter-irritation on the skin where it is applied, and is to be repeated according to circumstances. This method, he says, has appeared to him to arrest the progress of phthisis.—*London Med. Gaz.*, May, 1841.

11. *Method of Preparing Fine Points of Caustics.* By James Hunter.—Eight years ago I was called to a case of profuse bleeding from leech bites on the scrotum; after several things had failed, I tried the well-known plan of inserting the sharp point of a stick of lunar caustic in one or two of the bites, which immediately ceased to bleed, but as they were very numerous, the caustic soon lost its point, and I tried in vain to stanch the others with the blunt end. The case being extremely urgent, and the patient nearly pulseless, there was no time to make a new point in the common way, so I wrapt the nitrate in a bit of paper, crushed it with my heel, and placing some of the fragments on a silver half-franc piece, I held it over the flame of a candle, and then dipt the triangular pointed flat end of a silver probe, previously roughened on a stone, in the melted salt, which adhered, and on cooling formed a fine coating. This being inserted quite into one or two of the bites, they immediately ceased to bleed; to get another point of caustic on the probe was the work of an instant, and in this way a most alarming hemorrhage (the patient being almost in articulo) was speedily arrested. I can recommend the plan to general practitioners when they meet with similar cases, and it will be found an improvement to heat the flat end of the probe before dipping it, and afterwards to hold it in the blue part of the flame for an instant, as in this way a smoother coating is procured. Since the above incident, I have been in the frequent habit of employing the same method to get a fine point of lunar caustic for various ophthalmic purposes, such as touching small sloughy ulcers of the cornea penetrating to the membrane of the aqueous humour, and in many other cases. I have also in this way got a fine coating of the nitrate on a probe, to be passed into the nasal duct in some cases of fistula lachrymalis; and I conceive it might be found useful in many cases in general surgery, such as sinuses, affections of the nose, ear, &c., where caustic would often be introduced, but for the fear of serious consequences from the breaking of a common stick of it in such situations. The plan just recommended answers equally well for caustic potass, when a fine point or globule of it is required, as for producing eversion of a misplaced eyelash, or for destroying the remains of cysted tumours in the eyelids, or other purposes. The potass may be applied to the roughened surface of any common metal; but for the nitrate of silver, the probes must be of silver or gold, else the salt is rapidly decomposed and the probe destroyed. A fine point of tartar emetic, sulphate of copper, and similar salts, may be got by chipping their crystals, and then fixing the fragment on the end of the probe with sealing wax; but another plan, and the only one, when a long bristle, as it were, of these substances is required, is to take a wire, or the point of an old lancet, and heating it, and giving it a very thin coat of sealing wax, to push it, whilst hot, amongst the powdered salt. In this way a probe, which is to be introduced into a sinus, or into the nasal duct, may be coated with sulphate of copper or any other metallic salt; and this is the method I employ to prepare the flat points of tartrate of antimony for inoculating the bulbs of inverted eye-lashes, using for the purpose a bit of platinum foil shaped like a lancet."—*Med. Chirurg. Rev.*, from *Edinburgh Monthly Journ. Med. Sci.*

12. *Citrated Aromatic Wine of Iron.*—This preparation, Mr. Gore, of Limerick, says "has been improperly termed *tinctura ferri aurantiaca*, though a *vinous* preparation of the per and proto-citrate of iron. The formula for its manufacture is contained in the *Pharmacopœia Wirtembergica*, published in 1798. The pre-

paration itself possesses the most agreeable odour and taste of any medicinal compound ever introduced into practice. It is aromatic, carminative, and tonic, and I have no doubt will supersede the preparations in general use when once it has been fairly tried.

"Four ounces of iron filings, or, what I think would be better, iron wire, are put into a stone mortar; with these are beaten up four Seville oranges deprived of the seeds. Two or three days are allowed them to stand, having been placed in a wide-mouthed bottle; to them are next added ten ounces of Madeira wine, and two ounces of spirit of orange peel. After digesting for a fortnight the entire is expressed and filtered. A fine dark-coloured aromatic fluid is the result, highly chalybeate, and exceedingly agreeable, not only as to the taste left in the mouth, but the sensation it produces in the stomach. It is a compound of prote and per-citrate of iron, with perhaps a little tartrate from the wine, saccharine matter, mucilage, and essential oil.

"Three parts of this preparation, with one of syrup of smilax aspera, forms a compound which will not be rejected by the most delicate stomach. I have given it to children and young persons in various forms of disease with debility, and I have never found it disliked or rejected, but its repetition rather looked for. In strumous habits, where an excess of the white tissues constitutes a congenital evil—in passive uterine hemorrhage, anasarca from general debility—chlorosis—malignant disease, in which iron is so highly extolled by Mr. Carmichael, and in those diseases which arise from a general deficiency of tone, this preparation would seem to me to be of exceeding utility from its agreeable and chalybeate qualities.

"Where the secretion from a relaxed state of the mucous membrane in chronic bronchitis exists, I have no doubt but it will be found efficacious combined with ipecacuan wine.

"From having used this remedy repeatedly, as I obtained it from Mr. Stevenson's Limerick Medical Hall, where all that is new and valuable in pharmacy may be obtained, I can confidently recommend its use to the profession, and I have been led to do so because I consider it a valuable addition to the prescriber, and because I wish to bring it under the notice of Mr. Carmichael, who has spoken in high terms of a preparation recommended to him by Sir J. Murray, from the facility with which it can be retained upon the stomach—I mean carbonate of iron in the act of precipitation as made by dissolving bicarbonate of soda and muriated tincture of iron in water, which is taken in a state of effervescence. As the lemon contains a larger quantity of citric acid than the orange, I would suggest the addition of one lemon in the formation of the quantity before ordered, which I think might be an improvement as well as an addition."—*Braithwaite's Retrospect*, No. 1, from *Dublin Medical Press*, April 29, 1840.

13. *Powder of Sarsaparilla.*—Sir Francis Smith states that he has long been engaged in observing the effects of different preparations of sarsaparilla, and he is persuaded that of all the forms "that of powder is in most instances the most valuable. The advantages which it possesses, in my opinion," he observes, "may be stated as follows:—viz., 1, we can make use of it in many conditions of the stomach where a large quantity of fluid would prove inconvenient or injurious; 2, it may be taken in more certain and definite quantities; 3, its effects are, as far as I have observed, more durable. Of course certain conditions of the skin will occur where the use of the domestic decoction will be more serviceable, especially if it be taken warm; and in a slimy or foul condition of the primæ viæ the infusion in lime water (recommended by Dr. O'Beirne of Dublin, not as made in the Pharmacopœia,) will present special advantages. All forms of extract, whether fluid or otherwise, I have remarked to be so uncertain in their effects, (and that whether made with or without the contact of atmospheric air,) that I have long ceased to prescribe them at all.

"*Mode of Preparation and Administration of the powder.*—Different means may be used in preparing the powder of sarsaparilla, and provided they have the effect of excluding the ligneous portion of the root, and retaining the remainder,

they may be safely left to the discretion of the compounder. The mode made use of in one establishment where I have superintended its preparation is as follows: a quantity of the roots of sarsaparilla, either split or not, but not cut into short portions, is either subjected to the vapour of steam for a few minutes, or if time admit, left in a damp cellar for twenty-four or thirty-six hours, and subsequently introduced for an hour into a stove or oven moderately heated, which processes have the effect of loosening the connection between the bark and alburnum and ligneous portion, when the former may be easily stripped off, and powdered finely in a mortar, and the powder may afterwards be taken simply in a spoonful of any bland fluid, or may, in cases where quinine is indicated, be united with a suitable proportion, and the flavour be covered with a little oil of cinnamon—or the powder either simply, or combined with sulphate of quinine, or in gouty habits, with capsicum or ginger, may be made into pills, and administered in the proportion of from two to four scruples daily.—*Ibid.*, No. 2, from *Dublin Journ. Med. Sci.*, July 1840.

14. *On the Advantages of a High Temperature in the Preparation of Blistering Plaster.* By M. Donovan, Esq.—It is a common opinion that blistering plaster is injured by being heated; and hence it is customary, in preparing it, to mix in the powder of cantharides with the fatty ingredients when they are about to solidify, after having been melted. This mode of proceeding is directed also in the pharmacopœias; and the caution seems founded on the supposition that the cantharidin or vesicating principle is of so delicate a nature that it would be injured by any higher temperature.

The supposition I believe to be unfounded, and the precautions used in making the plaster not only unnecessary but injurious.

Several years since I made the following experiments:—A quantity of blistering plaster was prepared exactly according to the pharmacopœia. Another portion was made by mixing the fatty ingredients with the powdered cantharides, exposing the mixture to the temperature of 250° for half an hour, and then, while the plaster was very hot, straining off the cantharides. With each of these plasters a blister was made in the usual manner and applied to the inside of my thighs. In eight hours the plaster made by heating to 250° had reddened the skin more than the other; in twelve hours a few vesicles were produced by the former and not by the latter; but in sixteen hours there was a perfect and equal vesication in both cases.

I tried the effect of the blister prepared by heat on a number of persons, and found it exceedingly active. In two cases the persons had common blisters applied with less effect than was desirable, but the vesication was perfect when blisters prepared by heat were employed.

I prepared blistering plaster by exposure of the cantharides with the fatty materials to so high a temperature as 300°, and applied a blister made of it to my arm. In sixteen hours there was as perfect a vesication of the *whole* surface as ever I saw. There can be little doubt that a still higher temperature may be employed without destruction of the vesicating principle.

These experiments prove that there is not only no injury done to the vesicating principle of cantharides, even by a very high heat, but that blisters made by the heating process are rather more active than those prepared in the usual manner. Indeed it might be expected that such would be the result. The powder of cantharides, even when fine, still contains much of the cantharidin locked up in the scaly armour of the fly. By the solvent power of the melted fats, the cantharidin is dissolved out of the parenchymatous portion of the fly, and being then in its most minute state of division, it will blister with proportionate activity. The parenchymatous portion, now in a great measure exhausted of its vesicating principle, is perhaps detrimental, by occupying space without contributing power.

Much trouble is saved by preparing blistering plaster by the high temperature plan. When the cantharides are used according to the instructions of the pharmacopœia, they must be finely powdered, an exceedingly difficult task: while,

in the other way, they need only be somewhat broken down, and they may be removed by the strainer when the active principle has been dissolved and extracted from them.

It remains to show that the employment of heat in the preparation of blistering plaster has other advantages. Damp is a great enemy to the balance of the elementary affinities in the fly. I have found that powder of cantharides which contained merely their usual quantity of moisture when put into a glass bottle and well closed up with a glass stopper, acquired an intolerable fœtor after some months. The powder exhaled ammonia; for when a slip of paper wet with dilute nitric acid was let down into it, white fumes were abundantly produced. This proves decomposition. The smell of ammonia was even recognizable in the fœtor. Long before this period the powder had become mouldy.

We know also that blistering plaster always becomes mouldy when any moisture had been left in its ingredients. Suet and hog's-lard put up in a moist state become mouldy; but both of them keep better, and the former for a long time perfectly well, when moisture has been carefully excluded.

Thus moisture is detrimental to all the ingredients of blistering plaster; and hence every precaution ought to be taken to expel it. This will best be done by heating the fatty materials melted with the resin to the temperature of 250°; the water will have bubbled off in steam when this degree has been attained. If powder of cantharides, in its ordinary state of dryness, be thrown into the fats heated to this temperature, there will be a sudden, copious, and long-continued extrication of steam bubbles, although the powder had been to all appearance dry.

These observations afford the principles on which blistering plaster of due activity and of a comparatively imperishable kind may be formed. The process is this:—Introduce the resin and fats into a proper vessel: melt them; throw in the powder of cantharides; stir the mixture continually until a thermometer immersed in it indicates that the temperature has risen to 250°. Remove the vessel from the fire, and, if the cantharides are not to be strained off, continually stir the ointment. By these means, all the water will have been expelled from the fats, the resin, and the cantharides: and a plaster will be obtained much less liable to injury from being kept than the common.

The employment of a high temperature, in the preparation of blistering plaster, has several beneficial effects. It causes the solution of the vesicating principle in the fats, thus producing a blister more certain in its operation. It expels the water which naturally exists in all the ingredients of blistering plaster, and endangers its spoiling if long kept.

While I am on this subject it may be proper to allude to a proposal which has been made of a method of obviating strangury arising from the action of blisters. It consists in boiling the cantharides in water previously to their being pulverized, and drying them. After this, it is said they no longer possess the injurious property.—*Ibid.*, from *Dublin Medical Press*, August 19, 1840.

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## MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

15. *Spasmodic Affection of the Larynx and its Appendages cured by the External Application of Veratria.* By Dr. James Tunstall.—Mrs. S., ætat. 44, widow, of a leucophlegmatic habit, spare frame, short stature, schoolmistress, when young had a violent and dangerous attack of pleurisy, the bleedings necessary for the cure of which, "left her in such a weak state that she considers herself never to have regained her strength, and to this she attributes the violent attacks which are more immediately to engage our attention.

"Suddenly, and without previous premonitory symptoms, she is seized with a sense of suffocation, the whole of the muscles employed in respiration are put into violent and convulsive action, the lower extremities become cold, the face

purple, the jugular veins enlarge and feel cordy to the touch; the whole surface is bedewed with cold perspiration, and the countenance is expressive of death-like agony. She is perfectly sensible during the whole attack, having never been feverish or delirious. The fit terminates usually in ordinary dyspnœa, which lasts for hours or even days, according to the violence of the attack, leaving her in her usual health.

"The pulse during the attack is but little affected, either in force or frequency of beat; examination of the chest by auscultation shows that the air does not permeate more than about one-third of each lung, no sound being detected lower than the fifth or sixth rib on each side; this sound is the crepitating rattle, giving place, as the fit subsides, to a general bellows sound throughout the lungs; the heart is smaller than natural; it labours as though its action had been weakened by the too frequent and indiscriminate abstraction of blood, but it affords no abnormal sounds; the pulse is about 60, varying to 75.

"On examining her arms, few veins are discoverable, and these mere threads; each presents numberless scars caused by the lancet in every direction, hand, fore-arm, and elbow, while numerous scars from cupping encompass the neck, back, and chest.

"In June, 1840, I was requested to visit her: she was then labouring under one of her attacks which were described to me as asthmatic; on asking where the constriction existed, she clasped her throat. I carefully examined her, and felt convinced that it was a case of spasmodic affection of the laryngeal nerves.

"Upon inquiry I found that every variety of depletion and counter-irritation had been employed; that the strongest opiates and antispasmodics had failed in procuring the slightest mitigation of the symptoms, which could only be expected from time and the most perfect rest. I found that the usual cause of the attack was violent mental emotion, or any over-exertion in her duties as schoolmistress."

Believing that the disease depended upon an undue nervous excitability of the superior and cervical portion of the spinal marrow, Dr. T. "prescribed a scruple of veratria to one ounce of simple cerate, and directed that a small portion should be applied on each side of the cervical vertebræ, and rubbed well into the neck throughout its whole extent twice a day. About a fortnight after commencing its employment, she had an attack of what she said would have been her old complaint, but she repeated the ointment as soon as she felt it coming on, and it terminated in simple dyspnœa, without spasm or expectoration, in an hour or two.

"She persisted in its use about two months, during which time she had several attacks of winter catarrh, but without spasm; she discontinued its employment in December, and from the 21st of October, the day on which it was first prescribed, to the 20th of June, she had no return whatever of her spasms, but recovered her health so well that she was enabled to walk eight miles without assistance, whereas, previously to its use, she rarely if ever left her residence, as it always induced a return of the spasm."—*Prov. Med. and Surg. Journ.*, August 14, 1841.

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16. *Diacetate of Lead in Internal Hemorrhage.*—Mr. Sweeting is of opinion that this remedy has been administered in inefficient doses, and with objectionable combinations. Mr. S.'s practice is to give it in five grain doses every two, three, or four hours, according to circumstances. "The last case," he observes, "in which I employed the diacetate was one of uterine hemorrhage consequent upon abortion. The woman had miscarried the day before I saw her; she had lost a large quantity of blood, and the hemorrhage was still going on; she was pale, restless, sick, and the pulse scarcely perceptible at the wrist.

"I immediately gave her five grains of the diacetate dissolved in distilled water, and repeated it every hour for twelve consecutive hours, and, upon an abatement of the hemorrhage, continued it every four hours for the next twenty-four; the woman recovered.

"The diacetate should be rubbed up with a few drops of concentrated pyroligneous acid, in order to insure a complete solution of any carburate of lead,

distilled water added, and the whole filtered through paper: with these precautions no ill effects need be feared.

"A young gentleman labouring under typhus fever was attacked with diarrhœa and discharge of blood from the bowels, the diacetate in the full dose was administered, and both hemorrhage and diarrhœa restrained after two doses. He recovered.

"About two years since, I was called to a man in this village labouring under a clearly marked case of Asiatic cholera. He had been attacked at seven in the morning, but I was not sent for till noon, when I found him pale, pulseless, cold, and all but in that frightful state of collapse denominated the blue stage. I gave him five grains of the diacetate immediately; the draught was at once rejected. I then administered one grain every ten minutes in a teaspoonful of acidulated water. After he had taken the medicine for the space of two hours, the spasms wholly left him, with every symptom of immediate danger, and the man speedily recovered."—*Ibid.*

17. *Pneumonia in the Insane.* By M. Thore.—This is one of the most common and fatal diseases amongst insane persons, although it has been overlooked or very lightly noticed by most of our standard writers on insanity; of seventy-six patients who died at Bicêtre during the year 1839, eleven were cut off by pneumonia.

The symptoms of this affection are frequently very obscure; there is hardly ever any cough or expectoration, and although dyspnœa exists more constantly, yet it is seldom carried to any excess; the face remains calm, and there is seldom the dilatation of the nostril which indicates so clearly an impediment in breathing; the number of inspirations varied from twenty to fifty; the latter was always a very bad symptom, and indicated a fatal termination.

The physical signs of pneumonia were also somewhat obscure. Bronchophony and bronchial respiration were frequently marked by sonorous râles; fine crepitant râle existed only in well-marked cases of pneumonia, occurring in patients whose mental state was not very unfavourable; all these cases recovered. On the other hand the crepitant râle was never heard in any of the cases which, subsequently, had a fatal termination, but was replaced by dry or moist râles. Of the general symptoms, fever was the most constant; indeed, this one was never absent; the pulse ranged from 100 to 120; its acceleration was a very unfavourable sign; the skin was never very hot, and the red patches on the cheeks, so often seen in common pneumonia, were extremely rare. The state of the blood afforded no particular indication; it was commonly serous, and the clot soft. Anorexia was an important symptom, and whenever the appetite of an insane patient suddenly fails, attention should at once be directed to the state of his chest.

The low form of pneumonia was much more frequent than the inflammatory one. The prognosis of this disease is very unfavourable, its treatment must be regulated chiefly by the condition of the patient. In monomaniacs, in patients who are progressing towards a cure, or not very much deranged, we may employ blood-letting and tartar emetic; but, under opposite circumstances, abstraction of blood must not be thought of; even leeches or cupping produced then but little effect.

The impossibility of having recourse to blood-letting in the great majority of patients rendered it necessary to employ tartar emetic, which succeeded in some dangerous cases, but, generally speaking, was unable to arrest the rapid progress of the disease. When it excited vomiting the medicine seemed to have the best effects, and this is readily explained by the fact that obstruction of the bronchiæ by mucus is one of the chief features of the pneumonia of the insane as in that of old persons.—*Ibid.*, from *Journ. des Connais. Med. Chir.*, July, 1841.

18. *Transmissibility of Cancer.*—From some experiments made by M. Langenbeck, it appears that cancer may be transmitted from man to animals. He injected cancerous matter into the veins of a dog, and cancerous tubercles were developed in the lungs of the animal.—*Gaz. Méd. de Paris*, January 9, 1841.

19. *Influence of Light upon the Spasms in Hydrophobia.*—M. Tiberti asserts that light exercises an influence over the spasms of hydrophobia, whence the curious circumstance that persons labouring under that disease can swallow liquids in the dark.—*Ibid.*

20. *Further Facts regarding the Identity of Small-Pox and Cow-Pox.*—By Dr. Basile Thiele, of Kasan, in Russia. In the spring of 1836, Dr. Thiele inoculated the matter of small-pox on the udder of some cows; pustules were produced which bore all the characters of the true vaccine vesicle in those animals. The matter from these vesicles was applied by puncture to the arms of several children, and produced the true vaccine disease; only that the local symptoms were more intense, and the consecutive fever more severe. The vaccine lymph thus procured was carefully observed during seventy-five successive transmissions in the human subject, and appeared always to retain its normal character.

During the spring of 1838, M. Thiele repeated his former experiments with the same success. The cows chosen were from 4 to 6 years old, and they were inoculated with the small-pox matter on the posterior part of the udder. Whether the matter used was taken from mild or severe, from the single or the confluent form of small-pox, the vesicle produced on the udder of the cow was always of the same mild character, and the lymph obtained from it proved equally mild when applied to the human system. In general only a third of the inoculations succeeded. On the third day, slight induration of the cellular tissue at the seat of the puncture was observed. On the fifth a pustule formed; from the seventh to the ninth it had the appearance of a vaccine vesicle; from the ninth to the eleventh it began to desicate and form a crust, which fell off a few days after, leaving a deep cicatrix; from the fourth to the seventh day the circulation of the animal was slightly accelerated, and its temperature increased, but its general health appeared to remain unaltered.

Dr. Thiele satisfied himself, from experiment, that the virus thus obtained from the cow ought to be allowed to remain dry on glass for five or six days before being used, and then mixed with a little fresh warm milk before being applied to the arm of the infant. The vesicles resulting from the vaccination of this lymph appeared in every respect similar to those of the ordinary vaccine vesicles. During the first transmissions through the human subject, Dr. Thiele observed two separate febrile attacks: one from the third to the fourth day, and the other from the eleventh to the fourteenth day; in this respect still bearing some analogy to small-pox. He says that this double febrile accession is not got the better of till about the sixth transmission, and that it is not till then that it is safe to give up mixing the lymph with warm milk previous to vaccination. To the neglect of this precaution he attributes the occurrence of some cases of true small-pox eruption after vaccination, with this lymph during its earlier transmissions; but he immediately afterwards mentions a circumstance which appears to invalidate the statement as to its being true small-pox eruption; for he states that some of this matter, taken and mixed with milk, communicated the vaccine disease to other children, and remained as vaccine lymph in all its subsequent transmissions.—*Ed. Med. and Surg. Journ.* from *Bull. de l'Acad. Roy. de Méd.* Jan. 1841.

21. *Poultices in Inflammation of the Great Cavities.* By Sir Francis Smith.—Nothing is more remarkable in the practice of physic in France than the constant use of cataplasms in the treatment of inflammations of the great cavities. The moment inflammation is supposed to exist in the chest or abdomen, the first order given is to apply cataplasms. Where a practice prevails so generally, it is worth while to inquire into its value, and to examine whether its advantages might not entitle it to a favourable consideration where its use has hitherto not prevailed.

The benefits to be derived from the application of poultices over inflamed cavities are analogous to those sought from in their application to other inflamed parts, and may be stated to consist, first, in maintaining the temperature of the

parts over which they are applied, and thus giving nature a better chance of effecting the resolution of the existing inflammation; secondly, by their moisture mechanically aiding in the relaxation of injured tissues; and thirdly, by drawing the capillary circulation towards the surface, acting the part of derivatives or revulsives.

The usual material for poultices is the linseed meal; and they are usually included within linen cloths. The poultices are generally so large as to cover the seat of inflammation. They should be removed and renewed every three or four hours. Particular attention to the latter circumstance is desirable, as the edges are liable to grow cold, and a disagreeable and dangerous dissipation of animal temperature is the result; and in this and in their weight consist, I think, the principal disadvantages of the system.

In the bronchial irritation attendant upon the exanthematous fevers, poultices to the chest are universally employed; and where any want of energy appears to exist in the system, preventing the coming out of the eruption, cataplasms, consisting of the usual linseed meal, with the addition of a very small quantity, say a twelfth or a fifteenth part of mustard meal, (not flour,) are applied to the feet and maintained for days together; thus keeping up both the temperature of the extremities and gently stimulating the skin. The same mixture is also, when necessary, applied to the calves of the legs and thighs—the practice in the latter instances being similar in intention to that adopted in Great Britain; but from the mustard meal being less irritating than the flour, and being used in so small a proportion, the sinapized cataplasms can be longer retained in their situation.

Pleurodynia, diaphragmitis, and many other affections of a painful nature are likewise treated by poultices; and it is certain that their effects are often, in such cases, very satisfactory.—*Braithwaite's Retrospect*, No. iii, 1841, from *Dublin Journ. Med. Sci.*, January 1841.

[We have been in the habit, for a considerable period, of employing poultices in inflammation of the great cavities, and can add our testimony to that of Sir F. Smith as to their value. We generally use a mush (Indian meal) poultice enclosed in a flannel bag. When the weight of this is inconvenient to the patient we substitute hops or some other herbs steeped in hot water or vinegar.]

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22. *Inhalation of Conium and Iodine in Tubercular Phthisis Pulmonalis.* Sir Charles Scudamore, in a paper in the *London Medical Gazette*, Feb. 7, 1840, states that he has tried the following method of inhalation in phthisis and bronchitis, sufficiently to enable him to recommend it very strongly to the profession. He denies that the inhalation of conium and iodine in either of the above named diseases irritates the lungs; on the other hand, he says that the patient looks forward with pleasure to the time when the process is to be repeated. He disagrees with Laennec in some points, and thinks that the *early* stages of phthisis may be cured by this mode of treatment, and goes on to relate cases where a cavity was clearly indicated, and where pectoriloquism was most evident, and yet the patients recovered by means of inhalation. Indeed some of his cases were so clearly cases of incipient phthisis, according to his description, that we cannot help placing dependence upon his treatment in some measure, however contrary to the common feelings of the profession. Some, indeed, relapsed and eventually died after an interval of some years; others have not hitherto relapsed, and are yet in perfect health. The author then goes on to relate his method, and the ingredients of his mixture, combining, however, at the same time, other treatment of a general kind. He says—I cannot, I think, too often repeat, that while I claim for the inhalation so great a regard, I consider it to be only one part of the treatment required. The additional constitutional means embrace a very wide consideration. The local external treatment of the chest by proper means of counter-irritation, and by lotions and frictions, is a very important part of management.

I have never seen, from an active remedy, so large a proportion of benefit, with so small a proportion of disagreement and inconvenience, as from the inhalation of iodine and conium. The method also is to be considered; and I

may here remark that many excellent remedies have fallen into odium and neglect, at different periods, from the error or abuse of their application. I am careful that all the ingredients which enter into the composition of the inhaling mixture are perfectly pure. I recommend the following formula. ℞.—Iodinii puri; iodid. potassii, āā gr. vi; aquæ distillat. ℥v, ℥vi; alcoholis ʒii. M. fiat mistura, in inhalationem adhibenda.

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I now always prefer to add the conium at the time of mixing the iodine solution with the water; and it should be a *saturated* tincture, prepared with the most genuine dried leaves. In the commencement of the treatment, I advise very small proportions of the iodine mixture; for example, only from half a drachm to a drachm for an inhaling of eight or ten minutes, to be repeated two or three times a day. Of the soothing tincture, I direct half a drachm—which I usually find sufficient; but it may be increased if the cough be very troublesome. I soon augment the quantity of the iodine, and progressively from ʒj to ʒiv; but also, then prolonging the time of inhaling, I divide the iodine dose, putting two-thirds at first, and the rest after the expiration of seven or eight minutes. If the temperature of the water be measured by the thermometer, it should be 120° Fahr. as being the most favourable for volatilizing the active principles of the iodine and conium, mixed with some watery vapour; but the approximation will be sufficient, if equal parts of boiling and cold water be used; with which the inhaler is not to be quite half filled. Invariably, however, care should be taken to prepare the bottle for this heat of water, by first washing it out with some tepid water.

During the process, the inhaler should be kept immersed in a jug, containing water of rather higher temperature than 120°.

It is of the utmost importance that the strength of the inhaling mixture should be considered in relation to the particular case. The feelings of the patient will be a great guidance; he should have the sense of relief, and not of inconvenient irritation, produced. The cough arising occasionally during the process is not an objection; but if it be more irritable afterwards, it shows that it has been used too strong. There is a certain stage of the tubercular disease, when over-excitement, from employing the iodine in too great quantity, might hurry on the softening process too quickly. It is here that the treatment demands the greatest judgment. In every case one of the following events may be expected to happen; either that the tubercular irritation will be arrested and gradually removed, be arrested and suspended, but not cured, or pass on to the softening process, which terminates in the production of an excavation. In all these different states of disease, I advise the inhaling treatment to be employed.

It is my belief that this direct and very accurate mode of applying this powerful medicine, iodine with conium, induces a new action in the vessels and nerves of the lungs, which is calculated to supersede the diseased action. I also assign much effect to the stimulation of the absorbents, and have been led to believe that tubercles have in this manner been actually removed.

With a well constructed glass inhaler I find all the satisfaction I can desire. The bottle should be large, and the tubes capacious. The one issuing from the bottles should be upright, passing off in a gradual slight curve, so that the vapour shall not be much cooled in the course of its progress; the ingress tube should dip very near to the bottom of the bottle, that all the air so introduced may receive impregnation. The patient must be desired to inhale by using at the same time suction and a pretty full inspiration, then to drop the under lip from the mouth-piece and make a free expiration; so conducting the process by pausing, and, if he like, little suspensions, in order that he may not experience any of the fatigue which would certainly happen if breathing quickly, or using an inhaler with small tubes, or with too much water in the bottle.—*Braithwaite's Retrospect*, from *Lond. Med. Gaz.*, Feb. 1840.

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23. *Remarks on Conium.* By W. H. Judd, Esq.—After detailing a number of experiments on animals, to show the value and strength of the extract of conium, as procured from different druggists, Mr. Judd draws some practical

conclusions which will be read with interest. On comparing the effects of conium with opium, we find a most remarkable difference after death as will be seen by the following comparison.

*A comparative view of the effects and changes after Conium, and of those after Opium.*

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| Conium. | Opium. |
|---|---|
| Brain unnaturally free from blood; | Brain gorged by blood. |
| Ventricles almost dry; | Ventricles full of serum. |
| Lungs empty of blood; | Lungs so full of blood that it runs out in a stream on cutting them. |
| Stomach, its villous coat and œsophagus, white; | Villous coat, and œsophagus red. |
| Right side of the heart gorged by dark blood, left empty; | The heart's cavities all containing blood. |
| Heart dead to stimuli; | Heart's state as to excitation unknown. |
| Intestines active and white; | Intestines inactive, red and inflamed. |
| Blood, dark and fluid in both veins and arteries; | Blood found fluid at times, not always. |
| Death of the heart; | Death of the brain, I conclude, from the other symptoms. |

From comparing the state of the viscera, we have here positive proof that the effects of preparations from these two plants differ widely. Indeed I much doubt whether conium, which has hitherto been classed as a narcotic, is, by its direct action, capable of producing sleep, by rendering the vessels of the brain turgid, as opium does; on the contrary, for in the animals experimented upon, the brain was found exsanguined and blanched after conium had been given to an extent that destroyed life. During these experiments I observed a deflaxion being produced in the human subject, and a cough being kept quiet from breathing the vapour of the muriate of conium, which pervaded the room in such volume that it clung to our skins, tasted upon our lips and impregnated our clothes for days, yet no disposition to sleep was induced by it. Last night (April 4th) I took a dose of the best extract to ascertain its effect. At first I felt excited and kept awake, and the heart acted during that time quicker than natural; next the breathing became slower, the contractions of the heart feeble, and the pulse small and weak. I fell asleep whilst counting my pulse, and found on waking in the morning that I had just overslept my usual time by one hour. Conium in small doses, by its action on the heart, lessens for a time the volume of blood sent to the brain and muscles, and thus undoubtedly produces a state of quietude that disposes in a remarkable degree to repose.

Mr. Judd concludes his interesting paper by drawing our attention to the vast power displayed (during the experiments) by its extract in lessening the quantity of blood sent to the brain and medulla spinalis—to its lessening the forcible contractions of the heart; virtues possessed by few medicines with which we are acquainted; to which evidence I may add the no trifling experience of Professor Christison, when he says that "Conia exhausts the nervous energy of the spinal chord." These physiological facts at once suggest that conium should prove an invaluable remedy in the treatment of three very fatal diseases for which we possess no specific, viz., hypertrophy of the heart, phrenitis, and inflammation of the medulla spinalis. The latter disease is one that, like Atropos in the dark, cuts the thread of life in many cases wherein the cause of death (the theca not being opened) is never discovered. In the treatment of such diseases, after depletion, I should recommend that small doses of the extract of conium, without waiting for the action of purgatives, be steadily repeated every two hours until the action of the remedy is manifest in the system, or mitigation of the symptoms ensue. In hypertrophy of the heart, the remedy should be given rather more cautiously; and by properly graduated

doses, I imagine we might regulate the hurried and forcible contractions of that viscus, and bring its action almost to nature's standard. Lastly, habitual costiveness, and want of secretion in the bowels, may often be remedied by two or three grains of extractum conii, with as much pilula hydrargyri given at bed time; this will be slowly followed by regular evacuations. The above combination of drugs acts particularly upon the rectum; and, when the dose is too often repeated, produces in some a sort of chronic dysentery. I throw out these hints to the profession after having witnessed the power of conium in reducing the action of the heart, to exsanguine the brain and medulla; and may safely assert, if physiological experiments teach us anything as to the nature of remedies, that then is conium a valuable auxiliary in these diseases.

With respect to the time and way of gathering the conium, which is of the greatest consequence, if we wish for the full power of the drug, Mr. Judd says —I should say in June, just as it breaks into flower, and those growing in dirty, boggy situations should be preferred, as they are the most potent. This has been practically proved by a medical friend of mine.* It is undoubtedly needful that the collectors should taste each stem as they gather it, and cast away such as are tasteless, and too young to be sapid. A learned gentleman of this society, in one of his excursions, (I allude to Dr. Hancock,) had the ingenious curiosity to taste stems of growing conium, on the banks of the Bristol Channel; and he kindly communicated to me, that late in the year, about September, few of them possessed any flavour, and that many of them then were totally useless.—*Braithwaite's Retrospect*, No. 1, from *Med. Bot. Trans.*, vol. i. pt. 4.

24. *On Disease of the Brain Dependent on Disease of the Heart.*—Dr. Robert Law brings before the profession in a very able paper in the *Dublin Journal of Medical Science*, for May last, his views of those diseases of the brain, which are chiefly owing, not, as is generally supposed, to the *excess* of blood in the brain, (which excess may arise either from too great a determination to it, or from a congested state of it owing to obstruction of the blood in the lungs or other parts, from disease of the heart,) but to the *deficient supply* of it, arising from disease either of the sigmoid or mitral valves.

He states that Dr. Corrigan was the first who accurately described this disease, and the perniciousness of the usual mode of treating it by depletion, instead of by stimulation; and as it is a very important pathological distinction, and which is not sufficiently known or attended to by the profession, we take the liberty of placing a few extracts before our readers.

If we are called to a case of diseased brain, accompanied by hemiplegia, or symptoms which would at first sight indicate congestion or inflammatory action, it is our duty immediately to ascertain if these symptoms may not be owing to disease of the heart or valves; and if we suspect that there is disease of the aortic valves, causing hypertrophy of the left ventricle, and preventing the blood reaching the brain with sufficient ease; or if we suspect either a too open or a too contracted state of the mitral valves, causing in the former case a regurgitation of blood from the ventricle, and in the latter case a difficulty in its course into the ventricle from the auricle—we must be on our guard not to deplete but to stimulate; as is very clearly shown to be correct practice by Dr. Law in several cases which he relates. He affirms that if there be obstruction to the flow of blood before the arteries going to the brain are given off, that disease of that organ will not be owing to a fulness of blood in it, but to a deficiency; but on the other hand, if obstruction exist beyond the origin of the cerebral arteries, then the regurgitation of the arterial blood may very probably be towards the brain.

Dr. Law says, pathologists have almost entirely confined their attention to the excess of the normal quantity of blood or the congestion produced in organs by disease of the heart, but have overlooked the deficiency that must necessarily result to other organs, and consequent hurt to their nutrition and function. Thus

* Mr. Goodger, late of the Marylebone Infirmary.

in disease so affecting the mitral valve as to lead to a considerable narrowing of the opening between the auricle and ventricle, exclusive attention has been directed to congestion of the lungs, liver, &c., and no notice has been taken of any ill effects resulting to other organs from their supply of blood being proportionably diminished; a diminution, the expression of which we have during life in a small pulse, and in the midst of which the beat is sometimes altogether wanting, denoting the almost entire retrograde motion of the blood from the ventricle into the auricle through the imperfect valvular apparatus; and which we find indicated after death by the aorta being so reduced in size as not to exceed the common carotid; a diminution which it has undergone in obedience to the physiological law which establishes a relation between vessels and the size of the stream of fluid which they convey. It is to the effects of this diminution of the quantity of blood upon the brain to which we would now direct attention, a point of pathology which we believe to have been hitherto almost, if not altogether, overlooked.

The first case which attracted the attention of Dr. Law, was in the Richmond Hospital, in 1834, and from this he drew the conclusion—that ramollissement of the brain, the result of disease of the heart, is not the invariable effect of the blood impelled to the brain with undue violence, but that it sometimes takes place under precisely opposite circumstances. The anemic condition of the brain, and the smallness of the aorta and the branches proceeding from it on the one hand; and the congested state of the lungs with the pulmonary apoplexy on the other, lent their united testimony in proof of this. By as much as the brain was deprived of its due supply of blood, by so much were the lungs over supplied; and that this state of things was of considerable duration we concluded from the diminished size of the aorta and its branches, which was a physiological accommodation of these vessels to the diminished stream of blood that they had now to carry, the greater proportion of which regurgitated or was driven back through the imperfect mitral valve. The lungs in fact in this case were very much in the condition of the brain, when affected from the increased impulse of a hypertrophied left ventricle; the pathological conditions of the two organs were reversed, the impulse of the hypertrophied ventricle being directed backwards towards the lungs, instead of in the direct course of the circulation and towards the heart.

Dr. Law agrees with Dr. Corrigan in the tonic mode of treating these cases. He says, to weaken the system generally, would be to weaken this propelling power of the ventricle, and so disable it from sending on even the smaller quantity of blood, which the unimpaired ventricles could discharge through the diminished aortic orifice. We, in fact, see in the lesion the system deprived of its due supply of blood in two ways—both by the diminished quantity of blood that passes from the ventricle into the artery, and by the passing back again into the ventricle of much of that diminished quantity. We see the pallid ensangueous face, with the frequent symptom of vertigo and giddiness added to all the physical signs of hemorrhage, all pointing to the same treatment that the system, when it has been weakened by hemorrhage, requires.

As we fully admit that serious cerebral mischief will result, and has been proved in many instances to have resulted from an hypertrophied left ventricle impelling the blood with undue force to the brain, a first point in all these cerebral affections, whether of apoplexy or paralysis, ought to be, to determine the actual state of the heart, if it be in a normal healthy condition; and if not, in what its deviation from such state consists. If it be in a hypertrophied condition, we have physical signs to declare it to us. If this hypertrophy depend upon an obstruction to the course of the blood interposed between the heart and the origin of the vessels which convey the blood to the brain, whether this obstruction reside in the mitral valve or in the sigmoid valves of the aorta, the characteristic signs of these respective lesions will be present, and will serve to guide us. The pulse, especially, will yield us most valuable information. In cases of aortic valve disease, it will have the peculiar vibrating, jarring character which we have already noticed, and will also be visible in the longer arteries;

while in mitral valve disease it will be small, and even sometimes be altogether absent, and never in proportion to the strength of the heart's action; whereas, if the obstruction and consequent cause of the hypertrophy be more remote than the origin of the vessels leading to the head, the same impulse, which forcibly drives the blood to the brain, will be communicated to the vessels leading to the wrists and constituting the pulse. Here the force of the pulse is a measure of the impulse to the brain. In no case of apoplexy or paralysis should a careful examination of the heart's action be omitted. When we find a full, strong pulse, with an equally strong action of the heart, attended with marked impulse, or shock, we may calculate upon that modification of this complication of cerebral and heart disease which has been so long noticed. And to the treatment in this case, we have only to repeat what we have remarked in a former number of this Journal, that while such an affection as apoplexy, and under such circumstances demands the most untemporizing practice, yet the extent to which depletion should be carried, has its limits; for we have not unfrequently met with cases in which a large abstraction of blood has been followed by a collapse or failure of innervation, which required to be immediately met with stimulants.

We have little to add to what we have already stated of disease of the brain, produced by disease of the sortic valves. Quite adopting Dr. Corrigan's views of the treatment and management of the cardiac lesion, from our practical experience of it, and from our theoretical views of its nature, and its close analogy of physical signs and constitutional symptoms with hemorrhage, we have employed it in a tonic mode of treatment, especially so when the cerebral was added to the cardiac lesion. Observing, as we before remarked, a close relation of signs and symptoms not only between this heart affection and the physical signs and symptoms of hemorrhage, but also between it and those diseases whose essence seems to consist in an imperfect state of the blood, and in whose treatment we find chalybeates especially beneficial, we selected our tonics from this class of remedies, and we conceive with some advantage. When the cerebral affection co-existed, we united the treatments suited to the complication. We found the cerebral affection to require an occasional carefully modified depletion, which generally consisted in a few leeches applied behind the ears. We also employed blisters to the nape of the neck; foot baths with mustard. Although the patient's flushed face generally suggested to us the necessity of these occasional means, yet we generally depended more on the state of the speech, which seemed to us to yield more certain indications. Our constitutional treatment, contemplating both organs, consisted in tonics and stimulants, united to other means, which the individual organs interested in the complication seemed to require. The indications were to impart habitual strength to the heart, to enable it to propel the blood, as well as to sustain its regurgitation, and also to stimulate it. We also had to provide for the cerebral affection. We before remarked that we selected our tonics from among chalybeates, with which, as in the case of Dooley, we associated, but very sparingly, digitalis. The stimulants we employed were camphor, ammonia, infusum arnicæ, our hospital formula of cardiac mixture, composed of camphor mixture, carbonate of ammonia, and Hoffman's anodyne, &c., &c. We combined James's powder (as recommended by Dr. Cheyne in cerebral affections) with carbonate of ammonia. But the combination which seemed to us especially useful in these cases, was that of James's powder and extract of nux vomica; the former ingredient by determining to the surface, producing an equalization of the circulation, while the latter stimulated the heart, as a muscular organ.

The indications, where the cerebral lesion depends on an affection of the mitral valve, are nearly the same as when it depends on the sortic valves, except that when the mitral valve is affected, physical motions and moral emotions must be equally avoided, as producing that tumultuous action of the organ, and causing those congestions upon which depend the exacerbations to which this affection is so subject.

There are two conditions of the auriculo-ventricular opening in these cases—one consisting in its permanent contraction, the other in its permanent patency.

In the one but a small quantity of blood passes from the auricle into the ventricle, and of that small quantity a good deal passes back into the auricle again; in the other there is a free passage to the blood from the auricle into the ventricle, and nearly an equally free one from the ventricle back into the auricle. The effect is nearly the same in both cases. The system is equally deprived of its due quantity of blood, while there are the same congestions in the heart itself and in the lungs. While the habitual treatment consists in the exact opposite of that which experience has proved salutary in aortic valve disease, in physical and moral quietude, we shall have to meet the tendency to syncope and failure of nervous energy by the same stimulants as in the other modification of the disease.

In a fatal case which is mentioned by Dr. Law as bearing on this point, and in which venesection from the external jugular was performed, Mr. Carmichael differs from him, in his views both of the pathology and the treatment, considering that the brain was in a state of congestion from the inability of the right ventricle to send the blood through the lungs, which were also in a state of congestion from the disease of the left side of the heart. He consequently recommended unloading the cerebral vessels. Dr. Law takes a different view, and maintains that the death of the patient depended "not on the congestion, as the symptoms were not indicative of congestion, but upon the failure of the power of the left ventricle to propel the blood to the brain, and the consequent failure or suspension of innervation." The conclusions drawn by Dr. Law are,

1. The pathology of the brain is in many instances intimately connected with, and dependent upon, pathology of the heart.

2. To limit the pathological relation existing between these two important organs to apoplexy, the result of hypertrophy of the left ventricle of the heart, is to narrow it much within its true limits.

3. Ramollissement of the brain occurs in connection with diseases of the heart, whose effect is either directly or indirectly to diminish the flow of blood to the head.

4. This cerebral lesion may be connected with either disease of the aortic or mitral valve.

5. Hypertrophy of the left ventricle of the heart, in order to produce apoplexy, must depend upon some impediment to the circulation, placed at a greater distance from the heart than the origin of the vessels which convey the blood to the brain.

6. When ramollissement of the brain occurs, in connection with an imperfect or patulous condition of aortic valves, the close analogy that we trace between the physical signs and constitutional symptoms of this lesion and hemorrhage, as well as the results of treatment, render it very improbable that the disease of the brain is the result of too much blood driven to it, and with undue force.

7. When ramollissement of the brain occurs, in connection with disease of the mitral valve, the state of the pulse, which, as a diagnostic mark of this lesion, is habitually small, precludes the idea that the cerebral lesion is produced under the usual conditions of inflammation.

8. While ramollissement of the brain occurs as a result of inflammation, hyperemia, &c., it occurs also under diametrically opposite circumstances.

9. To confound such opposite modifications of disease, and to apply to them the same treatment, must necessarily lead to the most mischievous practical results.

10. The circumstances under which we have seen ramollissement of the brain to take place, seem to identify it with gangrene, or death of a part consequent upon a diminution of its due supply of blood.—*Ibid.*

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

25. *Aneurism of the External Iliac Artery—Ligature of that Artery and Oozing of Blood from the Wound after its Application—Ligature of the Primitive Iliac, and of the Femoral Artery immediately below the Pubes—Cure.* By M. Deguise. —The subject of this case was a carpenter, ætat. 42, who entered the *hospice* at Charenton, February 10, 1840, on account of pains in the groin. His general health had always been good, and his constitution was naturally vigorous. He stated that on the 10th of January, while engaged at work, he had been suddenly seized with a violent pain in the right groin which obliged him to quit his employment and seek medical aid. Upon examination M. Deguise discovered in the right iliac fossa, above the femoral arch, a pulsating tumour, apparently of the size of a hen's egg. By compressing the aorta all pulsation in it ceased and its volume sensibly diminished, while pressure upon the femoral artery caused its pulsations to become stronger and its volume to increase. The skin covering the tumour was natural in appearance. From these symptoms an aneurism of the external iliac was diagnosticated, and it was determined to apply a ligature to this vessel above the tumour. The operation was done on the 22d, as follows. The patient being conveniently placed, with an assistant on the left side charged to compress the aorta in case of necessity, an incision was made commencing at the anterior superior spinous process of the ileum, and terminating at the external side of the inguinal ring. In the dissection afterwards necessary to arrive at the tumour, it was accidentally opened and poured forth blood freely, which was suppressed by pressure upon the aorta. The peritoneum was then raised from the iliac fossa by the fingers, the external iliac exposed, and a ligature applied on this vessel at 27 millimetres from its origin. This vessel was found to be uneven and tortuous, and after the application of the ligature and the removal of pressure from the aorta, an oozing of blood was observed from the bottom of the wound; this was arrested by pressure upon the aorta, and the surgeon discovered that the artery had given way under the ligature, and immediately passed another around the primitive iliac, which completely arrested the flow of blood. Fearing, nevertheless, that secondary hemorrhage might follow from the inferior extremity of the iliac, or the wounded sac, he determined at once to secure the femoral artery immediately below the pubes. Unfortunately in doing this the femoral vein was opened; it was however secured by ligature, after which the artery was taken up. Simple dressings were applied, the limb being placed in a semi-flexed position, and covered with warm sand.

1*st day*. Has smart fever; passed a restless night; the limb is warm, and the sensibility natural; no hemorrhage.

2*d day*. Belly distended by gas, which was removed by the introduction of a gum elastic tube into the rectum; the dressings, which had become soiled, were changed. The patient complained of uneasiness from the use of the sand, which was discontinued; the temperature and sensibility of the limb in no way different from those of the opposite side.

On the 27th the ligature from the femoral vein came away; patient doing well; wound suppurating. On the 8th of March the ligature from the primitive iliac was removed, and on the 10th that from the internal iliac. The femoral ligature remained till the 21st of March, and by the end of that month the wound was completely healed, and the patient could make use of his limb.—*Gazette Médicale*, No. 22, May, 1840.

Remarks.—The operation of M. Deguise is another great triumph in surgery, which we take pleasure in transcribing, and is the eighth case recorded in the annals of our science, in which the operation of tying the primitive iliac has been performed. It is the more remarkable, too, from its being followed by cure after the three serious accidents which occurred during its performance, viz. the opening of the sac; the giving way of the vessel under the first liga-

ture, and the wounding of the femoral vein in the taking up the artery of that name. The first case in which the primitive iliac was secured by ligature, was that of a gunshot wound, in 1812, by Professor Gibson of this city, and the patient died from peritoneal inflammation and secondary hemorrhage on the thirteenth day. The second case was that of Professor Mott, in 1827, and was fully successful. The third was in 1828, by Mr. Crampton, and was unsuccessful, the patient dying on the fourth day of hemorrhage. The fourth case was that of a boy, ætat. 8, in whom the common iliac was tied by Mr. Liston, in 1839, in consequence of secondary hemorrhage after amputation, and was unsuccessful. The fifth was the case of a lady operated on, in 1833, by Mr. Guthrie, for a supposed gluteal aneurism, and so far as the operation was concerned, was successful, though dissection eight months afterwards, showed the tumour to be medullary sarcoma. The sixth was by M. Salomon, of St. Petersburg in 1837, whose patient was cured of the aneurism of the external iliac, for which the operation had been done, and died ten months after of lumbar abscess. The seventh case was by Mr. Syme, in 1838, and was unsuccessful, the patient dying on the fourth day. Total, eight cases, of which four were successful, and four died—the operation in all of the cures but one having been done for the relief of aneurisms.—G. W. N.]

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26. *Diffuse Aneurism of the Femoral Artery mistaken for Phlegmon—Puncture—Ligature of the External Iliac—Death on the seventh day.* By M. Monod.—Vart, a postillion, ætat. 57, of good constitution, received an injury of his right limb, by his horse falling upon him, in October, 1839, the thigh being caught between the ground and the body of the animal. Upon reaching his home he was obliged to go to bed, and in the morning he was unable to walk, and suffered severe pains in the right leg, but after some days he returned to his usual employment. About two months after this, Vart discovered a tumour of the volume of a hen's egg, upon his thigh, which caused no inconvenience, and was forgotten by him. About the middle of February, three and a half months after his fall, he begun to feel slight pain in the part, which increased so much, that early in March he ceased from all work, and consulted his physician, who ascertained the existence of a tumour, painful upon pressure, and without change of colour in the skin covering it, at the inner and middle part of the thigh, to which leeches were applied. On the following morning the thigh was found to be much increased in size, the skin, which had been supple on the evening before, was now tense and swollen. Four days after the commencement of the swelling, which had increased during this interval, fluctuation was perceived. A surgeon was now called, who perceiving a painful swelling of the whole thigh, with redness and heat of skin, indistinct fluctuation in various parts, the tumour not circumscribed, and without pulsation perceptible to the hand, and deceived by the rapid march of the symptoms, looked upon the affection as a deep seated phlegmon, and punctured it at its external part, 44 centimetres below the spine of the ileum. The puncture was followed by a jet of blood, which was arrested by charpie and a suture. The patient was then removed to the Maison Royale de Santé, and on the 10th of March, in addition to a considerable degree of prostration, presented the following local symptoms. The thigh double its natural size, the swelling being exactly limited by the crural arch, which appeared depressed; below, the swelling did not exist beyond the knee; skin red and hot; no fluctuation or pulsation perceptible to the hand, purring is distinguishable upon the application of the ear to the anterior part of the thigh, which disappears upon compression of the artery above the ring. From these data M. Monod diagnosticated a diffuse aneurism, but ignorant of the point at which the tumour had first existed, and taking into consideration the immense effusion of blood, he determined to take up the external iliac artery. This was immediately done in the manner recommended by Cooper, the vessel being secured at 27 millimetres above the epigastrium.

The two first days after the operation the patient had a little delirium; the

limb preserved its heat, and the swelling visibly diminished. On the third day by pressing on the external and anterior part of the thigh, a quantity of bloody fetid matter was discharged from the wound. On the fifth day, 15th of March, the discharge of fetid clots continued, and on the 17th of March the patient died, having continued in a state of prostration from the time of his entrance, and coma having supervened. The daily discharge of clotted blood had reduced the thigh to its natural size, but no pulsation was perceptible in the member.

At the autopsy, a large cavity, which had contained the clotted blood discharged after the operation, was found communicating with a small aneurismal pouch, situated at 7 or 8 centimetres from the crural arch. The sac communicated with the artery by an opening of three lines in diameter, on a level with which the arterial coats were continuous with the parietes of the tumour which were softened, and in a state of suppuration.—*Archives Générales de Médicine*, June, 1840.

[The above case is well calculated to show the difficulty of diagnosis oftentimes attendant upon aneurisms—the indication for the treatment pursued was plain, and there is reason to believe might have terminated happily, had not the previous puncture been made. This mode of procedure, as is not unfrequently the case with these explorative punctures, by admitting the air into the large sanguine cavity which existed, gave rise to inflammation, which, as is usual under such circumstances, passed rapidly to a state of suppuration.—G. W. N.]

27. *Successful Ligature of the Primitive Carotid Artery for an Erectile Tumour of the Orbit, and results of experiments made upon animals, with a view to show the influence exercised upon them by ligature of this vessel.* By M. Jobert.—M. De ———, of good constitution, had suffered for three years from a tumour situated in the orbit of the right side, upon the nature of which his medical advisers had disagreed, and many remedies had been uselessly employed. He states that in 1836, suddenly, and without any apparent cause, he felt his right eye become injected, and as if larger than the left. In August, 1839, the eye was protruded from the orbit, its movements were almost entirely abolished, the least touch caused pain, and it was intolerant to light. The conjunctiva was reddened, the eyelids distended and thinned, and vision gone. The tumour, which was at first but slightly prominent above the eye, had become greatly developed and in its march towards the exterior, it had destroyed a large extent of the orbitar ridge. Pulsations isochronous with the pulse, manifest expansion and contraction, and a distinct purring left no doubt as to the tumour being composed of erectile tissue. An explorative puncture was followed by the escape of arterial blood. The patient was examined by many of the surgeons of Paris, and ligature of the primitive carotid artery was recommended for its cure, which operation was done by M. Jobert on the 7th of August, 1839, in presence of MM. Velpeau and Cloquet. At the moment of tightening the ligature on the artery, all pulsation in the tumour ceased. The face, at first pale, soon recovered its natural appearance, and neither the voice, sight, or intellectual faculties, suffered any change after it. On the 10th of August, the tumour had diminished in size, and the eye had recovered, in great part, its mobility, and was free from pain. The wound united in nearly its whole extent by the first intention. The ligature came away one month after the operation, and at the date of the report (August 15th, 1840,) the eye had retreated into the orbit. Pulsation in the arteries of the right side of the face could scarcely be perceived, while on the opposite side the pulsations were strong, and the calibre of the arteries much more considerable than on the right.

With a view of ascertaining the influence exercised upon animals by ligature of the carotids, M. Jobert instituted a series of experiments upon several classes of them, after the relation of which, he says, "It is certain that the ligature of the primitive carotid, of either one or both sides, does not interrupt the course of the blood in the ramifications of this artery any more in man, than in the animals of which we have been speaking. How then can it act in the cure of

erectile tumours of the head and face? It is, first, by the sudden subtraction of a large quantity of blood from the tumour; and, secondly, by the obstacle which it places to the transmission of the impulse of the heart, in all its force, into the tumour. By experiments upon animals he has ascertained, that beyond a ligature placed upon an artery, arterial blood flows in a continued jet, and not per saltem. From his experiments and observations, he concludes,

1. That erectile tumours of the orbit destroy the bones, in the same manner as aneurisms.

2. That they have the characters of aneurismal tumours, and are cured by ligature of the primitive carotid arteries of the corresponding sides.

3. That the cure is not owing to obliteration of the arteries above the point of ligature, but to want of impulse in the column of blood arriving in the tumour.

4. That the vertebral arteries are sufficient to carry on the cerebral circulation after ligature of the carotids.

5. Dogs, sheep, and rabbits experience no accidents after this operation.

6. Horses, on the contrary, cannot survive it, and die of apoplexy of the lungs.

7. Blood-letting, before or after the operation, diminishes the severity of the pulmonary lesions.

8. It is possible that with man the loss of a certain quantity of blood after the operation would have salutary effects.—*Gazette Médicale*, No. 33, Aug. 1846.

[The operation of M. Jobert, with the exception of one by M. Roux, also successful, is the first example of the kind ever done in France for the cure of erectile tumours of the orbit; but a very short time after it, M. Velpeau performed a similar one at La Charité, the circumstances attending which, as related by the operator to the Academy, are so rare and extraordinary that we copy them, although the case has not yet been fully reported. The patient was an adult, who was affected with erectile tumours in both orbits. On both sides the tumours offered all the signs characteristic of erectile tissue, and that on the right was large and projecting. Compression on the right primitive carotid completely arrested the pulsation and thrill in the tumour of the left orbit, and incompletely in that of the right, while pressure on the left primitive carotid put a stop completely to all pulsation in the tumour of the right orbit, and but incompletely in that of the left. The right primitive carotid was taken up, and immediately the tumour of the left side ceased to pulsate; the tumour of the right side shrunk, but pulsation could still be perceived in it. At the end of ten days, all pulsation had ceased, and the patient appeared to be cured. He remained however in the hospital for six weeks, and during this interval it became evident that the cure was not complete, pulsation having reappeared by degrees in the tumour on the right side. In the month of February, 1846, (about six months after the operation,) he continues in nearly the same state as he was six weeks after it, and at this time compression on the carotid of the left side, arrested both the pulsation and thrill in the tumour of the right orbit. Ligature of the last named artery was now proposed, but was refused by the patient.—G. W. N.]

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28. *Aneurism of the left primitive Carotid Artery—Ligature between the Sac and the Capillaries—Cure.* By M. Colson.—The patient was a woman, ætat. 63, who presented upon the left side of the neck opposite the sterno-clavicular region, a tumour of considerable size. Its pulsation and other symptoms showed it evidently to be an aneurism seated at the origin of the primitive carotid artery. It was stated that her disease had commenced three years before, and she attributed it to having been seized by the neck and severely squeezed. The tumour was seated so low that the passing of a ligature between it and the heart appeared impossible, and M. Colson determined to make trial of the method of Brasdor. After the application of the ligature, pulsation in the tumour gradually diminished, and the difficulty of respiration, which had existed, entirely disappeared. Upon the seventy-fifth day the patient was locked

upon as cured. One year after the operation the tumour was of the size of a small nut, and offered a pulsation scarcely perceptible. At the period of communicating the case, M. Velpeau, who had examined the patient, looked upon the tumour as completely obliterated.—*Gazette Médicale*, No. 37, Sept., 1840.

[The above observation is said to be the first case of aneurism successfully operated on in France by the method of Brasdor. MM. Dupuytren and Langier, the only two surgeons who had previously practised it there, having both lost their patients. Brasdor's method, it will be remembered, is not equally well adapted to all the arteries, and the primitive carotid is decidedly the most favourable vessel for its performance.—G. W. N.]

29. *False Consecutive and Varicose Aneurism of the Femoral Artery—Ligature of the Artery—Hæmorrhagy—Ligature of the External Iliac—Hæmorrhagy—Compression—Death.* By M. Lallemand.—Rouviac, ætat. 27, of strong constitution, received by accident a wound with a knife, in the course of the vessels, a little above the middle of the thigh. This was immediately followed by a jet of blood, which was arrested by the pressure of the hand over the wound, until the arrival of a physician, who effectually arrested it by means of a bandage maintained over the part during eight days. At the end of this time the bandage was removed and replaced by a plaster. Soon afterwards, a little tumour, which caused no pain, but which was the seat of a peculiar sound, was observed at the point of injury. Continuing his occupations, the tumour gradually increased, and in the beginning of May, 1838, five years after his accident, he entered the Hôtel Dieu of Montpelier, under M. Lallemand. The tumour, which was conoidal, and of the size of a small orange, was situated at four fingers breadth below the crural arch. Its pulsations were isochronous with those of the artery, and offered to the hand, in a marked degree, the feel peculiar to varicose aneurisms, both of which symptoms disappeared upon compressing the vessel above it. All of the blood-vessels of the limb were increased in size, and the *frémissement* mentioned as existing could be felt along the whole course of the crural vein.

Regarding it as varicose aneurism, M. Lallemand, on the 18th of May, exposed the artery, which was much increased in size, and passed a ligature around it at ten lines below the crural arch. Upon tightening the ligature all pulsation ceased both in the tumour and the limb. For some days after the operation the patient appeared to be doing well, when on the 23d an abundant hemorrhage took place from the superior end of the femoral, which had been cut through by the ligature; this was arrested by pressure. On the following morning compression being insufficient entirely to restrain the hemorrhage, and the patient suffering greatly from it, it was determined to take up the external iliac, which was accordingly done. This operation was tedious, a portion of the intestine being constantly in the way of the operator. Towards evening of the day of this operation, the hemorrhage again returned, and it being impossible to ascertain its exact source, pressure was made in the course of the femoral and external iliac arteries, by means of charpie and rollers. Some hours after this, a third hemorrhage came on, which was arrested by tightening the rollers, but at the end of another hour, the blood again poured forth so copiously, that the surgeon dared not remove the dressings for fear of causing instant death to his patient, and had recourse to pressure on the inferior end of the artery. This last means appeared useful, for the hemorrhage was restrained during the day, but during the following night it returned. Symptoms of peritonitis at this time set in, and at last the patient, worn out by the constant loss of blood, died on the 29th, eleven days after the ligature of the femoral.

*Autopsy.*—At the point of ligature of the femoral artery, that vessel was found to be divided in two-thirds of its circumference, its two ends being separated and covered by a clot of putrid blood. The superior end of the vessel contained a coagulum, tolerably firm, while the inferior end presented two gaping orifices, one belonging to the femoral, and the other to the profound artery, of which the orifice was at five millimetres from the point of ligature.

The aneurismal tumour was rounded, and communicated with the artery by an opening five millimètres in extent. Its cavity was filled with layers of fibrine, the most exterior of which were dense and nearly colourless, while the interior became softer and more coloured as they approached the centre. The thickness and resistance of the parietes of the tumour were considerable. The femoral vein communicated directly with the artery by an opening of one centimetre in extent. The parietes of the artery were thinned, while the vein was much thickened. The ligature on the external iliac was placed at nine lines from the origin of the epigastric; this vessel, though enlarged, contained two coagula, the superior extending to the bifurcation of the primitive iliac, and the inferior, from the point of ligature down to the opening in the femoral. Pus was found below the peritoneum in the left iliac and lumbar regions.—*Gazette Médicale*, No. 11, March, 1841.

[The operation for varicose aneurism of the lower extremity, even when the disease has been but of short duration, is one of the most serious in surgery, and when done in cases of long standing, as the above quoted, its results have been in every reported instance, fatal. In the case given by Dr. Dorsey, where the disease was situated on the posterior tibial artery, and a ligature was placed upon the femoral, death occurred from gangrene of the limb, and secondary hemorrhages. In Dupuytren's case, where the femoral artery was concerned, secondary hemorrhage took place on the eighteenth day, which was soon followed by gangrene and death. In the case of Baroni, where the disease was seated in the inguinal region, and the external iliac was taken up, an incision was made into the sac on the forty-fifth day, in consequence of repeated bleedings, with the view of securing all the vessels, the hemorrhage was so frightful, that the patient's life was only saved by making strong compression, and death occurred 11 days after. In Dr. Fleischer's patient, where the affection occupied the middle of the thigh, and an incision into the sac was made, the fatal result took place from like causes. In the history reported by Hennen, where the external iliac was tied, the affection being seated in the upper third of the thigh, gangrene and death speedily followed; and in the case of Dr. Morrison, where ligature of the external iliac was also made for a like affection, seated at the same part, death in a short time terminated the sufferings of the patient. In the very interesting account given of a similar affection by Dr. Perry, we find that death speedily followed the ligature of the artery; and in the case operated on in this city by Dr. Harris, although the disease was but of short duration, secondary hemorrhages and gangrene terminated life. Indeed, the only recorded operation for varicose aneurism of the lower extremity not followed by death, is the case of Mr. Baynham, and here the disease, which was situated in the middle of the thigh, and was treated by a single ligature placed as near as possible above the sac, was in no way benefited by it, although the patient came near losing his life from hemorrhage after the separation of the ligature.

Observation, however, shows that these aneurisms, in the lower, as in the upper extremity, after a certain lapse of time, become stationary, and a number of instances are recorded, in which the affection has continued for years, causing but little inconvenience. In 1820, a patient fell under the observation of M. Dupuytren, with a large varicose aneurism of the upper part of the thigh, which had continued for twelve years without injuring the health, or in any way interposing with the free use of the limb; and in the spring of 1835 a patient was in the wards of M. Velpeau at La Charité, in whom a like affection, seated high up in the thigh, had existed for more than twenty years without in any way interfering with his health, or the movements of his extremity.

In face of these facts it is no longer a question whether or not operative measures should be resorted to in the treatment of such cases. Sound surgery condemns it. The affection does not necessarily compromise life or the free use of the limb, and resort to the knife should not be had so long as the infirmity can be made at all bearable by the use of compresses, laced bandages, and other like means. If in any case the operation for varicose aneurism in the lower extremity is absolutely demanded, all reasoning and experience on the

subject go to show that no good result can be expected from the application of a single ligature above the tumour, as was employed in the above case. The method of Hunter offers not the shadow of a chance of benefit, the blood after it being at once brought back to the point of opening in the vessel by the collateral arteries, and entering immediately the vein again reproduces the disease. Nothing less than securing the vessels both above and below the seat of aneurism, whatever region of the thigh may be its seat, can in any way be justifiable, and by such means the chances of secondary hemorrhages and gangrene, as we have just shown, are so very great, and the probability of success so immeasurably small, that we think all prudent surgeons would hesitate before resorting to it.

30. *Spontaneous Softening of Stone in the Bladder.*—Spontaneous fractures of stone in the bladder have been not very unfrequently noticed, but the following is, so far as we know, the first instance reported in which anything like softening of a stone occurred while it remained in that viscus. The case, as reported, is, to say the least, a very remarkable one; we give it as communicated to the Academy of Medicine, on the 22d of September, 1840, by M. Segalas, in whose practice it is stated to have occurred.

A farmer, ætat. 60, from whose bladder two stones of uric acid had been removed six years previously, by M. Souberbielle, came to Paris again, suffering with symptoms of calculus, and placed himself under the care of M. Segalas, who detected a large stone, giving, when struck, a clear sound. After repose and an appropriate treatment, the operation of lithotrity was attempted on the 28th of December, 1839. The stone was twice seized, but each time it escaped from the instrument, leaving upon its teeth but slight portions of its exterior shell. Symptoms which afterwards occurred, rendered the immediate performance of lithotrity inapplicable, and it was determined to resort to the operation of lithotomy, for which purpose the patient returned to his village, making part of the journey on foot, and part in the stage coach. On the 8th of January following, M. Segalas arrived at his house and found him suffering severely; he refused any new trial of lithotrity, and insisted upon being at once cut. The high operation was performed, and upon seizing the calculus it at once yielded to pressure, and nothing but its central portion was extracted, the greater part of it being of a pasty consistence, escaped from the forceps, and remained in the bladder, from which it was extracted with difficulty by means of the scoop, aided by the fingers and injections. Thus a stone, which was so hard as to resist the lithotritic instrument, was found, eleven days afterwards, to be softened on its exterior to the consistence of paste, and to yield under the pressure of the forceps, even to its very centre.

Under the influence of what cause did so sudden a change take place? Of this M. Segalas is ignorant, but states that the calculus was proved by the analysis of M. Lecanu to be composed of phosphate of lime and animal matter, and that the softening coincided with a catarrhal inflammation of the bladder. In less than four weeks the patient entirely recovered.

31. *New local application to Erysipelas.*—M. Velpeau has employed, he says, with advantage, in the treatment of erysipelas, the sulphate of iron as an application to the inflamed part. He has used it both in solution and in ointment. The former is prepared by dissolving an ounce of the salt in a pint of water; the latter by rubbing up a drachm of the salt in an ounce of lard. M. V. says that the former exerts most control over the inflammation, generally subduing it in two days.—*La Lancette Francaise*, November 7, 1840.

32. *Mechanism of Purulent Absorption.*—M. Velpeau maintains that the depositions of pus and metastatic abscesses which take place after injuries, wounds, or surgical operations, depend on an alteration of the blood. "Any suppurating wound," he remarked in a late clinical lecture at La Charité, "may give rise to metastatic abscess; a simple incision of the pericranium; division of a varicose vein; excision of a pile; venesection; these simple injuries may excite the

disease just as readily as the more dangerous operations of lithotomy, amputation, or excision of the neck of the uterus; in some cases, metastatic abscess has arisen as a consequence even of a seton, a blister, or a common boil. These facts have been long well known. Ambroise Paré mentions them; Pigray alludes to a certain year during which metastatic abscess of the liver was found in all the patients who died of injuries of the head. Morgagni relates in full several cases of purulent absorption; in one case the right pleura was found filled with pus, the patient having received a wound on the left side of the chest, which had no communication with the cavity of the pleura. In another case he mentions the occurrence of encysted deposits in the lungs of a young man who died on the sixteenth day after a penetrating wound of the chest; he likewise relates, after Valsalva, four cases of injury of the head, followed by purulent deposit in the lungs or pleura. Several other writers mention similar cases, and interpret them each according to his own fashion; I may mention to you the names of Quesnay, Col de Villars Marchette, Bohn, Baillou, Molinelli, Petit, Ledran, &c. However, the facts recorded do not seem to have attracted sufficiently the attention of surgeons, until I described the affection in a more careful and detailed manner. At the commencement of my medical studies at Tours, I was struck with the frequency and danger of this disease, and made it the subject of much research. In 1818, I noted a case of purulent absorption, and then pointed out what I believe to be its true cause. The facts observed since then have only confirmed my original opinion, and I still uphold, as I did then, that metastatic abscesses are not the result of separate and local inflammations, but of the alteration in the blood caused by the admixture of pus. It was no easy matter to sustain this humeral theory at a time when the physiological school was all-powerful; but it has been generally adopted both in France and in foreign countries.

"For a long time, writers confounded metastatic abscesses with certain morbid secretions; thus some excellent pathologists regarded them as tubercles which had rapidly softened, but these ideas have been recently abandoned, and the true explanation very generally adopted. On one point, however, authors are not well agreed; and that is the manner in which the pus becomes mixed with the blood. Marechal, Legallois, Rochoux, and others think that it may be explained by venous absorption from the surface of wounds; others, as Dance, Blandin, Arnott, &c., assert that the presence of pus is always preceded by inflammation of the veins, which produces the matter found in the circulation or tissue of organs after death; according to the latter authorities, pus cannot be transported from one part of the body to another without undergoing decomposition. Hence, gentlemen, we have two theories of metastatic abscess; one consisting in simple absorption from the surface of wounds; the other in inflammation of the veins. For my part, I feel convinced that inflammation of the vein does not constantly exist, but that the affection may be produced either as a consequence of phlebitis or of simple absorption. I perfectly agree with Dance, Berard, and Blandin, as to the pernicious effects of phlebitis on the blood; but I differ from them completely in this, that I do not admit phlebitis to be the primitive or even frequent cause of metastatic abscess; the veins, it is true, are frequently inflamed, and may, in certain cases, be the cause of purulent absorption; but in many others we have no inflammation of the veins, and the pus may be introduced into the torrent of the circulation either by the lymphatics, the veins which open on the wound, or by imbibition. How often have I found large collections of pus in the viscera, without being able to detect the slightest trace of inflammation in any part of the venous system? Upon this point I am positive, having determined it so frequently by the most careful examination.

"The manner in which the pus is deposited has likewise excited some controversy. Dance thinks that the blood, rendered more fluid by the pus and altered in its qualities, first gives rise to a small point of ecchymosis, and then to local inflammation before the abscess is formed; this may occasionally happen; but in the majority of cases the pus, I think, is deposited as it was introduced; many a time have I seen the brain, liver, spleen, kidneys, &c. filled with

little abscesses not larger than a hempseed; yet on the most minute examination I was unable to discover any lesion of the surrounding tissues; sometimes, indeed, we find the capillary phlebitis so well described by M. Cruveilhier, but this is certainly rare. If we allow that a single drop or globule of pus may be deposited in any organ or tissue, there is no reason why several globules should not be deposited together, so as to form an abscess; and we can, I should think, easily admit, that pus mixed with blood has a constant tendency to separate from it. While the two fluids are enclosed in large vessels, and the circulation is rapid, the separation cannot take place; but in the capillary system, where the circulation is, as it were, merely oscillatory, where so many secretions and new combinations take place, the elimination of pus from the blood can be readily understood; it is, in some sort, analogous to the secretion of urine, bile, saliva, &c.

"The morbid specimens which I now show you are of very great value in connection with the subject of purulent absorption. They were taken from the body of a young man on whom I operated in January 1840 for a tumour of the scrotum which contained the elements of a fœtus. A few days after the operation he was seized with symptoms of pleurisy and pneumonia; still the violent rigors which characterize the onset of purulent absorption were not present. After death, the left side of the chest was found filled with sero-purulent fluid mixed with a quantity of false membrane; there were, at least, two quarts of this fluid. The lungs which you see before you contained an immense number of small abscesses, but the surrounding tissue is perfectly healthy. You can easily understand how a disease like this resisted all our means of treatment; how general bleeding, antimonials, revulsives, &c. would have failed to arrest it; the man's fate was sealed from the moment he was attacked.

"Any of you who watched this interesting case, will remember that the symptoms of pleurisy and pneumonia were, all along, very obscure and anomalous; the patient was overwhelmed with a degree of weakness and stupor which seldom occur in conjunction with these diseases. In almost every case of purulent absorption that I have cited to you, violent rigors were one of the most characteristic symptoms; here they were entirely absent; and this is worthy of notice, as putting us on our guard in cases where no trembling or rigors may exist.

"Another important point connected with this case is the state of the veins of the scrotum. You cannot find the least trace of inflammation here, or in any of the other veins; the fact is clear and indisputable.

"*Prognosis.*—The prognosis of purulent absorption is extremely unfavourable; from the insidious manner in which this affection commences, it is very difficult to detect it at an early stage, and at a later period the resources of our art are unavailing. Whenever a patient who has undergone any operation, or labours under abscess or a suppurating wound, is suddenly seized with severe rigors, with alteration of the countenance and fever, we have to dread fatal results, for death is the usual termination of metastatic abscess. We must not, however, completely despair of saving the patient; for when the unfavourable symptoms last for two or three days only, or when they terminate in some crisis by the urine, general perspiration, &c., and the febrile symptoms subside, some hope is left; I have seen several patients recover under these circumstances; however, we must allow that such cases are very rare.

"*Treatment.*—The treatment of metastatic abscess is not well determined; at first, this terrible affection was combated with general bleeding, leeches, &c.; but these remedies are only applicable to an early stage of the complaint in robust individuals; besides, the antiphlogistic method very rarely succeeds; I have tried it myself in a great number of cases, and must confess that I have seldom derived any advantage whatever from it; however, it may be of some use in cases where there is evident inflammation with severe pain. Purgatives have been much employed, and I have derived much advantage from this class of remedies when given at an early period; tartar emetic in high doses has been recommended by Laennec, Breschet, Sanson, &c., and successful cases have been recorded; for myself, I have been much less fortunate than the surgeons

just mentioned, for the patients whom I have treated with tartar emetic died, as well as the others; the white oxide of antimony, in doses of one or two drachms, was equally inefficacious. The same remark will apply to camphor, ether, opium, ammonia, and other stimulants; the latter, instead of doing good, seemed to hasten the progress of the disease. Sulphate of quinine has been given with the effect of arresting the rigors, but it produced no permanent improvement. Large blisters to the legs, or on the chest and abdomen, according to the seat of pain, should not be neglected; M. Blandin assures us that he succeeded in curing one patient by the application of several blisters to the limbs and trunk, with the internal use of diuretics and sudorifics.

"You see, gentlemen, that our resources are very limited indeed; in fact we can hardly say that medicine effects anything. The following, however, is the mode of treatment which I would advise you to adopt, should any of your patients present the symptoms of this dreadful malady. Endeavour, in the first place, to determine the fluids towards the wound by large poultices; at the same time apply blisters on the legs or thighs; give some diuretic tisan internally; if the patient be young and robust, the pulse full and strong, then bleed; if he complain of severe pain in the chest or abdomen, apply some leeches or cupping-glasses. Should the wound present a dry, unhealthy aspect, you may employ a bark lotion, or in certain cases apply leeches, or scarify it, or put on a blister; these means are particularly indicated when you have any reason to suspect the existence of phlebitis. You may also envelope the limb in a bandage from the wound towards the trunk so as to exercise powerful compression; purgatives, also, should be employed in addition to the means now pointed out. Should stupor, with meteorismus and dark incrustation of the mouth exist, you may try tartar emetic in high doses. When the patient is very feeble, give the bark or the sulphate of quinine, especially in cases where the symptoms are intermittent. Of the local means, there is none in which I have so much confidence as the bandage, if applied before the pus has found its way in any quantity into the circulation. In inflammation of the veins of the extremities, when the disease has not ascended beyond the venous radicles, and before the formation of metastatic abscess, we can almost always arrest it by the bandage; even when the blood has been tainted, we may still employ it, because we thus cut off the poison, and give the vital powers a chance of overcoming the malady."

The following is one of the cases related by M. V. illustrative of the efficacy of the above mode of treatment:

"In February 1828, M. O——, student in medicine, thirty years of age, scratched his left thumb while placing a dead body on a dissecting table. The next day he felt some pain in the part, but thought nothing of it.

"On the 3d day he was seized with a violent rigor; the face was pale and anxious, and patient felt so ill that he went to bed. The thumb was now swollen; there was considerable fever; he passed a disturbed night. I saw him on the 4th day; the pulse was now 115, strong and hard; skin burning dry; face of an earthy yellow hue; no pain in chest or belly; hand much swollen; arm also tumefied, but less so; the pain is most severe on the back of the hand near the angle between the index and middle fingers. He was bled to twelve ounces. In the evening the inflammation had extended considerably; the fingers and hand were so livid and swollen that it seemed as if they were on the point of becoming gangrenous. I applied the bandage up to the arm-pit; it was moistened from time to time with cold water.

"*5th.* The fever has ceased; face more natural; inflammation of the fore-arm diminished, but severe pain is still felt in the hand which is considerably swollen; the epidermis is detached by a large phlyctena. The bandage was reapplied as before; during the next twenty-four hours excessive pain and sense of heat felt in the hand.

"*6th.* Arm free from inflammation; fore-arm better; the hand still very painful and tumid; as it was thought that pus was collected, the original wound was enlarged with the bistoury, but nothing escaped. The bandage was again applied, and considerable pressure made on the fingers and hand, but this

caused such severe pain that the patient was forced to remove it during the night.

"*7th.* Arm quite well; hand less red and tumid; on the 9th day, the patient was in all respects much better; there occurred, however, some gangrenous spots on the extremities of the fingers, but the injury caused by them was very slight, except on the index, where the nail and part of the last phalanx were lost. The patient was soon restored to complete health."—*Prov. Med. and Surg. Journ.*, August 14, 1841.

33. *On the cure of Spina Bifida by a new operation.* By M. Dubourg.—In order to obtain a radical cure of the disease called spina bifida, two conditions must exist; it must be simple, and not the result of rickets; and, second, it must be of small extent. On reflecting upon the method employed by Sir A. Cooper for the cure of this intractable affection, I thought that a better mode might be adopted, and the following were the reasons on which my theory was founded. Recent observations have shown that the soft parts contiguous to osseous parts which have been arrested in their development exercise considerable influence on the bringing together of these latter; we have an example of this in division of the maxillary and palatine bones. In cases of cleft palate, &c., when the soft parts are brought together by suture, they have a constant tendency to approximate the divided bones, and do eventually effect this object whenever the deformity is not very considerable. From analogy, then, we may conclude that by bringing together the soft parts over the divided spine, (after removal of the sac,) in cases of spina bifida, we may favour the approximation of the osseous parts, and finally obtain a radical cure. The great difficulty in this undertaking is to prevent the introduction of air into the cavity of the vertebral canal, and the escape of the cerebro-spinal fluid, accidents which are generally regarded as extremely dangerous; besides, it has been thought that the tendency of the cerebro-spinal fluid to escape through the wound would prevent the complete formation of any cicatrix. Reflecting, however, that even wounds of the head, by which the substance of the brain was exposed, occasionally healed, I thought that the above objections might be overcome; I determined on seizing the first opportunity of putting my ideas in practice. As a measure of precaution, it seemed to me prudent to embrace a considerable depth of soft parts in the ligatures, and that the twisted ligature which I used, should be much thicker than the one commonly employed.

Case I. *Child eight days old—spina bifida—excision of the sac—twisted suture—cure.*—In the spring of 1837 I was summoned to examine a little girl eight days old, who had a tumour on the lumbar region which two medical men had been unable to characterize. At first sight, the nature of the tumour seemed doubtful; it was not larger than an apple, slightly flattened, firm to the touch, and attached by a pedicle of about five and a half lines in diameter; covered with a net-work of turgid veins, it had the appearance of a vascular fungus. On examining the base of the tumour, we discovered two osseous edges, and in the centre a want of resistance evidently arising from defective ossification of the vertebræ; the opening might receive the tip of the index finger. The tumour was opaque, and its walls were very thick, much denser than in cases of well-developed hydrorachis; as to the seat, it seemed to occupy the last lumbar vertebræ; all the others were perfectly formed. The child presented no other deformity; the head was not large; all the organs and functions were healthy; the operation, therefore, might be undertaken under favourable circumstances.

An elliptical incision was made round the base of the tumour, but as soon as its pedicle was divided, a quantity of reddish serum escaped; the excision of the sac was, therefore, rapidly effected. To close the opening, the end of the index finger was placed over the vertebral deficiency, but it penetrated into the canal and came in contact with the exposed spinal marrow. The edges of the wound were now brought together with four needles, and the twisted suture applied as in hare-lip.

The child cried vigorously at the commencement of the operation, but as soon

as the cerebro-spinal fluid was discharged it fell for a few minutes into a state of stupor. As the needles were applied it again began to cry, and when the dressing was finished took the mother's breast as if nothing had happened. As may be well imagined, I watched this case with great anxiety: on the fourth day the needles and the sutures were removed, and the edges of the wound were found to be united by the adhesive inflammation; sticking plaster was now applied, and in fifteen days the cicatrix was completely solid, filling up the slit in the spinous processes. Since then I have frequently seen this child, whose cure remains perfect.

On examining the tumour after its removal, we found that it was a true cyst communicating with the cavity of the vertebral canal, and composed of integuments lined with dura mater and arachnoid; its cavity, however, was not proportionate to its size, for there were several layers of adipose and cellular tissue between the external and internal walls; hence the opacity of the tumour, which would have probably become thinner and more transparent as these layers disappeared.

Case II. *Child eleven days old—tumour in the cervical region—excision—twisted suture—cure.*—Early in September, 1838, a young woman gave birth to a female child, at the back of whose neck was noticed a spherical tumour as large as a middle-sized orange; the year before the mother had given birth to another child, affected with the same deformity in the same region of the body.

The tumour in the present instance was of rounded form, somewhat flattened at the apex, little transparent, fixed over the junction of the last cervical and first dorsal vertebræ by a large pedicle; in the centre of this latter was felt a hard cord, which led to an irregular slit or opening in the vertebræ. The general health of the child was satisfactory; its parents were healthy, and there was no other trace of anomaly or disease.

Having arranged everything necessary for the operation, I seized the tumour in my left hand, and passed a narrow bistoury through the pedicle, so as to form a lateral flap from within outwards, taking care not to penetrate into the sac as I did in my former operation; a second incision served to remove the sac and form the other flap; the cerebro-spinal fluid immediately issued in a limpid stream; in order to prevent the access of air and the escape of any more fluid I hastened to introduce four needles, and to apply the twisted suture. The child exhibited marks of suffering during the operation, but took the breast immediately afterwards. On dissecting the tumour we found, as in the last case, that it communicated directly with the spinal canal, leaving an opening sufficient to admit the end of the thumb. The wound was not dressed until the fifth day, when its edges were found to be united; the little patient experienced no unfavourable symptom, and up to the present time (January 1841) has remained perfectly well.

*Remarks.*—From the above facts, and those which have been already recorded, we may conclude that,

1. Certain cases of spina bifida admit of a radical cure.
2. Although it is difficult to lay down any general rules, we may conclude that, when the opening into the vertebral canal does not exceed an inch in diameter, an operation should be performed.
3. The best operation consists in excision of the tumour and the twisted suture.
4. When the opening is small and the walls of the sac thick, we may form our flaps before opening the tumour, but under opposite circumstances we must dissect off the skin on either side.
5. The prognosis will depend on the size of the opening in the vertebræ and general health of the child.—*Ibid.*, from *Gaz. Méd.* No. 31.

34. *Subcutaneous operation for Hernia.*—M. Guerin has recently applied this method to a case of strangulated inguinal hernia; the disease was congenital, and strangulation had existed for three days. The usual means of reduction have been tried without avail. M. Guerin divided the two rings and the antero-posterior wall of the canal underneath the skin, and immediately returned the

epiploon (the strangulated part) into the abdomen. Not the slightest symptom of inflammation occurred, and the patient was able to get up on the eighth day.—*Gaz. Méd.*

35. *Puncture of Pericardium.* By Dr. Skoda.—On the 22nd of July, 1840, a young woman, twenty-four years of age, was transferred to the care of Dr. Skoda, from another division of the hospital, in which she had been under treatment for fourteen days. The patient had been eight weeks ill, and for the last three weeks was unable to sleep, as she could only breathe in the erect posture; the face, hands, and feet were œdematous, and ascites also existed. On examining the chest, there was evident signs of effusion into the pleura and pericardium, and it was determined to puncture the latter. This was done on the 24th; a puncture was made on the left side of the sternum, between the third and fourth ribs, close to the edge of the breast-bone; this point was chosen, as affording less danger of wounding the heart, great vessels, or internal mammary artery. On introducing a probe, no doubt existed of its being in the cavity of the pericardium; a small quantity of bloody fluid escaped. After several attempts to evacuate more fluid, the canula was removed and again introduced lower down, between the fourth and fifth ribs; but little fluid escaped at first; half a pint of reddish serum afterwards came away, being driven out with some force at each systole of the heart. When the fluid ceased to flow on placing the patient in various postures, the canula was removed, although the sound on percussion was dull over a large surface of the heart.

The patient felt greatly relieved after the operation, was able to lie down with the head raised, and for the first time for three weeks had some sleep. On the following day the feet were evidently less œdematous; the shock of the heart could be slightly felt; its sounds were distinct, and there was no *bruit de frottement*. The patient improved daily in health and appearance. The condition of the chest, and the quantity of fluid in the pericardium, were carefully noted day by day. At the end of four weeks the whole of the fluid in both sides of the chest was absorbed, and the functions of the lungs were perfectly performed; the dull sound, however, showed that the pericardium was still dilated. The patient now seemed perfectly cured, her strength had returned, and her digestive organs had recovered their tone, when, without any apparent cause, she was attacked with some pain about the upper end of the sternum and the neck. In a few days the cervical glands began to enlarge, and an elastic tumour was formed over the upper part of the sternum, appearing to arise from the periosteum; the skin covering it was somewhat red, but not otherwise changed. Various means were tried, but without avail, to dissipate this tumour; a puncture was then made into it, but no fluid escaped; the wound healed readily. It gradually extended, and involved the whole sternum and part of the ribs. With the exception of occasional pain, the patient remained quite well up to the middle of November; she was able to go about, slept tranquilly, and had a healthy complexion. Towards the middle of November the tumour extended upwards, and pressing on the trachea, produced some difficulty of breathing, with cough and vomiting. After this the patient could swallow nothing but a little soup; the difficulty of swallowing gradually increased, and she sank on the 6th of January, 1841, five months after the operation.

*Post-mortem appearances.*—On dividing the tumour, it was found to consist of a grayish-yellow mass enveloping the sternum, costal cartilages, and anterior edges of the first four ribs, and the sternal end of the clavicle; the substance of the bones appeared here and there, throughout it, in the form of layers. It filled the whole of the interior mediastinum, and pressed on the trachea and aorta. Both lungs were adherent, nearly through their whole extent, to the walls of the chest, infiltrated with serum, and with numerous points of medullary fungus. The pleura and the external surface of the pericardium were spotted with the same substance; the heart was closely adherent to the pericardium by the medium of coagulable lymph; it was of the normal size, but pushed backwards, and to the left side, by the tumour; the walls of the right auricle were com-

pletely converted into medullary fungus, and those of the ventricles were infiltrated with it; the endocardium was likewise thickened by deposit of the same matter, and also the valves. The peritoneum, liver, and stomach, contained more or less of the fungoid substance.

Remarks.—In the present case, the puncture failed to evacuate any fluid, because the point of the trochar fell on the mass of fungus in the mediastinum; it was here that the disease originally commenced; the effusion into the pleura and pericardium was probably occasioned by some inflammatory action, which accompanied the deposit of the fungus. There certainly was more fluid in the pericardium than was evacuated by the puncture, but it was rapidly absorbed after the operation.—*Prov. Med. and Surg. Journ.* August 7, 1841.

36. *Operations for Stammering.*—In our preceding number we gave an account of the operations recently devised for the cure of stammering, and the opinion we then expressed in relation to them, is fully sustained by some high authorities, and equally so by the actual results of the operations.

A reviewer in the *British and Foreign Medical Review*, July, 1841, thus speaks of them. "The sanguinary operations which have been recently devised and executed, with the view of curing stammering, are one of the greatest outrages upon modern surgery. Although some of them had their origin in legitimate motives, most, we fear, serve but to show what ruthless expedients will be occasionally resorted to for the purpose of acquiring professional fame, however short-lived, and to what extent the ignorant and credulous will become a prey to craft and subtlety. If our indignation was awakened at the barbarous cruelties practised upon dumb animals for the sake of elucidating the truths of physiology, how much more ought it to be when we consider the multitude of our fellow-beings who have suffered themselves to be maimed and mutilated at the instigation of individuals more remarkable for their reckless use of the knife than for the soundness of their medical science!"

From a very intelligent young German physician, recently on a visit to this country, we learn that Dieffenbach has abandoned his operation, on the ground that the danger to the life of the patient exceeds the chance of a cure. And we also learn that many of the cases announced as cures, were merely temporarily relieved.

In the *Bulletin de Therapeutique*, (July 1841,) there are given the results of 42 operations for the cure of stammering by the subcutaneous method, by M. Bonnet. They are as follows. In two patients no actual stammering existed, but the pronunciation of words was indistinct; no benefit ensued. In four cases he was also unsuccessful, where the impediment depended on some anomaly during respiration; the patients did repeat the same syllables over and over again, but enunciation was suddenly interrupted at the beginning or in the middle of a word. Of the remaining thirty-six patients, labouring under true stammer, six were above 32 years old. In the latter, the results were completely negative, and M. Bonnet thinks that the operation should never be performed on individuals who have passed the age of 32. Thirty patients were below this last-mentioned age; of these, ten were completely cured; eleven very greatly improved; two moderately so; and seven obtained no benefit. As under the head 'greatly improved' are included cases where the impediment of speech was all but removed, it follows that the operation is attended with excellent effects in about two-thirds of the cases; but will these effects continue? This is an important question, which time alone can determine; of the ten patients completely cured, one relapsed to his former condition ten or twelve days after the operation; in another case, the stammer gradually returned about the fifth week; the other cases continue till the present time (May 18th.) Amongst the eleven patients greatly relieved, two had relapses, but the remainder, on the other hand, were improving every day.

"From these results it would appear" the editor of the Bulletin remarks, "that we may expect *some benefit* from the operation, *provided* it be *applied to the*

*proper cases; but* what these *are, the present state of our knowledge does not permit us to say* with any certainty."

Mr. Joseph Poett gives a still more unfavourable account (*Lancet*, June 12th, 1841) of the results of Mr. Yearsley's operations. This last named operator, in a pamphlet which he has lately published, gives an account of 88 cases in which he operated; 62 of which number are reported as improved, or very much improved; 17 he acknowledges received no benefit from his operations; and 9 persons were pronounced cured. Mr. Poett has sought out these 9 persons, their address having been given in the pamphlet, and Mr. P. asserts that 1 could not be found, 2 never stammered, 3 stammer as badly as ever, 2 are improved, though they stammer as usual when nervous, and the remaining *one* only is said to be wonderfully *improved.*

"The report of the above cases," Mr. P. observes, "not proving to me quite satisfactory, I visited several cases which appeared in Mr. Yearsley's book as improved, or so much improved as to give him 'sanguine' expectations of decided recoveries; but I really cannot discover, with all that I and others have inspected, the slightest chance of such taking place. They all owned that at first they felt relief, but when nervous or agitated, or, as some expressed their feelings, 'flurried,' they stammer as before: but it is an undeniable fact, that stammerers of the simplest species, or worst species of the affection, continue at times quite free from impediment; and they portray their infirmity only at moments when they feel nervous on the point of speech; they can at certain times, particularly whilst alone or unobserved, speak or read quite free from embarrassment, or tendency to stammer. Now this fact is at once an answer to Mr. Yearsley's erroneous supposition, that the affection arises in consequence of diseased and enlarged uvulas or tonsils, or both. Surely at the time a stammerer is speaking correctly, and free from sympathetic nervousness on the point of speech, neither his uvula or tonsils become small or corrugate, or does disease vanish from them during the time they are correctly speaking; but as to his supposition that these parts are diseased with stammerers, I positively can assert that I have, during the last fourteen years, rigidly examined both tonsils and uvulas, and all other parts of the mouths of upwards of one thousand persons afflicted with impediments of speech, and never yet detected one case of disease. Some of this number had large uvulas, and perhaps, large tonsils; but not more so in the same ratio than others, who have both very much enlarged, and yet do not stammer. It is an every-day occurrence for medical men to observe in their patients both uvulas and tonsils of greater size than others, and yet they have no impediments of speech or a tendency to such affections; but to revert to the fact that it is only at certain times when stammerers feel nervous that they portray their malady, it is evident that the excision of either uvulas or tonsils is quite inadequate to cure these nervous affections, which become more or less mental, and more complicated in effects after a certain period of life.

"It is also a curious fact, that from every different mode a stammerer resorts to in the hope of being cured, he at first experiences sudden relief, which continues for an uncertain time, and he then relapses (without his affection be properly and rationally treated.) But a bad toothache, rheumatic affections of the jaws or face, slight tic-douloureux, ulcers on the tongue or inside of the lips, and other casualties, will cause a *pro tempore* cessation of stammering: therefore, in my humble judgment, the novelty of losing an uvula or tonsils, or both, together with the subsequent pain and inflammation, but above all, *the forcible mental impression that the operation is to eradicate their miserable affection*, produces that degree of relief observed by Mr. Yearsley, who, from want of experience in these peculiar nervous affections, is led to imagine that the alteration is a solid proof of the efficacy of his operations in curing this miserable affliction."

37. *Ununited Fracture cured by a Seton.* By M. Jobert de Lamballe.—A robust man, about 45 years old, received in a fall a fracture of the humerus, complicated by a small wound at the seat of the fracture. The arm was placed in an immovable apparatus during a month. At the end of this time the small

wound still suppurated, and there was no trace of consolidation. During two months longer the ordinary apparatus was applied, but did not hasten consolidation. M. Jobert then passed a seton between the two fragments, but instead of leaving it five or six weeks, as Physick and others have done, he only let it remain eight days. A month afterwards consolidation was completed. Experience has shown that in some cases, the seton has left after its passage organized fistulæ incapable of cicatrization, which maintain the mobility of the bone. Sometimes these passages border on portions of bone denuded by the seton. But when the seton is only left during eight days, it irritates the periosteum, and the inflammation of this latter brings the deposit of a sufficient quantity of osseous matter to effect consolidation.—*Brit. and For. Med. Rev.*, from *Gaz. Méd. de Paris*, Sept. 5, 1840.

38. *Apparatus for applying water in the manner of irrigation.*—Dr. James Macartney has devised an ingenious apparatus for this purpose, by means of which water of any requisite temperature can be employed, and conveyed underneath the bedclothes. The apparatus consists of a box made of zinc, something like a fracture-box, in which either the upper or the lower extremity of the patient may be placed. The water, or a medicated fluid, is carried in a flat tube, which at one end is connected with a reservoir, and the other end projects through a slit in the upper edge of the box. The tube contains a strip of coarse woollen cloth, which is broad at one end and pointed at the other. The broad end is received by the vessel that contains the fluid, and the pointed end either rests upon the dressings of the affected part, or is suspended immediately over them. The water is taken up by the strip of cloth, and carried along it on the principle of capillary attraction, or in the manner of a syphon; and thus a continued supply of water is conducted to the part affected, without inconvenience or exposure to the patient. In order to get rid of the fluid, there is a concave bottom, perforated with large holes, through which the fluid passes into the inferior part of the box, and from which it is conveyed by a tube into any vessel that may be placed outside the bed for the purpose of receiving it. The perforated bottom, for the sake of cleanness, is made to take out; and there is a soft cushion, covered with painted linen, on which the limb rests, and consequently the whole is not kept wet.

The quantity of fluid which may pass can be regulated by placing the vessel or reservoir containing the water either higher, or on the same plane as the patient's bed. If placed high, so much as three gallons of fluid may be supplied in the course of twenty-four hours. If warm water be required, as in cases of strains and lacerated wounds, the temperature of the reservoir may be kept up by means of a spirit lamp.—*Prov. Med. and Surg. Journ*, July 31, 1841.

39. *Chloride of Zinc in Necrosis.*—The difficulty of penetrating the hardened case of new bone when long formed, is too well known to require any comment; and it not unfrequently happens that any attempt to reach the sequestrum is either rendered abortive thereby, or occasions such a degree of disturbance to the whole shaft, as to produce more harm than good. Mr. Guthrie, to whom I allude, has availed himself of the peculiar properties of a remedial agent recently introduced (to which I shall again have occasion to refer)—the chloride of zinc, which, attacking the animal tissue of the bone, destroys it, and thus causes the earthy matter to soften and become detached. The sequestrum is by this means exposed with little pain or disturbance of the part, and may be dealt with according to circumstances. To the success of this plan I can myself most willingly testify.—*Med. Chirurg. Rev.*, July 1840.—*From* Mr. James's *Retrospective address before Prov. Med. and Surg. Association.*

40. *Threads of Caoutchouc for Sutures.*—Thomas Nunneley Esq., of Leeds, recommends the employment of threads of caoutchouc for sutures. The advantages which this substance possesses, he observes, are "the much longer time it remains without producing irritation of any kind; being elastic, it holds the divided parts in contact with much less stretching, in a more natural manner,

and, at the same time, it keeps up an equal degree of temper; for if the parts swell, the ligature gives way in proportion to the pressure; on the contrary, do they contract, so also does the ligature, and an equable approximation is maintained. From being smooth and unirritating, it excites so little disturbance that a greater number of ligatures may be introduced, and thus the parts may be more accurately adjusted to each other; moreover, by not inducing ulceration, the scars left after its withdrawal are less than those produced by silk, are advantages not to be lost sight of in operations about the face and neck.

"Though I have not had an opportunity of trying the caoutchouc ligatures in operations for hare-lip, I am disposed to think they might supersede the twisted suture, and thus obviate the introduction of pins, which always leave marks.

"In employing the caoutchouc thread, it should be borne in mind that, when put upon the stretch, even to a slight degree, they become much more slender than when perfectly relaxed: consequently this must be allowed for, by selecting a thread which is somewhat thicker than would otherwise be chosen. The ligature should be slightly smeared with oil, when it will pass with the greatest freedom; but care should be taken not to employ too much of that material, otherwise the knot will be liable to slip.

"In tying the ligature, care must be taken to draw it so tight that the lips of the wound shall be retained in accurate apposition without making any stress upon the string; the ends should be knotted three or four times, to prevent any danger of their giving way; this will be more effectually prevented, if, in making the first knot, the cord be twice twisted, as many are in the habit of doing with the common thread ligature.

"I need scarcely add, that the very qualities which render the caoutchouc thread preferable for sutures for wounds, totally unfit it as ligatures for vessels, where a sharp *unelastic* string is necessary for first dividing the inner coats, and subsequently retaining them in contact."

The threads of caoutchouc Mr. N. has obtained from the elastic web so commonly employed for suspenders, &c. stripping them of their silk or cotton envelope.—*Lancet*, 13th March, 1841.

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41. *Irregularly-united fracture cured by excision of Callus.*—Case I.—F. Mistretta, 32 years of age, was admitted into the hospital of Palermo, on the 20th of April, 1837, with compound fracture of both bones of the leg. After the use of antiphlogistic remedies, the limb was placed in Scultetus's apparatus, but numerous abscesses formed, and the frequent dressing rendered it impossible to keep the limb at rest. The consequence was, that the bones united at an angle; an attempt was made, but fruitlessly, to break the callus. M. Portal, therefore, resolved on excising the angular portion of bone, and on the 23d of May removed about an inch with the chain-saw. The wound united by the first intention, and the limb was kept at rest for forty days. The patient was quite well on the forty-eighth day, and left the hospital with slight shortening of the foot, which was easily concealed by a shoe.

Case II.—Grazia Sinelli was admitted into the civil hospital, on the 16th of November, 1840, with fracture of the upper third of the thigh. The superior fragment projected through the integuments; the limb was enormously swollen, tongue dry, thirst great; the patient, who was drunk, could not be kept quiet. She was bled from the arm, and one hundred leeches were applied to the thigh, to prevent gangrene. When the inflammation was reduced, Boyer's splint was applied, and allowed to remain on for twenty-eight days; it had, however, been frequently displaced by the patient, and on taking it off, it was found that the fracture was united at an angle. Here, as in the former case, it was found impossible to break the bone again; hence, resection was had recourse to on the 26th of December, 1840. A vertical incision, about four inches long, having been made in the integuments, and the muscles separated, an inch and a half of the superior extremity, and half an inch of the inferior one, were removed with the chain-saw. No bad symptoms occurred after the operation, and on the fifty-fifth day the patient left the hospital with a shortened but useful limb.—*Prov. Med. and Surg. Journ.* August 28, 1841, from *Fil. Sebezio et Exam. Med.*

## OPHTHALMOLOGY.

42. *Eradication of Inverted Eyelashes.*—In cases where the eyelashes are inverted, causing irritation to the ball, but in which the edges of the lids *retain their natural direction*, Dr. James Hunter applies an irritant to the hair bulbs, to destroy their reproductive function, and for this purpose he has found the tartar emetic to answer best. This method of proceeding is as follows:—

1. *To ascertain the presence and position of the inverted eyelashes.* When they are white coloured, and of extreme delicacy, not exceeding $\frac{1}{100}$ of an inch in diameter, as is often the case, it is very difficult to distinguish them; the edge of the lid should be brought in contact with the cornea, so that the pupil or iris may form a good contrasting background, and though they may not be visible at once, the surgeon should look from a variety of positions, and alter the direction of the light till he sees them. A convex lens of two inches focus, and not less than an inch in diameter, should be held by an assistant so as to condense the light on the parts, which is a much better plan than using it as a magnifier. If, in order to make the puncture, the edge of the lid is to be removed from the cornea, it is well first of all to blacken the pale and delicate eyelashes with any dark extract, such as belladonna, to render them visible, when contrasted with the white sclerotic coat. 2. *The puncturing of the bulbs.*—This should be done with a lancet, or iris knife, entered close to the base of the inverted hairs, *in the direction of their growth*, to the depth of an eighth of an inch, and moved about a little, so as to widen the bottom of the wound, and cut the bulbs. In doing this, it is sometimes advantageous to stretch the part either with a small hook, or over a convex black horn spatula, such as is usually attached to the German wire speculum. 3. *The inoculation.*—This must be deferred till the bleeding has wholly ceased, when the lid being wiped very dry, the drilled end of a darning-needle slightly damped, and dipped in powdered tartrate of antimony, or, what answers far better, the tartar emetic point made in the manner to be afterwards described, is to be inserted in the puncture, and held there for a few seconds. 4. *The evulsion of the inverted eyelashes is the last step.*—They should be seized lengthways close to their roots, and drawn with a slight jerk. When common dissecting forceps are used, they should be held *below* their shoulder, and close to their points, which are apt to separate a little when the fingers are placed higher up. The best forceps are those made without teeth; the holding part being merely rough polished, so as not to cut hairs. When the eyelashes are exquisitely fine, and slip through even the best made forceps, I have found it an infallible plan to damp their points with a saturated solution of shell-lac in alcohol, and to grasp the hairs for a second or two before pulling them. A momentary, though sharp pain follows the inoculation, and more or less inflammation; but the latter generally subsides in the course of twenty-four hours, and if the operation has been properly done, it recurs in a day or two, in a subacute form, producing a slight pustulation, which, however, is of very limited extent, causing almost no annoyance, but is sufficient to destroy the functions of the bulbs.—*Edin. Monthly Journ. Med. Sci.* 1841.

43. *Case of temporary Amaurosis of one eye, following the extraction of a tooth.* By James Hunter, M. D.—In July, 1838, a lad, aged 17, applied at the Dispensary on account of a dimness of sight in the left eye, which had come on rather suddenly and under peculiar circumstances. He stated that the sight of both eyes had been very good till four days previously, when, suffering from toothache, he went in the evening to a druggist to have a carious tooth extracted from the left side of the upper jaw. The operation was easily and dexterously performed, and the pain was not particularly excruciating. At the moment the tooth was loosened from the socket, he perceived a brilliant flash of fire before the left eye, which was followed for some minutes by several fainter ones at short intervals. On going to bed an hour or two after, the flashes of fire reappeared, and continued for about an hour, when they gradually ceased. Next

day, he found the sight of the left eye very much impaired, and all objects seen with it appeared enveloped in a thick mist. He also observed a sort of luminous coloured ring, whirling round, as it were, in the interior of the eye. This state of matters continued much the same for the next two days, and, on the fourth day, he thought there was a decided improvement.

"On examining the left eye, its pupil appeared a *very* little more contracted than that of the right eye, but its shape was perfectly regular, and the motions of the iris unimpaired. In every other respect, too, the organ presented a perfectly natural appearance. The general health of the lad, who was of a somewhat sanguineo-nervous temperament, was good. He had no pain in the eye, or in the brow, and no symptoms of cerebral congestion, or of derangement of the digestive organs. When he closed the right eye, the sight of which was sufficiently acute, and looked with the left one at the page of a book, printed in a type which I have since ascertained can be easily read by a good eye at the distance of 48 inches, I found he could not make it out at a greater distance than about 15 inches, and even then with difficulty, and at any nearer distance, though the letters appeared larger, they still seemed to run into each other. When I tried him with type about one-half the size of the first, he was unable to read a single word of it at any distance." "Neither convex nor concave spectacles improved his sight. His perception of colours appeared somewhat impaired, but I had not the means at hand of examining carefully the condition of the eye in this respect. The tooth which had been extracted was the first great molar on the left side of the upper jaw. On making firm pressure with the points of my finger in its socket, there was no unusual tenderness nor any shooting nervous pain produced, and I could not discover any remaining portion of the tooth, nor any splintering of the alveolar process."

Dr. Hunter left the case to nature, and at the end of a fortnight he could distinguish all but very minute objects. He did not return afterwards, so that his recovery was probably complete.—*Ibid.*

44. *Two new Fasciæ connected with the Muscles of the Human Eye.*—Mr. P. Bennett Lucas has described, in his treatise "*On the cure of Strabismus or squint, by Operation,*" two new fasciæ, to which he gives the name of subconjunctival and submuscular.

These fasciæ he describes as follows:—"Behind the conjunctiva there exists a quantity of loose cellular tissue; upon carefully removing which, a denser layer will be found immediately to cover the orbital aspects of the recti muscles, and to pass along their expanded tendons to the sclerotica, with the anterior surface of which it is in intimate contact, and is traceable along it to the circumference of the cornea, becoming thinner and more identified with the selerotica as it gains this point.

"This subconjunctival fascia, although exceedingly delicate, is sufficiently strong to offer considerable resistance to even a slightly blunted instrument; and as, in addition to its passing from all the recti muscles to the sclerotica, it also passes from the anterior surface of one muscle to another, it is of importance to be aware of its existence in performing an operation for the section of the tendons of the recti muscles. Unless the subconjunctival fascia be torn through or divided, the passage of an instrument beneath any of the tendons will be attended with difficulty.

"In several eyes, which I have lately examined, this fascia presented different degrees of strength, such as we find to be the case in our examinations of the fascia cooperi; and this anatomical fact most satisfactorily explains the ease with which, in some cases, an instrument can be passed beneath the tendon of the inner rectus muscle preparatory to its section, and the difficulty which accompanies this proceeding in others.

"There exists another fascia in connection with all the muscles of the eyeball, which is deeper seated, of a more uniform density, is much stronger, and of equal importance with that I have just described. It is expanded beneath the muscles and their tendons, passing from one to the other, and covering the

masses of fat which envelope the posterior part of the eyeball. This submuscular fascia is easy of demonstration. The eye and its appendages, with half an inch of the optic nerve, should be removed from the orbit and placed upon a plate, the cornea being downwards. The masses of fat, together with the loose cellular tissue and blood-vessels, should be carefully dissected away, and the muscles be turned forwards towards their insertions, not dissected as if with a view of exposing their appearance, but merely expanded upon the surface of the plate.

"If the neurilema of the optic nerve be now examined, it will be found covered with a fine fascia, which can be easily raised with a forceps, and with little difficulty can be traced off the neurilema to the sclerotic coat at the point where the nerve enters. It will be now found to cover the posterior aspect of the sclerotica, and to advance as far as the insertions of all the muscles of the eye; at these points it turns upon itself, lines the ocular surfaces of the muscles, and passes backwards along them to where they surround the optic nerve.

"The submuscular fascia, like the conjunctival, passes also from one muscle to the other, and forms a strong, continuous, double circular membrane behind them, the masses of fat, enveloped with their own proper cells, being placed between its layers.

"It also affords considerable resistance to the passage of an instrument beneath the tendons of the muscles, and in operating upon them requires to be fairly divided.

"In the eyes of young subjects, I have never found either the subconjunctival or the submuscular fasciæ as strongly developed as in the adult, and in this they resemble the tunica sclerotica, and the muscles themselves.

"The degree of development of both these fasciæ, in some cases I operated upon for the division of the internal rectus muscle, was very great, and was quite sufficient, after the muscle was fairly divided, to give the eye an inclination inwards; when I divided this tense structure, the eyes became perfectly straight. Contractions of other fasciæ of the human body, as the plantar and palmar, are so frequent as constantly to call for operation; and the development and contracted state of the subconjunctival and submuscular fasciæ resemble these, and require careful examination before the surgeon pronounces that he has succeeded in curing a squint, after he has divided the tendon of the muscle."

In a communication read before the Medical Section of the British Association for the advancement of science, Mr. L. offers the following remarks on the physiological uses and vital properties of these fasciæ.

"The subconjunctival fascia," he remarks, "like the subcutaneous fascia of the neck, the groin, and other regions, presents many degrees of density in the different subjects in which it is examined. It is present in all, but in the young subject it is very delicate. It is composed of condensed cellular tissue, and possesses elasticity. From its intimate connection with the muscles of the eye, added to its elasticity, it keeps them expanded, and enables them to produce those varied and delicate movements of which the organ is capable.

"When it is considered that the muscles of the eye are long and delicate, and have, with one exception, to pass from the depth of the orbit to its circumference, the advantages of their being supported and kept in an expanded state become obvious. If this were not the case, the eye would be abruptly pulled about in the orbit, and that steady, uniform, and perfect movement which it enjoys, would be more or less limited. We have numerous other instances in the human body, of delicate and long muscles being supported in their movements by special fasciæ; thus the delicate and long muscles of the neck, as the omo-hyoid, the sterno-hyoid, the thyro-hyoid, &c. are bound to their regions by what has been properly called cervical fascia; and when this covering is removed from them, and the muscles are, as it is termed, 'dissected clean,' the most erroneous opinions are often formed by the novice in anatomy, of their uses and relative positions.

"In some cases of strabismus in which I operated, I found the subconjunctival fascia very dense and adherent to the conjunctiva and the muscles, and in

more than one instance I traced this condition to the persevering application to the eye of powerful collyria. In one case, which I have mentioned elsewhere, the strabismus took place in the adult suddenly, and, besides many other remedies, stimulating collyria of various kinds were assiduously persevered in for months. When I divided the inner rectus muscle in this case, I had afterwards to divide freely the fascia again and again, until the eye was restored to a proper position. A surgeon, whose opportunities of operating in strabismus has been limited, might readily mistake the subconjunctival fascia for the conjunctiva itself, after the incision of this latter membrane has been made; for, on dividing the conjunctiva, its edges separate, and on dividing the fascia, its edges also retract. In some cases, it is necessary to divide freely, and even to remove portions of the subconjunctival fascia; in no case is it necessary to deal with the conjunctiva after this fashion; it is therefore of importance to have a test by which we can distinguish the one from the other; this test will be found in the extreme sensibility of the conjunctiva, if it should be seized in the forceps, and the absence of pain when the fascia is thus laid hold of. I have repeatedly cut away a portion of the subconjunctival fascia, sufficient to cover half my thumb nail, without the patient being sensible of my proceedings.

"The submuscular fascia is very elastic in the recent eye, and is attached behind to the sclerotica at the point of entrance of the optic nerve, and anteriorly it is connected to the same membrane at the points of attachment of the muscles. It is not in intimate relation to the muscles until it arrives near to their insertions. This fascia also possesses a high degree of elasticity, and forms rather a membranous sheath for the sclerotica, than an expansion for the muscles; it takes the form of the eyeball, and acts the part of a membranous cup for the organ to move in, separating it from the bellies of the recti muscles, and covering the ciliary nerves as they pass onwards to pierce the sclerotica. In the dead eye, more or less fluid will be found to exist between this cuplike membrane and the eyeball, which always enables the anatomist to separate one from the other with the greatest facility. That effusion to a considerable extent sometimes takes place between this membrane and the eyeball, there can be little doubt; and how far in such cases the surgeon would be justified in giving it exit by puncture, is a question that must be decided by future experience, but about the propriety of doing which I at present entertain the highest opinion as to utility and practicability."—*Pro. Med. and Surg. Journal*, Aug. 14, 1841.

## MIDWIFERY.

45. *Hemorrhage after delivery arrested by a new method.* By Dr. Hecking, of Coblenz.—A weak and delicately made woman, soon after she had been quickly and easily delivered of twins, began to have more than usual hemorrhage from the uterus. Permanent pressure on the abdomen, with friction over the uterus, and repeated dashing with cold water were employed, but they were all ineffectual, and the hemorrhage grew more rapid. The author therefore introduced his hand into the uterus, (after having dipped it in cold water,) and doubling his fist, endeavoured, first by rubbing the parietes, and then by compressing them against his other hand, which was placed on the walls of the abdomen, to bring on contraction of the uterus. But this plan also was altogether useless; the uterus, still remaining distended, was every instant filled with fluid and coagulated blood. After all attempts had proved vain, and when the patient's danger was now extreme, the author took a sponge dipped in cold water, and then squeezed it on the internal surface of the uterus, so as completely to wet it all over, at the same time maintaining the external pressure. As often as the sponge became covered with coagulated blood, it was taken away, washed with cold water, and again introduced as quickly as possible. By this means several times repeated, (for in the powerless condition of the patient it was not a difficult thing to do,) the hemorrhage was at last arrested, and the

woman's life was saved.—*Brit. and For. Med. Rev.*, from *Caspar's Wochenschrift*, Nov. 28, 1840.

46. *Retroversion of the unimpregnated Uterus.* By Dr. ALKEN, of Bergheim.—A young woman, twenty-six years of age, accustomed to hard work, found herself suffering one day from difficulty in passing her urine and fæces; and these gradually increased till, after fourteen days, there was complete retention of urine and of fæces. When the author was called in, he found the patient with a pale fallen countenance, cold extremities, a small, rapid, jarring pulse, hurried respiration, insatiable thirst for cold water, hiccup, vomiting, &c. The abdomen was very tense, the urinary bladder distended up to the umbilicus, and every movement of the abdomen and the slightest touch extremely painful. Examination detected a complete retroversion of the uterus, so that its vaginal portion was immovably fixed against the pubes, and its fundus was thrust deep into the pelvis. The patient had been in this state for ten hours. The urine was with difficulty drawn off by the catheter, and after bleeding and the warm bath, an attempt was made to reduce the uterus to its right position by pressing it in opposite directions through the medium of the vagina and the rectum. After the efforts had been continued an hour the uterus returned to its place. The replacement was perfect; but on the following day the retroversion again occurred after some exertion. It was again reduced with much greater facility than before, and by observing the horizontal posture for nearly three weeks, it was prevented from again returning. The patient was watched for several months, and it was clearly determined that at the time of the retroversion the uterus was in the unimpregnated state.—*Brit. and For. Med. Rev.*, from *Caspar's Wochenschrift*, April 3, 1841.

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

47. *Medico-legal essay on Cicatrices.* By M. MALLE, Professor at the Military Hospital of Instruction, Strasburg.—This essay appears to have impressed the editors of the *Annales* so favourably, as to induce them to award an honorary medal to its author. We shall attempt a concise analysis of its contents.

The subject itself has been but briefly and imperfectly noticed by writers on legal medicine. Orfila and Devergie make a few passing remarks concerning it, but the latter, according to Malle, is altogether in error, when he asserts that some cicatrices may in time disappear, particularly on young persons, or that they may undergo such changes, that we cannot specify the nature of the original injury. All this is denied by our author. A cicatrix is a new and abnormal formation, dependent on a previous lesion, and permanent in its nature. Unless we concede this, we have no data on which to form a diagnosis.

As illustrative of the variety of cicatrices, and the necessity of occasionally investigating their characters, Dr. Malle adduces the example of the discrimination that must be sometimes made between the effects of injuries by fire-arms and those originating by scrofula or syphilis. So also, we may be called upon to state the distinction between the marks of vaccination, and of smallpox. In questions of disputed identity, or in actions for damages from wounds, much of the medical testimony may be founded on the character of a cicatrix. The subject is examined under the following divisions.

1. *The relation of cicatrices to their producing cause.*—This is, in the first place, greatly modified by the depth of the original injury. If the skin only has been divided, it exhibits on healing a very different appearance from that of a closed burn, which has penetrated much deeper. When there has been a solution of continuity of any description, we should inquire into the mode of cure that has been pursued. If the injury has been treated by the first intention, the cicatrix will be nearly *linear*, and this often happens, although the wound has been a contused one. But the tendency in most cases is to the form of an *ellipse*. This

will depend on the elasticity of the skin—its tension influenced by position, and muscular contraction—the convexity of the subjacent parts, and lastly, the laxness of the subcutaneous cellular tissue. According as these causes operate most powerfully on a wounded part of the body, as the knee or elbow for example, will be the tendency to the latter form, and it will even sometimes become *circular*, or nearly so. In parts the reverse of these, as the spaces between the fingers and toes, the axillary region, &c., the linear shape will be most likely to occur. But these results are not invariable. It has been noticed that when the tension acts irregularly, the cicatrix will incline to the linear form, and again, a linear wound may be united by the skin only, leaving the subcutaneous tissue considerably separated.

It is by attention to the circumstances just enumerated, that we can explain why the same instrument, a sword for example, can inflict varying shaped wounds in different parts of the body, and of course leave cicatrices of different forms.

In *wounds from fire-arms*, we can seldom infer the form of the projectile, from that of the cicatrix. Suppuration, and sometimes gangrene, increase the destruction of parts. The tendency, however, in all, is to a rounded shape, and the diameter of the cicatrix both of the entrance and exit wounds, is always less than that of the projectile. If the fire-arm has been discharged at a distance, the cicatrix resembles a perfect disk, depressed in the centre with the skin tightened from thence to the circumference, in consequence of its adhesion to the subjacent parts. On the other hand, when discharged very near, the cicatrix will be depressed, with irregular edges, and if recent, may be accompanied with a bluish coloured skin from the burning of the powder. Sometimes, indeed, this colour remains permanent, owing to grains of unburnt powder having been driven into the skin. It may occasionally become a question, when several cicatrices are present, whether they have originated from one or more discharges of fire-arms. This is a difficult problem on the dead body, but we should keep in mind the extraordinary deviations of projectiles. One of the most remarkable is that mentioned by Professor Levy, in which a single ball caused four wounds —two on the internal surface of the arm, and two on the back.

*Burns.*—The scar here is peculiar. It is formed by the exudation of lymph on the surface of the fleshy points of the suppurating wound, thin and reddish, and never completely supplying the original loss of substance. It varies in form and shape, according to the depth of the injury, and the nature of the subjacent tissue that has been reached. When superficial, it assumes the form nearly of the burning body; when deep, it has a rounded circumference. The edges then are rough, concentric, and descending like steps, as if the cause had contracted its circle of action, in proportion as it penetrated more deeply. Solid caustics, on the other hand, leave perpendicular edges; liquid ones resemble superficial burns in their effects, unless they have had a considerable period to operate, and then their cicatrices, like those of the solid, are circumscribed, deep and depressed in the centre. The scar from a boiling liquid, or from the rapid contact of a burning body, is large, irregular on its surface, and superficial.

These scars sometimes require weeks and even months, to complete themselves. They gradually thicken, and contract from the edges to the centre. This continues until the surface become white and solid, covered with a thin shining epidermis, which is destitute of mucous tissue, sebaceous follicles, and hair bulbs. Now and then, a few white hairs are observed, but the surface is constantly dry, although the whole of the rest of the body be covered with sweat. Thus those laminæ are united to adjacent parts, and form a depression corresponding to the loss of substance, and the full condition of the surrounding tissues.

In examining the dead body, we find some impenetrable to the minutest injections; others are permanently rose-coloured, or red, and gorged with venous rather than arterial blood.

*Dislocations.*—A simple dislocation immediately reduced leaves no trace; but in aged, feeble or rachitic persons, a stiffness of the part will remain, and particularly if there has been a rupture of the muscular fibres of tendinous parts, we

shall find cicatrices. It remains to ascertain whether reduction was attempted, or whether there was a mistake as to the nature of the case.

*Fractures*—Callus is another name for the cicatrix of bone. A perfect union indicates that a considerable period of time has elapsed since the injury, and particularly so, if the united part is strong, and equally with the other resists our efforts to break it. It is on the dead body alone, that we can satisfactorily ascertain the actual condition of fractures and dislocations. On the living, we can only partially examine the surface of superficial bones, as the clavicle, tibia, and forearm, and here the swelling may sometimes be felt at the end of eight or twelve months. We should be careful not to confound this with spina ventosa or syphilitic exostosis.

*Surgical cicatrices.*—Under this head, Dr. Malle includes all those scars which are left after a medical application or surgical operation; as the effects of long-continued blisters, of moxa, and the cautery; the spots induced by tartar emetic ointment, and the cicatrices left after the surgeon has used his knife. In questions of identity, the double scar of the seton may be made to resemble the two wounds from a ball. If epispastics be continued too long, particularly on females, the skin will be destroyed, according to Dupuytren, and an indelible brownish mark will be left. The scars from moxa and the cautery, resemble those from circumscribed wounds with loss of the tissue, and we have to refer to their position in order satisfactorily to designate the cause.

Since a certificate of vaccination has become necessary in certain cases, the examiner may be required to distinguish between the real and spurious marks. The last leaves only red, superficial spots, very different from the figured cicatrix of the genuine affection. Lastly, scars from surgical operations must necessarily bear a great affinity to those resulting from wounds.

*Spontaneous solutions of continuity*, or the scars which succeed scrofulous, syphilitic, cancerous, &c. ulcers. These it is very difficult to discriminate. Some indeed have assigned a distinct character to each, as a round one to the syphilitic, and an angular one to the cancerous; but there is infinite variety in all of them, and the examiner should rather refer the form to the anatomical state of the part, (such as the elasticity of the skin, convexity or depression of surface, &c.) than to the disease. We may also draw an inference from the particular place where the scar occurs. Thus, one in the inguinal regions may lead to the suspicion of its venereal origin, and in the neck or over the parotid, of its scrofulous nature. But, in general, we should hesitate long before pronouncing a decided opinion.

2. *To what depth had the solution of continuity represented by the scar extended?* This can only be answered after death. Dissection must trace it through the various tissues.

It has been incorrectly supposed that some parts of the human body will not cicatrize. The process proceeds as rapidly in the mucous tissue, as in the cutaneous. The serous also unites with adhesion of the contiguous faces, by means of a plastic exudation, while the cellular is in some measure the medium of adhesions. Delpech has well described the characters of the tissue of cicatrices. It is manifestly fibrous, dense, capable of resisting much force, and but little extensible, although it possesses the power of retraction, which, however, is only partially subservient to the will.

A contusion with no injury to the skin leaves no scar, but is marked in its progress by various changes of colour, and we can form an opinion by these of the length of time that has elapsed since the injury. Again, there may be internal contused wounds, while the skin is perfect. Suppose one of these, as of the lungs or peritoneum, should heal and form adhesions, and presently the individual dies of a supervening disease. Dissection here will prove that the effects of the wound have not been the cause. In wounds with a sharp-pointed instrument, their shape, although depending some on its form, is mainly influenced by the tension exercised on the part. The cicatrix is smaller than the wound, and of course neither of them will enable us to judge of the size of the weapon. The parts return rapidly after the injury to their original position.

The results obtained by Dupuytren and Filhos, with cylindrical weapons are hence exceedingly interesting.* Bellemain has also ascertained that muscular fibres when divided will unite so perfectly that the point of section cannot be found with the microscope. When divided transversely, the scar is scarcely ever linear, a consequence of their constant contractions.

The same tendency exists with tendons and ligamentous tissue, in consequence of their imperfect vitality. The nervous tissue, if not completely divided, also unites again.

As to the bones, it is highly necessary that the medico-legal examiner should familiarize himself with the progressive changes of the callus. The division of it by Dupuytren into *provisory* and *perfect* callus, should be well understood.

3. *How long since, has a cicatrix been formed?* This must be answered by a reference to the facts already stated. In general, the degree of organization is the measure. If red, tender to the touch, and covered with scabs, it is recent. Its perfect characters have been already mentioned. It is, however, impossible to specify precisely the length of time necessary for these changes, and the only exception to this is with the bones. For these, authors have assigned exact periods of progress. None, however, have invariable terms. Feeble health, an irritable temperament, advanced age, unhealthy seasons, and indeed all the causes of disease must operate unfavourably, while the presence of any constitutional affection must aggravate and increase the delay in healing. Lastly, the degree of vitality in a tissue has some influence, as also the functions exercised by a part. A wound in the bowels is slow in healing, from the constant motion present, and one in the lower extremities, must require longer time than another in the upper, under similar circumstances.

In legal medicine, cicatrices are to be considered as to their effects on the functions of particular organs (local), and on the system generally. Either of these may need investigation in questions of damages. Inquire whether they are curable or not, whether connected with permanent adhesions, or productive of deformity; and also recollect, that an internal injury, though healed, will often predispose to disease of the particular cavity. The case is peculiarly uncertain, if it continues fistulous. *Annales d'Hygiène et de Medecine Légale*, April, 1840.

T. R. B.

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48. *Extensive extravasation of blood in one hemisphere of the brain, without any symptom indicative of it during life.*—This case is related by Mr. Fowler, (*Lancet*, August 8, 1840). The patient, a female aged sixty, had been gradually declining in strength for three or four years, and suffered occasional attacks of rheumatism. Of late, her symptoms resembled those of subacute inflammation of the mucous membrane of the stomach. She vomited the blandest articles, and accompanying these there was a constant and severe headache, over the right eyebrow. The headache was, however, always relieved for a time by vomiting. She continued to fail; and one day, on being taken up stairs, her head struck with violence against the staircase. It produced no change in the symptoms. There was nothing to indicate an injury or disease of the brain; but she finally sunk fourteen days after the blow.

On dissection, the stomach was found contracted, and its mucous membrane vascular, and there was a tumour adherent to the pylorus and duodenum. The membranes of the brain appeared healthy, and the left hemisphere was of its natural appearance, but on opening into the right, several ounces of coagulated blood were discovered. The walls of the cavity containing it were of the consistence of cream.

Here was an instance, in which the moral and intellectual faculties remained sound—where no loss of sensation or volition had been experienced, and none

* They ascertained that a weapon perfectly cylindrical and pointed, will produce wounds with distinct angles. Sanson, on the other hand, found seven oval wounds, produced by a sharp foil on the body of a female who had been assassinated.

of the senses impaired, except a slight weakness of vision, and yet the brain was extensively disorganized.

The blood had merely separated into serum and crassamentum.

This case is interesting, in a medico-legal view (if we allow that the blood may have been extravasated during fourteen days,) from the accidental occurrence of the blow on the head. T. R. B.

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49. *Memoir on Feigned Diseases.* By M. Ollivier, (D'Angers.)—Dr. Ollivier divides these into three classes; the pretended, the produced, (*provoquées,*) and the feigned strictly so called.

To the first class belong all the varieties of pain, as neuralgia, rheumatism, &c., lameness and injuries from falls or blows. The difficulty in deciding on these arises from the absence of external indications, and the fact that the symptoms may long continue without producing any manifest change. In all cases, the character of the patient, and the motives by which he may be influenced should be considered.

In induced or produced diseases, the point to be decided by the medical examiner is, whether the complaint which *actually* exists has been caused by foul means. Thus amaurosis has been attempted to be feigned by the repeated application of belladonna, and ophthalmia by the use of irritants. Cases of this description require narrow watching. The dilatation of the pupil will subside in a few hours unless the belladonna be reapplied, and ophthalmia will also run its usual course if the irritation be discontinued. Dr. Ollivier mentions an affecting case of an individual who, in order to avoid the conscription, had his eye cauterized. It ended in blindness, and the subject in despair committed suicide. Mutilations and wounds belong also to this class. A female stated that in resisting an attempted robbery, a pistol had been discharged at her at a very short distance, and that she was wounded. She could exhibit no mark except a very slight one on the chin. No trace of powder could be discerned on her skin, nor on that of an infant which she bore on her right arm. The dress also where it was injured resembled rather the effects of burning than of a fire-arm. It was doubtless a case in which the individual endeavoured to excite some interest in her favour or to attract notice.

The following, however, has a more malignant character. A female was accidentally injured by a carriage in the streets of Paris. Madame C——, the owner, removed her immediately to the royal *Maison de Santé*, where she was carefully attended. The wounds proved to be merely superficial, and there was a prospect of a speedy recovery. Meanwhile some kind friend whispered to her that she should demand damages of Madame C——, and accordingly the wounds soon became worse. Some that had cicatrized now began to suppurate, and violent and constant pain was stated to be present. Madame C—— had offered a liberal sum in compensation, but a much larger one was now demanded.

When the cause came before the court, our author was desired to visit the invalid. He found her in apparent good health, but on examining the wounds, they were all ascertained to be dressed with *epispastic ointment*, and boxes of this medicine were seen in the bed and on the night table. In this manner the illness had been prolonged. The court at once dismissed the application for increased damages.

In the third class occur those cases of refined ingenuity which often baffle the most acute observer. We have cause for suspicion when the symptoms continue most obstinately stationary, and yet the individual continues to enjoy good health. This to the public would seem to prove the reality of the disease, although it in fact only shows the perseverance of the simulator.

Drs. Jacquemin and Ollivier were ordered, in April 1840, to visit in prison a man named Guignard, aged fifty years, who had been repeatedly found begging in various parts of Paris, and while doing so was attacked with vomiting of blood, swelling of the abdomen and epilepsy.

It would seem that some weeks previous, being taken in the street with hæmatemesis, he was conveyed to the Hospital of Charity. Bouillaud, after

attending him for some days, became convinced that the disease was feigned. On his report, Guignard was sent to prison, and when there, was recognized as having been committed in 1828, and repeatedly since, for street begging and pretending disease. He was a shoemaker by trade, and lived in an obscure part of the town, yet he was always seized in some of the rich districts, and at those hours (from two to four P. M.) when the streets were most filled. The attacks usually came on near the gate of some wealthy resident; epileptic convulsions seized him, blood was discharged in pools, and his abdomen swelled. A crowd naturally gathered around, and when he had gradually recovered, he stated that he had received a blow on the stomach with the butt-end of a gun in 1815. He had been in the hospital, but was declared incurable, and was now returning home if he could receive the necessary alms. In this way he obtained many donations.

The medical observers repeatedly witnessed Guignard under his attacks of epilepsy. They were admirable imitations of the real disease. The eyes and countenance were distorted, the tongue was locked between the teeth, and there was foaming at the mouth, with the thumbs firmly contracted into the palms of the hands. Yet he recovered instantly and completely from these, and on examination the tongue and teeth were seen uninjured, bearing no trace of a wound or cicatrix. Even a mark of the pressure of the teeth on the tongue could not be discovered.

The prisoner ascribed to the blow already noticed the formation of a swelling at the pit of his stomach. This varied according to circumstances. When he *expected a visit*, the tumefaction was large and resembled tympanitis, but when suddenly seen, there was only a hard, knotty, and apparently scirrhous swelling. One day Dr. Ollivier placed himself at a wicket, looking into the infirmary of the prison; Guignard was quietly walking with another individual, when a person previously instructed, came up to him and said, Dr. Ollivier is in the house, and will probably visit the infirmary. Guignard retired to his bed and commenced drinking his tisan. In a few moments Dr. O. observed movements with the lips and head resembling those of a person making a difficult and prolonged respiration. The abdomen soon began to swell, and he was seen to raise his shirt and examine it by touching. When satisfied he leaned against his bed in the attitude of a person suffering.

Dr. Ollivier caused him to be brought into his room at the end of ten minutes, and required him to sit down leaning forwards with his elbows resting on his thighs. He engaged him in conversation so as to divert his thoughts, and then applied continued pressure to the epigastrium. The swelling soon disappeared, and without any gurgling or eructations.

When examined during sleep the abdomen was flat and soft without any trace of a tumour.

In the opinion of Dr. Ollivier, the means resorted to, to produce these appearances were as follows:—When suddenly visited, the partial effect was induced by lowering the diaphragm and contracting the muscles of the abdomen. This by continued habit he was able to do quickly, and thus produced the semblance of a tumour. The full distension was undoubtedly caused by the swallowing of air. The muscles of the face and lips were always, when this was present, in a state of continued contraction, and a weeping of the eyes consequent on these efforts was particularly noticed.

As to the vomiting of blood, some denied that it had ever actually occurred, and asserted that he carried about with him a bottle filled with the fluid, and scattered it, when seized, on the ground. Dr. Ollivier, however, saw him repeatedly discharge blood by the mouth, and had no doubt of its coming from the stomach. How was this to be explained, in an individual of good health, with an excellent appetite, and yet suffering under hæmatemesis for twenty-five years? The mystery was solved by examining the condition of the veins in his arms. *It was impossible to count the number of cicatrices.* There were at least one hundred on each arm. When asked to explain these, he said that he had been repeatedly bled, but he could not name a single physician who had ope-

rated, and the incisions were so large and irregular, as scarcely to have been made by any medical man.

While in prison, the vomiting recurred, and as he bore no marks of recent bleeding, it became necessary to ascertain how he had obtained the blood. On one occasion, after being long absent in the water closet, he was suddenly stripped of his clothes, and beneath his shirt was found a vine twig, covered with clots. This he had introduced into his nostrils, excoriating the parts, and then by his efforts of inspiration and deglutition, conveyed the blood into his stomach.

Being satisfied from these investigations, that the diseases were altogether feigned, Dr. Ollivier so reported to the police, and the prisoner was condemned to prison for a year, and afterwards to be secluded in a poorhouse.

At the date of this report, (six months after the sentence,) Guigmard continued in perfect health. In not a single instance had either of his former maladies recurred.—*Annales d' Hygiène*, Jan. 1841. T. R. B.

50. *Presumption of Survivorship. Case of Robert Murray, deceased.*—Robert Murray, with his wife and only child, proceeded on a voyage from Dublin to Quebec on board the barque Emerald, of London, in Oct. 1837; on the 25th, during a severe gale, at eleven o'clock at night, the vessel struck the land. When this happened, Murray was on deck, and his wife and child were in the cabin. Murray went below, and shortly after the vessel again struck the land and went to pieces, and the deceased, his wife and child, were drowned.

The above circumstances were set forth in an affidavit by the mate, who survived. The deceased left a will, in which he had bequeathed the whole of his property to his wife.

The court on motion granted administration with the will annexed, to the next of kin of the husband, as dead, a widower; there being nothing to show that the wife survived, the next of kin of the wife consenting.

*Satterthwaite against Powell.*—Major Armett, of the British army, his wife and four children, sailed in January, 1819, on a voyage from Bristol to Cork. The vessel was lost in the channel, and every one on board perished.

Previous to marriage there had been a settlement on the wife, for her separate use, and after her death, for the husband, in case he should survive her. Subsequent to this she had the power to devise it among her children. She died intestate, and letters of administration were granted to Mary Satterthwaite, widow, as her mother, and next of kin. She was now dead, and had left part of the goods of the deceased unadministered, and the question was, whether administration of the unadministered effects of Ann Armett should be granted to her next of kin, or to the representatives of the husband.

The counsel for the latter contended, that the ordinary presumption of law should be followed, viz., that where the husband and wife perished by the same accident, the former shall be deemed to have survived. "Here the property was the wife's, and there being nothing to show that she survived, and the presumption being that the husband would live the longest, the administration should go to his representative."

The court (Sir Herbert Jenner) said, "the principle had been frequently acted upon, that where a party dies possessed of property, the right to that property passes to his next of kin, unless it be shown to have passed to another by survivorship. Here the next of kin to the husband claims the property which was vested in his wife; that claim must be made out; it must be shown that the husband survived. The property remains where it is found to be vested, unless there be evidence to show that it has been divested."

"The parties in this case must be presumed to have died at the same time, and there being nothing to show that the husband survived his wife, the administration must pass to the next of kin."—*Curteis' Ecclesiastical Reports*, vol. i. T. R. B.

51. *Poisoning with the Salts of Copper.*—The thesis of M. Lefortier, on this subject, states some experiments which deserve a brief analysis. He confirms

the prevalent idea that clean metallic copper is not poisonous. It was exhibited by him to dogs, in a solid form, and in filings, without any injury. He therefore concludes that the occasional ill effects ensuing from swallowing pieces of coin must be owing to the oxide on them.

Some of the compounds of copper are insoluble in water, and others are soluble. It would seem from M. Lefortier's experiments, that when taken internally, the insoluble ones become partly soluble, while the reverse occurs with the soluble ones. The following are some of his experiments. Twelve grains of the protoxide (insoluble) were given to a dog. Vomiting followed in half an hour. The matters thrown up, were collected, diluted with water, and filtered, and on applying the usual tests, and particularly a plate of clean iron, copper was precipitated. Similar results were obtained when the deutoxide and carbonate (both insoluble) were given. Lest it might be urged that the food alone caused this partial solubility, he took some beef, cut it into fine pieces, added a proper quantity of distilled water, and then mixed with it the same quantity of each of the above preparations in succession. One half was allowed to act in the cold, being merely stirred; the other was boiled for ten minutes. On applying the tests to each, the indications of copper were extremely feeble. M. Lefortier, therefore, concludes that the solution was produced by the juices of the stomach.

The *soluble* salts of copper, on the other hand, appeared to become partially insoluble. Twenty-four grains of the neutral *acetate* were given to a dog, and they produced death in about a day. The stomach, cut into small pieces, was boiled with distilled water; so also the matters contained in it, but the reagents gave no indication of the metal in the liquor, and yet on its surface floated small fatty particles of a green colour. When these were burnt, and the product treated with hot nitric acid and then filtered, the tests manifested the existence of copper. In another instance 160 grains of the *sulphate* were administered to a dog, and death followed in three hours. Five days after, the body was opened and the stomach and intestines were removed. At the end of three weeks the matters contained in the stomach and the stomach itself were incinerated and treated with nitric acid as above, and in each the indications of copper were trifling. The cause of this phenomena he refers to the action of the fluids of the stomach operating like albumen on the soluble salts.—*Annales D'Hygiène*, July 1840.

Is not this difference to be explained by the fact that the solvent in the one case is water, and in the other the juices of the stomach? There are acids present in the latter which more or less act as they do out of the body, and their effects on the salts of copper must necessarily be different from those of water.

T. R. B.

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52. *On the quantity of Arsenic required to destroy life.* By Alfred S. Taylor.—After dinner, at a family party in London, (in October 1839,) the wine was passed round as usual, and in the course of a short time three of the persons present were seized with symptoms indicative of poisoning. As those only who had partaken of port wine were affected, it was immediately suspected, and the whole was put back into the bottle and sent to Mr. Taylor for examination.

The wine was clear, of the usual colour and odour, and at the bottom of the bottle there was a small quantity of fine white sediment. A piece of white filtering paper was dipped into the wine and then exposed to a free current of sulphuretted hydrogen gas. The paper instantly acquired the rich golden yellow of the sesquisulphuret of arsenic, and this dissolved completely in a solution of ammonia. A few drops of the wine placed in Marsh's apparatus gave numerous distinct arsenical sublimates, the nature of which was proved by solution in warm nitric acid, exposure to sulphuretted hydrogen, and afterwards to a solution of ammonia.

The white sediment amounted to sixty grains; a portion perfectly dried was mixed with calcined acetate of soda, and well defined rings of arsenic were procured.

These experiments proved conclusively that arsenic was both dissolved in the

wine and formed in the sediment. It then became necessary to ascertain the quantity held in solution. He obtained a precipitate of sesquisulphuret from half an ounce of wine which he estimates at 0.75 of a grain. This is equal to 0.6 gr. of arsenious acid. Hence each ounce dissolved 1.2 gr., and as the bottle held twenty-four fluid ounces, there was not less than 28.8 grains of arsenic dissolved, besides sixty in the sediment.

The quantity of wine taken by each of the three persons was as follows: 1. A child aged sixteen months took about two teaspoonfuls, and hence about two fluid drachms. This quantity contained about *one third of a grain* of arsenic. In about twenty minutes this child became sick, vomited severely for three hours, and then recovered. It did not complain of pain, and hence, although first affected, its illness was supposed to be owing to some other cause. 2. A lady aged 52, took a wineglassful, excepting the two teaspoonfuls which she gave to the child. In from 30 to 40 minutes she complained of general uneasiness, but without pain. She vomited violently for four hours, and then recovered. She probably took *one grain and a half*. 3. A gentleman aged 40, drank a glass and a half. In half an hour vomiting came on, which lasted three hours, but he did not entirely recover until after several days. He could not have taken less than *two grains and a half*.

Now as to the quantity required to destroy life, Hahnemann says that two grains may be sufficient, but adduces no cases. Christison mentions four and a half grains as the smallest actually fatal dose which he has found recorded, but the subject was a child four years old. Lachese, of Angers, from a comparison of thirteen cases in which poisoned bread was the cause, infers that from one to two grains may produce death. On the contrary, here are two cases of adults who escaped without any very formidable symptoms, and yet took from one and a half to two and a half grains of arsenic. Mr. Taylor is doubtless correct in ascribing this result to the fact that the *poison was taken on a full stomach after a meal.* Nor will he find any one objecting, we presume, to the other conclusion which he draws, viz., that nothing certain is known as to the quantity which would constitute the lowest fatal dose of the poison.

But what shall we gain in legal medicine by adopting Mr. Taylor's alternative, and assuming the possibility that arsenic may be taken in much larger doses than is commonly supposed without destroying life. A fatal case presently occurs below the minimum assumed. How are we to explain this to a court and jury if it be a case of poisoning? The four conditions stated by Mr. Taylor, age, sex, peculiarity of constitution or enfeebled health, may be put aside, by an astute lawyer, and the fatal termination be referred to ordinary disease.

Guarded as are the observations on this subject in all the works on toxicology and medical jurisprudence which we have examined, we really think that Mr. Taylor has indulged in a little hypercriticism. We adopt at once his remark—"all that we are justified in saying is, that judging from the effects of small doses, these quantities would *probably* kill." This is actually all that is meant, whether we adopt *two* or *ten* grains as the minimum. If patients survive, the question will be but seldom asked.

In the conclusion of his paper, Mr. Taylor inquires whether the arsenic might not have been derived from *shot* left in the bottle, this being known to contain a portion of arsenic, used in the manufacture to give it hardness. But he ascertained satisfactorily by Marsh's apparatus that shot in single pellets would not yield a trace, while eight or ten readily exhibited its presence; and he infers that an ounce of dust shot contains on an average about *five grains* of arsenic; in the state of arseniate and arseniuret of lead of course the poison was not thus derived. And further, by digesting sherry wine on shot for upwards of a year, he proved that none had been communicated to it, although faint traces of lead were found.

It is most probable that the bottle had been previously used for containing arsenic, as a bug poison, or for veterinary purposes, &c. Bottles of this description are collected by pedlars, and may thus come into the possession of careless wine merchants.—*Guy's Hospital Reports*, No. 12. T. R. B.

53. *Galvanic test for Arsenic.*—A correspondent states that he "took a small quantity of arsenious acid, about one-fiftieth of a grain, placed it upon the surface of a sovereign, moistened it with a drop of muriatic acid, then touched it with a narrow strip of sheet zinc, and after a few seconds, had the satisfaction to observe that a distinct metallic film or deposit had formed upon the part of the gold which had thus been brought in contact with the wire. I found too, that the metal was precipitated from realgar, when heated in the same manner as arsenious acid.

"If after obtaining the metallic deposit in question, we let fall upon it a drop of nitric acid, it immediately dissolves, and may then be tested by any of the ordinary re-agents, such as the ammoniacal nitrate of silver, &c."

Mr. W. J. Morton has also proposed to connect a modification of Marsh's apparatus, with a galvanic battery. He however substituted pure potash, or the carbonate or nitrate for the sulphuric acid and zinc.—*Lancet*, January 16, March 27, and June 12, 1841. T. R. B.

54. *Wounds from Fire-arms.*—The prevailing opinion sanctioned by some of the greatest names in surgery, is, that the entrance wound produced by a ball is always smaller than the exit one. Professor Malle, however, after numerous experiments on the dead body, found that directly the opposite occurred. He was inclined to explain this from the absence of vitality, and possibly also the position of the body. But not long after, a friend of his was wounded in a duel, and the apertures corresponded in size with those obtained in his experiments. Since that he has repeatedly observed the same result in the living subject. He however confirms the common statement as to the appearance of the respective wounds. The entrance one is rounded and depressed, while the other has ragged and everted edges.

He mentions the following curious instance of the deviation of a bullet. In July, 1828, two students of medicine fought a duel at Strasburg, at fifteen paces. One of them fell apparently dead. Dr. M. ran to him, and found him, though pale, already smiling. The ball had struck the larynx obliquely, passed completely round the neck, and was now to be distinctly seen on the opposite side of the larynx, from which it was readily removed by an incision.

Another interesting fact connected with this subject, is the occasional preservation of all the faculties, after dangerous wounds of the head. In 1833, a young man determined to destroy himself, and for this purpose fired a pistol at the internal angle of the left eye. Surgeons were immediately summoned, but the minuteness of the wound, and the calmness of the suicide, induced them to hope that it had been intercepted in some part of the bony orbit. A probe, however, passed deep into the brain. He was bled largely, and survived forty-one days, preserving perfect to the last, his muscular, organic, and intellectual functions. After death the ball was found in the fourth ventricle.

An officer, related to the author, received a ball in his head at the battle of Wagram. He fell from his horse, but immediately recovered his senses, and was cured in about three months. After having served at the battle of Waterloo, he retired to his family and passed a happy old age, although menaced occasionally with attacks of inflammation of the brain. The ball was found, after his decease, in the left lobe of the cerebellum. "Les fonctions génitales etaient restées pendant long temps fort actives, mais il vrai de dire aussi qu' elles avaient toujours été tres puissantes."—*Annales d' Hygiène*, April, 1840. T. R. B.

55. *Compound Poisoning.*—Dr. Allnatt and Mr. Wallingford were called to a child five years old, who had swallowed a considerable quantity of "gun-barrel browning." This consists of corrosive sublimate, sulphate of copper, and a tincture of the sesquichloride of iron. When these ingredients are united, a precipitate is the result.

The child was making ineffectual efforts to vomit, complained of great pain in the epigastrium, and his pulse was feeble and quick. He was perfectly

rational, although listless and heavy. Copious draughts of milk, combined with white of eggs, were given. These induced frequent vomiting, and the patient soon became relieved. A gentle emetic of ipecacuanha, to remove the consequent torpor of the stomach, acted kindly, and a gentle perspiration, followed by quiet sleep, left him convalescent.

In this case the albumen doubtless acted as an antidote to the salts of both mercury and copper.—*London Medical Gazette*, April, 1841. T. R. B.

56. *Poisoning with Blood Root*, (Sanguinaria Canadensis.)—In July last, while four individuals (three females and one male) were engaged in cleaning and whitewashing the apothecary department of the Bellevue Hospital, they drank out of a demijohn left there, a large quantity of the tincture of blood root, mistaking it for some intoxicating liquor. They were all soon seized with racking and burning pains, and a tormenting thirst, but concealed from the physician what they had taken until it was too late to relieve them. They all died during the ensuing day.—*New York Journal of Commerce.* T. R. B.

57. *On testing for Arsenic and Antimony by Hume's Process.* Mr. Marsh states that in repeated experiments, he found Hume's test (the ammoniaco-nitrate of silver) extremely useful as a discriminative test for arsenic or antimony. He uses it thus. After the matter to be tested has been acted upon by his apparatus, a piece of common window glass, (which he prefers,) porcelain or mica, is to have one of its surfaces moistened with Hume's test; it is then to be held horizontally, with its moistened side downwards, directly over the ignited jet of gas, about half an inch from the tip of the flame. If arsenic be present, the well known characteristic, lemon yellow colour, is instantly produced; if antimony be in the mixture, a curdy white precipitate is obtained; if, on the contrary, neither arsenic nor antimony is in the matter under examination, the hydrogen instantly reduces the silver of the test liquor to the metallic state. Mr. Marsh considers this as an admirable mode of discriminating.—*London, Edinburgh, and Dublin Magazine*, for June 1841. T. R. B.

58. *Antidote to the Salts of Copper.*—Liquid albumen is generally administered as an antidote in cases of poisoning with the salts of copper, but it has this disadvantage, that, as we are unacquainted with the exact quantity necessary to neutralize the copper, if we employ too great a quantity, the poison is dissolved in the excess of albumen. To remedy this inconvenience M. Benoist proposes to substitute for albumen a solution of carbonate of soda, which forms with the salts of copper an insoluble carbonate, having no deleterious action on the economy.—*Prov. Med. and Surg. Journ.*, August 14, 1841, from *Journ. de Chimie.*

59. *Rupture of the Heart from external violence.*—In our No. for April last an abstract was given of five cases of this, all we could then collect. The following interesting case, communicated to the Westminster Medical Society (23d Jan. 1841) by Dr. Hancock, may be added to the list. A man aged 50, was admitted into the Charing-cross Hospital on the 18th of January, between five and six o'clock in the evening, having sustained severe injury in his chest, in consequence of being compressed between a cart and a wall. On examination the sternum was found fractured, and several ribs on the right side dislocated from their cartilages; he could scarcely speak; his breathing was very difficult; his countenance anxious and livid, and his pulse 80, and regular. He was slightly relieved by the application of a broad roller round his ribs and sternum. Various stimulants were given, and hot water applied to his feet, but his pulse gradually and regularly got lower, and he died at five the following morning. The sternum was found fractured, six of the ribs were dislocated from their cartilages, and the cartilages also displaced from their attachments to the sternum on the right side, an opening being thus formed through which a portion of lung protruded; on the left side the cartilages of the three upper ribs were dislocated from the sternum, and the three lower cartilages were dislocated from the ribs them-

selves. Much fluid blood was found in the cavity of the thorax, and a large coagulum in the pericardium. The left auricle of the heart was lacerated to the extent of about an inch at its posterior and inferior portion; the lungs were uninjured; and none of the large vessels ruptured. Mr. Hancock thought the case interesting from the fact of the man having lived nearly twelve hours, with so extensive a laceration of the substance of the heart; the man, subsequent to the injury, was obliged to be kept in the erect position; the pulse had not been examined with reference to any difference at the wrists.—*Lancet*, January 30th, 1841.

60. *Case of Poisoning by Tobacco.* By M. Tavignot.—A strong man, of 55 years of age, had a tobacco enema administered to him for the relief of ascarides in the rectum. The enema was ordered to be composed of one drachm and a half (60 centigrammes) of tobacco leaves in about six ounces of water, but by mistake 16 drachms (50 grammes) of tobacco were used and administered before the mistake was discovered. Seven or eight minutes had scarcely elapsed from the period of its administration before stupor, headache, and extreme paleness of the face made their appearance; pain was complained of in the abdomen, the speech became thick and indistinct, and slight convulsive movements were observed. A purgative enema was immediately administered, stimuli and strong coffee were also given, cloths dipped in cold water were applied to the head, and sinapisms to various parts of the body. He was also bled pretty freely.

Notwithstanding all these means, the paleness of the face and surface of the body increased, the expression of the face was indicative of pain and stupor, the pupils of the eyes were natural, the respiration became more and more laborious and slow; his intellectual faculties seemed to be greatly weakened, but he still occasionally understood questions which were put to him, though unable to answer to them distinctly; convulsive tremors were first observed in the arms, but soon extended to the legs and trunk of the body, and went on increasing in severity for six or seven minutes, after which a state of complete prostration came on, attended with slow very painful respiration. Well marked coma, with complete relaxation of all the muscles of the body, preceded the fatal termination, which took place about eighteen minutes after the administration of the enema. The pulse stood at 68 before the blood-letting, and 44 after it. No vomiting occurred in this case.—*Ed. Med. and Surg. Journ.*, from *Gaz. Méd. de Paris*, Nov. 28, 1840.

## STATISTICS.

61. *Statistics of Amputations performed in the African army, during the years* 1837, 8, 9. By Dr. Guyon.—The number of amputations performed in the above years (the campaign of Constantine in 1837 excepted,) was 63, namely:

| | | |
|---|---|---|
| Disarticulation of the | shoulder-joint | 6 |
| " " | elbow | 2 |
| " " | wrist | 6 |
| " " | knee | 1 |
| " | partial, of foot | 1 |
| " | tarso-metatarsal | 1 |
| Amputation of the | thigh | 16 |
| " " | leg | 7 |
| " " | arm | 15 |
| " " | fore-arm | 8 |

Of these 63 patients, 46 were cured, 17 died. As, however, four died from circumstances scarcely connected with the amputation, the proportion of deaths may be stated as 1 to 11. This result is much more favourable than that during the siege of Constantine in 1837, for of 10 amputations performed at Médéah, only 1 survived, and of 62 at Blidah, 39 died.

Of the 63 operations referred to above, 44 were performed immediately, 19 secondarily. The former gave 32 cures, 12 deaths; the latter 14 cures, 5 deaths. Thus the proportion of cures after secondary amputation was not less satisfactory than that after immediate.—*British and Foreign Med. Rev.* from *Gaz. Méd de Paris.* Feb. 13, 1841.

62. *Statistical account of seventy-five cases of amputation, performed on seventy-three patients at the Northern Hospital, Liverpool,* from March 1834, to March 1841.—Edward Parker, Esq. states that of the total number of amputations, 75 on 73 patients, 53 were cured and 20 died; being 1 in $3\frac{13}{20}$.

"49 were accidents, of which 14 died, being 1 in $3\frac{1}{2}$, 24 diseases, of which 6 died, being 1 in 4.

"Of the accidents, 40 were primary (performed within 24 hours), of which 8 died, being 1 in 5; 9 were secondary, of which 6 died, being 2 in 3.

"Of the primary amputations, 29 were on the lower extremity, of which 6 died, being 1 in $4\frac{5}{10}$; 11 were on the upper extremity, of which 2 died, being 1 in $5\frac{1}{2}$.

"Of the secondary amputations, 7 were on the lower extremity, of which 4 died; 2 were on the upper, both of which died.

"Of the amputations for diseases, 21 were of the lower extremity, of which 5 died, being 1 in $4\frac{1}{5}$; 3 were of the upper extremity, of which 1 died.

Of the whole number of amputations, 57 were on the lower extremity, of which 15 died, being 1 in $3\frac{5}{15}$; 16 were on the upper extremity, of which 5 died, being 1 in $3\frac{1}{5}$.

"*Below knee.*—28 for accidents, of which 8 died; 9 for diseases, of which 3 died.

"*Above knee.*—8 for accidents, of which 2 died; 12 for diseases, of which 2 died.

"*Below elbow.*—9 for accidents, of which 3 died.

"*Above elbow.*—4 for accidents, of which 1 died; 3 for diseases, of which 1 died.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20 | were | under | 20 years of age, | of which number | | 18 | were cured, | and | 2 died. |
| 15 | were | between | 20 and 30 | - | - | 12 | - | - | 3 |
| 13 | - | - | 30 and 40 | - | - | 8 | - | - | 5 |
| 10 | - | - | 40 and 50 | - | - | 7 | - | - | 3 |
| 12 | - | - | 50 and 60 | - | - | 5 | - | - | 7 |
| 1 | - | - | 60 and 70 | - | - | 1 | - | - | 0 |
| 71 | | | | | | 51 | | | 20 |

Of two of the patients the age is not mentioned.

"From a consideration of the foregoing tables, I think the following conclusions may be drawn:—

1st. That amputation is a more dangerous operation than is generally supposed, the proportion of fatal cases being 1 in $3\frac{13}{20}$.

2d. "That it is more successful when performed for diseases than for accidents.

3d. "That secondary is always much more fatal than primary amputation.

4th. "That amputation of the lower is much more fatal than of the upper extremity.

5th. "That the danger increases with the age of the patient.—*London Med. Gaz.* May, 1841.

## ANIMAL CHEMISTRY.

63. *On the Chemical Analysis of the Blood in its Morbid Condition.* By Dr. Louis Mandl.—The object of this series of papers is to point out the defects and fallacies of the present modes of analyzing the blood, and especially of estimating the *quantities* of its several principal constituents.

1. Three methods have been most commonly employed to separate the fibrine, but all are fallacious. The first consists in squeezing the clot of blood in linen, so as to get rid of its serum, and then repeatedly washing the remainder. Now the *clot* of blood has by no means always the same characters; some clots are hard and dense, and can only with difficulty be broken up, and these may certainly have all their fibrine, which forms compact stringy masses, retained within the linen. But others are soft and friable, and when these are broken up and squeezed, numberless particles of fibrine pass through the fine meshes of the linen, and what remains is but a small portion of what really existed in the blood. Independently, therefore, of the varying effects of more or less force in pressing the clot, and of the coarseness or fineness of the linen used, it is impossible that by this method, (which was generally employed by M. Denis,) any just idea should be formed of the respective quantities of fibrine in coagula whose physical qualities are different; for in all soft coagula, the fibrine breaks up into pieces small enough to pass through the linen with the serum and colouring matter.

The second method, by stirring the blood, is not less defective. Besides that, even under the best of circumstances, it is not so easy to stir the blood as to get all its fibrine in shreds, here again as in the preceding case the fibrine may be in such a state as to render its separation impossible. In blood mixed with pus, for example, it forms in coagulating particles which are either so small that they can hardly be seen, or pieces which stick to the walls of the vessel, or swim in the rest of the blood, and cannot possibly be separated from it. And in many other circumstances a similar condition exists in a less degree, so that this method can be employed only in cases in which the fibrine is disposed to coagulate firmly and in large masses, and has not its tendency to become solid, interfered with by the presence of purulent, or saline, or other substances in excess in the blood.

The method of Berzelius, that of compressing slices of the coagulum in blotting paper, and when they have ceased to give out moisture, washing them till they are colourless, is open to different but almost equal objections. In washing the remains of the coagulum one of two things will happen, either the blood-globules that are retained in it will be washed out entire, and then they will carry with them small pieces of the fibrine itself, or else their fluid contents and their colouring matter only will be removed, and their own membranes and those of their nuclei (which cannot be chemically distinguished from fibrine) will remain. In the former case the quantity of fibrine will appear less than it really was; in the latter it will seem more, perhaps much more; nor can any dexterity of manipulation avoid these errors. Besides from one kind of clot, (the firm one of inflammatory blood,) it is almost impossible to wash away all the globules without breaking it up; and from others (the softer kinds formed in typhoid fever, &c.) the fibrine separates sometimes in particles almost as small as the globules themselves, and cannot be retained on a filter; numberless particles of it may be detected with the microscope in each portion of water that passes through in the process of washing, and many more when (as is commonly the case) the fibrine is washed, not on a filter, but in a vessel of water.

In whatever method it be obtained, the fibrine is subsequently macerated for a considerable time in water, in which, if the process be contained for twelve or more hours, as it commonly is, decomposition takes place, the water becoming turbid, and the fibrine gelatinous. And after this it has to be dried, an operation requiring great delicacy and judgment to ensure that at the end of it water shall not be still retained in the organic substance which so readily absorbs it.

And after all it is very doubtful whether, under the best of circumstances the fibrine extracted from the blood is all that it really contained; for none of the analyses yet published take into account that which in all probability exists in the envelopes and contents of the globules, and which may well amount to more than there is in the *liquor sanguinis*. For several things are quite inexpli-

cable on the supposition that as commonly stated there are only three parts of fibrine in 1000 of blood; as, for example, the immense quantities effused in false membranes, amounting in some cases to more than the whole mass of blood is said to contain, and many others.

If it be said that in spite of all these sources of fallacy the analyses of different chemists closely accord; reference need only be made to those analyses, and it will appear that the quantities of fibrine said to exist vary from 0.75 (Berzelius) to 4.96 (Müller) parts in 1000. Besides these analyses were made on healthy specimens of blood; the difficulties are greatly increased when it is in a morbid state, when the determination of its quantity of fibrine is most important.

2. The composition of the globules is as yet rather uncertain, but the author has little doubt that their contents are in part fibrine, by the coagulation of which the nucleus is formed; and he thinks that their membranes are also fibrine, coloured with hematosine. Now, as already stated, this fibrine within the globules has not, in any analysis hitherto published, been taken notice of; nor is it right to estimate its quantity from that of the albumen (as it has been supposed to be) which chemists have obtained from the globules; for it is difficult in any case to collect all the globules in a sample of blood; a number of them always float in the serum, and the more the softer the clot is, so that in many cases the serum itself is deep red; and moreover, in the ordinary plans of treatment, the clot is never obtained completely free from serum, and therefore from a greater quantity of albuminous matter than properly belongs to its globules. In short there is not at present any method known by which the globules can be all removed from a portion of blood, and obtained separately from its serum and other principles; and there cannot therefore be any certainty in the calculations of their weight or of the quantity of fibrine or albumen which they contain.

3. The fallacies in the analysis of the serum depend chiefly on the quantity of globules and of portions of fibrine that may be suspended in it. These in the healthy state of the blood are unimportant, but in its diseased states they may give rise to considerable errors.

In the next division of his subject the author treats of the coagulation of the blood, and the formation of the buffy coat, of the chemical nature of which, he rightly says, nothing is at present known. [But under this head we find nothing worthy of being abstracted.]

In the application of his objections, M. Mandl takes two classes of cases, namely, those in which the blood is said to be poor in fibrine, including scurvy, putrid fevers, typhoid fevers, &c., and those in which it is described as rich in globules. For the first the quantity of fibrine will appear small in all cases in which a firm clot does not form, that is, not only when there is really little fibrine, but when that which does exist, after coagulating, does not contract and form a dense hard clot. And this may depend on the presence of pus or other morbid fluids in the blood, or, still more probably, on an excess of alkaline salts. The latter are known to exist in excess in scurvy, and perhaps may be found so in the other diseases in which the blood has been less carefully analysed. At any rate it is certain that we have at present no means of ascertaining the real quantity of fibrine in a soft clot, and therefore no right to assume a deficiency of it in any cases till the softness of the clot is proved not to depend on some other cause than that deficiency. Similar difficulties attend the appreciation of the true quantity of globules; and hence the diversities of the statements of authors respecting their increase or decrease in different diseases.

The last part of these papers contains general reflections on the application of the chemical researches on the blood to pathology. [But in this also the remarks are trivial. Indeed, the author has evidently much more skill in finding fault than in improving defects. We have ourselves long thought that in the matter of the blood, physiologists have too implicitly received the statements of chemists; and we hope that the brief abstract we have given of M. Mandl's papers, though they do no more than point out the numerous and unavoidable fallacies of these analyses, will engender caution in drawing conclusions from

such evidently insecure premisses.]—*Brit. and For. Med. Rev.*, from *Archives Gén.*, Dec. 1840, Jan. and Feb. 1841.

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## MISCELLANEOUS.

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64. *Periodical Medical Literature—Quarterly and Weekly Journals.*—The following remarks, extracted from an address delivered at the Anniversary meeting of the Southern District Branch of the Provincial Medical and Surgical Association, by Dr. M. Carogher, appear to us to exhibit a just view of the value of periodical medical literature, and of the distinct aim and scope of Quarterly and Hebdomadal Journals.

"Periodical literature is one of the most serviceable means by which the great object before referred to, namely, the diffusion over the wide extent of the empire of the knowledge that is daily accumulating, is accomplished. Yet this object is not gained by the ordinary periodical literature of the day, especially by *that* which appears at very short intervals, without some accompanying inconveniences. There is apt to be too little time for the separation of the chaff from the grain—too little selection—too little discrimination between that which is merely of passing interest, and that which, though prolix, or even heavy to the reader, is of paramount importance to the steady advancement of medical science. It should never be forgotten that the mere gratification of the reader, by temporary motion, is not the test by which the utility of a medical periodical is to be judged. It should have higher aims, though these be not so readily appreciated by the young and inexperienced. To be found short and interesting, are the tokens which draw forth approbation from the younger reader; "long and dry" are the words by which he is too apt to condemn, without considering whether the subject be such as can be treated of advantageously, without long details or dry analysis.

"The conciseness of direct assertion, the summariness of an authoritative yea or nay, contrast pleasantly with the tediousness of exposition by proof, of the balance of conflicting evidence, or of the details of experiment. Yet I know I may for the present safely violate the rule I would advocate, and take your permission to affirm, without further preamble, that the short dictum of authority has not been more remarkable in past times, for retarding the progress of all kinds of science, than the careful exposition of inductive or experimental evidence for advancing it.

"The quarterly medical periodicals stand nearly in the same relation to the monthly and hebdomadal medical journals, as the political periodicals to the daily press. Their task is to sift, compare, and digest the particulars collected and spread about by their more hurried brethren, to correct errors, to reconcile contradictions, to draw back to the right path of investigation those whom the ardour of youth, the love of novelty, the confidence of inexperience, have led astray, (though otherwise profitable labourers in the cause of improvement,) to view from a more commanding height the labours which are going on around; to estimate more deliberately the importance of what is witnessed on every side relating to the past, the present, or the future progress of medicine; to apply with that skill, which solid judgment (aided by more careful training, or especial advantages of talent or opportunity, in regard to the several subjects under consideration,) can alone supply—to apply, I say; the actual state of each department or object of knowledge, so as to test and appreciate the merits of new discoveries, whether these be speculative or practical.

"Such, it appears to me, are the chief objects which the quarterly medical periodicals are calculated to serve, in a far higher degree than is possible for those that appear under the hurry of shorter intervals, the utility of which, however, in their own sphere, is not for a moment to be questioned. I believe that the rise of the weekly medical periodicals, concurrently with some other favourable circumstances, in our times, has wrought great and important changes in the

actual state of the profession, and that these, under a continuance of the same circumstances, are destined hereafter to accomplish still higher objects. Yet these acknowledged benefits should not blind us to the disadvantages which would result from our periodical medical literature being exclusively of this hasty character."—*Prov. Med. and Surg. Journ.* August 14, 1841.

65. *Newspaper Announcements of Surgical Operations, &c.*—We commend to the attention of the medical profession in this country the following resolutions adopted at a recent meeting of the East of England Association:—

"Resolved, 1st, That the Council has observed with extreme regret the custom of publishing paragraphs in the newspapers for some time past laudatory of the operations and mode of treatment employed by certain practitioners in various diseases; such means of making public their practice being calculated materially to injure the respectability of the medical profession.

"2d. That as one of the great objects of the association is the suppression of quackery in all its forms, the council would earnestly impress on all the members of this association, and the profession in general, the necessity of exerting themselves to discourage and prevent such proceedings for the future."—*Ibid.*, July 24, 1841.

66. *Necrology.*—M. Sanson, the distinguished professor of Clinical Surgery to the Faculty of Medicine at Paris, died in Paris on the 1st of August last. M. Sanson was born at Paris, on the 24th of January, 1790; in 1805 he was elected *externe* at the Hôtel-Dieu, and was soon chosen by Dupuytren as demonstrator; in 1813 he joined the "old guard," and from the sufferings which he underwent in Saxony, aggravated by fatigue and labour at the battle of Waterloo, he became subject to attacks of rheumatism, which continued during the rest of his life. After the abdication of the Emperor, M. Sanson returned to Paris, and devoted himself, exclusively, to the duties of his profession.

"In 1825 he became one of the surgeons of the Hôtel-Dieu; in 1836 was elected professor of Clinical Surgery to the Faculty of Medicine.

"As practitioner and professor, M. Sanson was one of the most solid ornaments of French surgery, and had his health permitted, might have aspired to fill the place even of a Dupuytren.—*Ibid.* August 14, 1841.

# AMERICAN INTELLIGENCE.

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*A fifth Case of Enlargement of the Thymus Gland occurring in a child two years and eight months old, and terminating fatally.* By Wm. C. Roberts, M.D., of New York.

November 15, 1840, Jos. Manuel (white) came home well on Thursday from school, eat heartily of fried sausage and potatoes, and was put to bed; two hours afterwards awoke and vomited, and had fever and frequent stools. This increased in the morning, and he was drowsy and unwilling to rise. At five P. M. of Friday had a "burning fever," and was "as red as scarlet;" he had slept all day, snoring loudly. At six P. M. I saw him. He breathed quick, and the skin had a red hue as if from scarlatina; his face was much flushed, and he was drowsy and peevish; he vomited in my presence some greenish fluid, having before done so frequently. Percussion elicited a clear sound on both sides of the chest, and the respiratory murmur was audible, mixed with slight sonorous râle. The action of the heart was not remarkable for its force; about midnight he had a sudden chill, which lasted nearly an hour, and the redness faded away. On the morning of Saturday, he lay almost comatose, but was able to offer much resistance to my attempts to examine him; he began to change about two hours before his death, which occurred at noon, (a period of 40 hours,) being slightly convulsed just before death.

*Post mortem examination.*—The lungs perfectly healthy throughout. The trachea and larger bronchi slightly reddened; the left auricle of the heart hypertrophied, and the whole organ large. The thymus gland very thick and fleshy, completely covered two-thirds of it, extending down on either side; the apex of its left lobe, which was much larger than the right, extending to within half an inch of its point. It was 3½ inches wide, and at its greatest length four inches, and had apparently no cornua, commencing just at the bifurcation of the trachea. The liver was large, but with the other abdominal viscera, healthy. The mucous coat of the stomach was pale and soft.

The symptoms in this case seemed due to disease of the brain, which I could not obtain leave to examine. I am aware that without this, it is imperfect. I have only recorded it for the purpose of attracting attention to the condition of the thymus gland, a state as yet but little noticed, yet of frequent occurrence. The child was forward for his age, stout, and had always enjoyed good health. The history of this case differs from that of any I have previously recorded. If the brain were not affected, the enlargement of the thymus, except the slight bronchitis, was the sole lesion. If it were, what share had it in causing, or accelerating the rapidly fatal results?

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*Medico-Legal Cases and Observations.* By Dr. C. H. Raymond, of Buffalo, New York. Communicated by the author to Dr. T. Romeyn Beck.

Case I.—*Death from Arsenic—Analysis.*—Examination of the con-

tents of the stomach of Barbara Knapp, supposed to have committed suicide by means of arsenic taken Monday morning, January 11, 1841, died Saturday morning, January 16, 1841, disinterred Thursday, January 21, 1841.

*Post mortem examination* made on the morning of the 21st, by Drs. Winne and Pratt. I was not present at the examination.

The matter was removed from the stomach and part of the small intestines, in the presence of Drs. Winne, Barnes, and Pratt, by myself; it was received into a basin perfectly clean. The fluid appeared to be a mixture of green bile and blood. Took the fluid and stomach for examination. The mucous membrane of the stomach was dark brown, between the colour of mahogany and chocolate. In several spots there were sloughs, and at their edges the mucous membrane was much thickened.

1. Filtered through paper; filtered fluid colour of brandy. (*a*)

2. To a portion of this fluid, acidulated with acetic acid, passed a stream of sulphuretted hydrogen. The liquid became darker and rather inclined to green. I thought there were yellow particles floating in it, but they were too indistinct for any conclusion. Filtered, washed, and dried the precipitate.

3. Placed the precipitate in a glass tube, and covered the precipitate with a mixture of recently ignited charcoal and dried subcarbonate of soda. The tube was heated in the flame of a spirit lamp (but tube melted and blew out,) so immediately cooled the tube; then ground it in a mortar, and introduced the powder into a fresh tube, and applied heat as before. In a short time the inside of the tube was lined with an opaque steel coloured crust. I broke the tube, but could not make out the crystalline structure of the inside of the crust with my magnifier.

4. Introduced the pieces of glass, with the crust adhering, into a new tube, and added water, then a little of the ammoniuretted sulphate of copper; in a few minutes a precipitate of a bluish-green colour was formed.

5. A portion of fluid (*a*) was boiled and filtered, (*b*) and dropped on a stick of nitrate of silver, and the nitrate held over the mouth of a bottle of aq. ammonia; in a few seconds it was covered with a lemon yellow precipitate.

6. To a portion of fluid, (*b*) which was of the colour of Madeira wine, ammoniuretted sulphate of copper was added; in a short time it became distinctly green, and after standing a precipitate subsided.

7. July 10, 1841, I have this day tested an ounce of the alcohol in which the stomach has been preserved, by Marsh's process, viz., adding the alcohol to diluted sulphuric acid and zinc, inflaming the gas as it issued from a capillary tube, and allowing the flame to play against the inside of a glass tube. By this means I obtained several distinct steel-like crusts, and by applying my nose to the upper end of the tube, perceived the garlic odour.

Case II.—*Over dose of Oil of Tansy—Recovery—Analysis.* Buffalo, Sunday, November, 1839, A. M., was requested to visit Mrs. B., a rather delicate lady, mother of several children, who had a strong aversion to any increase of her family, from the feebleness of her constitution, which had not recovered its vigour since the last confinement. When in her water closet was attacked with a convulsion. Before my arrival she had vomited. The injected matter had the odour of tansy. When I saw

her she was in a state similar to a patient with hysterics; she had a convulsion after my arrival. Administered a dose of sulphate of zinc and ipecac. which produced free vomiting. She did not recover her consciousness for about six hours.

I took the ejected matter to my office for examination. I introduced into a retort, and distilled over six ounces of strong tansy water.

In the summer of 1840 I met with a similar case in a chambermaid on board of a steamboat. The symptoms were not so violent. Treatment and result as above.

Case III.—*Case of Poisoning by Corrosive Sublimate successfully treated.* By Bryant Burwell, M. D.—Extracted from the minutes of an examination held before Mr. Justice Barton, Buffalo, Feb. 4, 1838. Mrs. G. was confined at 2 A. M., of Friday, Feb. 2d. Found her pretty comfortable on Saturday morning, and prescribed a small dose of castor oil. At a quarter before ten P. M., was requested by Mr. G. to visit his wife as quick as possible as she was taken suddenly ill. Found the patient sitting on the edge of the bed endeavouring to vomit; she exclaimed, "Oh dear, doctor, I am poisoned, I have taken corrosive sublimate!" She was very much distressed; complained of great heat and burning in the throat and stomach. Inquired how she knew it was corrosive sublimate. She replied she knew it, for she had taken it before, and by the taste and the sensation of fulness and swelling. She said she took it in the castor oil. Inquired for the vessel she had taken the oil from, and was referred to a teacup. I found a little oil adhering to it, and rubbing my finger on the cup felt a gritty substance, and tasting it recognized corrosive sublimate.

Dr. B. immediately ordered some eggs, and administered the whites of about half a dozen. She had vomited, and continued to make great efforts to evacuate the stomach. Sent to his office for a dose of ipecac. In the meantime dissolved tart. ant., and pot. gr. iii, in water, and gave one-third at a time until copious vomiting took place. She threw up bloody mucus mixed with the contents of the stomach. Twenty minutes past ten gave pulv. ipecac. ℥ss, and ten minutes after the first dose gave ℥ss more. She continued to drink freely of white of eggs diluted with tepid water and mucilage gum arabic.

Dr. Burwell and Mr. George E. Hays tested the crystals they found on the cup, spoon, and phial, with lime water, nitrate of silver, aq. ammonia, carbonate of potash, and the galvanic process, and found the precipitate as given by corrosive sublimate. Mrs. G.'s convalescence was unattended with any unpleasant symptoms. Mrs. G. took the poison about a quarter of an hour before Dr. B. arrived.

February 18, 1838, Mr. George E. Hays and myself examined the crystals we found in the vial of oil; there was not to exceed half a grain. We made use of the following reagents. Hydro-sulphuret of ammonia, hydriodate of potash, protochloride of tin, lime water, carbonate of potash, prussiate of potash, and galvanism. Mr. H. placed a particle of the suspected crystal on a piece of glass, while I at the same time placed a piece of corrosive sublimate on another glass, then applied the reagents and carefully noticed the result; in all cases the effect was similar, and coincided exactly with the descriptions given in your work on medical jurisprudence.

Case IV.—*Death after the head was expelled, and before the shoulders were delivered.* Buffalo, July 6, 1841, eleven A. M., I was called

to attend Mrs. J. H., a large, fleshy, healthy, Irish woman, in labour, for the fourth time. The waters had been escaping for five or six hours. Presentation natural; mouth of the uterus open to the extent of an inch and a half; pains sufficient, but slow. Two P. M.—Mouth of the uterus dilated; pains rapid; head advancing. Three P. M.—Head protruded through the vulva by the natural efforts. After the head was expelled the pains were rather suspended. In a few minutes the face turned to the left thigh of the mother. Felt the jaw move distinctly several times, but no crying. The pains became severe, but the shoulders did not advance. I hooked a finger into the right arm pit, and attempted to draw down the fœtus, but without success.

After several attempts passed the corner of a handkerchief under the right shoulder, (which was lying in the hollow of the sacrum,) and by that completed the delivery three quarters of an hour after the head had been expelled.

Attempted to inflate the lungs with my breath after I had rinsed my mouth with brandy. I think I forced air into the lungs, for when I pressed on the abdomen froth escaped from the nostrils, but did not succeed.

I could not persuade the parents (Catholics) to an examination. I think it weighed at least twelve pounds, but had not the means of weighing it.

In considering this case the following questions present themselves.

1. Could this subject be said to be born alive?

2. Would the husband of this woman be entitled to the right of tenant by curtesy?

3. Would the fact of respiration having occurred, disclosed by dissection, be sufficient evidence to support the claim of the husband to the right of tenant by curtesy?

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*Poisoning by laudanum.*—The following case related by Dr. Buck, in the *Boston Med. and Surg. Jour.* March 31, 1841, deserves notice if for no other reason, than for the novelty of the treatment employed. A young female aged 22, swallowed an ounce of laudanum. The ordinary symptoms soon succeeded. There was a state of almost perfect insensibility, the face livid and swollen, pulse slow, not exceeding 45 in a minute, and the jaws firmly shut. Dr. Buck saw her in about half an hour, and prying the mouth open, put into it 40 grains of ipecac., and as much of sulphate of zinc in half a gill of water. He repeated this dose at intervals of ten or fifteen minutes, five times, using 200 grains of ipecac. and as much sulphate of zinc. It is doubtful, however, whether any was swallowed. In half an hour, as no change had occurred, he injected into the stomach through an elastic catheter, twelve grains of tartar emetic dissolved in half a gill of water. After waiting half an hour, and perceiving no symptoms of an operation, he threw down 24 grains of tartar emetic. This in a short time induced a very feeble effort to vomit, and about half a gill of fluid was thrown up. But the symptoms became more alarming; the pulse was slower, and the face extremely livid, while respiration was nearly extinct. He now threw down sixty grains of sulphate of zinc dissolved in half a pint of water, but without any sensible effect.

"Under these circumstances, seeing that there was no prospect of making her vomit by any ordinary means, I was resolved to make an experiment. I injected a pint of vinegar into the stomach, and immediately after it, a large teaspoon four times heaped full of sal æratus, dissolved in half a pint of warm water. The effect was instantaneous. It broke forth foaming from the mouth in a stream of the full size of that orifice, with such a force as to be projected a yard or more. The quantity thrown up, I judged to be at least a quart, in a state of

complete effervescence. In about fifteen minutes, as there was no further vomiting, I repeated the operation, using but half the quantity of vinegar with the same quantity of sal æratus and water, with the same immediate effect, and then left her for the night, with directions to give her freely strong green tea, if she should recover sufficiently to drink it.

"Next morning, I found her much prostrated, had vomited several times during the night, but was perfectly rational." She gradually recovered. T. R. B.

*Axillary Aneurism—Ligature of the subclavian.—Death on the thirty-first day.* By S. D. Gross, M. D.

The subject of this case was a free negro, ætat. 36, a brick-maker by occupation, of a stout muscular frame, and temperate habits. On examination a circumscribed, pulsating tumour was discovered underneath the pectoral muscle of the right side, extending from the clavicle, which it had thrown considerably upwards, into the axilla, on the one hand, and down towards the cartilage of the fourth rib, on the other. It was of an irregular, conical shape, and about the size of a very large fist, measuring four inches at its base in one direction by three and a half in the other. It was very tense, and inelastic; and the pulsation was so distinct that it could be seen at the distance of some feet from the patient. Pressure produced a sensible effect upon it; and the blood rushed into it with a loud whizzing noise. Owing to the elevation of the clavicle it was impossible to compress the subclavian artery so as to arrest the pulsation in the swelling, or even diminish the flow of blood through it. The whole limb was benumbed, painful, and almost deprived of the power of motion; the swelling however, was slight, and not at all œdematous in its character: the temperature was also good. Severe suffering was likewise experienced in the site of the tumour and in the lower part of the neck. The pectoral muscle was stretched to the greatest extent; and the patient constantly inclined his head towards the affected side, keeping the elbow nearly at a right angle, and supporting it carefully with the opposite hand, to prevent tension of the swelling. The pulse at the wrist was nearly as distinct as in the other limb, but it now and then intermitted. For the last four weeks the pain was almost incessant, and was particularly severe at the chest and shoulder. His appetite was much impaired, and his countenance indicated the deepest distress.

Questioned as to the origin of his disease, he stated that in December 1839, while firing a yager, the butt-end struck against the collar bone, and was followed instantly by numbness of the whole limb, which gradually subsided at the end of an hour. In April following, the arm began to swell from the wrist to the shoulder, attended with slight pain and impaired sensibility. The tumour was first noticed in June, just below the clavicle, was of the volume of a hazelnut and pulsated very faintly. From this period it gradually enlarged. In January 1841, the aneurism increased rapidly, and there was aggravation of all the symptoms.

The patient first consulted Dr. G, February 13th, 1841, and on the 18th of the same month the subclavian was tied above the clavicle. During the operation a small vein, a branch of the subclavian, was divided, and secured with a temporary ligature. All pulsation in the sac, as well as at the wrist ceased upon tightening the ligature. The edges of the wound were brought together by three sutures and adhesive straps, and not half an ounce of blood was lost during the operation. In less than an hour after it, the temperature, which had been considerably depressed, was thoroughly restored, and the pain and numbness had abated.

After the operation the contents of the tumour became speedily solidified and its volume progressively diminished. The ligature came away on the fourteenth day without a drop of blood.

On the 15th of March his pulse was found to be accelerated, and a slight degree of tenderness in the apex of the tumour was observed. The wound at this time was cicatrized, except at two points not exceeding a quarter of an inch in length, and from which there was a very small discharge of healthy matter.

16*th*. The patient was suddenly seized with intense pain in the chest, which was particularly severe at the base of the right lung, and extended up towards the axilla. The respiration throughout the right lung was bronchial, and there was dullness on percussion over the lower ribs; respiration was short, hurried, and laborious; pulse 140; the aneurismal tumour had suddenly disappeared on the 15th at the time of the attack.

17*th*. Slight abatement in the symptoms.

18*th*. The patient experienced a sensation near the superior part of the chest as if a fluid was passing from the pleuritic cavity into that of the aneurismal tumour, and upon auscultation a plashing sound was heard at every inspiration, the noise resembling that produced by shaking water in a closed vessel; respiration still bronchial, though not so hurried and painful, and the dullness on percussion is perceived over a larger extent of surface than previously; respiration is likewise bronchial in the left lung. On the 19th he continued nearly in the same state, and on the 20th died.

*Autopsy*.—Wound completely cicatrized. The subclavian artery terminated abruptly at the outer margin of the scalenus muscle, where the ligature had been applied, its caliber being closed by a mass of solid fibrine, one-third of an inch in length, which adhered firmly to the lining membrane, and thus afforded an effectual barrier to the passage of the blood. Between this and the thyroid axis the vessel was occupied by a dark coagulum, which was unadherent. Beyond the point of ligature the artery had a rough, ragged appearance, and was sufficiently pervious to admit of the ready passage of a small probe into the aneurismal sac. The aneurismal tumour was of about the volume of a moderate sized orange, its walls varied in thickness from half a line to the eighth of an inch, and its interior communicated by an oval aperture, one inch and three quarters in length by an inch and a half in width, with the pleuritic cavity; it was situated between the first and second ribs, and was obviously the result of ulcerative absorption. Both ribs were denuded of their periosteum immediately around the opening, and the serous membrane had a shreddy, ragged aspect. The right thoracic cavity contained nearly three quarts of bloody looking serum, intermixed with flakes of lymph and laminated clots, the latter of which were of a reddish brown colour, and had evidently been lodged originally in the aneurismal sac. The pleura was highly inflamed, and the right lung was greatly reduced in volume, from the compression of the effused fluid. The heart and pericardium were sound, and none of the arteries appeared to have been affected by disease.—*Western Journ. of Med. and Surg.*, June 1841.

Appended to the history of his patient, Professor Gross has presented an interesting summary of some of the cases, twenty-six in number, in which ligature of the subclavian has been performed. Of these twenty-six, seventeen, or nearly two-thirds were cured. The most extensive researches hitherto published on the subject, have shown the mortality attendant upon operations for aneurisms of the great arteries, by Hunter's method, to be one in three, which is the same rate of success as that furnished by the summary of Dr. Gross. The analysis, however, of a larger number of cases of operation on the subclavian, goes to support the view commonly entertained by surgeons, of the greater danger after ligature of this than of the other great arteries. In a table of forty-nine cases which has been published, twenty-three, or nearly one-half, were fatal, and we possess a *resumé* of upwards of fifty histories, in which the operation has been done, and which does not include several of the fatal cases in the above mentioned class, that makes the number of deaths nearly as great. We omit the summary of Dr. Gross, having it in contemplation hereafter to furnish a more full tabular statement of the cases we have collected.—G. W. N.

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*Newspaper publications of Surgical Operations*.—A correspondent of the *New York Medical Gazette*, inquires whether the practice, adopted by some Surgeons of publishing or allowing to be published in the newspapers, accounts of their operations, is not objectionable, and contrary to the spirit of our laws regulating medical ethics?

The affirmative of this question seems to us to be so firmly established, that it has struck us with surprise that it should be, by any one, considered as a doubtful point. We are fully aware that the course of certain members of the profession has not been in accordance with such a view of the subject, but we presumed they have been regarded by the more honourable portion of their brethren as violators of the settled code of medical ethics, and that they themselves had knowingly infringed it, and acted in defiance of its requisitions. Since the point has however been mooted we transfer to our pages the answer of our cotemporary, the propriety of which we entirely endorse, and in confirmation of the correctness of the sentiments expressed, we refer to the resolutions adopted at a meeting of the East of England Association, and which will be found at p. 512 of this Number.

"In reply to the queries of our highly respectable correspondent, we have no hesitation in declaring our opinion, that the practice alluded to *is* 'objectionable and contrary to the rules of medical ethics.' The sentiments of the better class of the profession, have always been decidedly opposed to it, and those who pursue it must not be surprised if they are coldly looked upon by their brethren, and by them and by the public confounded with the mass of advertising charlatans, who have passed the barrier which separates the modest exercise of a scientific calling from the venal practice of the shameless empiric. Publications of this kind are open to suspicion, which no disclaimers or denials will remove, of being obtained for the purpose of notoriety and self-aggrandizement. Neither the public nor the profession will be so simple as to believe, that the editors of political journals would insert puffs of this sort unless in some way prompted to it by the party to be benefited. From suspicions of this kind, the sensitive mind shrinks back with abhorrence. The man of true professional honour, will sedulously strive to keep himself in all such matters, not only free from fault, but, obviously and incontestably, above all suspicion. Such an one will carefully 'avoid the appearance of evil.' And if there are those who, desiring to retain their respectability—yet from the lack of professional delicacy, or, from an uncontrollable thirst for notoriety, have allowed themselves to be seduced into such practices, let them be assured that though *notoriety* may be attained in this way, *fame* never can. The artifice is easily seen through by the profession, and soon will be by the public; and then will the performers of these 'novel operations,' 'extraordinary surgical feats,' &c., find themselves reduced to the level of the more open and shameless, but not more culpable, advertising venders of panaceas, pills, and nostrums.

"The history of many persons who have pursued this course among us, attests the truth of these observations. In this, and every other country, the reign of puffery and self-glorification is short. Those who have risen to the highest rank in our profession—the Rushes, Physicks, Coopers, Brodies of their day—have done so, by steadily and industriously pursuing the open, honourable path of professional competition, suffering no inducement to tempt them to stray for a moment from the strict line of propriety. This practice must be, and we are confident will be, frowned upon by the profession. Upon this ground, all the honourable men in the profession should unite, and strive by every means in their power, to bring about the time when, in the language which we have once before quoted from the London Lancet, '*no greater condemnation can attach itself to a medical man, than to have his name vaunted and his deeds praised, in the ignorant effusions of political journals.*' "

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*Polypus Uteri removed by excision.*—Professor C. R. GILMAN has reported in our cotemporary, the *New York Medical Gazette*, (August 18, 1841,) the following case of polypus uteri, in which he practised excision with entire success:—

"*May* 29, 1841.—I was requested by Dr. M'Comb to see a German female, Mrs. M———, aged 33—married three or four months. Before seeing her, I received the following history of her case:—Mrs. M. enjoyed very good health, and was rather robust till about eight months ago, when the menses began to be very profuse, continuing for six or eight days, and during all that time very

free. During the intervals, however, she had no sanguineous or other discharges. About two weeks after her marriage she was again profusely '*unwell*,' and from that time to the present the hemorrhage has been constant, though at times more profuse than at others. The general health is beginning to suffer seriously, the strength is gone, the appetite diminished, and the symptoms of anemia are gradually being developed. Such was the brief history of the patient; her appearance verified it; the pallor is excessive, the pulse weak but easily excited, the breathing hurried, the muscular strength utterly prostrated. Ergot had been given a few hours before I saw her. The hemorrhage was slight, but she complained much of pain in the back, bearing-down efforts and frequent desire to make water. Bowels were moved freely by castor oil this morning, evacuations natural. *Examination per vaginam.*—The vagina is occupied at its upper part by a firm, dense tumour about the size of a hen's egg: at first I supposed, from the woman's complaints, that it was very sensible to the touch; she screamed when I pressed it from side to side of the vagina. Passing the finger upward along the tumour, it was found to be attached to, or a continuation of, the anterior lip of the os tincæ: the finger could easily be passed half round the tumour behind, and then into the os. The anterior lip was firmer than natural, though scarce so firm as the tumour: the posterior lip was natural, and the soft, spongy, relaxed feel which it presented, and which exactly resembled that of the os during the menstrual flow, contrasted remarkably with the dense cartilaginous feel of the tumour and the anterior lip. Was this a polypus? The symptoms rendered it probable, but the examination was not quite satisfactory. The tumour was not pediculated, and it appeared to be sensible, at least pressure upon it gave pain. More careful examination cleared up the latter and the chief difficulty. I found by cautious trials, that though pressure upon the tumour gave pain, it was only when that pressure communicated motion to it; scratching, or even puncturing the tumour, (for I tried this by means of a pointed probe,) excited no sensation. This decided the diagnosis in favour of polypus, and the immediate removal of the tumour was resolved on. After a full consideration of all the particulars of the case, with the advantage of a consultation with Dr. Delafield, I resolved to remove it by excision. Upon the general merits of this operation, and that by ligature, I shall remark by and by. The particular features of this case, which led me to prefer excision, were, the situation of the tumour, attached to the anterior lip of the os tincæ, and of course fully within reach; the density of its structure rendering it probable that the process of decay would be slow and tedious; and the extreme heat of the weather, during which the constant presence for many days of a putrifying mass in the vagina, would be likely to induce serious symptoms. In addition to all these reasons, the fact that a certain number of cases of puerperal fever had appeared in New York during the last six or eight weeks, was not without its weight. It is well known that where puerperal fever has been epidemic, the operation of removing a polypus has been followed by a peritonitis having all the characteristic symptoms of the puerperal epidemic. These considerations determined me to remove this tumour by the knife, which I accordingly did, in the presence and by the kind assistance of my colleague, Professor Parker.

The bladder and rectum having been well evacuated, Weiss's speculum vaginæ was introduced, and upon expanding the blades the tumour was brought fairly into view. The colour was bright red, and it contrasted in this respect very strikingly with the vagina, which was singularly pale. I grasped the tumour with a pair of hooked forceps and tried to drag it down. I found, however, that here the speculum presented an obstacle, for as I pulled down, the ends of that instrument pushed up, or at least supported the parts. The speculum, too, hindered the free use of the fingers in the vagina; it was therefore withdrawn, and then the tumour was drawn down till the neck, or rather its junction with the anterior lip—for the tumour was not pediculated—was fairly within reach of the finger. Cooper's bistoury, with blunt point and a small portion of cutting edge, was now introduced flat upon the fore-finger, and when the point had fairly passed the base of the tumour, a few strokes sufficed to

divide it. On withdrawing the polypus in the grasp of the forceps, I was prepared for some hemorrhage and placed a napkin over the vulva; to my surprise, on looking at it after the lapse of several minutes, it was not even tinged. Before I left the room there was a very slight stain, but nothing worthy the name of hemorrhage occurred then or since. The discharge ceasing with the removal of the tumour, the recovery was uninterrupted and satisfactory. On examining the tumour, it was found to consist of dense white fibrous matter, presenting upon its very surface some traces of vascularity, but within entirely devoid of anything of the kind."

Dr. Gilman is of opinion that excision is in the majority of cases of this kind preferable to the ligature, which has been generally adopted for the removal of these tumours.

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*Case of Ovarian Dropsy.*—By J. B. Kissam, M. D.—Mrs. D., aged thirty-five years, is the mother of ten children, had enjoyed good health till Feb. 1840, when she discovered an enlargement in the right side of the abdomen, and œdema of the lower limbs; in two months after she ceased to menstruate. Fluctuation being perceptible in the tumour, the use of calomel, squills and digitalis was determined on. Under this treatment there was a decided diminution of size, and a single return of the monthly secretion. In September, however, the abdominal swelling again showed itself, with extensive anasarca of the lower half of the body, and of the abdomen, so great as to make the fluctuation very obscure. Her general health remained unimpaired, and she only complained of the great weight, difficulty of respiration, and an inability to lie down. The remedies before tried, were again resorted to, without benefit, and the increase of the fluid was so rapid, that paracentesis became necessary in January last. The puncture was made at the usual point, midway between the umbilicus and pubis. The depth of the adipose and infiltrated cellular tissues was so great (nearly three inches) that after making the external incision with a scalpel, a large trocar was passed entirely to the guard of the canula, and the latter firmly pressed inwards before the fluid could be made to flow. Instead of passing with the usual facility into the sack, the instrument seemed to meet with the resistance of a firm body, which was probably one of the tumours so commonly connected with the cyst in this disease. The fluid oozed so slowly from the wound, that the canula was withdrawn, and the incision left open, that the discharge might thus take place. On the following day it was ascertained that in the course of a few hours, there had been evacuated forty-eight pints of a fluid, which soon firmly coagulated, and had precisely the appearance of blood; however, upon compressing a handful of it, it left no sanguineous stain; neither did the pulse give evidence of the system having sustained a loss of the vital fluid.

The abdomen, though somewhat softened, was not apparently much lessened in size. It was evident that the fluid was not entirely discharged; some relief was derived from the operation, and she was able to lie down for five or six weeks, after which a rapid re-accumulation took place. Medical treatment was resorted to, but without effect, and in the latter part of June it became necessary to repeat the operation. At this time, the anasarcous swelling of the abdomen and lower limbs was enormous, and fluctuation was discoverable only above the umbilicus. The patient could scarcely rise from her chair without assistance, and suffered much from dyspnœa; the measurement around the largest part of the body was *six feet and nine inches*. Owing to circumstances, my friend Dr. Hoffman advised me to make the incision and puncture *above* the umbilicus; from which a free discharge of transparent fluid was obtained, which soon coagulated. The inconvenience met with in the former operation from the depth of the infiltrated cellular tissue was at this time obviated by a suggestion from Prof. Gilman, viz: that the anasarca should be lessened around the point to be punctured, by pressing and kneading the part with the fingers for some minutes. After the perfect evacuation of the sac, the quantity drawn off proved by measurement to be *seventy-nine pints*.

The wound healed kindly, without any unpleasant symptoms. A new mode

of treatment was now resorted to. She was put on the steady use of hydrarg., prot. iod;, p. scillæ., and p. digital., which after five weeks slightly affected the gums, and acted very freely upon the kidneys. Three months have now elapsed, the patient's general health is very good, the anasarca has entirely disappeared, and she has once menstruated; being the second time in the period of eighteen months. From a recent examination by several medical friends, it is evident there is no return of the disease, both iliac regions being in a natural condition, and the abdomen perfectly flaccid.

From the previous speedy return of the disease, and the period which has elapsed since the last operation, I am led to hope that its re-appearance need not be looked for; and that this may prove one of the few cases which yield to medical and surgical treatment combined.

*Remarks.*—The sanguineous appearance of the fluid first evacuated was new to me and to those friends who saw it. The resemblance of the fluid to blood was so exact that most of those who saw it, did not hesitate to pronounce it blood. Whence was this colour? probably from a small quantity of blood being mingled with the fluid, the blood having flowed from some artery wounded in the operation. The trocar, as I have mentioned, seemed after having penetrated the abdominal wall to pass for some distance through a firm, dense structure. This was probably one of those tumours by which the walls of ovarian cysts are very frequently occupied—in it the blood vessel which supplied the blood, probably existed, and it was the dense fibrous structure of this tumour which prevented the free flow of the fluid on the first operation. That the bloody hue of the fluid was accidental, is proved by the fact that although the fluid was not entirely evacuated on the first operation, yet at the second it was found quite clear, though coagulable as before.—*New York Med. Gaz.*, September 15, 1841.

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*Case of pregnancy attended by a remarkable discharge from the uterus, followed by a safe delivery.* By S. E. Leonard, M. D., of New Albany, Indiana.—About the 1st of September 1840, I was called to visit Mrs. N. in her fifth pregnancy. She supposed herself to be between the fifth and sixth months of utero-gestation; but of this she was entirely uncertain, judging alone from her having quickened about the 1st of August. Her menses observed their regular periodical return until within the last six or eight weeks, as they had done during her last pregnancy, which resulted in the birth of a child at the full period. I found her discharging water from the vagina, which gushed forth copiously, unattended with pain or dilatation of the os tincæ. I also found the neck of the uterus elongated as in the sixth month. I enjoined rest in the horizontal position, and administered an opiate. The discharge ceased in a few hours, and the next day found my patient comfortable.

*September 9th.* After one week's intermission, the water again began to pour from the vagina much more copiously than during the first attack, accompanied with a sense of uneasiness, and bearing down, rather than pain, in the pelvic region. To use her own language she "felt as if the whole contents of her abdomen would come from her." For a few days past she had been subject to periodical returns of fever commencing every afternoon. Bowels torpid. Gave a mercurial cathartic, after the operation of which she had no return of febrile paroxysm. A very visible diminution of the abdominal tumour had taken place, in consequence, no doubt, of the immense discharge of water from the uterus, which in the two attacks must have been several quarts. Continued the opiates after the operation of the purgative, and still enjoined the horizontal posture. The flow of water continued, with occasional intermissions, for about forty-eight hours, at the end of which time a very considerable quantity of sanguineo-purulent matter was discharged.

11*th.* The abdominal tumour almost entirely subsided. Says she feels plainly motions of the fœtus.

12*th.* I learned from her to-day that she increased much more rapidly in size than she had ever done in either of her former pregnancies. In one month from the first appearance of uterine enlargement, she was as large, or larger, than ever before at the time of her accouchement.

28*th.* Was again called in consequence of a return of the discharge of water, which had abated for about two weeks, and learned, that for the last twelve hours water had been flowing from the vagina in almost a continuous stream. Patient informed me that since it last ceased, her size had remained almost stationary, until about three days since, when her size began to increase most rapidly, and, in her own language again, "she became a complete burden to herself." The discharge commenced with a sudden gush. She still feels plainly fœtal movements. Upon making an examination can readily trace circumscribed enlargement of the uterus. Os tincæ not at all dilated; distinctly felt the water flowing from it. No uterine pain. This last discharge produced great prostration and nervous irritability. She had taken rhubarb and soda in the morning, which operated slightly. Prescribed opium, 1 gr. every four hours.

The discharge continued longer and more profusely than in either of the preceding attacks, but again ceased entirely.

*October* 2*d.* The respite was of short duration, as she was again attacked with the flowing of water, which continued for several hours; the latter part of which time it was highly coloured with blood. This, though quite profuse, had but little effect in reducing the size of the abdomen.

4*th.* The water to-day is of a deep yellow colour, and she thinks much more copious than ever before. I am well satisfied that she passed more than a quart of water per diem, perhaps double the quantity, for four or five days successively; on the fourth it was intermixed with lumps of matter of a caseous appearance as large as a filbert. Urinary secretion almost entirely suspended, not voiding it more than once in twenty-four hours, and not exceeding two or three ounces at a time. General health better. Water from vagina still of a deep yellow colour.

10*th.* Found my patient in great spirits, sitting in an arm-chair contrary to directions, and quite comfortable. The evacuation entirely ceased for a few hours this morning, during which time she suffered great oppression. On the renewal of the discharge she became again quite easy, and so remained during the day. Urinary discharge continues very scanty.

12*th.* Summoned hastily, and found her much alarmed, discharging blood mixed with water most profusely from the vagina; sometimes clots of blood alone. I immediately prescribed sacch. saturini and opium with cold applications; enjoined the horizontal position and absolute quietude. Upon examination I found the neck of the uterus as in the seventh month of pregnancy, and satisfied myself that there was neither entire nor partial implantation of the placenta over the mouth of the uterus; as well as that the discharge was from within the chorion, and not as I sometimes suspected from immense hydatids exterior to the membranes. The membranes being ruptured, I was able distinctly to feel one of the lower extremities of a fœtus.

13*th.* Discharge of blood continues, and although very copious, has but little effect in reducing vascular action. Stomach extremely irritable; vomiting almost incessant; complains much of acidity. Gave alkalies freely.

14*th.* Vomiting more and more distressing; great præcordial uneasiness. No abatement, but rather an increase of the discharge from the uterus, of blood and water. About five o'clock, P. M., called in great haste, and found, much to my relief, that labour had fairly commenced—it being the first time during the whole period of discharge that the uterus showed any disposition to rid itself of its contents. Found the os tincæ dilating; nates of a fœtus presenting, which was delivered, weighing about three pounds. Uterine contractions soon returned, and a second fœtus was delivered, a vertex presentation, of about the same size as the first. Both lived several hours.

After labour commenced there was no discharge of either blood or water. The twins were contained in one common involucrum, and consequently there was but one placenta. Patient continued to vomit incessantly until the birth of the first child, when it ceased entirely, and she became comfortable immediately after delivery. About ten days after delivery, she voided a large quantity of purulent matter, which continued occasionally for two or three days.

In three weeks after her confinement the patient left this place for the South in good health and spirits.—*Western Journ. of Med. and Surg.*, February 1841.

*Ununited fracture of the tibia successfully treated with the seton.* By Wm. Donne, of Louisville.—The subject of this case was an intemperate man, 23 years of age, admitted into the Louisville Marine Hospital, June 14th, 1840, with a transverse fracture of the tibia about three inches below femoro-tibial articulation. There was no displacement of the fragments; very little tumefaction of the soft parts, and the fibula was uninjured. A roller was firmly applied, from the toes upwards, and kept moistened; and after the tumefaction had subsided, two pasteboard splints previously soaked in warm water were moulded to the limb and maintained by a roller. This treatment was continued for six weeks, when the splints were removed and it was found that no union had taken place. All dressings were then discontinued, and the patient was permitted to take exercise on crutches through the ward, for the space of three weeks, without any improvement. Friction and rubbing the fragments were then resorted to with equal want of success. On the 21st of August, nearly ten weeks after the accident, Dr. Donne introduced a seton between the fragments. Five days elapsed before there was any appearance of inflammation, it then gradually increased to the 7th of September, when it was attended with some febrile action, furred tongue, &c. and the seton was removed. On the 17th of September, splints and a roller were applied, and on the 8th of October the limb seemed firm, and a few weeks afterwards he was discharged cured.—*Western Journ. Med. and Surg.* August, 1841.

*Ligature of External Iliac Artery.*—This operation was performed on the 24th of July last by Dr. Edward Peace, on a patient in the Pennsylvania Hospital affected with inguinal aneurism. The ligature came away on the 24th day, and the patient up to the present time has done remarkably well.

*Prof. Mott's Orthopedic Institution.*—We invite especial attention to the announcement of the opening of this establishment. The extensive reputation, experience, and eminent skill of the distinguished surgeon at its head, and the opportunities he has had of examining the best institutions of a similar character abroad, and of witnessing the effects of the methods of treatment therein employed, concur to the assurance that patients placed under his care will receive all the relief which modern science and skill can afford.

*Albany Medical College.*—Our distinguished Collaborator, Dr. T. R. Beck, has been appointed Professor of Materia Medica in this college. This acquisition cannot fail to add much to the strength and usefulness of the School.

*Vermont Academy of Medicine.*—There were 54 students in attendance on the last course in this Institution. The present Faculty are as follows: Horace Green, M. D., Theory and Practice of Medicine; James McClintock, M. D., General, Special and Surgical Anatomy and Medical Jurisprudence; James Hadley, M. D., Chemistry and Pharmacy; Frank H. Hamilton, M. D., Principles and Practice of Surgery; Joseph Perkins, M. D., Therapeutics, Materia Medica, and Obstetrics; Chauncey L. Mitchell, M. D., Physiology, General Pathology and Operative Obstetrics; W. C. Wallace, M. D., Ophthalmic Surgery; Egbert Jamieson, M. D., Demonstrator of Anatomy. The next term will commence on the second Tuesday in March, and continue fourteen weeks.

*Louisville Medical Institute.*—The number of graduates the past session was 48. The next session will commence on the first Monday in November, and close the last of February.

*Wills Hospital for the Blind and Lame.*—This Institution is open for the purposes of clinical instruction; and from its organization is susceptible of being

made an excellent school for Surgery. A course of clinical instruction on Diseases of the Eye will be commenced early in October, and continued until the last of March. Particulars of the course, &c. may be obtained on application at the Hospital.

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*Medical College of Ohio.*—Dr. John P. Harrison has been appointed Prof. of Materia Medica in this Institution. Dr. H. formerly filled the same chair in Cincinnati College.

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*Primer of Physiology and Animal Mechanism.*—Messrs. Turner and Fisher have recently published a very useful little school book entitled "First Book of Natural History, prepared for the use of schools and colleges, by W. S. W. Ruschenberger, M. D., Surgeon U. S. Navy, Member of the Acad. Nat. Sc. &c. &c. From the text of Milne Edwards and Achille Comte: Professors of Nat. Hist. in the colleges of Henri IV, and Charlemagne. With Plates. It seems to us to be well suited for the object for which it is designed, and it will doubtless be introduced into many of our elementary schools.

—

*Editorial Injustice.*—Injustice to ourselves we have always submitted to in silence, being unwilling to obtrude our private concerns upon our readers, or to occupy our pages with matter of little general interest; and we have now become so accustomed to the robbery of our literary labours—to see our articles transferred to other Journals without any acknowledgment—that we really view the offence with the most entire philosophy. Injustice to our friends we will not, however, allow to pass without notice, and the Editor of the *Gazette Médicale de Paris*, having been guilty of such an act, *to it* we must call attention. He has published in the No. of his Gazette for May 1st, 1841, p. 283, as an *original* article, a translation of a case of "Recto-Vaginal fistula, cured, by J. Rhea Barton, M.D., which first appeared in the No. of this Journal for August 1840, p. 305, *entirely omitting the name of the operator and narrator of the case*, and introducing the name of another distinguished surgeon as having *communicated* it, thereby leading some of his readers to suppose that the latter was the operator. We subjoin in parallel columns, 1st, the original title of the article; 2d, the translation of it in the French Journal, and 3d, the retranslation from the latter again into English, as given in the *Provincial Medical and Surgical Journal*, May 8, 1841.

| 1. | 2. | 3. |
|---|---|---|
| *A Recto-Vaginal Fistula cured.*—By J. Rhea Barton, M. D. See Amer. Journ. Med. Sci. Aug. 1840. | *Observation de Fistule Recto-Vesicale;* communiquée par M. le docteur Valentine Mott See Gaz. Med. de Paris 1st May, 1840. | *Case of Recto-Vaginal Fistula.*—By Dr. Valentine Mott See Prov. Med. and Surg. Journ. May 8, 1841. |

This transformation forcibly reminds one of the well-known story of the three black crows.

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*Works in Press and in Preparation.*—Messrs. Lea and Blanchard have in press the following works.

The Principles and Practice of Obstetric Medicine and Surgery, in reference to the process of Parturition. Illustrated with 50 plates and nearly 150 figures. By Francis H. Ramsbotham, M. D., lecturer on Obstetric Medicine at the London Hospital, &c., &c. The plates, many of which we have seen, are executed in the best manner; and they will greatly aid the student in the acquisition of a knowledge of the mechanism of parturition and of the means by which this process is to be facilitated, in difficult cases; every part of the process, the application of instruments &c., being shown by admirable drawings.

A sixth edition of Ellis's Medical Formulary, entirely revised and with numerous additions, by Samuel George Morton, M.D., &c. &c.

The Principles and Practice of Medicine, by Robley Dunglison, M.D. &c. &c.

A new Systematic work on Chemistry, more particularly adapted to the use of Medical Students.

Practical Geology and Mineralogy, with instructions for the qualitative analysis of Minerals. By Joshua Trimmer, F. G. S. Illustrated with more than 200 wood cuts.

We are informed that Dr. Griffith's Manual of Medical Jurisprudence is so nearly written that its publication may be looked for during next year.

We also learn with much pleasure that Professor Chapman is preparing for early publication a work on the Fevers of the United States, and that this will be immediately followed by another work by the same eminent practitioner.

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*Obituary.*—Died of a protracted illness, May 22, 1841, Doctor JOHN WAGNER, of Charleston South Carolina.

Few have passed from existence, whose lives have been more checkered with vicissitudes and trials. At an early age, he was attacked with rheumatism, to which he was subjected the remainder of his life, often prostrating his plans, embittering his existence, and rendering necessary a recourse to means, to procure present ease, at the expense of the general constitution. Oppressed in bodily health, his mind reacted on every occasion, and, in the intervals of pain, was directed, with considerable energy, to his intellectual pursuits. Unsatisfied with the ordinary education at that time afforded in our city, he sought the opportunities furnished from older institutions. To Yale College he was sent, where, after passing the prescribed time in the diligent and zealous prosecution of his studies, he received the honours of that institution, the degree of A. B. being conferred on him in 1812, and that of A. M. in 1815.

With a mind thus prepared, he entered upon the study of Medicine, under the direction of Dr. Post, of New York. Under the superintendence of that gentleman, he remained three years, devoting himself to the different branches of his profession, with the most persevering industry, and acquiring a knowledge of the practice of Physic and Surgery rarely equalled in so short a time.

The health of Dr. Post declining, he sought relief in a visit to Europe. During this time, the subject of our notice, dissatisfied with his opportunities, resolved to visit the schools of London and Paris.

On his arrival in Liverpool, he accidentally met his preceptor, who, with surprise, inquired into the object of his visit. I was doing nothing in New York, was his reply, and resolved to come here. He was immediately furnished with a letter to Mr. Astley P. Cooper—and, by a fortunate occurrence, which superior devotion to his profession rendered available to him, became a dresser in Guy's Hospital, undertaking the laborious duty of dressing, noting, and recording the diseases of fifty or sixty patients. Here he remained twelve months, performing the above duties, and perfecting himself in the practice of Surgery and Anatomy, and making preparations as a dissecting pupil. At the same time, he was in attendance upon the Lectures on Surgery of Mr. Astley P. Cooper, delivered in the years 1815, '16 and '17.

Of his extraordinary diligence, the voluminous MSS, carefully compiled, and neatly executed, bear unequivocal evidence. They will always be referred to by his friends with pride and pleasure, furnishing the strongest testimonials of his devotedness to the cause in which he was engaged. Two large folio volumes, on Surgery and Anatomy, closely written, remain asrecords—besides his notes on various diseases, and a register of the most important cases.

About to leave London, he was furnished, by his preceptor, with the following gratifying testimonial—"I cannot suffer Mr. John Wagner to quit England, without expressing my admiration of the zeal which he has shown in the pursuit of his profession, and the ability which he has manifested in the acquirement of a complete knowledge of it. America, which is making a rapid progress in professional science, will be proud to rank among its citizens, a man so clear in his intellect, highly informed in his profession, and so kind and gentle in his manners."

To this flattering expression of regard was added the desire that he should remain in London, to prosecute his fortunes in that great metropolis. As a further evidence, he was presented with the bust of John Hunter, an additional incentive to diligence, and the man he delighted most to honour.

He returned to America, married a lady of New York, and settled himself a practitioner in that city. After a few years residence, he removed to Charleston, S. C. His well earned reputation had preceded him, and his reception was such as to furnish the most sanguine expectations of his future success. Without the apprenticeship to practice, the fate of so many, he was consulted in the most important cases, and admitted into the first families. His decision, and perfect acquaintance with his profession, the kindness of his disposition, at once acquired for him the most implicit confidence, and his advancement was proportionately rapid.

With him a new era in Surgery, in our city, may be considered as having commenced, and opportunities were soon afforded for the exercise of his skill in his favourite pursuit. Many of his brethren well remember the exhibition of surgical ability in a case of Osteo Sarcoma of the lower jaw, in which nearly half of that bone was removed. It was the third operation of the kind which had been performed in the United States, and two of them by the Surgeons of Charleston—all present were pleased with his great composure and dexterity, the rapidity of his movements, the perfect use of either hand, his kindness to his patient, and the masterly manner in which the whole was performed. Other operations of importance were undertaken—the amputation of the arm at the shoulder joint, the tying up of the artery in popliteal aneurism, &c., with many others in which his perfect skill in the use of the knife and an intimate acquaintance with the structure of the parts was manifested. In many respects, he was not unlike his distinguished prototype, Sir Astley P. Cooper, of whom it was said, that his operations were like the graceful efforts of an artist taking a drawing. His practice increased rapidly, and he was soon among the established physicians of the city. In the winter of 1826, he commenced a course of Dissections and Demonstrations in Practical Anatomy, with the art of making and preserving anatomical preparations. The surgical anatomy of all parts concerned in the important operations, were also dissected and demonstrated. His success in this undertaking was such as met his reasonable expectations, and the impressions left upon the minds of his pupils, of his great accuracy, and skill, in anatomical demonstrations, such as few have equalled. In the art of making and preserving anatomical preparations, he was rarely excelled—the specimens which remain, exhibit the greatest neatness, display in the most striking manner the particular lesion of the part, and furnish models for instruction and imitation.

In 1829 he was appointed Professor of Pathological and Surgical Anatomy, in the Medical College of South Carolina. A professorship embracing the above topics was new in this country, and originated with the Medical Faculty of this city. Its limits were comprehensive. Treating upon topics which could not be considered under any of the established college courses, the successful discharge of this duty required much research and practical information. The Syllabus which he published, exhibits his enlarged views, and his resources drawn from his valuable MSS., and that still more valuable storehouse which he possessed—his experience.

In 1832, after a closely contested election, he was appointed to the Chair of Surgery, vacant by the death of Dr. Ramsay. He continued connected with the institution until his death, performing his duties often under great bodily suffering, and mind embarassed with cares. H. R. F.

## UNIVERSITY OF PENNSYLVANIA.

### MEDICAL DEPARTMENT.—SESSION 1841-42.

The Lectures will commence on Monday, the first of November, and be continued, under the following arrangement, to the middle of March ensuing:—

| | |
|---|---|
| Practice and Theory of Medicine, - - | by NATHANIEL CHAPMAN, M. D. |
| Chemistry, - - - - - - - | " ROBERT HARE, M. D. |
| Surgery, - - - - - - - | " WILLIAM GIBSON, M. D. |
| Anatomy, - - - - - - - | " WILLIAM E. HORNER, M. D. |
| Institutes of Medicine, - - - - | " SAMUEL JACKSON, M. D. |
| Materia Medica and Pharmacy, - - | " GEORGE B. WOOD, M. D. |
| Obstetrics and the Diseases of Women and Children, - - - - - - | " HUGH L. HODGE, M. D. |
| Clinical Lectures on Medicine, - - | " W. W. GERHARD, M. D., and |
| " on Surgery, - - - | " Drs. GIBSON and HORNER, |

will be delivered at the Philadelphia Hospital (Blockley.) Students are also admitted to the Clinical Instruction at the Pennsylvania Hospital in the city.

W. E. HORNER,
*Dean of the Medical Faculty*, 263 *Chestnut Street, Philadelphia.*

AUGUST 20, 1841.

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## JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

### SESSION OF 1841-42.

The regular Lectures will commence on the first Monday of November.

ROBLEY DUNGLISON, M. D., *Professor of Institutes of Medicine and Medical Jurisprudence.*

ROBERT M. HUSTON, M. D., *Professor of Materia Medica and General Therapeutics.*

JOSEPH PANCOAST, M. D., *Professor of General, Descriptive and Surgical Anatomy.*

J. K. MITCHELL, M. D., *Professor of Practice of Medicine.*

THOMAS D. MUTTER, M. D., *Professor of Institutes and Practice of Surgery.*

CHARLES D. MEIGS, M. D., *Professor of Obstetrics and Diseases of Women and Children.*

FRANKLIN BACHE, M. D., *Professor of Chemistry.*

On and after the first of October, the dissecting-room will be open, and the Professor of Anatomy will give his personal attendance thereto. Clinical instruction will likewise be given at the Dispensary of the College.

During the course, ample opportunities will be afforded for clinical instruction; Professors Dunglison, Huston, and Pancoast being medical officers of the Philadelphia Hospital; Professor Meigs of the Pennsylvania Hospital; and Professor Mütter, Surgeon to the Philadelphia Dispensary.

Professor Dunglison will lecture regularly on Clinical Medicine, and Professor Pancoast on Clinical Surgery, at the Philadelphia Hospital throughout the course.

ROBERT M. HUSTON, M. D., *Dean of the Faculty.*

*** Boarding and other personal expenses of Students are as cheap in Philadelphia, as in any other city of the Union.

## TRANSYLVANIA UNIVERSITY.

### MEDICAL DEPARTMENT.

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The Lectures in this Institution commence, as usual, on the first Monday in November, and close on the last day of February.

THE FACULTY CONSISTS OF

BENJ. W. DUDLEY, M. D., *Professor of Anatomy and Surgery.*
JAMES M. BUSH, M. D., *Adjunct Professor of Anatomy and Surgery.*
JAMES C. CROSS, M. D., *Professor of Institutes and Medical Jurisprudence.*
ELISHA BARTLETT, M. D., *Professor of Theory and Practice.*
W. H. RICHARDSON, M. D., *Professor of Obstetrics and Diseases of Women and Children.*
THOS. D. MITCHELL, M. D., *Professor of Materia Medica and Therapeutics.*
ROBERT PETER, M. D., *Professor of Chemistry and Pharmacy.*

The cost of a full course of Lectures is $105, payable in advance, in notes of good and solvent banks of the states whence the pupils come. The Matriculation and Library ticket is $5, and the Dissecting ticket $10. Graduation fee $20. Boarding and lodging (fuel and lights included) from $2 50 to $3 per week.

By order,
THOMAS D. MITCHELL, M. D., *Dean of the Faculty.*

*Lexington, Ky., June* 1, 1841.

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## MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

The regular course of lectures in this institution, will be resumed on the second Monday in November.

| | |
|---|---|
| Anatomy, by | J. E. HOLBROOK, M. D. |
| Surgery, | E. GEDDINGS, M. D. |
| Institutes and Practice of Medicine, | S. H. DICKSON, M. D. |
| Physiology, | JAMES MOULTRIE, M. D. |
| Materia Medica, | HENRY R. FROST, M. D. |
| Obstetrics and Diseases of Women and Children, | THOS. G. PRIOLEAU, M. D. |
| Chemistry, | C. U. SHEPHERD, M. D. |

The School for Practical Anatomy has been reorganized, and will be under the charge of Prof. HOLBROOK, assisted by Drs. DESAUSSURE, CHAZAL, SINKLER, GAILLARD and RAVENEL.

Clinical Instruction at the College Hospital, Marine Hospital and Alms House.

July 30, 1841. C. M. SHEPHERD, *Dean.*

## ORTHOPŒDIC INSTITUTION AT BLOOMINGDALE,

*For the Treatment of Curvatures of the Spine, Club-Feet, &c. Under the direction of* VALENTINE MOTT, M. D., *Professor of the Operations and Principles of Surgery, with Surgical and Pathological Anatomy, in the University of the City of New York, &c.*

www.nbuol.com.cn

TO THE MEDICAL GENTLEMEN OF THE UNITED STATES.—I am desirous of communicating to the Members of the Medical Profession of this country, my design of establishing an Institution on an extensive scale, for the same purposes, and upon the same plan, as that now in successful operation, under the direction of M. Jules Guérin, the distinguished Surgeon at Paris, and some others of a similar nature on the Continent of Europe.

It is well known to medical men, that within the last few years important improvements have been made in relation to the treatment of the various deformities with which the human body may be affected, and that a class of diseases which until lately had been almost entirely abandoned as irremediable, has now become of such interest and consequence, as to be ranked a distinct branch of the healing art, under the appellation of Orthopœdic Surgery.

Although the method of dividing muscles for certain distortions, had been adopted to a limited extent, nearly two centuries ago, it is only recently that the principle has been applied to distortions in general, and that a system of practice has been gradually matured, which experience has now sanctioned as one of the most useful and brilliant achievements of modern surgery. The treatment of Torticollis, or Wry-Neck, which may be considered the earliest attempt in Myotomy, has been ultimately followed by the operations for the various forms of Talipes, or Club-foot, Curvature of the Spine, and other deformities of the body, Strabismus and Stammering; and indeed there is scarcely any distortion, resulting from morbid muscular action, whose remedy may not properly lie within the powers of this new science.

During my residence and travels in the Old World, for the last six years, I have paid particular attention to the treatment of the deformities alluded to, and from my intimate acquaintance with the most distinguished of those gentlemen, who have devoted themselves wholly to this department of Surgery, and my own investigations on the subject, I am perfectly furnished with all the experience which has been gained in relation to it, and have also supplied myself on the spot with the numerous and complex apparatus hitherto introduced.

Finding, upon my return from Europe, that an Institution conducted upon scientific principles might advantageously be founded in this city, and that patients labouring under these distressing maladies might be much benefited, by a systematic course of treatment, I have thought it due from me to my country, and to the profession, to lay before them the facilities which I have in my power to furnish, and to take some steps towards enabling persons thus afflicted, to avail themselves of those opportunities of relief, which an Orthopœdic Institution, like that of Guèrin at Paris, would certainly afford. In accordance with these views, I have engaged a suitable house for the present reception of this class of patients, and have made arrangements, which will be completed early in the Spring, for a permanent establishment, to be located at Bloomingdale, about six miles out of town, on the banks of the Hudson River, where extensive grounds, and a gymnasium for the appropriate exercises, will be attached to the mansion.

VALENTINE MOTT.

☞ Any person wishing farther information, may apply personally, or by letter, addressed to me, 152 Bleecker-street, Depau Place, New York City. V. M.

*New York, July 20th*, 1841.

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# INDEX.


A.

Abscesses, metastatic, mechanism of, 481.
Absorption, purulent, mechanism of, 481.
Acephalocysts in the brain, 175.
Adams' operation for cure of partial amaurosis, 218.
Addison on existence of fibrine in the shape of globules in the blood, 174.
Adult age, physical and moral qualities observed in, evinced at birth, 174.
Air, secretion of, by skin, 460.
Aiken, retroversion of unimpregnated uterus, 496.
Allen on connection of mental philosophy with medicine, 172.
Allnatt and Wallingford's case of poisoning, 505.
Amaurosis following extraction of a tooth, 491.
Amaurosis cured by division of recti muscles, 218.
Amaurosis, influence of suborbital wounds in production of, 219.
Amenorrhœa, six pregnancies during, 225.
Ammonia, poisoning by, vapour of, 237.
Amputations, statistics of, 507, 508.
Andral and Gavaret on blood in disease, 173.
Aneurism, axillary, 111.
———, external iliac, 475.
———, femoral, mistaken for phlegmon, 476.
———, left primitive carotid, 478.
Annan's report of cases treated in Baltimore Almshouse, 99.
Antimony, Triumphal Chariot of, 136.
Anus, fissure of, 202, 249.
——, imperforate, 458.
Apoplexy, congestive, from drinking cold water, 343.
Army Meteorological Register, 447.
Arnott's Physics, 451.
Arsenic and antimony, testing for by Hume's process, 506.
Arsenic, quantity required to destroy life, 503.
———, galvanic test for, 505.
———, death from, 513.
———, hydrated peroxide of iron as an antidote to, 90.
———, detection of, 238.
———, methods of detecting, 493.
Auburn state prison, 252.
Axillary aneurism, 111, 517.

B.

Barbour on congestive fever, 56.
Barth, fibres in walls of gall-bladder, 173.
Barton's operation for vesico-vaginal fistula, 527.
Basil Valentine's Triumphal Chariot of Antimony, 136.
Beck on oxide of iron as an antidote to arsenic, 90.
Becquerel on cirrhosis of the liver, 181.
Begin, partial injury of one of the halves of the spinal marrow, 197.
Bennett's case of dysphagia, 243.
Benoist, antidote to salts of copper, 506.
Bigel's manual of hydropathy, 168.
Births, deaths, and marriages in England, 155.
Bischoff and Jolly on elective currents in nerves, 458.
Briquet on arteries of uterus, 489.
Blanchet, physical and moral qualities of adult age are evinced at birth, 174.
Blood, analysis of, in its morbid condition, 508.
Blood, varying proportion of some of the principles in disease, 173.
———, fibrine in the shape of globules, 174.
Bloomingdale Asylum, 251.
Bonnet's operation for myopia, 217.
———— stammering, 210, 488.
———, poisoning with laburnum seeds, 234.
Bowels, symptoms of rupture, 232.
Braid's operation for stammering, 214.
Brain, extravasation of blood in one hemisphere of, without symptoms indicative of it, 499.
—— acephalocysts in, 175.
———, diseases of, dependent on diseases of heart, 471.
Braithwaite's Retrospect, 453.
Brett on the principal surgical diseases of India, 445.
Brodribb, physiology of iris, 219.
Brucine, in what it consists, 232.
Buchanan's case of triplets, 250.
Buck, excision of elbow joint, 249.
———, poisoning with laudanum, 516.
Burton, effect of lead on the gums, 232.

C.

Calculus, urinary, spontaneous softening of in bladder, 481.
Cancer, transmissibility of, 466.
Caoutchouc, threads of, for sutures, 490.

Carogher, periodical medical literature, 511.
Carotid artery, ligature of, 200.
Casenave, tinea capitis, 460.
Catamenial fluid, accumulation of, 175.
Caustic, method of preparing fine points of, 460.
Canterization in epilepsy, 197.
Cerebellum, tubercle in, 184.
Charleston, statistics, 245.
Chest, wound of, 117.
Cicatrices, Malle on, 496.
Cirrhosis of the liver, 181.
Citrated aromatic wine of iron, 461.
Congestive fever, 56.
Conium and iodine, inhalations in phthisis, 468.
——— remarks on, 469.
Convulsions, peculiar form of infantile, 187.
Copper, poisoning with salts of, 502.
———, antidote to salts of, 506.
Cord, umbilical, knots on, 109.
Corrosive sublimate, poisoning with, 515.
Cow-pox and small-pox, identity of, 467.
Croup, tracheotomy in, 199.
Cruveilhier, ectopia cordis, motions and sounds of the heart, 455.

D.

Davis' cure of hare-lip, 371.
Death after expulsion of head, and before delivery of shoulders, 515.
Death, sudden, 176.
Deguise, aneurism of external iliac, 475.
Delmond on treatment of milk teeth, 221.
Dewees, death of, 256.
Dipsobiostatics, sketches of, 161.
Donne, ununited fracture cured by seton, 524.
D'Outrepont's case of tumour in pelvis, 226.
Dropsy, ovarian, 521.
Dubourg, operation for spina bifida, 485.
Dubreuilh's case of absence of rectum. 458.
Dieffenbach's operation for stammering, 210.
Dunglison's physiology, 451.
Dupre on yellow fever at Key West, 380.
Dysphagia, from scrofulous degeneration of œsophagus, 243.

E.

Earle's account of the Royal College of Surgeons in London, 113.
Ectopia cordis, 455.
Editorial injustice, 525.
Elbow joint, resection of, 201, 249.
Electric currents in nerves, 458.
Ergot, origin of, 460.
Erysipelas, cases of in New York Hospital, 328.
———, sulphate of iron for, 481.
Epilepsy, treatment of by cauterization, 197.
Eyelashes, inverted, eradication of, 492.
Eye, action of oblique muscles of, 220.
Eye, fascia connected with muscles of, 493.
—, congenital tumour of, 88.
Eyelids, congenital hypertrophy of, 244.
Excision of elbow-joint, 249.

F.

Fallopian tube, rupture of, from accumulation of catamenial fluid, 175.
Feigned diseases, 500.
Fibrine in the shape of globules in the blood, 174.
Fievée on canterization in epilepsy, 197.
Figuier on detection of arsenic, 233.
Fire-arms, wounds from, 505.
Fissure of anus, 202.
Flechner's case of pregnancy during amenorrhœa, 225.
Flint on intermittent fever, 277.
Flooding, new method of arresting, 495.
Fœtus, diseases of, 387.
Foreign bodies in joints, removal of, 198.
Forry on climate of the United States, and its relation with diseases of malarial origin, 13.
——— endemic influences of the United States, 293.
Fowler, extravasation of blood in one hemisphere of brain, 499.
Fracture, ununited, cured by a seton, 489, 524.
———, irregularly united, cured by excision of callus, 491.
Fuss on Brucine, 232.

G.

Gall-bladder, fibres in walls of, 173.
Galvanic test for arsenic, 505.
Gangrene of the lungs, 107.
——— thigh, 342.
Gaudriot on chloride of zinc in gonorrhœa, 199.
Gely's case of obliteration of inferior vena cava, 178.
Generation, corroding ulcer of internal organs of, 53.
Gestation, supposed protracted case of, 235.
Gilman, cases in obstetric pathology, 47.
———, polypus uteri, 519.
Glasgow, bill of mortality of, 259.
Gonorrhœa; chloride of zinc in, 199.
Gore on citrated aromatic wine of iron, 461.
Gouty concretions, 196.
Goyrand's removal of foreign bodies in joints, 198.
Gross, axillary aneurism, 517.
Guerin's operation for myopia, 216.
——— subcutaneous operation for hernia, 486.
Gun-barrel browning, poisoning with, 505.
Guyon, statistics of amputation, 507.

H.

Hare-lip, cure of, 371.
Hancock, rupture of heart from external violence, 506.
Hanging, post-mortem appearances after, 235.
Headache, Raspail's sedative lotion for, 196.
Head, injuries of, 66, 341, 373.
Heart, cases of disease of, 99, 101.
———, wound of, 201.

Heart, ectopia, motions and sounds of, 455.
——, diseases of brain dependent on, 471.
——, rupture of from external violence, 506.
Heeking, hemorrhage after delivery, 425.
Hemorrhoidal tumours, reduction of, 201.
Hemorrhage, uterine, compression of aorta as a means of arresting, 227.
——— internal, diacetate of lead in, 465.
Hernia, subcutaneous operation for, 486.
Hodgkin, action of sulphuric acid on stomach, 234.
Hoeffer on salts of platina, 234.
Hunter, eradication of everted eye-lashes, 492.
———, temporary aneurism following extraction of tooth, 492.
——— method of preparing fine points of caustic, 461.
Hydrophobia, influence of light on spasms of, 467.
Hydrosudopathy, 168.

I.

Iliac, primitive, ligature of, 475.
India, surgical diseases of, 445.
Infants, new-born, pulse of, 457.
Inhalations of iodine and conium in phthisis, 468.
Insane, pneumonia in the, 466.
Intermittent fever, Flint on, 277.
Iris, physiology of, 219.
Iron, hydrated per-oxide of as antidote to arsenic, 90.
——, sulphate of, in erysipelas, 481.
——, citrated aromatic wine of, 461.

J.

Jackson, poisoning with binoxalate of potash, 236.
Jobert's case of ununited fracture cured by seton, 489.
Jobert's experiments on ligature of common carotid artery, 200.
——— ligature of primitive carotid, 477.
Joints, removal of foreign bodies from, 198.
Judd on conium, 469.

K.

Kellie, post mortem appearances in person hung, 235.
Kentucky convention of physicians, 255.
Kuerschner on functions of anterior and posterior columns of spinal marrow, 459.
Kissam, ovarian dropsy, 521.

L.

Labour, premature, best means of inducing, 226.
Laburnum seeds, poisoning with, 234.
Lallemand, ligature of primitive carotid, 479.
Langenbeck on the transmissibility of cancers, 466.
Laudanum, poisoning with, 516.
Laryngitis, 103.
Larynx, spasmodic affections of, cured by veratria, 464.
Law on diseases of brain dependent on diseases of the heart, 471.
Lead, diacetate of in internal hemorrhage, 466.
Lefortier, poisoning with salts of copper, 502.
Leigh's method of using iodine in phthisis pulmonalis, 461.
Leonard, remarkable discharge from uterus, 522.
Lewis, letter from Paris, 240.
Light, influence of, on spasms of hydrophobia, 467.
Lip, congenital hypertrophy of mucous membrane of upper, 244.
Lippich's dipsobiostatics, 161.
Liver, cirrhosis of, 181.
Logan, statistical inquiries into the influence of quackery on the mortality of Charleston, 245.
Long, tubercle in the cerebellum, 184.
Louis's researches on typhoid fever, 150.
——— new fascia of the eye, 493.
Lucas's operation for stammering, 218.
Lunatic Asylum at Worcester, report, 452.
Lungs, abscesses in, 340.

M.

Macartney's apparatus for applying water, 499.
Malarial diseases, Forry on, 13.
Malle on cicatrices, 496.
———, wound of the heart, 201.
———, wounds from fire-arms, 505.
Mandl, analysis of blood in its morbid condition, 508.
Markoe's Report of cases in New York Hospital, 328.
Marsh, testing for arsenic and antimony by Hume's process, 506.
Marshall Hall on reduction of hemorrhoids, 201.
Medical Schools of Berlin and Vienna, 241.
Meisner, best means of inducing premature labour, 226.
Meniere on revaccination, 179.
Meteorological register, 447.
Michea, acephalocysts in the brain, 175.
Midavaine on sulphur ointment in small-pox, 196.
Midwifery institution, Vienna, statistics, 240.
Monod, diffuse aneurism of femoral artery mistaken for phlegmon, 476.
Mott's orthopœdic institution, 530.
Mount Pleasant state prison, 251.
Munk's case of rupture of fallopian tube, 175.
Mutter's cases of cleft palate, 74.
Myopia cured by operation, 216.

N.

Necrology, 242, 256.

Negrier, length and strength of umbilical cord, 238.
Nerves, electric currents in, 558.
Nephritis, Snow's case of, 95.
Newspaper announcement of surgical operations, 512, 518.
New York Hospital, Director's report for 1840, 251.
———, Markoe's report, 323.
Notts' case of axillary aneurism, 111.
Nunneley on threads of caoutchouc for sutures, 490.

O.

Olliffe on eetrotic treatment of variola, 188.
Ollivier, feigned diseases, 500.

P.

Paralysis left side of trunk and extremities and right side of face, 105.
——— from visceral disorder, 360.
Parker's statistics of amputations, 303.
Parrish's report, 346.
Peace, ligature of external iliac, 524.
Pelvis, tumour in, 226.
Pericardium, puncture of, 487.
Periodical medical literature, 511.
Phthisis pulmonalis, new method of using iodine in, 461.
———, inhalations of conium and iodine in, 468.
Placenta, cathartics in retention of, 248.
Platina, salts of, 234.
Pleuro-pneumonia, 107.
Pneumonia from surgical operations, 209.
——— in the insane, 466.
Poisons, mineral, methods of detecting minute portions of, 403.
Poisoning with gun-barrel browning, 505.
——— sanguinaria canadensis, 506.
——— by tobacco, 507.
——— laudanum, 516.
——— vapour of ammonia, 237.
——— salts of copper, 502.
——— laburnum seeds, 234.
——— binoxalate of potash, 236.
Polypus uteri cured by excision, 519.
Potash, binoxalate of, poisoning with, 236.
Poultices in inflammation of the great cavities, 467.
Pregnancy, tubal, 47.
——— during amenorrhœa, 223.
——— attended with a remarkable discharge from uterus, 522.
Priessnitz's cold water system, 168.
Primitive carotid, ligature of, 479.
Primer of physiology and animal mechanism, 525.
Pulse in new-born infants, 457.

Q.

Quackery, statistics of, 245.

R.

Raspail's sedative lotion for headache, &c., 196.
Raymond, medico-legal cases, 513.
Rectum, absence of, 458.
Registrar-general's report of the births, &c., in England, 155.
Resection of elbow-joint, 201.
Revaccination, results of, 179, 180.
Rhatany in fissure of anus, 249.
Rigby's Midwifery, 462.
Robertson on the teeth, 171.
Roberts on diseases of fœtus, 387.
———, enlargement of thymus gland, 513.
Rockwell's report, 253.
Roux, resection of elbow-joint, 201.

S.

Sanguinaria canadensis, poisoning with, 506.
Sanson, death of, 512.
Saussier, tracheotomy in croup, 199.
Schnitzer on doctrine of responsibility in doubtful states of mind, 171.
Schuk's case of dislocation of cervical vertebræ, 207.
Schultzen, fracture of skull during labour, 238.
Scudamore on exhalations of conium and iodine in tubercular phthisis, 468.
Sedative lotion for headache, 196.
Segalas, spontaneous softening of stone in bladder, 481.
Seton, ununited fracture cured by, 489, 524.
Shipman's cases of injury of head, 66, 373.
Skin, secretion of air by, 460.
Skoda, puncture of pericardium, 487.
Skull, fracture of, during labour, 238.
Small-pox in Philadelphia, 250.
———, identity with cow-pox, 467.
Smith, case of secretion of air by human skin, 460.
———, poultices in inflammation of the great cavities, 467.
Snow's case of nephritis, 95.
Souchard, poisoning by ammonia in vapour, 237.
Spasms of hydrophobia, influence of light on, 467.
Spina bifida, 51, 176.
———, new operation for, 485.
Spinal cord, functions of anterior and posterior columns of, 458.
Spinal marrow, partial injury of one of the halves of, 197.
Stammering, operations for, 210, 488.
Staphyloraphy, Mutter's cases, 74.
Statistical report of sickness and mortality U. S. army, 454.
Stomach, healthy appearance of mucous membrane of, 233.
———, peculiar action of sulphuric acid on, 234.
Subclavian artery, ligature of, 111.
Subcutaneous incisions for removal of foreign bodies in joints, 198.
Surgical operations, pneumonia from, 209.
Survivorship, presumption of, 502.
Sutures, threads of caoutchouc for, 490.
Sweeting, diacetate of lead in internal hemorrhage, 463.

T.

Taliaferro's case of congenital tumour of eyeball, 88.
Tansy, overdose of, 514.
Taveau on plugging teeth, 222.
Tavignot, poisoning by tobacco, 507.
Taylor, quantity of arsenic required to destroy life, 503.
Teeth, Robertson on, 171.
Teeth, milk, treatment of, 221.
———, plugging of, 222.
Tetanus from burns, 344.
Thigh, compound comminuted fracture of, 342.
Thiele, on identity of small-pox and cow-pox, 467.
Thore on pneumonia in the insane, 466.
Thymus, death from enlargement of, 513.
Tinea capitis, formula used in treatment of, 460.
Todd on cathartics in retention of placenta, 248.
Trail's medical jurisprudence, 255.
Travers on symptoms of rupture of bowels, 232.
Triberte on influence of light on spasms of hydrophobia, 467.
Triplets, case of, 250.
Trousseau on pulse of new-born infants, 457.
Tubal pregnancy, 47.
Tubercle in cerebellum, 184.
Tunstal's spasmodic affection of larynx cured by veratria, 464.
Tweedie's Library of Practical Medicine, review of, 122, 436.
Typhoid fevers, Louis' researches, 150.

U.

Umbilical cord, length and strength of, 238.
United States, Forry on climate of, 13.
———————— endemic influences of, 277.
University of Pennsylvania, graduates of, 257.
Ure's treatment of gouty concretions, 196.
Utero-placental circulation, 49.
Uterus, retroversion of unimpregnated, 496.
———, polypus of, 519.
———, remarkable discharge from, 522.
———, peculiar distribution of arteries of, 459.
———, examination of, twenty-four hours after delivery, 49.
———, corroding ulcer of, 54.

V.

Variola, cetrotic treatment of, 188.
———, revaccination, &c., discussion relative to, 191.
———, sulphur ointment in, 196.
Velpeau, sulphate of iron for erysipelas, 481.
Velpeau on fissure of anus, 202.
———, mechanism of purulent absorption, 481.
——— and Briere on compression of aorta for arresting flooding, 227.
Vena cava, inferior, obliteration of, 178.
Veratria in spasmodic affections of larynx, 464.
Vermont asylum for insane, 253.
Verral's case of spina bifida, 176.
Vertebra, dislocation of cervical, 207.
Vienna midwifery institution, statistics of, 240.
Villeneuve on revaccination, 180.
Volkman on action of oblique muscles of eye, 220.

W.

Wagner, John, obituary of, 526.
Walther, influence of suborbital wounds in production of amaurosis, 220.
Warren's Boylston prize dissertations, 172.
Watson, appearances on dissection of persons hung, 235.
Watts, medical schools of Berlin and Vienna, 241.
Watt, mortality of Glasgow, 239.
West on a peculiar form of infantile convulsions, 187.
Wills hospital, Parrish's report, 346.
Winslow on sudden death, 176.
Wright on origin of ergot, 460.

Y.

Yearsley's operation for stammering, 214.
————————————, results of, 489.
Yellow fever at Key West, 380.

Z.

Zabriskie on paralysis from visceral disorder, 360.
———, paralysis of portio dura, 385.
Zinc, chloride of, in necrosis, 490.
————————, in gonorrhœa, 199.
Zollickhoffer's cases of knots on the umbilical cord, 109.

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