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WILLIAM HEGEMAN,	New York,	1859-60
P. W. BEDFORD,	New York,	1860-62
JOHN M. MAISCH,	Philadelphia,	1862-63
P. W. BEDFORD,	New York,	1863-66

LOCAL SECRETARY.

P. W. Bedford,	New York,	1866-67
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PREFATORY NOTICE.

The Chairman of the Executive Committee and the Permanent Secretary herewith present to the members of the American Pharmaceutical Association the volume of Proceedings of the Association at its last meeting, held at Detroit, in the month of August, 1866. They had hoped that the book would be in the hands of the members some weeks before this time; several unexpected delays, however, interfered with its early completion. Notwithstanding these, it is gratifying that the work has been accomplished several months earlier than during several years past, and it is expected that hereafter it may be done in less time, if all papers are finished before they are presented to the Association.

The interesting feature of last year's Proceedings—namely, the copious extracts from the phonographic report of the scientific discussions, by Mr. Slade, of Boston—has been continued this year, and will be particularly acceptable to those members who have been prevented from being present at the last meeting.

The paper of Mr. E. C. Jones, on Commercial Extract of Quassia, had to be left out, because it has not been received for publication. The same is the case with the description of Mr. Spencer's Still for distillation under reduced pressure, which was directed to be published in the Proceedings.

The roll of members has been corrected as far as possible. Members whose names are not spelled correctly, or who have changed their address, will please notify the Secretary without

delay; they are particularly referred to the resolution contained on page 66. Notices of intended resignations have heretofore, in many cases, not been given to the proper officers; the Association has amended the Constitution, and attention is drawn to Section 5, Article II., which makes it obligatory to notify the Secretary or Treasurer.

Those members, who had been prevented from sharing in the benefits of the Association by the late war, have all been notified by the Secretary of the action of the Association in their behalf; a few have answered and embraced the opportunity of renewing their membership. It is hoped that all interested will not fail to give the proper notification in time before the next annual meeting. Those who are still in arrears on the Treasurer's books are requested to pay up by that time, since the roll will be corrected then, and members who may be three years or more in arrears subject themselves to be dropped from the list.

Since 1864, the Secretary has been endeavoring to obtain from some members their signatures to the Constitution. His efforts have, in several instances, been unavailing, and he embraces this opportunity to again appeal to them to forward the same to him.

Members who are in arrears for two years or more, or whose signatures are not in the Secretary's possession, will not receive these Proceedings, but will be notified to that effect.

The list of societies, journals and individuals to whom complimentary copies of the Proceedings are forwarded, appears in the appendix for the first time. It is far from being complete, the Secretary not having been notified by several members who usually attend to the distribution of the Proceedings in the large cities. The labor of the Secretary is greatly increased by such delays in answering his inquiries, while, at the same time, he acknowledges himself under great obligations to those gentlemen who kindly assist him in the performance of his duties in distant cities. Any corrections of this list, and suggestions of further extension, will be gratefully received.

The list of publications received in exchange is very limited. Journals and Societies, having sent exchanges, will

please consider this an acknowledgment of the reception of the same, if they have not, by this time, been notified by letter from the Secretary. Other journals, not yet on our list of exchanges, will please forward copies to the Permanent Secretary, whose duty it is to transmit them to the Chairman of the Committee on the Progress of Pharmacy. It is by this means that the annual report of this Committee may be increased in interest and usefulness to the medical as well as to the Pharmaceutical profession.

The Secretary, who is charged with the preservation of papers, essays, drawings, &c., presented to the Association, has frequently urged upon members the propriety of presenting them written upon foolscap paper. This request was last year complied with in most instances, but a few members have undoubtedly overlooked this, and are, therefore, again urged, for the better preservation of such documents, to have them written in the manner indicated.

The price of the present volume is \$1.20, in paper cover, or \$1.50, bound; complete sets will be furnished in paper covers, except 1860, '62 and '63, which are bound for \$10; the entire set of bound volumes, except the first six, which have never been bound, will be supplied for \$12.25. The prices of the several issues, exclusive of postage, except the first six, are as follows:—

	Unbound.		Bound.
1851,	\$ 25		
1852,	25		
1853,	25		
1854,	25		
1855,	25		
1856,	25		
1857,	40		\$ 70
1858,	1 10		1 50
1859,	1 10		1 50
1860,			1 00
1862,			1 25
1863,			1 25
1864,	1 20		1 50
1865,	1 20		1 50
1866,	1 20		1 50

Several volumes being nearly out of print, members wishing to complete their sets would do well to make early application. In answer to frequent inquiries, the Secretary would herewith inform members that no annual meeting took place in 1861, and, consequently, no Proceedings were published in that year.

The undersigned, in conclusion, commend this volume to the kind criticism of all interested. While they have endeavored to make it as perfect as was in their power, they are sensible of some shortcomings; their earnest efforts will hereafter be directed to avoid the same, and they desire and solicit the co-operation of all members to this effect.

JOHN M. MAISCH,
Permanent Secretary Amer. Pharm. Assoc.,
1607 Ridge Avenue, Philadelphia.

THOS. S. WIEGAND,
Chairman of Executive Committee,
Northeast cor. Sixth and Arch Sts.

The President, in accordance with the directions of the Association, has appointed the following members to serve on the Committee on Internal Revenue Laws:—

Frederick Stearns, Chairman
Edward Parrish, Philadelphia,
Wm. A. Brewer, New York.

The Committee have been notified of their appointment.

JOHN M. MAISCH,
Permanent Secretary.

MINUTES

OF THE

FOURTEENTH ANNUAL MEETING.

First Session.—Wednesday, August 22d, 1866.

The American Pharmaceutical Association met at Detroit, Michigan, in the rooms of the Supreme Court, No. 85 Woodward Avenue. The President, Mr. H. W. Lincoln, of Boston, called the meeting to order at 3.15 P. M., J. M. Maisch, of Philadelphia, acting as Secretary.

The Chair appointed Messrs. S. P. Duffield, of Detroit, Wm. Wright, jun., of New York, and John Butterworth, of Boston, a Committee to examine the credentials of delegates from the different local Associations.

Pending their action, the members present registered their names.

The Committee reported the following gentlemen as duly accredited delegates to this Meeting.

From the Massachusetts College of Pharmacy.—Henry W. Lincoln, Chas. A. Tufts, Robert R. Kent, Geo. F. H. Markoe, and John Butterworth.

From the New York College of Pharmacy.—Prof. F. F. Mayer, George C. Close, Wm. Wright, Jr., Theobald Frohwein, and Prof. P. W. Bedford.

From the Philadelphia College of Pharmacy.—Prof. Wm. Procter, Jr., Prof. Edward Parrish, Prof. J. M. Maisch, Jas. T. Shinn, Dr. Wilson H. Pile.

From the Chicago College of Pharmacy.—Albert E. Ebert, Henry Sweet, Stawell W. Gillespie, E. P. Tourtelot, Frank J. Tourtelot.

From the Maryland College, the Cincinnati College, and the St. Louis College of Pharmacy, no delegates have been sent.

From the Alumni Association of the Philadelphia College of Pharmacy.—Evan T. Ellis, C. Lewis Diehl, Geo. W. Eldridge, and Albert E. Ebert.

On motion, the report of the Committee on Credentials was accepted.

The Chairman of the Executive Committee not being present at this meeting, Mr. John Butterworth, of and in behalf of this Committee, presented the following applications for membership, the candidates having complied with the requirements of the Constitution.

T. B. Dorsey, Dresden, Ohio.	Will. Reinhold, Chicago, Illinois.
J. F. Judge, Cincinnati, "	Phil. Milleman, " "
F. M. Odena, " "	M. A. Breed, Peoria, "
Theodore Ronnefeld, Detroit, Mich.	Alex. Garver, Navarre, Ohio.
S. S. Stearns, " "	C. J. Geiger, Canton, "
Frank Lawrence, " "	Fred. Nest, La Porte, Ind.
J. H. Griffith, " "	Fred. A. Otto, Frederick, Md.
H. E. Hill, " "	Robert Ormsby Sweeny, St. Paul, Minn.
Jacob S. Farrand, " "	John Best, Central City, Colorado.
T. H. Griffith, " "	Benj. E. Hays, " "
Frank E. Fletcher, " "	Chas. F. Fish, Saratoga Springs, N. Y.
James Vernon, " "	J. L. Polhemus, Sacramento, Cal.
C. L'Hommedieu, " "	J. Marshall Caldwell, Augusta, Ga.
H. S. Biddle, " "	Wm. P. Keffer, Philadelphia, Pa.
A. Landon, Parma, " "	H. J. Menninger, Newbern, N. C.
J. M. Holland, Jackson, " "	Michael Flynn, New York, N. Y.
Josiah B. Frost, Ypsilanti, " "	James J. Skelley, " "
Julius Weiss, Monroe, " "	Edward S. Shead, Eastport, Me.
Chas. F. Uhl, " "	John E. Doyle, Springfield, Mass.
Geo. Breck, Rochester, N. Y.	Jno. H. Hubbard, Cambridge, Mass.
N. M. Woods, Indianapolis, Ind.	E. Greenville Curtis, Brooklyn, N. Y.
Wm. F. Logan, Williamsport, Pa.	W. S. Fuller, " "
George H. Carey, Louisville, Ky.	Chas. O. Rano, " "
Edward A. Preuss, " "	Eugene J. Weeks, " "
Geo. A. Newman, " "	Lucien M. Rice, New York, "
R. Vinton Steele, Pittsburg, Pa.	John E. Peck, Newburgh, "
Louis Strehl, Chicago, Ill.	Thomas V. Crandall, M. D., Newburgh, N. Y.
H. M. Wilder, " "	
Ira Lackey, Chicago, Ill.	

On motion, a ballot for these candidates was ordered, and the President appointed Messrs. A. E. Ebert, of Chicago, and George F. H. Markoe, of Boston, to act as tellers, who subsequently reported their unanimous election.

The Business Committee brought forward the following resolution, which was carried.

Resolved, That a phonographic reporter be employed to assist the Secretary, and that the minutes be reported as fully as possible, in view of the publishing of the Proceedings.

The roll was now called, when the following members answered to their names.*

H. S. Biddle, Detroit, Mich.	Thos. E. Jenkins, Louisville, Ky.
Lyman R. Blackman, Jackson, Mich.	Wm. Johnston, Detroit, Mich.
Henry A. Blauw, Rochester, N. Y.	Edw. C. Jones, Philadelphia, Pa.
Robert J. Brown, Leavenworth, Kansas.	R. C. Kennedy, Cleveland, O.
John Butterworth, Boston, Mass.	Robt. R. Kent, Boston, Mass.
Jas. N. Callan, Washington, D. C.	Alson Landon, Parma, Mich.
Geo. C. Close, Brooklyn, N. Y.	Henry W. Lincoln, Boston, Mass.
Ferris W. Colby, New York, "	John M. Maisch, Philadelphia, Pa.
Thos. Daniels, Toledo, Ohio.	Emanuel Mann, Ann Arbor, Mich.
C. Lewis Diehl, Jr., Louisville, Ky.	Geo. F. H. Markoe, Boston, Mass.
J. W. Dietrich, Dayton, O.	Joel S. Orne, Cambridgeport, Mass.
T. B. Dorsey, Dresden, "	Edw. Parrish, Philadelphia, Pa.
Saml. P. Duffield, Detroit, Mich.	Wm. Procter, Jr., Philadelphia, Pa.
Alb. E. Ebert, Chicago, Ill.	Danl. W. Richardson, Almont, Mich.
Geo. W. Eldridge, Philadelphia, Pa.	E. W. Sackrider, Cleveland, O.
Evan T. Ellis, Philadelphia, Pa.	Wm. Saunders, London, C. W.
J. S. Farrand, Detroit, Mich.	T. R. Spence, Detroit, Mich.
Frank E. Fletcher, "	E. R. Squibb, Brooklyn, N. Y.
Josiah B. Frost, Ypsilanti, Mich.	Frederick Stearns, Detroit, Mich.
Saml. S. Garrigues, East Saginaw, Mich.	S. S. Stearns, " "
Stawell W. Gillespie, Chicago, Ill.	Henry Sweet, Chicago, Ill.
Henry Griffin, Grand Haven, Mich.	E. P. Tourtelot, " "
John H. Griffith, Detroit, "	F. J. Tourtelot, " "
T. H. Griffith, " "	Chas. A. Tufts, Dover, N. H.
Chas. A. Heinitsh, Lancaster, Pa.	Chas. F. Uhl, Monroe, Mich.
F. V. Heydenreich, Brooklyn, N. Y.	Geo. J. Waugh, Stratford, C. W.
J. M. Holland, Jackson, Mich.	Julius Weiss, Monroe, Mich.
	Neander M. Woods, Indianapolis, Ind.
	Wm. Wright, Jr., New York, N. Y.

The report of Standing and other Committees being now in order, the following were read by their titles and laid on the table for future action :

Report of the Executive Committee, accompanied by the Report of the Permanent Secretary ;

Report of the Committee on Scientific Queries ;

* This roll contains all the members present during the meeting, a few arriving at the second and third sessions.

Report of the Committee on the Pharmacopœia ;

Report of the Committee on the Internal Revenue Laws.

No reports were handed in from the Committee on the Progress of Pharmacy, and that on the Drug Market.

The Secretary stated that he had received a letter from Mr. Enno Sander, of St. Louis, the Chairman of the Committee on the Progress of Pharmacy, wherein he regrets his inability to be present at this meeting on account of the prevalence of epidemic Cholera in his city and his increased labors in consequence thereof, whereby it was utterly impossible for him to finish his report in time for the meeting ; he asks to be allowed to complete it for publication in the Proceedings.

The Report of the Executive Committee, together with the Report of the Permanent Secretary, were now read by M. Maisch.

REPORT OF THE EXECUTIVE COMMITTEE.

The Executive Committee respectfully report, that the 13th Volume of the Proceedings was issued after considerable delay, part of which was from causes entirely beyond the control of either editor or publisher. They would respectfully suggest that the rule requiring all papers presented at any of the sessions of the Association, and intended for publication, be finished and handed to the Permanent Secretary before the close of the last session.

The cost of publishing the 13th Volume, with the expense of the reprinting ordered at our last meeting, and the publication of the minutes of the Convention of Druggists and Apothecaries, out of which our Association grew, amounted to one thousand and nine dollars.

This amount has been all paid by the Treasurer in the usual way, as his accounts will show.

Four applications for membership have been made in the proper form to the Executive Committee, and these have been forwarded to the Association through the Permanent Secretary.

It has not been thought advisable to urge any persons to become members ; those feeling an interest in our profession and its advancement, and desirous of connecting themselves with us, can learn from our publications the steps necessary to attain their wish.

The Committee have heard of the death of J. Lindley Pyle, of Brooklyn, N. Y. ; George B. Fish, of Saratoga, N. Y. ; William J. Olliffe, of New York, N. Y. ; James Balmer, of Baltimore, Md. ; Louis Groneweg, of Cincinnati, Ohio. The following notices comprise all the particulars which the Committee has learned of our deceased colleagues.

Mr. J. Lindley Pyle was born in Chester county, Pa., and at the

time of his death was about 34 years old. He was several years with Henry C. Blair, of Philada.; graduated from the Philada. College of Pharmacy in 1852; was then with Aspinwall, of New York, about a year, and in 1854 commenced business for himself in Brooklyn, where he continued until his death. In partnership with his brother, he had conducted the business in a very successful manner, their store in Fulton Street, Brooklyn, being remarkable for its neatness and the appropriate arrangement of its various departments.

Mr. George B. Fish, of Saratoga, died in the 28th year of his age. His studies were pursued under the direction of his father, and for a time he was engaged in business in Waterbury, Conn. He is represented by those best acquainted with him to have been a good apothecary, and possessed of a kind disposition and courteous bearing; his funeral was largely attended by members of the Masonic order, of which society he was an influential member.

William J. Olliffe, M. D., of New York City, died in September, 1865, after suffering for many years from an exceedingly painful disease. He was an earnest advocate of Pharmaceutical advancement. For many years an officer in the New York College of Pharmacy, he always used his influence to advance the interests of the institution. Though for a number of years a member of this Association, his precarious health prevented him taking any active part in its behalf.

The full report of our last meeting in Boston, by Mr. Slade, phonographer, deserves an especial notice, and it would be well to secure services so valuable, to insure accuracy in the publication of our proceedings.

The Report of the Permanent Secretary, embodying much matter that is usually introduced in the Report of this Committee, is referred to as giving details and facts, the repetition of which would be both useless and uninteresting.

In closing this Report, the Chairman would take occasion to bear his testimony to the promptness and courteous attention of the Permanent Secretary to every call made upon him in furtherance of the work of this Committee.

On behalf of the Committee,

THOS. S. WIEGAND, *Chairman*.

REPORT OF THE PERMANENT SECRETARY.

To the Chairman of the Executive Committee of the American Pharmaceutical Association:—

The Recording Secretary respectfully states that the Proceedings of the Association for 1865 were ready for distribution the latter part of February. The causes of this delay were partly explained in the prefatory note to the last volume. It is, however, very proper to bring the main cause again to the notice of the Association. The Secretary is convinced that the yearly volume could be issued in a much shorter time, if there was always a sufficient amount of money in the Treasurer's

hands to pay for the printing and binding. It remains with the Association to devise the proper means to accomplish that end, and each member should feel a just pride to pay his contribution promptly.

The Proceedings were distributed, as usual, by mail to those members living in smaller places, and through the agency of one member in those cities where three or more members reside. In addition to those mentioned in last year's Report of the Executive Committee, the Secretary is indebted to the kind assistance, in distributing the books, of the following gentlemen: Wm. Atwood, of Portland, Me.; Nelson R. Scott, of Worcester, Mass.; Samuel Kidder, Jr., of Lowell, Mass.; George C. Close, of Brooklyn, N. Y.; Wm. G. Stephen, of Yonkers, N. Y.; Chas. A. Heinitsh, of Lancaster, Pa.; Meyer Bros. & Co., of Fort Wayne, Ind.; and George S. Dickey, of San Francisco, Cal.

The Proceedings have also been sent by the Secretary to the following libraries and scientific associations and journals in this country, and, as far as notified, their sets have been completed:—

Smithsonian Institution, Washington, D. C.
 Maryland College of Pharmacy, Baltimore, Md.
 Academy of Natural Sciences, Philadelphia.
 Philadelphia College of Pharmacy.
 American Philosophical Society, Philadelphia.
 College of Physicians, Philadelphia.
 Library of Pennsylvania Hospital, Philadelphia.
 Philadelphia Library.
 Franklin Institute.
 Mercantile Library, Philadelphia.
 American Journal of Medical Sciences, Philadelphia.
 Medical and Surgical Reporter, “
 Dental Cosmos, “
 Astor Library, New York.
 Mercantile Library, New York.
 Linnæan Society, Lancaster, Pa.
 Michigan State University, Ann Arbor, Mich.

Acknowledgments have been received from most (not all) of the above corporations, journals, &c., and publications were forwarded or promised in exchange by only a few.

Through the Smithsonian Institution, the Proceedings were sent to scientific societies and journals of foreign countries, viz.: Five packages to London, four to Paris, one to Antwerp, two to Bruxelles, two to Switzerland, three to Munich, two to Berlin, three to Vienna, eight to other cities of Germany, and one to St. Petersburg, Russia.

The Secretary has to acknowledge the receipt of the following publications in exchange for the Proceedings:—

American Journal of Medical Sciences, Philadelphia.
 Dental Cosmos, Philadelphia.

Neues Jahrbuch für Pharmacie, Speyer.
Sitzungsberichte der Königl. Akademie der Wissenschaften, Munich.
Schweizerische Wochenschrift für Pharmacie.
Pharmacopœa Helvetica.
Proceedings of the British Pharmac. Conference.

Other publications may have been received through the Corresponding Secretary, and more Proceedings have undoubtedly been distributed to societies, journals, &c., in the different larger cities, of which the Recording Secretary has no knowledge.

The insurance on the property of the Association has been raised, in consequence of the increase of the stock of books and the putting up of cases, to \$2,500 in the same (New Amsterdam) Fire Insurance Company of New York, at a premium of seven-tenths per cent., being \$17.50 annually.

The stock of Proceedings on hand is as follows:—

	Paper Covers.	Bound.	Loose.
1851	427		
1852	207		
1853	195		
1854	14		
1855	212		
1856	8		
1857	278	29	
1858	92	14	212
1859	—	78	
1860	—	266	
1862	—	325	
1863	—	313	
1864	235	77	
1865	204	72	

These figures do not include the Proceedings sent on to this meeting, nor those in the hands of various parties in the larger cities.

Quite a number of claims for back volumes have been received, and, with the exception of a few remaining unfilled, have all been met by the Secretary.

The expenses of the Permanent Secretary during the past year have been as follows:—

For Postage Stamps	\$45 31
“ Express Charges	31 60
“ Binding Manuscripts and Journals	10 50
“ Packing Boxes	3 50
“ Telegrams	2 30
“ Stationery, Printing of Circulars, &c.	23 75
“ Insurance	17 50
Total	\$134 46

It was stated by the Chairman of the Executive Committee, in his preface to the last volume, that the Proceedings of Pharmacutists and Druggists held in 1851 were printed for the first time, and those of this Association for 1852 and 1855 had been reprinted. Thus far, the sale of these pamphlets has been very limited. The amount received by the Secretary for Proceedings sold during the last year was \$56 10.

The Secretary, about two months ago, issued a circular notice of this meeting, which, among other information, contained a request to the members in the Southern States to perfect their membership by paying up back dues, &c. But very few answers have been received. The Secretary would also inform the Association that the signatures of quite a number of gentlemen who appear on our roll as members are not yet in his possession.

Respectfully submitted,

JOHN M. MAISCH,

Permanent Secretary.

On motion, the report of the Executive Committee was accepted and ordered to be printed in the Proceedings.

The Chairman of the Business Committee, Dr. Squibb, rose and said:—

I desire at this time to introduce two resolutions to amend the constitution. Some inconvenience results from the necessity of sending certificates of membership to all of the vice-presidents for signature. The new certificate itself calls for only "vice-president." In the constitution it is "vice-presidents." I propose from the Business Committee the following resolution:—

Resolved, That Art. II., Sec. 4, be amended, first, by inserting the words "one of the" before the word "Vice-Presidents;" second, by omitting the word "and" before the word "Secretary;" third, by inserting the words "and Treasurer" after the word "Secretary;" and finally, by inserting the word "permanent" before the word "Secretary," wherever this word occurs in the constitution.

This section would then read, "Members shall be entitled, on payment of Three Dollars, to receive a certificate of Membership signed by the President, one of the Vice-Presidents, Secretary and Treasurer." The reason for the change is that by it we avoid the necessity of sending the certificates all over the country. We have three vice-presidents—one in Brooklyn, one in Cleveland, and one in Lancaster—and certificates have to go by mail from one officer to another; while, if this amendment was adopted, the nearest vice-president would be competent to sign the certificate.

PROF. J. M. MAISCH. It has been the practice heretofore to sign at each meeting a sufficient number of certificates to cover all applications received during a meeting or during a recess. By this we avoid sending the certificates over the country. Thus signed they remain in the hands of the Treasurer until needed. This has been the case, except perhaps

when the first and the new certificate was gotten up. Then they were sent all over the country. The cause of it was the delay in getting them up, applications for two years past standing on the Treasurer's books. I would suggest to Dr. Squibb whether it would not be better to say "one or all of the Vice-Presidents;" then, in case it should be necessary to obtain the signatures of the Vice-Presidents in the recess, one of them would do.

DR. E. R. SQUIBB. When I was one of the Vice-Presidents, I had to sign several that were sent to me by mail. I signed several here, as Mr. Maisch has said. At that time there was a number signed by the Officers over what was necessary, but they were not valid the next year, because the persons signing them were not officers when the certificates were needed. I think it is a bad plan to authorize signing any document in advance without knowing who it is to be for. The reason I do not leave the matter open, as Mr. Maisch suggests, is because one may prefer to have them all. If the constitution says one Vice-President is sufficient, it will be convenient, and there will be none of the trouble given to the Secretary that would result from leaving the matter subject to choice. The object is to avoid all this, and therefore the amendment is, in my judgment, a good one, because it accomplishes this object, and also saves any waste of certificates.

PROF. PARRISH. I am sorry to differ from Dr. Squibb, but I think the best part of the certificate is the signatures. I don't care about the rest of it much; but, in having it, I like to have the signatures of my friends appended to it that are holding the positions at that time. The more, the better, I think; and I should, therefore, be very sorry to have a single Vice-President sign the diploma when we have two or three Vice-Presidents. I do think, however, that as there is a space on it for the Treasurer's signature, and the name "Treasurer" is printed on it, he ought to sign it.

DR. SQUIBB. I think, as his name has been printed in the form, that it is proper he should sign it, and that the constitution be amended so as to include "Treasurer."

The final action on the amendment to the constitution offered by the Business Committee lies over, under the rules, for a future sitting.

The Secretary read the following resolution, offered last year by Professor Parrish.

Resolved, That Section 2, Article III, be amended by substituting the words "Local Secretary" for "Corresponding Secretary;" and that Section 6 be amended to read thus:

"The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his duty to

assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairmen of the several Committees and with other members, in advance of the meeting promotive of its objects, and to have custody of specimens, papers and apparatus destined for use or exhibition at the meetings. He shall act as Secretary at the first meeting, or until another shall be appointed, in case of the absence of the Permanent Secretary."

Also, That in Section 4, defining the duties of the Permanent Secretary, after the words "shall be charged with," the words "the necessary foreign and scientific correspondence" shall be added; so that it shall read, "shall be charged with the necessary foreign and scientific correspondence, and with editing, publishing and distributing the Proceedings of the Association, under the direction of the Executive Committee."

Also, That wherever the term "Corresponding Secretary" is used in the Constitution, the term "Local Secretary" shall be substituted.

Prof. PARRISH. Perhaps it will be well to explain the object of this amendment to those gentlemen who were not present when it was proposed. We had originally in the organization of this Association a Corresponding Secretary, whose duty it was to correspond with learned societies or bodies interested in Pharmacy in other countries and our own; and the duties at that time of the Recording Secretary were more particularly confined to keeping the minutes of the Association. It then devolved upon the Chairman of the Executive Committee to publish the Proceedings. Last year we adopted a new rule, and provided for a Permanent Secretary of the Association, with a small salary, whose duty it should be to edit the Proceedings, besides keeping the minutes, &c. The Permanent Secretary was to be a kind of Actuary, filling up the recess and performing all the duties that pertain to the office of Secretary of an Association—corresponding with our own members, and attending to all matters in the course of the year which require correspondence, and also editing the Proceedings. It seems proper that this officer, who becomes a permanent officer, and has a certain standing as such, and is universally known as such, should attend to the foreign correspondence. That is becoming quite an item. The object now is to abolish the office of Corresponding Secretary, and let his duties devolve upon the Permanent Secretary. We have had a number of changes in the Corresponding Secretary, so that, if a person in a foreign country wished to write a letter to us, he would not know to whom to write; but, having a permanent officer, they will soon find out. His name is published in our Proceedings. It is, therefore, considered desirable to abolish this office of Corresponding Secretary and create another—an officer who shall have the duties which have been assumed voluntarily generally by some of our members at the places where the meetings have been held. For instance, in regard to this meeting at Detroit. We all know that Mr. Stearns has taken a good deal of pains to have every-

thing arranged for this meeting, corresponding with those likely to send anything here for exhibition, attending to what they send, and being the party to receive anything sent. We now propose that a Local Secretary shall be elected annually, at the last session, or after we have determined where our meeting shall be held, who shall be a resident of the place where the meeting is to take place, who shall have charge of all these matters which have heretofore been nobody's business, or taken up voluntarily by somebody, or neglected entirely. In going to a new place, it becomes of the utmost importance to have somebody charged with the duty of making arrangements for holding our meeting. In the British Pharmaceutical Association they have such an officer. I may mention here that I had a letter from the British Pharmaceutical Conference, asking me to use my influence to have sent out to their meeting, occurring to-day, some specimens of American Pharmacy; and I was instrumental in sending out quite a number of specimens. They seem to be gradually coming up to the American idea of Pharmaceutical Associations. Their Local Secretary sends all over England, to this country and Europe, for specimens, and attends to all matters pertaining to the coming meeting. As they have borrowed some very good things of us, I think we might borrow that of them.

Prof. MAISCH. There is one difficulty in the proposed change. The Corresponding Secretary is, *ex officio*, a member of the Committee on Progress of Pharmacy. If the Permanent Secretary is to assume all the duties of Corresponding Secretary, he would be, *ex officio*, a member of two standing committees. From the proposition, I understand that the Recording Secretary is only to be charged with the necessary foreign and scientific correspondence. Now, the reason why the Corresponding Secretary was put on the Committee on the Progress of Pharmacy was that he should correspond with the Pharmaceutical Associations of this country. That duty, I think, might be just as well imposed upon the Local Secretary, and he might be, *ex officio*, a member of the Committee on the Progress of Pharmacy, as he would be if we change the term Corresponding Secretary, wherever it occurs, to Local Secretary. I only mention this, so that it will be understood that the Recording Secretary has nothing to do with the Committee on the Progress of Pharmacy.

Prof. PROCTER. I don't see the propriety of making the Local Secretary take the duty of the Corresponding Secretary for the little information that may be needed for the Report on the Progress of Pharmacy. Why not just abandon that part, so as to say nothing about that Secretary being *ex officio* a member of that committee.

Dr. SQUIBB. The duty will then be transferred to the Chairman of the Committee on the Progress of Pharmacy. That is a part of his duty as much as any other. When the office of Corresponding Secretary drops, the duty attached to it will drop with it.

Prof. PARRISH. I can see no objection to the Local Secretary being a member of that Committee.

~~The amendment to the~~ The amendment to the Constitution relating to the Local Secretary was adopted, all members present voting in the affirmative.

The appointment of the Committee to nominate officers for the ensuing year being in order, the delegations of the Associations represented made the following appointments:—

Robert R. Kent, for the Massachusetts College of Pharmacy.

Wm. Wright, Jr., for the College of Pharmacy of the City of New York.

Prof. Wm. Procter, Jr., for the Philadelphia College of Pharmacy.

Henry Sweet, for the Chicago College of Pharmacy.

Evan T. Ellis, for the Alumni Association of the Philadelphia College of Pharmacy.

The President added from the Association at large the following members:—

Robert J. Brown, of Leavenworth, Kansas.

Samuel S. Garrigues, of East Saginaw, Mich.

T. R. Spence, of Detroit, Mich.

Mr. Frederick Stearns presented the following verbal and written invitations, to visit places of interest in and near Detroit:

From Mr. Grout, for the Copper Smelting Works;

From Colonel Cram, for Fort Wayne;

From Dr. Farrand, for the Harper Hospital;

From Dr. Davenport, for the Marine Hospital;

From Major Cass, for the Art Collection of the late General Lewis Cass;

From Mr. Henry A. Newland, Vice President of the Young Men's Society, for their hall and library;

From Mr. Henry Chaney, Superintendent of the Public Library, for that institution;

From Mr. F. H. Conant, for the establishment of the Detroit Chair Factory;

From Dr. Silas H. Douglas, Professor of Chemistry, Mineralogy and Pharmacy at the University of Michigan, for that institution, and particularly the Laboratory, situated at Ann Arbor;

From Mr. F. R. Brockway, for the Detroit House of Correction;

From Mr. George B. Russell, President, for the establishment of the Detroit and Lake Superior Iron Company.

On motion of the Business Committee, it was—

Resolved, That the invitations presented be accepted, with the thanks of this Association, and that the Secretary be directed to answer in writing all letters of invitation.

Professor Parrish moved that when we adjourn, we adjourn to meet to-morrow morning at 9 o'clock.

President Lincoln then read his Annual Address.

TO THE MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

GENTLEMEN.—By permission of Divine Providence we are again allowed to assemble at another of our annual meetings. At this, our fourteenth meeting, it is a source of congratulation that so many are enabled to leave the cares and anxieties of business to join in this pleasant annual reunion. It is a little remarkable that so many, living the life of a pharmacist, so full of perplexities, can find time to attend for so long a period and at so great a distance from home. There are many, however, who formerly could hardly be induced to take even a day from the dull routine of store duties to enjoy a little recreation, who now hail with delight the announcement of our annual meeting and anticipate its pleasures for months previous, and make all their plans for business and pleasure subservient to this object. It seems to matter little at which of the large cities we decide to meet, for at each and all we always receive a hearty welcome, and leave with a large accession of members. Assembling as we do for the first time in this beautiful city of Detroit, one of the fairest and youngest of the cities of the Union, it is still more a source of congratulation that we are so well provided with pleasant and convenient accommodations for meeting and for social resort.

Much of our success can be attributed to the variety of the aims embraced in the action of the Association. Commencing in 1852 with but nine members, and these mostly strangers to each other, and having almost but "one idea," we have increased in a rapid and healthy manner. That one idea, at the commencement, was the pressing need required by the Drug trade at large and by the public in general, to prevent the importation of impure drugs. Almost every other object was lost sight of in order to counteract this alarmingly increasing evil. Through the active exertions of this Association, assisted by the local Colleges of Pharmacy throughout the country, the evil was much abated, and very soon the pressing need of combatting it had passed, and the Association could enlarge its sphere of action. Now its mission is threefold: Commercial, Scientific, and Social; and in this union is our strength. The Commercial and the Scientific elements will be amply illustrated by attention to the business of the meeting from day to day. The Social element can be readily perceived to have entered into the calculations of many of our members, who have brought their families and friends to beguile the intermediate hours of the sessions. The hearty shake of the hand at meeting, the firm grasp at parting, with the trembling of the lip and the

moistened eye, tell better than words of the firm hold the Social element has upon our members.

A great variety of subjects will engage your attention at this meeting, and I will very briefly mention them, without enlarging upon their merits, but leave it for the Association to debate and recommend whatever it chooses without any extended remarks of my own.

The Report of the Executive Committee will not be found to be as full as at previous meetings, on account of many of the duties of the Committee having been performed by the Permanent Secretary.

The new feature in the history of the Association of electing a Permanent Secretary has had only one year of trial, but sufficient benefit has already been experienced to warrant the change. By methodical arrangement and by assiduous labor our new Secretary has now almost brought order out of chaos, and a year or two more will more fully realize the importance of the change in electing him. The action of the Philadelphia College of Pharmacy in electing him to the Chair voluntarily made vacant by the resignation of one of our oldest and valued members, is a well merited tribute to the talents and industry of our Secretary.

The Treasurer in his Report will give to you a favorable account of his stewardship. By his exertions he is enabled to present the financial affairs of the Association in a prosperous condition, and, notwithstanding the number of names which were dropped from the roll, the number of names on his book has increased probably more than in any one previous year. The list now contains nearly seven hundred names, and most of them are now reliable members. This increase of members causes a larger amount of labor to devolve upon our present Treasurer than has been done by any previous one, but he has performed his duties creditably to himself and faithfully to the Association. For a variety of reasons this office should be more permanent than has usually been the case.

The subject of an admission fee has been previously agitated at several of our meetings, but heretofore has not found sufficient favor to be adopted. We elected at Boston, during our last meeting, over one hundred new members. An admission fee of only three dollars from each, of course, would have increased the funds in the Treasury three hundred dollars without probably losing a single member. The extra assessment of one dollar upon each member has met with a hearty response from the older members, and it is hardly to be supposed that any one seeking the benefits to be derived from a connection with the Association would hesitate to pay a small sum for an admission fee, with the prospect of so certain and profitable an investment. The extra assessment having been so cheerfully and promptly paid, has placed the funds of the Association in a healthy condition, and it is not very probable that we shall have to resort to the expedient of raising means in this way oftener than once in five years. Although the amount of cash on hand, according to the Treasurer's report, is over six hundred dollars, this favorable account of

our finances is really more apparent than real. In accordance with the custom of nearly every former Treasurer, he has been obliged to collect the dues of members for the coming year to pay the expenses of the past year.

The new certificate of membership has been issued by the Committee appointed by the Association for the purpose, and can be compared with the former one with a variety of conclusions. Some will prefer one, and some the other. As the older one cannot now be duplicated, there will be no chance for a selection between the two. The new one commends itself for its brevity and simplicity, and by many will be considered an improvement. About seventy-five have been signed by the proper officers and have been sent to the members who have ordered them. In the certificate the Committee have left a space in which the Treasurer is expected to sign. This is not in accordance with former usage or consistent with our Constitution, but still I think it very proper, and perhaps it would be well to authorize it by a vote of the Association. This was recommended, I believe, by the Executive Committee last year, but was not acted upon. As, by the Constitution, the Treasurer "holds and issues" the certificate, it would seem to be proper that he should sign them. In filling out the names of members in the certificates, it has been difficult and many times impossible to get the name in full, and it would be desirable to have them inserted in the published list of members as far as possible.

In the report of Mr. Baxley, the former Treasurer, contained in the Proceedings of last year, there was a list of members who had ordered certificates, but did not receive them on account of there not being any of them on hand. These should have been supplied with the new certificates before any others, but this list was not known or thought of until nearly all had been filled out, and then those that were left were filled out with those names most convenient. Those who were neglected will be supplied as soon as possible, and will please receive the above reason as an excuse.

The subject of "Members in Arrears" has exercised the ingenuity of former Executive Committees and Treasurers, but the Gordian knot was cut by the Association at the last meeting, by authorizing the Secretary to place all those in arrears in a separate list; and although the roll of members has decreased, the Association is not cumbered with dead wood, and several members on these lists who were still interested in the Association, but unable from a variety of circumstances to respond to the demands of the Treasurer, have since come forward and requested to have their membership continued, to their credit and to the advantage of the Association.

The present list can probably be still further reduced by dropping an additional number of names of those who still remain in arrears. Several letters have been received by the Treasurer and by him referred to me, from members residing in the Southern States, expressing still a lively interest in the Association, and the hope of being considered members and of receiving benefits from a connection with us. Some have requested to

have their dues remitted, and some have delicately declined to be considered members, not being in a condition to answer the requirements of the Treasurer. This subject might with propriety be referred to a committee, to report at a future session.

I would recommend that the amount of dues from members residing in some of the Southern States during the years 1861, 1862, 1863, and 1864, be remitted, as few of them have received any benefit from the Association either by an attendance at the meeting or by the proceedings. Those who wish to have the Proceedings of those years should be required to pay for them at the price set by the Executive Committee.

Correspondence has been held with the Chairman of the Committee on the Progress of Pharmacy, and he states that the Report was nearly completed, but that on account of the prevalence of Cholera as an epidemic in St. Louis, he fears that he shall not be able to present his report in person, nor to copy it all for publication before the meeting.

We missed in the last volume of Proceedings the usual interesting report on the Drug Market, and this year it was hoped that we should be favored with one commensurate with the known character of the Committee appointed for ability and diligence, and of their means of access to reliable data. I understand that we shall have a report from them, however, but not such an one as we were led to expect, nor such as the committee intended to offer. The reasons will be explained to you in the report.

At the close of the last meeting it was voted to appoint a committee to confer with the Committee of Ways and Means of Congress, and the Commissioner of Internal Revenue, with regard to the objects of the Association.

Through the courtesy and confidence of the Association your President was allowed to appoint this committee at his leisure. The objects and aims embraced in the vote were so important and various that some care and thought were necessary to ensure harmonious action in the committee, and at the same time to express enough individual opinion to represent as much as possible the various views of members of the Association, as expressed in the debates incident to the occasion. All the members of the Committee were present at the debates, and the recollection of them have been refreshed by the report in the published proceedings. A variety of individual opinions were held by members of the Committee, and different parts of the country were represented, to enable them to receive all the information necessary to arrive at a favorable result. Some may, perhaps, be disappointed at what may seem at first to be so small a result; but upon hearing the report of the Committee which will be read before you, it is hoped that all will be satisfied that as much good as could be expected has resulted from the action of the Committee. The Committee are entitled to and should receive your hearty and cordial thanks; and although many may honestly and properly disagree with some portions of the report, he must be a bold man indeed who can refute the argument contained in the

conclusion of the report as drawn up by the chairman of the Committee. The appointment of the Committee has involved a great deal of labor not apparent in the report, and there is much of cotemporaneous history connected with the action of the Committee which does not appear in the report, but which has been important and necessary for the conclusions arrived at by the commission, and finally by the action of Congress. Several letters have been written and personal interviews been held and other means have been used to assist and influence the commission in their decision. Some of these might with propriety be considered the property of the Association, and as far as possible be preserved for future use.

During the last session of Congress an act was passed, authorizing, but not compelling, the use of decimal weights and measures in commercial transactions. This is legislating in a proper direction, and will eventually be productive of good results. It may be well for the Association to take some action in the matter. The able and lengthy report on the subject published in the Proceedings of the Association in 1859 has, no doubt, in part, been influential in producing this action by Congress.

An act of incorporation is both proper and needful to the requirements of the Association, and some years since the attempt was made to procure one, but without success. The same causes of failure may not now prevail, and success, under a different course from that pursued at that time, be realized. The advantage to be gained would warrant a liberal effort to accomplish it.

An act of incorporation would necessarily incur the need of an appropriate seal and motto, and the subject might be placed in the hands of a committee for the purpose of receiving and examining any specimens members may have to offer, and deciding at their leisure during the coming year. By the appointment of a Permanent Secretary, you have taken away much of the labor which formerly belonged to the Executive Committee to perform, and several of these matters might with propriety be referred to them.

The subject of a new, appropriate and suggestive name for members of this Association has been discussed at one of our meetings without coming to any definite conclusion. There are good arguments both for and against any proposed name; but the arguments against it may not now be as forcible as they were at a previous time. Would it not be well to offer a small prize to any one who would suggest a name such as would be decided by a competent committee to be at the same time new, euphonious, and significant?

The Committee on Scientific Queries will, no doubt, offer a report and give a list of those accepted and those accepting them. It is hoped that the answers to this valuable portion of our Proceedings will be fuller than those of last year, and that we shall have the unpleasant duty of placing

“not answered” to, but very few of them. No one should accept a query without the determination of presenting some paper on the subject designated, and if he commences in season, can always succeed in preparing a paper containing much that is new, valuable, and interesting.

I do not think that we have any reason to expect a report from the Committee on the Pharmacopœia; but the Chairman of that Committee is ever on the alert, and, if anything of sufficient importance occurs to report upon, we shall be sure to get one.

According to the Constitution, members of the Association who have paid their dues for ten years are no longer subject to any further contribution, are called Life Members, and are entitled to a certificate from the Treasurer to that effect. A new certificate could be procured for this purpose, or the present one could probably be filled out to answer the purpose. A charge could be made for the same, and no doubt would be cheerfully complied with by those who are entitled to them. It might also be desirable to have a list of the life members printed in a separate list in the Proceedings.

The last volume of the Proceedings was made additionally attractive by the introduction of copious notes, made by a verbatim reporter, of the debates connected with the several important subjects offered at the meeting. It would be well to continue this feature, as it is impossible for the Secretary to write off anything except the business of the meeting. Those unable to attend the meetings are enabled by the verbatim reports to receive a greater benefit from our meetings than they could in any other way.

It has been customary to send copies of our proceedings to kindred associations, and to colleges and other libraries. This has been generally done, I believe, by different members of the Association supplying those situated in their vicinity, and in this way many whom we would wish to be supplied have been neglected, and some have, perhaps, received duplicates. A list could now be made out by those who have usually supplied them, and, as we now have a “Head Centre,” a systematic mode of distributing could be accomplished. I have made a list of those that have been supplied in New England the past year.

A remarkable and pleasant coincidence occurs to my mind at the present time. Yesterday, August 21st, there was probably convened, as according to previous notice, at Nottingham, England, the annual meeting of the British Pharmaceutical Conference, an institution having similar objects to our own. Its deliberations will occupy four or five days, and it would be a pleasant item of interest could the new Atlantic cable flash its electric fire through the 1800 miles of ocean, and bear messages of comity and good will from both associations.

The subject of the meeting of the Pharmaceutical Congress to be held at Paris in 1867 would very properly receive your attention, and it might be quite desirable to have this Association represented in its deliberations.

I have prepared a tabular statement containing the number of members in each State during each year since the formation of the Association, the date and place of meeting, the number of pages of each volume of Proceedings, and other interesting matter, which I will append to this report, as it may be useful for future reference. It will be seen by this statement that the migratory character of the Association has been productive of much good, and one can easily tell, by looking at the list of names, at what place we held our meeting in that year.

In order to give the Secretary every facility to enable him to issue the volume of Proceedings at an early day after the close of our meetings, and also for preserving the manuscripts for future reference, it is quite important that all reports and other papers offered for publication should be thoroughly finished before presentation, and should be uniformly written on one side only of cap paper.

And now, fellow-associates, as my term of office is about expiring, and I again take my proper seat among you, allow me to thank you all for the kindness you have shown in electing me as your presiding officer for the past year, and for your forbearance in overlooking my short-comings. May your discussions this year be conducted with the same degree of courtesy that have always characterized your meetings, and have obviated the necessity, this year, at least, for your presiding officer to be skilled in the intricacies of parliamentary tactics.

It was moved by Mr. Robert J. Brown that the President's address be referred to the Business Committee, with the view of bringing the suggestions contained therein before the Association at a future session.

In regard to the tabular statement containing the number of members from each State during each year since the organization of the Association and other interesting statistical information, prepared by the President, leave was granted to have it published as an appendage to his address.

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Date.	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865
Place of Meeting.....	Bost.	Cinc.	N. Y.	Balt.	Phila.	Wash.	Bost.	N. Y.	Phila.	Balt.	Cinc.	Bost.	
No. of pages of Proc'gs.	48	40	40	89	178	458	416	278	371	321	355	260	
Members in each State, as follows:													
Maine.....	1	1	1	1	1	1	7	8	9	9	9	10	
New Hampshire....	1	1	1	2	2	4	11	11	12	12	12	12	
Vermont.....	2	2	2	2	2	2	7	7	7	7	7	5	
Massachusetts.....	20	20	23	25	29	40	89	105	109	111	114	119	
Rhode Island.....							4	5	4	4	4	5	
Connecticut.....	1	1	1	1	1	1	4	6	7	7	7	4	
New York.....	6	6	17	23	32	63	79	114	124	125	135	118	
New Jersey.....			1	1	2	2	3	4	8	8	8	10	
Pennsylvania.....	5	5	6	13	44	56	60	74	85	93	112	98	
Delaware.....					1	1	2	2	3	3	3	4	
Maryland.....	1	1	2	28	30	32	33	33	35	43	55	42	
Dist. of Columbia..				6	9	21	22	24	22	23	26	12	
Virginia.....	3	3	3	8	8	9	9	10	13	13	12	9	
North Carolina.....					1	2	3	2	2	2	2	2	
South Carolina.....				2	2	2	4	4	4	4	4	4	
Georgia.....				1	3	5	13	14	13	13	13	13	
Alabama.....				1	1	1	1	1	3	3	3	3	
Mississippi.....					3	3	3	4	5	5	5	5	
Louisiana.....			1	2	2	4	4	5	5	5	5	4	
Tennessee.....	1	1	1		1	1	1	1	2	2	2	5	
Kentucky.....					1	1	2	2	2	2	7	5	
Ohio.....	2	17	17	20	21	16	18	18	30	29	85	74	
Indiana.....	1	1	1	2	3	4	6	7	7	7	8	15	
Illinois.....					4	3	4	7	8	10	18	42	
Missouri.....				1	2	9	10	10	11	11	14	17	
Michigan.....			1	1	6	7	9	12	11	12	12	11	
Iowa.....						1	1	1	1	1	3	1	
Wisconsin.....							1	2	2	2	2	3	
Minnesota.....						1	2	2	2	2	2	1	
California.....		1	1	1	2	2	10	13	13	13	14	13	
Kansas.....									1	1	1	1	
Washington Terr.													1
Canada West.....								1	2	3	3	2	
New Brunswick....							1	1	1	1	1	1	
Bermuda.....										1	1	1	
Total.....	44	60	79	141	213	294	423	510	563	587	709	671	

After some informal discussions, the Association adjourned.

Second Session.—Thursday, August 23.

The Association was called to order at 9 o'clock, A.M., President Lincoln in the Chair. The minutes of the first session were read and approved.

Mr. John Butterworth, on behalf of the Executive Committee, proposed the following gentlemen for membership, the candidates having complied with the requirements of the Constitution :

Thomas E. Jenkins, Louisville, Ky.

Nobel Schroeder, Chicago, Ill.

On motion, ~~the candidates~~ were balloted for; Henry Sweet and E. C. Jones being appointed tellers, reported them duly elected.

The Treasurer's Report being called for, Mr. Charles A. Tufts desired the postponement of the reading until the next session, to enable him to finish the report by filling some blanks of money not yet paid to him, now in the hands of members.

It was moved and carried that the reading of the Treasurer's Report be postponed for the present.

The report of the Nominating Committee being next in order, Professor Procter read it, as follows:

To the American Pharmaceutical Association:

The Committee on Nominations respectfully report the following:

For President,

FREDERICK STEARNS, Detroit, Mich.

For Vice Presidents,

1st. PROF. EDWARD PARRISH, Philadelphia, Pa.

2d. E. H. SARGENT, Chicago, Ill.

3d. JOHN W. SHEDDEN, New York, N. Y.

For Treasurer,

CHARLES A. TUFTS, Dover, N. H.

Executive Committee,

T. S. WIEGAND, Chairman, Philadelphia, Pa.

WILLIAM WRIGHT, Jr., New York, N. Y.

ALBERT E. EBERT, Chicago, Ill.

W. J. M. GORDON, Cincinnati, Ohio.

PROF. JOHN M. MAISCH, ex officio, Philadelphia, Pa.

Committee on the Progress of Pharmacy,

C. LEWIS DIEHL, Chairman, Louisville, Ky.

Prof. F. F. MAYER, New York, N. Y.

G. F. H. MARKOE, Boston, Mass.

E. L. MASSOT, St. Louis, Mo.

PROF. P. W. BEDFORD, New York, N. Y.

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Committee on the Drug Market,

WM. A. BREWER, Chairman,	.	.	New York, N. Y.
EVAN T. ELLIS,	.	.	Philadelphia, Pa.
HENRY W. FULLER,	.	.	Chicago, Ill.
J. JACOB THOMSEN,	.	.	Baltimore, Md.
SAMUEL M. COLCORD,	.	.	Boston, Mass.

Committee on Scientific Queries,

Prof. WILLIAM PROCTER, Jr., Chairman,	Philadelphia, Pa.
SAML. P. DUFFIELD, Ph. D.,	Detroit, Mich.
Prof. EDWARD PARRISH,	Philadelphia, Pa.
R. H. STABLER, M. D.,	Alexandria, Va.

Business Committee,

Dr. E. R. SQUIBB, Chairman,	.	.	Brooklyn, N. Y.
GEO. C. CLOSE,	.	.	Brooklyn, N. Y.
ROBERT J. BROWN,	.	.	Leavenworth, Kansas.

On behalf of the Committee,

ROBT. R. KENT, *Chairman.*

WILLIAM PROCTER, Jr., *Secretary.*

On motion, the report as presented was accepted, and an election ordered for President.

The Chair appointed Evan T. Ellis, of Philadelphia, and Robert R. Kent, of Boston, to act as tellers; they reported the unanimous election of Frederick Stearns, of Detroit, as President for the ensuing year.

It was now moved and carried that the President be directed to deposit an affirmative vote for the remaining Officers and Committees proposed in the Report of the Nominating Committee, which was carried, when the tellers reported their unanimous election.

On motion, the President was directed to appoint a committee to conduct the President elect to the Chair. Professors Procter and Parrish were appointed for this duty. They conducted Mr. Stearns to the Chair occupied by Mr. Lincoln, who rose and presented President Fred. Stearns to the Association, all members rising to their feet during the ceremony. President Stearns then said :

However unworthy I am for this position, gentlemen, I assure you that I very earnestly and heartily appreciate the honor you have done me. Now that I can do so officially, I welcome you all who are strangers and members of the Association in behalf of the Drug trade of Detroit and the resident members of our beautiful peninsula. I hope your present meeting may be as profitable as I know your previous ones have been, and that is all I can ask. In taking the position to which your kindness has assigned me, I rely upon your courtesy and forbearance for the indulgence necessarily awarded to those unused to parliamentary usages.

It was moved and carried that the thanks of the Association are due to the retiring officers for the efficient manner in which they have performed their respective duties.

The reading of the Reports of the Standing Committees being in order, the Secretary read the Report of the Corresponding Secretary, which was, on motion, accepted and referred for publication.

PROF. PARRISH.—Fifteen years have passed since the first Convention of Pharmacutists in New York, and it appears to me that we ought to notice a much greater improvement in or extension of pharmaceutical education than has occurred. During this period the extension of these facilities for education has been very slight. There is not a city of the first class in the United States that might not, from the apothecaries residing in it, furnish a sufficient class to sustain a College of Pharmacy. We have heard that in the Philadelphia College there were one hundred and forty matriculants last year. Considerably over one hundred of these students are from the apothecaries and stores of the city of Philadelphia, some twenty or thirty returning annually from distant places. In New York, a larger city,—having Brooklyn to call upon, Jersey City, and a very extensive series of towns, all having apothecaries quite accessible to the city without the necessity of residing there, able to go there regularly the same day and evening, in that College they have only thirty students. There is not an apothecary or pharmacist in New York but what would be better off if his clerks had the advantages of attendance at this College. It would take a couple of hours from the business of the store—three evenings a week, or if there is more leisure in the afternoons, three afternoons in a week. Three hours would be the time occupied in going to the lectures. In that College they ought to have three hundred students furnished by New York and surrounding towns, to constitute the class in the College of Pharmacy, and yet there are but thirty-five.

In Baltimore the proportion is much less than this of those who don't patronize the College of Pharmacy. So in St. Louis. And when the advantages are better appreciated, the number will increase.

Now the question for us to consider is this: cannot this Association

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exert its influence to improve the condition, and extend the appreciation of the colleges in the United States and to establish others when practicable? In Cincinnati they have not for a number of years had any successful teaching. In none of the cities but New York, Philadelphia, Baltimore, and St. Louis are there any colleges attempting to get along and keep up the instruction. I don't know that we could do anything, but I think the weight and influence of this Association should be thrown in this direction. That is the way in which we are to raise the status of pharmacy in the United States. It is through generations to come. We that have got ahead, and feel like relinquishing our connection with business, cannot do a great deal except to use our influence in that direction; but the young men themselves, who are to be educated in pharmacy, will raise the American Pharmaceutical Association hereafter to be a body of far greater efficiency than it ever has been, judging from those we have among us who have recently availed themselves of the advantages of pharmaceutical instruction. I hope it will rest in the minds of members of this Association whether we cannot do something to wake up the very large constituency we have to the importance of sending their apprentices and those over whom they have influence, to obtain a systematic instruction in pharmacy.

FREDERICK L. STEARNS.—These remarks that have been made by Prof. Parrish, lead me to say a word in regard to the influence of this Association in respect to the formation of local Associations, not merely *educational ones*, but societies for mutual improvement other than education, for social influence and trade influence. We need to get the druggists together in the towns, and let them become acquainted with each other, let them know each other better, so as to rub off the corners, trade jealousy, and antagonisms which are very apt to exist between members of the same profession. I think the influence of the Association can be brought to bear in this direction with great benefit. Throughout the country the druggists who are not members of this Association, and who do not understand its objects, look upon it with a scant eye. They think that by joining the Association they may involve themselves in some way—they don't exactly understand how—but the very moment they become informed as to the objects, advantages and influences of the Association, they are ready to join. I can say for myself that I have been a member of this Association for fourteen years, and have spent a considerable amount of money in attending its meetings, but I know that it has paid me ten fold in a pecuniary sense alone, to say nothing of the many other advantages I have reaped from my connection with it. I am very glad, therefore, that the remarks of Prof. Parrish were made in connection with the Report, and I cordially endorse them.

After some discussion with regard to unfinished papers, on motion of Dr. Squibb, a reasonable time was granted to Mr.

Enno Sander, Chairman of the last Committee on the Progress of Pharmacy, to finish his report for publication.

No information having been received from the Chairman of last year's Committee on the Drug Market, that Committee was, on motion, excused from reporting at this meeting.

The Report of the Committee on Scientific Queries was taken up, read by the Chairman, Professor Procter, and on motion accepted, the Committee being directed to procure the acceptance of queries by members for report in 1867.

Dr. Squibb, the Chairman of the Permanent Committee on the Pharmacopœia, read a Report of this Committee on fluid extract of buchu, which, on motion, was accepted and referred for publication.

The reading of the very lengthy Report of the Committee on the Internal Revenue Laws was for the present deferred.

It was agreed to proceed with the reading of the reports in answer to queries propounded last year.

Professor Procter, who had accepted Query 1st, on the best Form of Steam Apparatus for Evaporating, Distilling, etc., on a moderate scale, explained that he had been unable to complete his researches, and desired to have the subject continued for another year, which request, on motion, was granted.

Mr. MAISCH then said:—I have with me a model and drawings of an apparatus constructed by Mr. Neynaber, of Philadelphia, a member of our Association, which I think exactly meets the point desired in the query. The apparatus can be used for distillation, decoction, digestion, and evaporation, in fact for any pharmaceutical process requiring the application of heat not above the boiling point of syrups. Heat may be applied directly, or the apparatus may be formed into a steam bath, most of the steam being condensed on the outside of the inner vessel, and therefore remains in the jacket; the escaping steam is replaced by water from a bottle whenever the hot water in the jacket falls below a certain level, and the steam pressure is reduced. I have seen it in operation once, and from that experiment think very well of it. I therefore induced Mr. Neynaber to have this model made for exhibition at this meeting. With the permission of the Association, I shall at a future session show the drawing and model and read the description of the apparatus written by Mr. Neynaber.

QUERY 2d, Pharmaceutical Business and its Management, was replied to by Mr. Fred. Stearns, Professor Parrish, the first

Vice President, occupying the chair during the reading of the essay.

An invitation was received from Mr. Robert E. Roberts, Secretary of the Detroit Water Works, to visit the pumping works and reservoir. On motion, the invitation was accepted with the thanks of the Association, the Secretary being directed to reply to the communication.

No reports were received from Dr. R. H. Stabler in reply to Queries 3, 4, and 5, on the Comparative Advantages of Percolation and the Press; on the best Mill for the use of the Pharmaceutist, and on the best Material for Press Cloth. Professor Procter read a letter from Dr. Stabler, wherein he states his inability to report now, and in regard to the third query referred to the experiments of Dr. E. R. Squibb and N. Spencer Thomas.

Dr. Squibb said that, in his experience, the only cloth adapted for press use is the hair cloth used in linseed oil mills.

On motion, the above queries were referred to the Committee on Queries.

Mr. F. W. Sennewald, of St. Louis, failed to send a report on Query 6, regarding the presence of Chrysophanic Acid in Senna, he having been probably prevented by the prevalence of cholera in his city. On motion, the subject was continued to him for another year.

QUERY 7, on the relative Medicinal Value of Hyoscyamus and Belladonna grown in this country and in Europe, was not answered by Mr. Lewis Dohme, to whom, on motion, it was continued.

Mr. James F. Babcock, through G. F. H. Markoe, of Boston, asked to be relieved from the further investigation of Query 8, relating to the Purification of Commercial Glycerin. The request, on motion, was granted.

The 9th QUERY, on the preparation of pure Valerianic Acid and Valerianate of Ammonia, &c., was, on motion, continued to Mr. N. Gray Bartlett, of Keokuk, Iowa, he having been prevented from finishing his experiments, as stated by Mr. A. E. Ebert, on account of his removal from the city of Chicago.

QUERY 10th. What change can be made in the composition of Emplastrum Piciscum Cantharide that will render its consistence

firmer in warm weather? Mr. George C. Close read a paper proposing another formula for making this plaster, and exhibiting several samples of it.

Professor Parrish said, that in the proposed formula the application of a fusing temperature had been lost sight of, by which means the activity of the plaster would be increased on account of the Cantharidin being dissolved by the fat.

No answer being received from Mr. N. G. Bartlett to QUERY 11th, "on the economizing of Alcohol in preparing fluid extracts, &c.," it was, on motion, dropped.

The same action was taken on QUERY 12th, "on Podophyllum peltatum," which had been left to general acceptance, no report having been handed in.

No. 13 and 14 were passed over for the present.

Mr. E. W. Sackrider, of Cleveland, made some verbal remarks in relation to the 15th QUERY, "on the active principles of Cotton Root and Cotton Seed," stating that his experiments had failed to elicit anything of sufficient importance to report thereon, and that physicians differ widely in their opinion as regards the efficiency or value of this drug.

Prof. PARRISH. The fluid extract has a very extensive sale, although there are only two or three manufacturers who have it on their lists. Probably the uncertainty and different character of the reports in regard to its efficiency are due to the want of careful preparation.

Dr. SQUIBB. I think the sale of this preparation depends largely upon the labels that are usually placed upon it. It is usually stated at the bottom of the labels, that ladies in a certain condition had better not use it. Whether ladies in this condition buy it to use it, because of these implied effects, getting their supposed information from these labels, is another question which I cannot answer. I have always supposed that its efficiency in producing abortion is not proved. It is used by negroes in the South as an emenagogue to a very large extent, but inasmuch as they use almost everything, I don't consider that to be any evidence of its character. But that it has been used, and criminally used to a very large extent for the purpose of producing abortion, I have no doubt.

A. E. EBERT. I wish to inquire whether it is proper to retail fluid extract of cotton root?

Prof. WM. PROCTER, JR. I suppose, if it has the effect that is claimed for it, we must treat it as we do ergot and other poisons, and not dispense it without a physician's prescription.

Prof. PARRISH. A peculiar method is practised in preparing a number

of articles calculated to produce abortion. Apiol is considered very bad for ladies, in a certain condition, to use, but in capsule form is extensively sold.

Mr. STEARNS. I wish to ask whether it is customary with members of the Association to sell fluid extract of cotton root except in quantities to physicians, and whether there is any retail demand for it by the public?

Mr. EBERT. There is in our city (Chicago) a very large demand for it, but we invariably refuse to sell it.

Mr. STEARNS. I have sold large quantities of it, but the sales have always been by the pound, and to physicians altogether.

Mr. S. P. DUFFIELD. Two years ago, when just returning to the drug business, or when preparing to go into manufacturing, I had very frequent calls for fluid extract of cotton root, and it was not altogether by physicians.

Mr. SAUNDERS. In our business in London, Canada West, we have had calls for the fluid extract by ladies from the United States.

Mr. SACKRIDER. In Cleveland there has been quite a demand for it, but mainly from eclectic physicians and others not of the regular school.

Dr. SQUIBB. I understand the sense of what has been said to be that physicians' prescriptions rarely demand it, and that, as far as used, it is generally by country physicians.

Mr. SLOAN. Eclectic physicians in Indianapolis use it extensively. We frequently sell it by the half pound. The druggists there make a practice of selling it to any respectable man.

QUERY 16th, "on an improvement in the process for Oil of Tobacco," left for general acceptance—and 17, on the vermifuge properties of *Chenopodium anthelminticum*, accepted by Thos. S. Wiegand,—were not replied to. Both subjects were referred to the Committee on Queries.

In answer to QUERY 18th, "on *Sassafras officinale*," Professor Procter read an interesting paper illustrating the statements by the exhibition of various specimens. The paper was received and referred to the Executive Committee.

Mr. Edward C. Jones being present, he read a statement of his experiments and exhibited specimens of the result of different processes for preparing extract of *Quassia*, in answer to QUERY 13th.

A letter was received from Dr. Geo. Duffield, President of the Board of Trustees of the Harper Hospital, inviting the members to visit that institution. On motion, the letter was accepted, and the Secretary directed to express to the Trustees the thanks of the Association for the invitation.

The President appointed the following Committee to examine and report on the specimens on exhibition: Chas. A. Heinitsh, of Lancaster, Pa., H. A. Blauw, of Rochester, N. Y., and J. W. Dietrich, of Dayton, Ohio.

The Secretary read the following letter:

COLLEGE OF PHARMACY OF THE CITY OF NEW YORK, August 17th, 1866.

To the Secretary of the American Pharmaceutical Association:

At the meeting of the Board of Trustees of this College held August 2d, the following resolution was adopted:

Resolved, That this Board, on behalf of the members of this College, extend a hearty invitation to the members of the American Pharmaceutical Association to hold their next annual meeting in the city of New York.

P. W. BEDFORD,
Secretary.

The invitation was received and for the present laid on the table.

Mr. Ebert read, in reply to QUERY 19th, a paper by James W. Mill, of Chicago, on the best process for preparing Granular Citrate of Magnesia; and then said:

I think the granules can be made much larger, and have a better appearance, if made as we make them now at E. H. Sargent's, in Chicago, by taking the moist mass and rubbing it with force through the sieve—pressing it through. By this method it comes through in a stringy form, which is dried, rubbed gently in the mortar, and again sifted. There is a knack in making granular salts. When I was at Parrish's we had a difficulty in granulating. We could not get at the process by which the granulated salts made by the English houses were so nicely finished. I took some with me to Chicago, and while there, Mr. Bartlett and myself happened to take up one or two granules, and we found that one was acid, and the other was alkaline. We came to the conclusion that they were separately granulated and then mixed together in the right proportions. These samples were made on this principle. Put into water they will dissolve, and make the proper effervescent mixture.

Mr. DUFFIELD. Could they be as readily granulated in the drum as in the mortar?

Mr. EBERT. Certainly, sir. There may be some other process, but this is the best one we have found. This sample has also some sugar in it. The soda and sugar are mixed together with diluted alcohol while the tartaric acid is mixed with water. If you take the sugar and alkali and use water with it, it will form a moist mass, and not make good preparations.

Prof. PARRISH. Why cannot the mixture of acid and alkali be moistened with alcohol?

Mr. EBERT. That will throw off too much gas and form such an insoluble compound that it cannot be dissolved; it will form a citrate of magnesia which envelopes the granule, and prevents it from being readily soluble. Generally the great object has been to get large globules. We have made some very fine granules by heating them, but they would not dissolve.

A paper was read by Prof. Procter in answer to QUERY 20th, on the removal of Cinchotannic Acid from Cinchona.

QUERY 21st, "on the active principle of Erigeron Canadense," left for general acceptance; No. 22, "on Syrup of Lactucarium," accepted by P. W. Bedford; No. 23, "on the production of Lactucarium," accepted by Alfred Mellor; and No. 24, "on the active principle of Scutellaria lateriflora," accepted by G. F. H. Markoe, elicited no reply; the first of these was referred to the Committee on Queries, the last three were continued to the gentlemen for another year.

Mr. Markoe read, in answer to the 25th QUERY, on Benzoinated Lard, a paper by Thos. Doliber, of Boston, and then made the following remarks:

I have been in the habit for the past four years of benzoinating lard by means of a tincture of benzoin, and much prefer it to the officinal process. I made some very conclusive experiments by putting into a medicine chest some simple cerate and Turner's cerate with and without the addition of tincture of benzoin. The chest was for a vessel bound for the west coast of Africa. On her return to Boston, the cerates were examined, and those which had been benzoinated were found unchanged, while those which had not been benzoinated were very rancid.

With regard to the preparation of the Tincture of Benzoin I will make one suggestion. There is no need of a prolonged maceration, as directed by Mr. Doliber. If the benzoin is rubbed into a powder, and then with a portion of the alcohol and the mixture thrown into a filter, all the soluble matter will go into solution, leaving the impurities on the filter. Alcohol may then be passed through the filter until the required measure of tincture is obtained. I have been in the habit of using a weaker tincture than the one directed by Mr. Doliber, yet think the stronger preparation will be better because it will introduce less alcohol into the ointments. The tincture will be found very convenient for the extemporaneous benzoinating of ointments.

Prof. PARRISH.—I have been in the habit of using Tincture of Benzoin for that purpose.

Prof. MAISCH.—In the last Proceedings I used the term "benzinated."

Mr. Lincoln has questioned, and I think very correctly so, whether it should not be "benzoinated." I had adopted "benzinated" because it is to be found in Wood and Bache's, and not because I think it is right. Can any member present give the derivation of the word?

Prof. PROCTER.—I think that name originated in the original paper by Deschamps, on the influence of benzoine on fatty matters, about twenty-five years ago. It may be, however, a word that is used by the French.

Prof. MAISCH.—The French name for benzoine is "benjoin," a name that is entirely different.

Prof. PROCTER.—I cannot give the source of the word. It appears to me that it has been in use for a long time.

Prof. MAISCH.—It may have originated from the erroneous supposition that it contained benzine.

QUERY 26th, "on Beeswax," was continued to James F. Babcock, at his request. No. 27, on "Hyoscyamia and its preparations," referred last year to Prof. A. Wadgymar, of St. Louis, was referred to the Committee on Queries, no reply having been received.

No reports were received in answer to QUERY 28th, on "Apparatus for making Pills," accepted by Ferris Bringham; and No. 29, "on Coating Pills with Sugar," accepted by S. Mason M'Collin; they were continued to these members.

Prof. Procter read a paper "on Liquor Ammoniae Acetatis," by Dr. W. H. Pile, in answer to QUERY 30.

Dr. Squibb then made the following remarks:—

A very good way seems to have escaped the doctor's attention. That is, to take the quantity of acid to be made into solution, and separate one-sixteenth or one twenty-fourth of the acid. Then over-saturate the remainder of the acid with carbonate of ammonia until red litmus is turned blue, which point is very easily attained; then add the remainder of the acid. It is likely to be a little over-acidified, but this is acceptable to the stomach rather than otherwise, and has a beneficial effect upon it. The preparation should be over-acid rather than over-alkaline, and that is secured in this way. You don't have to test so often, because you need not be so careful to get accurate proportions, when you are using red paper and not using blue.

Mr. Turrs.—Do I understand that when the liquor acetatis ammoniae is too acid that you add aqua ammoniae?

Dr. SQUIBB.—He does not say that. Another way of avoiding the violet color is, instead of heating the solution to drive off the carbonic acid, to heat the paper instead. If you put a paper moist with carbonic acid on

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a warm surface it takes away the violet tint in a great measure. Warm the paper instead of warming the solution.

Prof. PROCTER.—It is well not to overlook the latter point. The Doctor has attempted to carry out the views that carbonic acid is useful.

Dr. SQUIBB.—It has been shown by the best authority that free carbonic acid in this solution is one of the most important constituents in it. And that is one great reason why it should always be freshly made and dispensed. When stoppered for a number of hours after it is made it will produce pressure within, by the carbonic acid gas liberating. If the preparation is made quickly the temperature is very much reduced. As it becomes warm it liberates the carbonic acid, so when it goes into the stomach a large proportion of the carbonic acid is liberated at once in the stomach, and the stimulus of that acts as carbonic acid always acts, as a sedative, and allays vomiting and nausea. When the preparation is made free from carbonic acid it is nauseating; when made with it, that tendency is obviated.

Dr. DUFFIELD.—I will suggest a little process. I simply saturate my acetic acid with lime, forming acetate of lime, and give an equivalent of carbonate of ammonia in powder wrapped in tin foil. When we wish a solution of Spiritus Mindereri, dissolve an equivalent quantity of this salt and then filter.

Prof. MAISCH.—You have then a little carbonate of lime in solution, in consequence of the free carbonic acid eliminated from the sesquicarbonate of ammonia.

Dr. DUFFIELD.—Yes, sir, a very little.

Prof. MAISCH.—I believe a certain proportion of carbonic acid would be very desirable. The practical question would be, how much? Ought it to be all? In that case the preparation cannot be well given in ordinary bottles, or it would be necessary to instruct the patient to be careful in opening it. A similar case in my opinion is Liquor Potassæ Citratis and the Mistura neutralis. I think they are very frequently made containing no carbonic acid whatever, and are therefore almost worthless. If they should contain the whole of the carbonic acid which would be liberated from bicarbonate of potassa, by neutralizing citric acid with it, the amount would be so large that it would take a very strong bottle to keep the preparation in. There is a preparation in use in Germany, and frequently prescribed in this country by German physicians, a solution of citrate of potassa, which is called "potio Riveri," containing a little carbonic acid. I neutralize citric acid by means of carbonate of potassa, in a mortar, finishing by dropping a little bicarbonate into the solution in the bottle. I use just enough bicarbonate of potassa to neutralize the free acid. There is then enough carbonic acid present to render it effervescent, and not enough to force the cork out of the bottles. I should like to know the views of the other members in regard to this method, applied to neutral mixture and Spiritus Mindereri.

Dr. SQUIBB.—All these solutions are given in doses that are very close together, every two or three hours, for instance. It would be impossible to dispense bottles enough to open one at a time. It has become the practice with physicians to have it prepared (as far as my acquaintance goes) every twenty-four hours, and they consider that enough. It will remain in solution in the bottle uncorked over twenty-four hours, and furnish enough carbonic acid if it is made every twenty-four hours.

Prof. MAISCH.—The preparation is not dispensed under pressure?

Dr. SQUIBB.—There is no pressure when dispensed; that accumulates.

Prof. PARRISH.—I have been in the habit of dispensing it somewhat acid. The care, therefore, of using litmus paper is dispensed with. I try to teach young men to detect the right point of saturation by the tongue. In regard to carbonic acid, I recollect in the first edition of my work on Pharmacy, published a number of years ago, of suggesting dispensing it in two bottles, similar to the old method of having lemon juice and bicarbonate of potassa in making neutral mixture. So with this mixture; by having carbonate of ammonia and acetic acid, and mixing them at the bedside. The use of carbonic acid is so important, and the sale of carbonic acid water going out of date with the Pharmacutists, that I consider this method a very great improvement. The tingling sensation of the effervescence is the point with a great many people. If you use ice, a portion of the carbonic acid is not eliminated. Acetic acid itself is a refrigerant, but not being wholesome, ammonia is added in sufficient quantity to neutralize it. I make a solution of the acetate in a refrigerating bottle, keeping the stopper in, so that it is highly charged with carbonic acid.

Dr. SQUIBB.—The preparation is given for the carbonic acid. It is given as a diaphoretic, and acetic acid is not a diaphoretic.

Prof. PARRISH.—Doctor Wood's doctrine was that the alkali is found in the urine as carbonate, and the rationale is that the organic acid is decomposed and transformed into carbonic acid, and hence refrigerates the blood.

Prof. MAISCH.—There might be a good way to obtain a solution in a neutral condition, and with a sufficient amount of carbonic acid, if it was prepared from acetic acid partially saturated by either ammonia or carbonate of ammonia, and the solution brought to the required strength by the addition of water. If it still contain a definite amount of acetic acid it might be neutralized by adding bicarbonate of ammonia. Neutral carbonate of ammonia does not exist in a solid state. If you expose sesqui-carbonate of ammonia to the atmosphere you obtain bicarbonate; and if there is a certain amount of acetic acid in each fluidounce of the preparation left uncombined, then add an equivalent weight of bicarbonate of ammonia to it, and you obtain a solution charged with a certain amount of free carbonic acid.

The President stated that there were in the ante-room some samples of wine and brandy on exhibition during the recess.

It was moved and carried that the Association now adjourn to meet again at half-past two o'clock this afternoon.

Third Session, Thursday, August 23d.

The Association was called to order by President Stearns at the proper hour. The Minutes of the second session were read and adopted.

The Executive Committee brought forward the names of the following gentlemen for membership, they having complied with the requirements of the Constitution:—

Emanuel Mann, Ann Arbor, Mich.

Noah Huckins, Jackson, Mich.

Daniel W. Richardson, Almont, Mich.

J. E. D'Avignon, Montreal, Canada East.

The President appointed Evan T. Ellis and George W. Eldridge tellers, who received the ballots and reported the unanimous election of the candidates.

Dr. E. R. Squibb, Chairman of the Committee on the Internal Revenue Law, read a very long and elaborate report embracing the results of the several interviews of this Committee with the Committee of Congress, the views and opinions of the members of the Committee on different points of the law, and the bearing of the new law on the Pharmaceutical business. The report was, on motion, accepted and referred to the Executive Committee for publication.

The Resolution appended to this report, namely:—

Resolved, That the President of the American Pharmaceutical Association be directed to express the thanks of the Association to the Internal Revenue Commission of the United States for the year 1865 and 6, for the favorable attention given to the interests and desires of the Association as evinced in the new Internal Revenue Law.

Was now called up, and, on motion, it was adopted without a dissenting voice.

Prof. PARRISH.—I think the committee is entitled to much credit for its labors, although the result of them has been to make the revenue law bear harder upon the apothecaries in respect to stamp taxes than it did before.

Dr. SQUIBB.—There has been a careful selection in the last part of the report of all those portions that bear upon apothecaries, and embraces every case with which the apothecary has anything to do.

Prof. PARRISH.—I think that part of the report should be specially referred to by the Secretary in his preface. It will be very interesting to the profession to see just what the law applying to them is.

Mr. Robert J. Brown moved, and it was carried unanimously, that the thanks of the Association are tendered to the Chairman and members of the Committee on the Internal Revenue Law for their untiring labors and complete Report.

Dr. SQUIBB.—On the part of the Committee I feel gratified that the Association should express itself in this way. I may say further, in respect to the remarks of Prof. Parrish, that it takes a good while to go over this ground and see exactly all its bearings and meanings. If my friend understands the whole subject fully from my very rapid reading of the Report, he has done well,—a great deal better than most of us could do. I think, however, if he will go over it carefully, he will allow that he has been in error, and that the stamp act does not bear so hard upon apothecaries as it did under previous laws.

Prof. PARRISH.—I think that all laws and legislation, whether among ourselves or elsewhere, that tend to confine our profession, and keep it back, should be carefully guarded against. The idea of confining our legitimate pharmacy to such things as are found in the United States or other Dispensatories or Pharmacopœias, and what may happen to be published in the American Journal of Pharmacy,—the only Journal issued by a College of Pharmacy,—and the United States Dispensatory, edited by physicians, is utterly absurd. A very large proportion of medicines which are sold by legitimate pharmacutists have never appeared in these works. Take the article of Citrate of Magnesia, for instance. Dr. Squibb would say it is not taxed because it is made according to the Pharmacopœia. I say it is not made in that way by a single member of this Association. Therefore it ought to be taxed on every one. The formula that we use has probably never been published in any of these works—although we have no objection to everybody's knowing them. In regard to Citrate of Magnesia, the law would not bear upon me, for my formula has been published in the American Journal of Pharmacy; but it does bear on some one else. Prof. Maisch was telling me on the way here that in making Citrate of Magnesia (having been out of practice for a long while), he made it according to the Pharmacopœia, and it did not keep twenty-four hours. He had to make a formula for himself. He must therefore put on a two cent stamp. So with my own preparations, which don't profess to be official, about which nobody wishes to have any proprietorship or keep any secrets.

Prof. PROCTER.—I don't believe that the operations of the law, in its bearing upon authorities, would make any such distinction as Mr. Parrish

has suggested. In the case of Citrate of Magnesia, I don't think that the law would make any distinction except where it is done to weaken the solution, because it costs less. Prof. Maisch did not vary from the formula prescribed in the Pharmacopœia to make his preparation cheaper, but to make it permanent.

Dr. SQUIBB.—That is true, and the example is not a fair one unless Prof. Maisch should find out that the officinal prescription will not make the preparation. If he goes to work and makes the preparation according to the formula of his own, and calls it "Maisch's," and says it is permanent, while that made according to the Pharmacopœia is not permanent, then his preparation is to be stamped. But if he chooses to publish the formula, and says "Citrate of Magnesia prepared by Maisch in accordance with the Pharmacopœia, with the exception that it is rendered stable,"—if he publishes the formula, and says, "anybody who wishes to use the formula contained in the Pharmacopœia will find it is unstable, and that made according to his formula is stable," then he does not subject himself to any tax. It is his proprietorship in an article, or claim, that renders it subject to stamp duty.

Prof. PARRISH.—According to the present working of this law, we must use the formulæ which have been published in one or the other of those works specified. This is burdensome, and has a tendency to prevent improvement; and if I am conscientious about it, I must say I cannot vary from the formula contained in these works, or I must pay a stamp duty. The Elixir of Valerianate of Ammonia is an article which is nearly as largely sold as anything I sell. I make it by a formula that is not published, so far as I know, but anybody is welcome to know how it is made. [Some member here said to Mr. Parrish that his formula for making Elixir of Valerianate of Ammonia is contained in his work on pharmacy.] Even if it is published in my book, it does not help me at all. My book is not issued by an incorporated College of Pharmacy, nor under the name of a dispensatory, notwithstanding all the formulæ it contains. Therefore it does not come under this law, and any preparation made according to any formula contained in that work, but not in those works specified in the law must pay a duty.

Dr. SQUIBB.—Any book that has been in use as long as Mr. Parrish's, and is generally known and considered as a standard authority, would be called a dispensatory.

Mr. BUTTERWORTH.—Prof. Parrish's book is used in academies as a common text book.

Dr. SQUIBB.—Anything known and recognized as a professional text book before the law went into effect will be recognized under the law. The object was to keep out those formulas which might be published for the sake of evading the law. To carry the law into effect, text books were left out, because text books might be found which would embrace the whole ground of practice. It is not the intention of the law to rule out any recognized authority which was recognized before the law was applied.

Prof. MAISCHE read a section from the Internal Revenue Law, applying to the particular subject under discussion.

Dr. SQUIBB.—A dispensatory is a commentary upon a pharmacopoeia, and contains additional matter; but as a commentary, it is supposed to contain all these legitimately, and not those things which are published for the sake of evading the law.

Prof. PARRISH.—My idea is that it should not have been altered to read only dispensatories, but should have been left open to admit any standard work.

The Treasurer, Mr. Charles A. Tufts, read his Report, as follows:

TREASURER'S REPORT.

To the Officers and Members of the American Pharmaceutical Association.

In conformity with my duty, I herewith present the following report of the receipts and expenditures of this office for the preceding year. Our expenditures have been largely increased, not only by the increased cost of publishing the Proceedings, but also from the payment of new bills, in conformity with your votes at the last meeting.

Notwithstanding this increased expenditure, I have the pleasure to report a balance in my hands of \$617.48, after paying all but a few small bills which I have not yet received. This amount should not, strictly speaking, be credited to this year. To meet the expenditures, the bills must be sent out in advance of the time due for them to be paid, and we have to borrow from the succeeding year the amount necessary to accomplish the business of each year. This must necessarily be the case as long as there is so much due from the members, or until the Association has a permanent fund to draw upon.

To have an economical and prompt issue of its Proceedings, the Association should have not less than \$1200 always in its treasury. A large number of members each year cease to be contributing, and become life members; to take their places, an increased number of members must be elected each year, or we must resort to an assessment, as in the present year. Had the Association not made the assessment at its last session, it would have been at this time in debt. Although the members have cheerfully paid the assessment imposed,—not a single objection being made to the Treasurer during the year,—still it is hoped that the necessity for assessments may be avoided in future. The expense of engraving the certificate will not occur for years, and we have a sufficient number printed to last two years.

This Association has now become permanently established, and the benefits derived from being a member of it are known to all good pharmacutists in this country. Like all other institutions, an admission fee should be charged for membership, not less, we think, than \$5.00; and if the Association thought best, the member joining the Association might

be free from any other payment for the first year. Several members, it appears by the books, have paid up nearly enough to become life members, and have then suffered their dues to be unpaid for two or more years. As an inducement to urge such members to pay up the amount due the Association, would it not be well to authorize the deprivation to them of the Proceedings of the Association till such indebtedness be cancelled?

The Treasurer has had several applications for a certificate of life membership during the past year; such a certificate should be provided as soon as the Association can afford to do so. If the amounts due from those members were all paid, they would number 155 living life members of the Association, all of whom would desire certificates.

Owing to the delay in engraving and printing the certificates, members who had paid for or ordered certificates were deprived of them until within a month. The members had good reason to complain of the delay, and it is hoped hereafter there will be no unreasonable delay in furnishing certificates. In justice to himself, the Treasurer should state that within twenty-four hours after the certificates came into his possession, they were all on their way to their different destinations.

There are still many names on the books that should be disposed of as useless to the Association. A permanent committee should have this subject committed to their charge, with authority to drop from the lists all names who should be constitutionally deprived of membership, unless extenuating circumstances should be presented. From their knowledge of the books, the Permanent Secretary, Treasurer, and the Chairman of the Executive Committee should be members of the committee.

Some members who have been dropped have signified a wish to pay up the amount due from them, and to resume their membership in the Association. The Association, it is judged, would be willing for them to do so; and if so, their restoration should be published in the Proceedings, as an offset to the publication of their names as having been dropped from the roll of members.

Many Associations in our country, not more deserving than our own, have had their usefulness largely increased and benefits greatly extended by legacies from those whom Providence has blessed. If our Association could be suitably presented to the notice of the wealthy of our country, it might be selected as a recipient of such benevolence. A few thousand dollars well invested, in addition to the amounts received from the members, would place the Association in such a position as would enable it to take high rank among the scientific and educational institutions of our country.

In facilitating his labors during the past year, the Treasurer is greatly indebted to Messrs. Lincoln, Maisch, Wiegand, Ebert, Bedford, Moore, Butterworth, Gordon and Massot, and he takes this opportunity to thank them for the same. Without their assistance he feels that his report would be very unsatisfactory. He would also refer with pleasure to the courtesy which, with but few exceptions, has marked the large corres-

pondence with the members of the Association during the past year. This courtesy and kind feeling has converted into a pleasure what would have often been an unpleasant task.

CHARLES A. TUFTS, *Treasurer*.

Statement of Receipts and Disbursements of the American Pharmaceutical Association for the year ending August 22, 1866.

RECEIPTS.

1865.					
Sept. 5.	To balance on hand as per last report,			\$	326 11
Nov. 11.	" am't received from J. B. Baxley, late Treas.,				26 00
1865, '66.	" " " Contributors,				1627 73
"	" " " Sale of Proceedings,				114 90
"	" " " " " Certificates,				401 00
					\$2295 74

DISBURSEMENTS.

1865.					
Sept. 8.	No. 1.	J. M. Maisch, Expenses,		\$	10 51
" 29.	" 2.	J. H. Slade, Phonographic Report,			100 00
Oct. 13.	" 3.	J. M. Maisch, Expenses,			8 25
Dec. 13.	" 4.	T. S. Wiegand, Chairman of Exec. Comm.,			250 00
" 15.	" 5.	" " " " " "			66 00
1866.					
May 9.	" 6.	" " " " " "			300 00
" 22.	" 7.	" " " " " "			32 30
"	" 8.	J. M. Maisch, Expenses,			85 85
" 23.	" 9.	T. S. Wiegand, Chairman of Exec. Comm.,			225 00
" 30.	" 10.	" " " " " "			28 40
" 31.	" 11.	J. M. Maisch, Expenses,			23 35
July 3.	" 12.	" " " " " "			50 00
Aug. 16.	" 13.	T. S. Wiegand, Chairman of Exec. Comm.,			104 11
" "	" 14.	J. M. Maisch, Expenses,			66 39
" "	" 15.	B. Westerman & Co.,			1 00
" "	" 16.	" " " " " "			1 25
" 17.	" 17.	American Bank Note Co.,			233 20
" "	" 18.	P. W. Bedford,			8 00
" 23.	" 19.	H. W. Lincoln, Miscellaneous Expenses,			26 50
" "	" 20.	Chas. A. Tufts,			34 00
" "	" 21.	" " " " " "			24 15
					\$1678 26
Balance now on hand					617 48
					\$2295 74

E. E. All of which is respectfully submitted,

CHAS. A. TUFTS, *Treasurer*.

It was moved and carried that the Treasurer's Report be accepted and referred to an Auditing Committee. The President appointed to this duty H. W. Lincoln, of Boston, Charles A. Heinitsh, of Lancaster, Pa., and Wm. Saunders, of London, C. W.

A letter was read from Mr. H. F. Fish, of New York, regretting his inability to enjoy a reunion, and enclosing five dollars for the benefit of the Association. On motion, it was unanimously

Resolved, That the letter with contents from Mr. H. F. Fish be received, the letter placed among the archives of the Association and the money into the Treasury, and that the Secretary be directed to tender to the donor the thanks of the Association.

At the suggestion of the Business Committee, the reading of Reports on last year's Queries was proceeded with.

QUERY 31, on the Exclusion of the Actinic Rays of Light from Drugs and Medicines, elicited no reply. Dr. Jenkins, of Louisville, stated that he should be opposed to cutting off the actinic rays from the apothecary's store, because he would probably suffer on that account, the fact having been established that these rays had considerable influence on the health.

Professor Parrish was, at his request, excused from answering Query 32, regarding Approximate Tests for the Quality of Extracts, Fluid Extracts and Tinctures.

In relation to Query 33, on the Substitution for Ipecac of the Roots of *Gillenia trifoliata* and *stipulacea*, Mr. A. E. Ebert stated that the roots obtained by him through commercial channels had been experimented with upon his own person and several young men, who took the extract in doses gradually increased from one to twelve grains, without any effect whatever, one grain being stated to be an efficient emetic; that these roots might perhaps have been gathered at an improper season, but that he had not the opportunity of gathering them himself, and for this reason desired to be relieved from the further consideration of the subject. His request was granted.

A similar request was made by Mr. Henry N. Rittenhouse, with regard to QUERY 34, "on the production of Citric Acid from Currants, Gooseberries and Tomatoes," he stating in his letter that professional duties occupy all his time.

The Secretary then read a paper written by the same member, in answer to QUERY 14, "on the substitution of Alcohol and Ether by other liquids in the preparation of oleo-resins."

The reply of Mr. Doliber, of Boston, to QUERY 35, "in regard to the comparative value of New England and European Valerian Root," was read by Mr. Markoe.

Prof. PARRISH. The American root is about one half the price of the English. This is, therefore, a matter about which we wish to be informed commercially. I am very glad that a question so important has been so well treated.

Prof. MAIRSCH. It seems to me the only way in which a satisfactory result can be arrived at is to find the amount of oil each root yields, and the actual amount of valerianic acid. The percentage of extract is only of relative value, and a very relative value indeed. If one extract is a little softer than another, water is weighed with it, and no good result can be had unless you evaporate to dryness. Then the yield of the extract is very frequently not a fair criterion. There is opium, for instance, that yields seventy five per cent. of aqueous extract, but none of us will use it for making extract of opium. We want Smyrna opium, which yields about fifty per cent. So far as odor and taste is concerned, there is another peculiarity of valerian which must be borne in mind—its odor becomes stronger by age through the conversion of valerol into valerianic acid. Old valerian smells stronger than fresh. German valerian frequently comes to this country with dirt enclosed between the fibres. Such is prepared specially for the American market, just as Russia Rhubarb is manufactured for the American market, because importers will not pay a fair price for a fair article.

Dr. SQUIBB. I think the best specimen of valerian I have ever seen was of German growth. I rise to offer my testimony that there is a class of German roots and herbs that can be obtained, if a sufficient price be paid for them, that far exceed those generally in the market. I have recently seen the finest specimen of taraxacum that I ever saw, imported from Germany. It was clean, bright, resinous, not sweet and sappy, but it had the bitter taste and all the properties that it should have. It was carefully put up; all the roots in the bale, or a large majority of them, were straight. It was baled and there was a considerable quantity of straw outside the bale entirely enveloping it, and another bale outside of that. The root inside of that double-baling was perfectly free from dirt, and in a good medicinal condition, yet that was but thirty-five cents per pound. After such an illustration in taraxacum as I have referred to, no one need tell me better herbs can be produced anywhere than in Germany. I have also seen first class valerian of Dutch growth coming from Amsterdam. It is true that the largest part of it has a rank smell, but there are packages of valerian that come from Amsterdam that are real Dutch valerian, and are very superior to the

valerian of Vermont. I am glad to hear about this Vermont valerian, because if it is collected and cared for as it should be, it will soon take the place of the English valerian. The English valerian is almost always imported under a limitation as to price. The druggist sends a limitation with his order, and the drug comes with that limitation. I find that if I do not stipulate that no limitation is to be made, the drug comes to me of an inferior quality, and the reason is that a better article could not be obtained at the price named in the order, although I had named no price. We get bad drugs through our own fault, and not because they cannot be got better. My impression is strong, although I do not state it as a fact, that much of the so-called English valerian that reaches this market is German valerian imported into England, then sent here because it can be sent at larger profits than true English valerian. In England, as in this country, valerian cannot be produced to compete with German valerian, where the labor necessary to collect that article and drug is so cheap. Everything else taken into consideration, I always believed that indigenous products, or products coming from climates and countries to which they are indigenous, are much preferable to cultivated products. The only exception I know of is aconite. Prof. Procter found that the aconite grown in this country had a greater amount of aconitia than was obtained from the other varieties in this market. There is abundant evidence that valerian imported from Germany into this country is collected at any time of the year. Whenever a child can pluck up the roots, then they are collected. But such a sample as that to which I have alluded had been collected only at the proper season of the year—properly cared for, washed and sent into this country; and it could be had at the importer's price of thirty-five cents per pound. Would any of us object to paying this price for such a drug? Fifty cents per pound is only thirty per cent. additional, and what Pharmacist would object to paying fifty cents for it? In scammony and various other articles, any man who will send to London can get it, provided he don't put a limit on the price.

Dr. DUFFIELD. If the American valerian is introduced into the market, we shall have to change our ideas in regard to the fluid extract of valerian now in the market. Fluid extract of lady-slipper is sold as valerian under the claim that lady-slipper is American valerian. That to which I refer is sold as Tilden's extract of American valerian, and is extract of *Cypripedium*. I sent to three houses in this city for fluid extract of English valerian, and they sent me fluid extract of valerian, which was lady-slipper every time. Therefore there should be a distinction made between American valerian and fluid extract of valerian.

Dr. SQUIBB. American valerian is called Vermont valerian in the market.

Dr. GARRIGUES. My experience in regard to valerian has been the same as Dr. Squibb's; the German is the best article I have seen in Germany or in this country. Our late Mr. John, who always got his drugs from Ger-

many, had real German valerian, which I frequently had an opportunity to see, and always found it to be of very superior quality.

Prof. MAISCH. There is no difficulty in getting good articles in Germany if you will pay good prices; just as there has been no difficulty in getting good scammony since Dr. Squibb sent out and got it without limitation. I have since had scammony that contained ninety-five per cent. resin. This improvement in quality we owe to Dr. Squibb. Ten years ago we could not get it.

Dr. SQUIBB. Mr. Dix said then you might as well try to buy a gold dollar for eighty cents as to get scammony above sixty-five per cent.

Prof. PARRISH. In confirmation of what Dr. Squibb has said, I will state that I can always obtain in Philadelphia from a German house prime roots of valerian, aconite and taraxacum, and nearly all the roots that grow in Germany. This house always has a quantity. I am told by them that a very large proportion of the drugs sent out to this country as English are really German—exported from Germany into England. I was also told by one of them that, when a resident in Germany, he was in the habit of assorting crude drugs with special reference to the English market, to which large quantities are sent.

Mr. STEARNS. The difficulty in obtaining good drugs lies in the fact that the importers are anxious to undersell each other. That very fact alone leads to sending of orders under a limitation, or for drugs of an inferior quality. Importers generally rely upon the fact that the majority of those that sell it are not sufficiently posted to judge of them, but take whatever is offered them.

Dr. SQUIBB. There has been for some time past a difficulty in obtaining a first quality of rhubarb. The source of supply of Russian rhubarb has been exhausted, by the Government having done away with their inspection, and the Russian rhubarb is no longer accessible. The price advanced so much that it was necessary to get a good class of rhubarb to supply the market. None was in the market, and the sole cause was limitation where orders were sent. An importer in New York brought with him from the other side seven cases, and it was the finest rhubarb that had been in the New York market for some time. He sold it for seven dollars a pound, and he told me that he bought it just as he left, and that the net profits on that rhubarb paid his expenses and sojourn there for six months.

When QUERY 36th, "on the means to avoid fermentation, &c., in pharmaceutical preparations," was called up, Prof. Procter stated that G. J. Scattergood had continued his experiments on the subject, but that his business prevented him from devoting much time to it; he would suggest to drop the Query and let Mr. Scattergood report whenever his experiments have been pushed sufficiently ahead to warrant a written report. The sug-

gestion was adopted, when Mr. Jenkins stated that he had prevented the growth of cryptogams and arrested fermentation by the use of a little sulphite of soda.

The Secretary read a description and exhibited a model and drawing of the pharmaceutical pressure-steam still of Mr. A. F. Neynaber, of Philadelphia. Considerable discussion took place on the propriety of publishing, by the Association, patented apparatus, whether of little or great value to the pharmacist. Attention was drawn to the figuring and describing in former volumes of patented gas burners, scales, &c; but it was argued that the present case was different, inasmuch as the patentee himself exhibits the model and furnishes the description, while Mr. Maisch again stated that he had urged Mr. Neynaber to prepare a model, drawing and description for the benefit of this Association.

Dr. S. S. Garrigues moved that the paper and drawing be referred to the Executive Committee with discretionary power; the motion was put and declared lost by the Chair. A division being called for, the Secretary announced that of the members present, six voted for, and eight against the motion, which was, therefore, lost.

Dr. E. R. Squibb introduced the following:—

- *Resolved*, That the thanks of the Association are due and hereby tendered to Mr. Neynaber, for the exhibition of his steam distilling apparatus and drawings, and that the Association apologize to Mr. Neynaber for failing to publish his paper and drawings in the Proceedings, this failure being due to an unwillingness to establish a precedent for publishing notices of patented articles which may be offered by the patentee.

The vote being taken, a division was called for, when 12 votes were cast for, and 8 against the resolution; it was, therefore, declared carried.

The Chairman of the Business Committee gave notice of a proposition for amending the Constitution, regarding the acceptance of resignations by the Permanent Secretary or Treasurer, which, under the rules, lies over to a future session.

On motion, the Association adjourned to meet to-morrow morning at 9 o'clock.

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Fourth Session.—Friday Morning.

The meeting was called to order by President Stearns, at 9 o'clock. The minutes of the previous session were read, corrected, and then adopted.

The proposed amendments to the constitution being called up, the discussion was opened on the one offered at the first session, (see page 24,) to have the certificates of membership signed by one of the Vice-Presidents and by the Treasurer. After some discussion, the arguments pro and contra being similar to those advanced at the first session, Prof. Parrish moved to amend by inserting the words "at least" before the words "one of the Vice-Presidents;" when Mr. Maisch moved to indefinitely postpone the subject; which motion was carried, it being understood from the discussion that the Treasurer's signature was requisite because the certificates were distributed by him.

The following amendment, of which notice had been given at the third session, was now introduced.

Resolved, That Article II. of the Constitution be amended by the introduction of a new Section, to be called Section V., as follows:

Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer. But no resignation shall be accepted from members who are in arrears to the Treasurer. All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next annual meeting.

Resolved, That the present Section V. shall be called Section VI.

On motion, this resolution was adopted, none of the members present voting against it.

The Business Committee, in accordance with the recommendation contained in President Lincoln's annual address, brought forward the following:

Resolved, That Art. III, Sect. 1, be amended so as to read as follows:

The Officers shall be a President, two or more Vice-Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, who shall, with the exception of the Permanent Secretary and Treasurer, be elected annually, and shall hold office until an election of successors.

Sect. 2. The Permanent Secretary and Treasurer shall be elected to hold office permanently during the pleasure of the Association, and shall each receive an annual salary and the amount of their travelling expenses.

All members taking part in the discussion on this resolution

agreed in the propriety of continuing the Treasurer in office as long as possible; but the resolution was opposed on the ground that an incumbent might be re-elected annually without stipulating in the constitution that the office should be a permanent one.

Prof. PARRISH moved an amendment to strike out all after the word "resolved" and insert in place thereof,

That the words "Permanent Secretary" be substituted for "Recording Secretary" wherever the latter occurs in the Constitution.

During the debate on the amendment, it was argued that this was a mere clerical correction, since the officer in question was now a permanent one, and that the correction could be made without the formal vote of the Association. The question on the amendment was put, and a majority voting against it, it was declared lost.

The original resolution was now voted on and was lost, less than three-fourths of the members voting for it.

Mr. E. A. LAMBERT exhibited specimens of wines, and made the following remarks:—

We have imported these wines (at the request of several physicians of New York) since five or six years before the war. They are sent to us by my uncle, who lives in the Province of Var, in the southern part of France. As these wines were very favorably received on their first importation, we concluded to import them on a large scale, but the breaking out of the war and the high cost of exchange compelled us to discontinue. We resumed the importation of them, however, about May of this year.

We have only two brands of wine—"Hygienic Wine" and "Muscat Perle." The "Muscat Perle" is one of the varieties of Muscat wine made in France, and grows near the Mediterranean, in the Province of Var. It is three years old. It is put into casks and shipped to us. The casks are double, so as to warrant its purity. We bottle it in New York and offer it to the trade.

Mr. Lambert then read from the label on the bottle the composition of the so-called hygienic wine which is manufactured in Paris.

Mr. TINKHAM, Agent for Messrs. Perkins, Stern & Co., of New York, exhibited specimens of California wines, and made the following remarks:

Mr. President and Gentlemen of the Convention:

I do not propose to occupy your time in preliminary remarks, for I

know how valuable your time is, as well as my own. I appreciate your kindness in admitting me to the Convention, and will endeavor, as briefly as possible, to state the advantages which we claim for our wines, and also give some testimony as to their excellence. The firm I represent deals exclusively in California wines. They established the first house on this side for the sale of these wines, and from that time to the present have dealt only in them. We have presented these wines to various scientific bodies throughout the United States, and for their virtues and usefulness I propose to present to you, and rely upon, their testimony, rather than submit any remarks of my own. Perhaps the better way will be to read directly from analyses and letters received from various sources.

[We give only the following, which contain the results of partial analyses of these liquors.—EDITOR.]

SURGEON GENERAL'S OFFICE, WASHINGTON, D. C., Feb. 25, 1864.

Sir,—The analysis of California wines and brandy submitted by you gives the following results:

Brandy, 43 per cent. alcohol, pure, with the exception of coloring matter.

Port Wine, 16.5 per cent. alcohol, 4.4 per cent. grape sugar.

Muscatel, 15.5 " " 22 " "

Angelica, 15 " " 16.5 " "

Hock, 13.4 " "

All are pure wines.

Very respectfully, your obedient servant,

(Signed) J. K. BARNES, *Act'g Surg. Gen.*

Dr. C. T. JACKSON, of Boston, states that "California Port Wine yields 16 per cent. of absolute alcohol, with the proper vinous odor, and a fluid ounce of the wine leaves 54 grains of solid matter, consisting wholly of the fixed principles of grapes, namely: tartaric acid, tartrate of potassa, grape sugar, mucilage and coloring matter from grape skins."

While I appreciate the fact that these testimonials furnish no guarantee of the purity of these wines in the future, I will say that the character of a firm endorsed by such names is in itself a strong, if not an entirely sufficient guarantee. I am aware that in no point perhaps is more difficulty found than in procuring pure wines and liquors. To meet this want, so generally felt, is the aim of the firm I represent.

Prof. MAISCH. I think it would be very interesting to the Association to know what kind of grape is used, and the general mode of preparing the wine.

Mr. TINKHAM. I shall be glad to give any information that I can. The kind of grape used in the manufacture of these wines, with the exception of the Muscatelle Wine, is a particular variety of the species *Vitis vinifera*, or blue Andalusian, of the upper Truro District. They were first introduced by the Jesuit Monks in their lines of missions along the coast a hundred years ago. They commenced the manufacture of wines, and continued it for nearly one hundred years. It was known during that time

as "Mission Wine." In 1854 it was commenced as a business enterprise by Messrs Kohler & Frohling, Mr. Stern, of New York, being their head cellar-master, and from that time to the present its use has rapidly increased.

The Hock is made when the grapes attain their full ripeness, on or about the 1st of September. To the peculiar climate and dryness of the atmosphere is owing the fact of the greater richness of the wines in sugar and alcohol, than in those juices in ordinary use. They have no rains from May to October, and the grapes attain a richness and perfection which are not to be found in any made except in such a climate. When fully ripe they are brought to the crushers, two large rollers running near together, but not near enough to crush the seeds, and the grapes are crushed, and the wine is drawn off and allowed to fully ferment. After that the grapes hang on the vines four weeks in a temperature from one hundred to one hundred and twelve degrees. During that time they part with a great deal of their water by evaporation, and consequently have a larger proportion of sugar and other ingredients. They are brought to the crushers, and after crushing are allowed to stand until fermentation takes place, giving a sweet astringent wine which is called Port. After that the Angelica is made, when the grapes are still more dried. The juice is immediately drawn off, and after fermentation has partially taken place, it is put into clean casks and a sufficient quantity of *agua diente* is added to check fermentation. No sugar or other foreign matter is added. The refuse of all the wines, with the skins, sediment and settlings and the poor wines, are thrown together and distilled into brandy. To that, after coming from the still and taking what coloring matter it will from the cask, is added a trifle of burnt sugar. We have found it impossible to sell it as white as it comes from the still. The quantity made in 1865 (which by the way was very much diminished by a frost cutting off a part of the grapes, something which never occurred before within the memory of the oldest inhabitant) the quantity produced was about one million gallons. In 1866 we expect to make one and a half or two million gallons. Different samples of the same wines will always be found to be of the same character. Hock is used as a promoter of the appetite, and is of great use in dyspepsia. For all cases of laxity of the bowels, where an astringent is needed, Port is used. For extreme debility, where a tonic is required, especially in the case of women brought very low by hæmorrhage, particularly after child birth, Angelica is used with great success, as having a greater amount of saccharine matter—a stimulant and nutrition combined. Perkins and Stern are not the largest growers, but are the largest manufacturers. They buy grapes and manufacture the wine themselves. In 1864 they purchased over two million pounds of grape.

Prof. MAISCHE. Has there ever been any analysis in regard to the acid—the amount of tartaric acid contained in these wines?

Mr. TINKHAM. I think Dr. Jackson made such an analysis, but I have no report of it. So far as I know there has been no such report made.

MR. DANIELS. ~~I have had these~~ California wines in my store for several years, and they have been used extensively by physicians among their patients. I regard them as of a very superior quality.

PROF. PARRISH. The term "hygienic wine" is inappropriate when applied to such substances as are, strictly speaking, a tonic medicine. I do not wish our Association to be understood as countenancing the sale of what are called "hygienic wines" as though they were promotive of health in a normal condition.

Mr. Ebert exhibited specimens of Essence of Beef, and said :

Messrs. Tourtelot and Company, of Chicago, are the manufacturers of this essence of beef. I will read a few remarks which they have written about it.

"The preparation is made from the best fresh beef deprived of bones and fat. The operation is conducted at a temperature of 120°, and the nitrogenized principles are retained in their original condition, which is not the case when it is subjected to continual boiling, as the coagulated albumen is changed into proteine, &c., &c. It has the advantage of solubility and dissolves readily in warm water. It is well retained by children, when the stomach will reject the beef tea prepared in the usual way from the fresh beef. It is not liable to change. Under some circumstances a slight mould will form over its surface, but the preparation is not affected any more than preserves would be. The packages formerly used were of such shape that there was always some confined air which with the moisture of the preparation combined to produce the mould; in the present packages this objection is removed."

These gentlemen were Pharmacutists from the Philadelphia College of Pharmacy; they came to Chicago and engaged in the business of preparing fresh beef. It may be questioned, when the statement is made that twenty pounds of beef is reduced to a compass this small, how Tourtelot and Company are enabled to sell it at a price below what would be the market cost of the same number of pounds of beef. They buy their beef by the carcass, and sell the sirloins, tenderloins and similar portions to hotels and in the market, and in this way they get more money for them than they pay for the carcass of the ox. They use the neck pieces and the rump for the essence of beef.

Based on the recommendation contained in President Lincoln's annual address, the Business Committee introduced the following :

Resolved, That Article II. Sec. 3, be amended so as to read as follows :

No person shall be considered a member of this Association until he shall have signed the constitution and paid into the treasury the sum of three dollars, as an initiation fee, and the annual contribution for the year; and so on until the end of the section.

Mr. Markoe moved to amend by substituting five dollars for three dollars; the amendment was lost, and the question recurring on the original resolution, it was adopted by a vote of 27 in favor and 3 against it.

In view of the suggested difficulty in regard to incorrect names and addresses, the following resolution was offered by the Business Committee:

Resolved, That it is the duty of all who apply for membership in the Association to see that their names are correctly and plainly written, and their post office address correctly given. The Association will hereafter not be responsible for mistakes in the certificates, or in the roll of members, which occur through want of care in forwarding full and correct names and changes of address; nor will the Association hereafter replace volumes of Proceedings lost through change of residence of which the Permanent Secretary shall have not been duly notified.

The resolution was, on motion, adopted unanimously.

In regard to arrearages, the Business Committee stated that the whole subject had been referred, last year, to a Committee consisting of Messrs. Moore, Colcord, Haviland and Tufts, who made a partial report in Boston and were continued for further report. In regard to members who had been suffering in consequence of the late war, it was, on motion of the Business Committee,

Resolved, That all members of the Association who may have been prevented from sharing in its benefits by the war, shall have their dues remitted, and may retain their membership unimpaired by resuming the payment of their annual contributions with the present year, such members to be furnished with the past volumes of Proceedings, if they desire them, at the prices fixed by the Executive Committee;

Provided, all such members shall have notified the Permanent Secretary or Treasurer of their desire to retain their membership, *before* the next annual meeting.

The Business Committee, in compliance with the suggestion of President Lincoln, contained in his annual address, introduced a resolution in regard to obtaining from Congress an act of incorporation, which was withdrawn after some discussion, and reference to the result of an attempt made in 1858 and 1859, (See Proceedings 1859, page 8, and 1860, page 11.)

The suggestions of the former President with regard to the

adoption of a motto and seal, certificates for life members, &c., were not acted on.

The following resolution was introduced by the Business Committee and adopted :

Resolved, That a list be appended to the Proceedings with the following caption : List of Societies, Libraries, Journals and Individuals to whom complimentary copies of the Proceedings of this Association are to be annually forwarded by the Permanent Secretary, and that the list be called up for additions and amendments in the regular order of business at each annual meeting.

Mr. T. R. Spence suggested the propriety of appointing a Committee on the Internal Revenue Law, which was freely discussed, action on the same being for the present deferred.

The Committee appointed to audit the Treasurer's accounts reported that they had attended to this duty and found the accounts correct. The report was, on motion, accepted and the Committee discharged.

- The Committee on Specimens now brought forward the following report, which was, on motion, accepted and referred to the Executive Committee :

REPORT OF THE COMMITTEE ON SPECIMENS.

The collection of Pharmaceutical and Chemical Specimens exhibited are not as numerous as on former years.

Mr. F. Stearns, Detroit, Michigan, exhibits Pharmaceutical preparations, powdered drugs, perfumery, etc., exhibiting his well known skill and enterprise.

Henry W. Lincoln, of Boston, Ferro-broma, Bismuth, Chlorate of Potash, and Cachou Tablets, agreeably flavored and handsomely made.

Howell & Onderdonk, of New York, offer Syrup of Iodide of Starch, Elixir of Calisaya, Iron and Bismuth, Elixir of Valerianate of Ammonia and Quinine, and Liquor Bismuthi.

Robert R. Kent, East Boston, Metallic nipple shield and caoutchouc teat, of novel construction and apparently very useful.

Tourtelot Brothers, Chicago, Essence of Beef, one pound said to represent 20 pounds of beef.

Thomas Daniels, Toledo, Ohio, drawings of his cooler and draught tube for soda water.

A. F. Neynaber, Philadelphia, a model of a steam distilling apparatus.

Perkins, Stern & Co., California, native wines, consisting of Angelica, Claret, Hock, Port and Mustacel ; also, grape brandy, which are, in the opinion of your Committee, equal to any wines now offered for medicinal purposes.

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E. C. Roberts, Salem, Michigan, a native port wine one year old.

Charles A. Heinitch, of Lancaster, Penna., Saffron corms and stigmas, grown in Lancaster county, Pa. Respectfully submitted.

CHARLES A. HEINITSH,
J. W. DIETRICH,
H. A. BLAUW. } Committee.

The Business Committee moved that the salary of the Permanent Secretary be the same as last year, which was adopted.

The letter from the General Austrian Apothecaries' Association* was taken up. The Secretary stated that, without having been aware of this letter, the second portion relating to an exchange of publications, had been attended to by him; the Proceedings had been sent to that Association, but no answer had as yet been received, owing, probably, to the war raging in Germany.

Professor Procter then moved that so much of the letter as relates to specimens be referred to the College of Pharmacy of the City of New York, which was adopted.

The place and time for holding our next annual meeting coming up for discussion, Mr. Markoe moved, and it was carried unanimously, that when the Association finally adjourns, it be to meet next year at New York.

Mr. R. J. Brown moved that the Association meet on the second Wednesday of September, 1867.

Mr. Sackrider moved, as an amendment, to substitute Tuesday for Wednesday, which was carried by a vote of 13 ayes to 10 nays.

The resolution as amended, namely:

Resolved, That when the Association finally adjourns, it be to meet in the City of New York on the second Tuesday of September, 1867, was then carried unanimously.

Mr. T. R. Spence presented the following:

Resolved, That a Committee of three be appointed to take into consideration the whole subject of the Internal Revenue Law, as it relates to the interests of the drug trade and of Pharmacy, and to report thereon at the meeting next year, and that the President of the Association shall be Chairman of this Committee.

MR. SPENCE.—The duties of this Committee will be to bring up this

*See Report of the Corresponding Secretary.

subject before the Association at the next meeting, suggesting what action they may deem necessary. I think that the Committee having this subject in charge, and on their minds, and giving it careful attention during the year to come, will be prepared at the next meeting to present material for our discussion, which will enhance the interests of our Association. I have had considerable experience in such matters, and know pretty well what steps are necessary to accomplish the object in view, namely, a change in the Internal Revenue Law. It is not by simply going to the Commissioner of the Revenue. We have to follow the matter up persistently. It cannot be accomplished by long arguments nor exhaustive essays. The members of Congress will not read them. It must be done in a concise manner. We have to approach the Committee on Ways and Means in the House and Senate. You may first approach the Commissioners on Revenue, if you please, but if you cease with them you will fail to accomplish your object, because to a very small degree only are their recommendations carried out in Congress.

PROF. PARRISH.—I hope the Committee will be appointed. The subject should be kept alive among us and not allowed to die out. I will mention what occurred when the first Revenue Law was passed. The Philadelphia College of Pharmacy appointed a committee of three to represent the interests of Pharmacy before the Committee on Ways and Means. We obtained a draft of the proposed law. We deliberated and settled upon what would be for the best interests, as we thought, of the pharmaceutical profession. We consulted our friends; we had an understanding and were united. Dr. Squibb is not in harmony with the members of the Association, and that is why he has found a difference of sentiment. The object is to relieve the Association, not to go before the Government and ask them to tax more, but to be relieved because the taxation is excessive and unfair in its relations to other branches of manufacture. I went before the Committee on Ways and Means. They asked me questions. I handed them a paper with the law we wanted on it, and they adopted it as it stood, except that they changed the figures. We saw the propriety in separating cologne and articles made out of alcohol from other things. We agreed to make it so much per cent; half the percentage upon them that there was upon patent medicines. They qualified them and imposed the tax by stamp. We went before them representing the views of a large body of pharmacutists, and they adopted what we said. We must first unite, through the Committee reporting here; then if we agree to their report we go as a united body. If we had a Committee and their report was adopted, it would go before the Committee on Ways and Means with force.

PROF. PROCTER.—I think our friend stated some time ago that the Committee were desirous to get information, and were glad to receive assistance. That is not the case now. They are so well posted that they know every crook and turn.

MR. SPENCE.—We must go to the Committee on Ways and Means, and allow the Association to come before Congress as a unit. Each one of the members of Congress must be approached and enlightened on this subject. If this Association desire to take this thing in charge, it must be done in some such manner. If we don't take some action in this respect the trade will undoubtedly organize itself, and through some other medium accomplish this object; but it is highly desirable and important and proper that it should be done by this Association. And for that reason I can see no objection against having this Committee of practical gentlemen, who have the interests of science at heart as well as the interests of the trade, to report at the next meeting.

The resolution was carried unanimously.

Dr. Squibb moved that the President be authorized to appoint the Committee at his leisure, which was likewise agreed to.

The Business Committee moved that the Treasurer be authorized to pay to the Janitor such a sum for his services as the Detroit members consider just.

The members from Detroit objecting, the motion was withdrawn.

Professor Parrish introduced the following resolution, which was adopted unanimously.

Resolved, That the President and Permanent Secretary are instructed to accredit any suitable delegates to the International Pharmaceutical Congress, at Paris in 1867, if, on inquiry, any members of this Association can be induced to represent us in that body.

Professor Procter read the Report of the Committee on Scientific Queries, which was, on motion, accepted and referred to the Executive Committee for publication.

REPORT OF THE COMMITTEE ON SCIENTIFIC QUERIES.

QUERY 1st.—Conia has been recommended as a therapeutic agent, but it is liable to alteration from atmospheric oxygen. As the salts of conia appear to be permanent, and are odorless, why may not some of these be substituted for the alkaloid?

Accepted by George C. Close, of Brooklyn, N. Y.

QUERY 2d.—To what constituent or constituents does Cubeba owe its diuretic power, and what relation does cubebin hold to the soft resin and volatile oil in the therapeutic action of the drug.

Accepted by F. V. Heydenreich, of Brooklyn, N. Y.

QUERY 3d.—Do the leaves of *Digitalis purpurea* grown in the United States yield less digitalin than the European plant; and is the alleged inferiority of the former, if this be true, due to a deficiency of this principle?

Accepted by Samuel P. Duffield, Ph. D., Detroit.

QUERY 4th.—Is there a dry wine, made from grapes within the United States, suitable for medicinal use, and what is its name and strength?

Accepted by Frederick Stearns, of Detroit.

QUERY 5th.—Diluted Hydrocyanic, U. S. P., sometimes spontaneously decomposes into paracyanogen and other products, acquiring a black color, which M. Millon attributes to the action of ammonia. Will the presence of a minute portion of SO^3 , HO obviate this, as has been asserted, and when the change has commenced will this addition suspend it?

Accepted by Dr. Edward R. Squibb, Brooklyn, N. Y.

QUERY 6th.—Is the direction, in the formula for compound decoction of Sarsaparilla, U. S. P., to macerate the ingredients in cold water for twelve hours previous to ebullition sufficiently important to justify the delay it occasions, and will not digestion at 200° F. for two hours be a judicious alteration?

Accepted by William Saunders, London, Canada West.

QUERY 7th.—It has been asserted that Yellow Wax is better than bleached wax for the preparation of Ceratum and Unguentum Adipis. If this be true, what principle in the crude wax possesses this property, and for what extent of time may its conservative power be relied upon?

Referred to Ferris Bringham, of Wilmington, Del.

QUERY 8th.—For some years past, commercial Honey has frequently been a subject of adulteration. What is the present state of the trade in this article, foreign and domestic, and what are the adulterations used?

Accepted by Ferris W. Colby, New York.

QUERY 9th.—Syrup of Senega is sometimes cloudy and semi-gelatinous in consistence, even when the official directions are followed, due probably to pectin. How may this be uniformly avoided in practice?

Accepted by C. Louis Diehl, of Louisville, Ky.

QUERY 10th.—The past and present history of the turpentine trade, including the production of turpentine and the distillation of its oil, in the United States.

Accepted by J. M. Holland, Jackson, Mich.

QUERY 11th.—Many volatile oils rapidly deteriorate by atmospheric oxidation and become commercially worthless. How far is it possible to restore these by redistillation or other means to their original condition, and does the oxygenation affect the whole mass or a part only?

Accepted by T. B. Dorsey, Dresden, Ohio.

QUERY 12.—What is the best method of preserving Lemon Juice so as to retain its good flavor and appearance during that part of the year when lemons are scarce?

Accepted by Henry Sweet, of Chicago.

QUERY 13th.—Olenm Theobromæ; an essay on this fat as regards its manufacture, adulterations, uses and commercial history.

Accepted by Henry W. Lincoln, Boston, Mass.

QUERY 14th.—Extract of Hemlock Bark, (*Abies Canadensis*); what is its composition, what variety of tannic acid does it contain, how made, and what are its merits as a medicinal astringent compared with Kino, Catechu and *Krameria*?

Accepted by William Procter, Jr., Philad'a.

QUERY 15th.—The experiments of Charles Bullock render it very doubtful whether *Veratria* exists in *Veratrum Viride*, as has been stated; but that two well-marked alkaloids having different properties replace it. Can the second or resin-like alkaloid of Mr. Bullock be obtained in a purer and better defined form, is the sedative power of the drug chiefly due to it, and what relation does the other alkaloid bear to *Veratria*?

Referred by the Association to Charles Bullock, of Philad'a.

QUERY 16.—Can the existing pharmaceutical preparations of Ergot be improved if studied in the light offered by W. T. Wenzell (see *Amer. Jour. Pharm.*, vol. xxxvi. p. 193), and can a permanent solid preparation of Ergot be made representing its alkaloids in a concentrated form?

Accepted by Jas. W. Mill, Chicago, Ill.

QUERY 17.—Is not the present formula for Tincture of Chloride of Iron obnoxious to criticism as regards the permanence of its product?

Referred to F. V. Heydenreich, Brooklyn, N. Y.

QUERY 18.—Can any improvement be suggested in *Syrupus Lactucarii* U. S. P. 1860?

Accepted by Albert E. Ebert, Chicago, Ill.

QUERY 19.—A process for isolating Aloin in a crystalline state, which shall be practical and economical, by which the whole of the Aloin in aloes may be rendered available.

Accepted by Wm. Procter, Jr., Philadelphia, Pa.

QUERY 20.—Does the Colchicia of John E. Carter (*Amer. Jour. Phar.* vol. xxx. 208) exist in the seeds of *Colchicum autumnale*, and can it be isolated from either source for use in medicine with advantage?

Accepted by C. Lewis Diehl, of Louisville, Ky.

QUERY 21.—The seeds of *Ricinus communis* are much more purgative in their effects than the expressed oil. To what principle does this power belong and what relation does it bear to the alkaloid Ricinin of Prof. Tusson?

Referred to Prof. Wadgyman, of St. Louis, Mo.

QUERY 22.—What are the physiological properties of the leaves of *Ricinus communis*, and what constituent renders them active?

Accepted by F. V. Heydenreich, of Brooklyn, N. Y.

QUERY 23.—The leaves of *Podophyllum peltatum* are said to be poisonous (U. S. Disp.) Is this true? Are they cathartic, and to what principle is their activity due?

Accepted by Saml. P. Duffield, Ph. D., of Detroit, Mich.

QUERY 24.—What kinds of Tar were used as substitutes for Carolina Tar during the late war; and from what, how, and where prepared?

Accepted by Saml. S. Garrigues, of East Saginaw, Mich.

QUERY 25.—Is the Sennin of Robert Kau (see *Amer. Jour. Pharm.*, May, 1866, p. 193) the true active principle of Senna, or must its cathartic power be attributed to another principle?

Accepted by Robt. C. Kennedy, of Cleveland, Ohio.

QUERY 26.—It is alleged by Mr. George Johnson (*Pharm. Jour.*, Oct., 1865, p. 179) that the deposit in wine of Ipecac contains an appreciable quantity of Emetia in an insoluble state, contrary to the experiments of Mr. Roberts (see *Proc. Amer. Pharm. Assoc.*, 1859, p. 281). Is this true, and how can it be demonstrated?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 27.—Does the precipitate characteristic of the tincture and vinegar of Sanguinaria contain any of its alkaloid; and if so, how demonstrated, and what percentage?

Accepted by Josiah B. Frost, of Ypsilanti, Mich.

QUERY 28.—Does the insoluble matter filtered from Fluid Extract of Veratrum viride, in the process of the U. S. Pharmacopœia, contain any of the sedative resin-like alkaloid of Charles Bullock; and if so, how may the process be modified to prevent its loss?

Accepted by Alfred Mellor, of Philadelphia, Pa.

QUERY 29.—May not Extractum Conii and Extractum Conii Alcoholicum U. S. P. be rendered more permanent and stronger by the addition of an acid before evaporation,—as the acetic or sulphuric?

Accepted by Edward C. Jones, of Philadelphia, Pa.

QUERY 30.—What is the best formula for medicinal Digitalin, suited for adoption in the U. S. Pharmacopœia?

Accepted by Wm. Procter, Jr., of Philadelphia, Pa.

QUERY 31.—Those astringents containing Tannic Acid of the type Kino and Krameria, producing green tannates of iron, lose their astringency when kept in liquid form. What is the rationale of this phenomenon, and what relation does it bear to the gallic fermentation?

For general acceptance.

QUERY 32.—Does Sulphite of Quinia exist? Is it a permanent salt? and if so, has it any merit as a therapeutic agent independent of its basic ingredient?

Accepted by Dr. Thos. E. Jenkins, of Louisville, Ky.

QUERY 33.—Is there a method by which the Cinchotannic Acid in the preparations of Cinchona Bark may be removed, so that the full influence of the native Kinates may be obtained in connection with iron or otherwise without any inky coloration, and without disengaging the alkaloids or causing their loss?

Accepted by N. Gray Bartlett, of Keokuk, Ill.

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 QUERY 34.—How may the pharmacist best obtain the facilities for physical exercise, social enjoyment, and intellectual culture, which are so essential to success in every pursuit?

Accepted by Prof. Edward Parrish, of Philadelphia, Pa.

QUERY 35.—Can the official salt Ferri et Potassæ Tartras be uniformly produced by the Pharmacopœia process? What is its composition? What are the residues of the process, and can the process be improved?

Accepted by Jas. F. Babcock, of Boston, Mass.

To this list the following Queries are added, embracing the subjects the investigation of which has been continued to the members for another year.

QUERY 36.—What is the best form of apparatus by which pressure steam, generated by gas or petroleum heat, may be applied for evaporation, distillation, etc., on a moderate scale, at the working counter of the shop, so that the condensed steam shall return to the boiler, combining efficiency and compactness with economy?

Continued to William Procter, Jr., of Philadelphia.

QUERY 37.—It has been asserted that Senna contains chrysophanic acid, and that its activity is probably due to this principle. Can chrysophanic acid be isolated from either Alexandria or India Senna, and, if so, can it be proven that this acid contributes in greater or less degree to the purgative power of Senna and Rhubarb?

Continued to F. W. Sennewald, of St. Louis.

QUERY 38.—In what respects do the sensible properties of the leaves of Hyoscyamus and Belladonna, grown and cured in the United States, differ from the leaves of these plants imported from England and Germany, as presented in commerce; do the latter contain more of the respective alkaloids than the former; and, if so, is the difference due to soil, climate, and culture?

Continued to Lewis Dohme, of Baltimore.

QUERY 39.—What are the impurities in commercial Valerianate of Ammonia; can it be purified without decomposition from Butyrate and other salts, when present; if not, what is the best process for obtaining pure Valerianic Acid from the Amylic Alcohol of commerce, and what are the most eligible forms for administering the salt in question?

Continued to N. Gray Bartlett, of Keokuk, Iowa.

QUERY 40.—Is the volatile Oil of Chenopodium anthelminticum the only active principle it contains having vermifuge properties?

Continued to Thos. S. Wiegand, of Philadelphia.

QUERY 41.—What improvement can be suggested in the preparation of the Official Syrup of Lactucarium?

Continued to P. W. Bedford, of New York.

QUERY 42.—Why should not *Lactucarium* be produced in the United States in sufficient abundance and cheapness to supply all our wants; and what are the best practical suggestions for its culture and preparation?

Continued to Alfred Mellor, of Philadelphia.

QUERY 43.—To what principle does *Scutellaria lateriflora* owe its medical properties?

Continued to G. F. H. Markoe, of Boston.

QUERY 44.—An essay on Beeswax; its commercial and chemical history; the best method of bleaching it without injury to its physical and medical properties, and what substitutes have been found that may be used in emergencies?

Continued to James F. Babcock, of Boston.

QUERY 45.—What is the most eligible form of apparatus yet discovered, or which can be suggested, for preparing pills of uniform size, at will, and can it be adapted to the wants of the apothecary, on a moderate scale?

Continued to Ferris Bringham, of Wilmington, Del.

QUERY 46.—What are the advantages and disadvantages of coating pills with sugar or other substances; and what is the best method of coating pills extemporaneously for dispensing?

Continued to S. Mason McCollin, of Philadelphia.

After the adoption of the report of the Committee on Scientific Queries, Mr. Jenkins, of Louisville, made the following remarks:

I made some experiments with a view to the production of Sulphite of Quinia, and found some changes that lead me to doubt the existence of this compound. In a few words I will state my experiments and the results. I endeavored to make sulphite of quinia by first preparing the carbonate of the alkaloid from the sulphate, and decomposing it by sulphurous acid. Upon evaporating a small portion of this solution at ordinary temperature upon the microscopic slide, I found very perfect quadrilateral prisms, arranged in star-like groups. On evaporating a larger quantity at a temperature of 150° I obtained a dry mass, not crystalline, but which presented the appearance of the scaly preparations of iron, and of red orange color. It was soluble in water and exceedingly bitter. I operated upon a troy ounce of the sulphate. On spontaneous evaporation of a thin stratum in the atmosphere, I obtained crystals slightly colored about the close of the evaporation. These presented the same appearance under the microscope as the crystals upon the glass slide. When tried with concentrated sulphuric acid, I did not discover sulphurous acid gas. From that fact I am disposed to think that the sulphurous acid has deoxidized the quinia and been changed to sulphuric acid, or that the sulphurous acid has been oxidized by the oxygen of the atmosphere.

The Executive Committee brought forward the applications for membership, properly endorsed, of the following gentlemen :

Henry Griffin, Grand Haven, Mich.

William Maurice Moore, London, Canada West.

The President appointed Messrs. A. E. Ebert and Robert J. Brown, tellers, who reported the unanimous election of the candidates.

The reading of volunteer papers being in order, Prof. Procter read a paper on Virginia Opium, by Prof. Israel J. Grahame, which subject had been referred to this gentleman at the meeting last year.

The essay was, on motion, accepted and referred to the Executive Committee. Dr. Squibb said :

The assay by the officinal process of so small a quantity of opium as that, is not very reliable, according to my experience. For such a small quantity, one of the more complicated ways of treating the infusion of opium is much better. The process in the pharmacopœia is not adapted to much short of a pound of opium, and the proportional loss by the retention of the morphia in the alcoholic menstruum is greater as the quantity operated upon is less.

Dr. S. S. Garrigues read a paper on the "Production of Bromine from the Saginaw Brines," which was accepted and referred to the Executive Committee.

Dr. Squibb said :

Now that Bromide of Potassium has become so important, there must be some way found whereby the profits of making it can be realized here. It is sold from eight dollars and fifty cents to ten dollars per pound.

The following volunteer essays were read and severally referred to the Executive Committee :

By Prof. Procter, a paper by James T. King, on "Metallic Lead in Flour."

By Geo. F. H. Markoe, "Notes on Liquor Bismuthi;" also an essay by James F. Babcock, entitled, "Notes on Iodide of Ammonium."

By Chas. A. Heinitsh, "Notes on the culture of Saffron in Pennsylvania."

In view of an invitation extended to the members of the Association by the Detroit Druggists and Pharmacutists, for a trip on board the steamer Morning Star, down the Detroit River to

Lake Erie, the Association adjourned to meet at 7 o'clock, P.M., after returning from the excursion.

Fifth Session—Friday Evening, August 25th.

The meeting was called to order at 6½ o'clock, P. M., President Stearns in the Chair.

The reading of the minutes of the previous session was, on motion, postponed.

Prof. Parrish read a paper entitled a Discourse on Titles, &c., which was, on motion, accepted and referred to the Executive Committee.

Dr. SQUIBB. I consider the term "Pharmacist" a decided improvement on "Pharmaceutist," for brevity as well as for other reasons. I will say, however, that it is up-hill work to make a change of this kind. It is like Mr. Taylor's system of weights and measures, only practicable if applied. It is a great improvement, and it has its analogy in "physicist" and other kindred terms, which are regarded as very perfect words by linguists. "Pharmacian" is so near the French that our language would not admit it easily, because it is not so nearly in consonance with the English language as "Pharmacist." The preference would be given to "Pharmacist" on account of its brevity, as well as its handiness, and because all the words now coined are made as short as possible for the purpose of bringing them into general use. Müller says, that any attempt to force language from that current which is made by public opinion will fail. And it never can be forced in that direction. An illustration of that is given in the French terms for their weights and measures. All the harder words are left out, while the more simple ones, best adapted to the popular use, are retained. "Kilogramme" has been repudiated almost entirely. It is called "Kilo," because it is short, and the weight it names cannot be well dispensed with. Hecto- and decagramme is left out and "Gramme" is retained. So the shorter words will naturally take the place of those which we now use. If all of us should adopt this word "Pharmacist," and write it for a while, it would come in use more rapidly than Pharmaceutist, because the laws of language naturally lead into natural channels.

Dr. DUFFIELD. It seems to me that the term "Pharmacist" would be preferable to "Pharmacian," for this reason—the Greek word being *Pharmakon*, "Pharmacist" becomes a classical expression for druggists, and a good definition of what the Pharmaceutical profession is—those who operate with drugs.

Dr. JENKINS. The term "Pharmacian" seems to be a more appropriate term than Pharmacist, because words ending in "ist" are more especially applied to those who cultivate a pure science; "Physicist" and

"Physiologist," for instance. Another reason would be, that the terms "Pharmacist" and "Physician" are very similar, and show the connection between the two professions. The termination "an" or "ian" has a more especial reference to the application of practical science or art; such as "Physician," "Mechanician," "Pharmacist," etc.

Dr. SQUIBB. Prof. Parrish proposes another word which would be very useful: "Pharmal" is a very good word in its construction, but it does not seem so euphonious in its use as Pharmacist.*

Prof. PROCTER.—One great reason why "apothecary" will remain in use is on account of the large number of German apothecaries, the word in the German, "Apotheker," having a close resemblance to our word apothecary.

Mr. MAISCH.—The apothecaries in Germany call themselves also pharmacutists, the German word being *Pharmaceut*,—plural *Pharmaceuten*.

Dr. Duffield read an essay "on the influence of Hyperdermic Injection upon the science of Toxicology," which was accepted and referred for publication.

Mr. Maisch then presented the following papers: "Examination of Whiskey and Brandy;" "Assays of Sherry wine;" "On the specific gravity of medicinal Chloroform;" and "Statistics of the U. S. Army Laboratory at Philadelphia." They were accepted and referred to the Executive Committee.

Mr. Diehl offered a paper entitled, "Remarks on some Chemical Processes," which was read, and, on motion, accepted and referred for publication.

Dr. SQUIBB.—Many, in common with Mr. Diehl, will undoubtedly have met with these difficulties alluded to in his paper, though perhaps few would have surmounted them more skilfully. According to my experience, his difficulty with ammonio-ferric alum is not chargeable to the official process, but rather to the impracticability of getting sulphuric acid of the full official strength with which to make the solution of tersulphate of iron. Had he calculated the strength of that used, and made up the deficiency by a proportionate increase in the quantity of the acid, at first, he would not have been obliged to add acid afterward.

In making the tincture of the chloride of iron, it has been my practice, for some years past, to avoid the difficulties alluded to, first, by separating about a fourth part of the muriatic acid from the last portion, when to be added, and reserve it till after the oxidation and evaporation; second, by the use of stronger alcohol, instead of alcohol (specific gravity .835), to diminish the evaporation by the whole amount of water (about seven

* *Pharmaceutical* or *pharmacial* is more euphonious, and would be more appropriate as an adjective.—EDITOR.

fluid ounces to the gallon) which would be required to reduce the stronger alcohol to the specific gravity of .835; third, to avoid loss by sudden frothing at the close of the oxidation, four-fifths of the nitric acid is added at once to the solution, and then one-half or more of the solution is temporarily dipped out of the basin. The remainder is then thoroughly oxidized by additions from the reserved nitric acid. When the foaming has passed, add more of the solution dipped out, and then more nitric acid, and so on till the process is completed.

The difficulty with the diluted hydrocyanic acid is not so easily overcome, and my experience has not led me yet to detect the true cause with any degree of certainty. With hydrocyanic acid I have had the same difficulty, but have not resorted to the same plan that he has to overcome them. Generally I adjust a gallon bottle of this acid at one time and then put it up in ounce bottles, all at once, these bottles being carefully cleansed by soaking in oil of vitrol, and then carefully rinsed with distilled water and dried in the drying room. After all that care it is common enough for me to have bottles returned to me with the acid turned black. What the cause of this blackening is I have not yet determined. My impression is that it comes from the use of oil in the emery with which the stopper grinding is finished, and that this oil sometimes is not all destroyed by the acid.

Prof. PROCTER.—It has been for some time the custom with me to use a very small quantity of cerate on the mouth of the bottles. If you do this you can put away the bottles for years without any decomposition. I think there is a specimen in my cabinet that has been kept for a number of years without acquiring any color, although it has been exposed for that length of time to the light.

Dr. SQUIBB.—It has constantly been my habit to make it in large quantities, and it frequently occurs that a portion blackens, and another portion does not. In regard to the fatty matter, it is a conclusion that I have come to by a diagnosis of exclusion, shutting out every other source, and then naturally concluding it must be this.

Mr. PROCTER.—Did you collect the distillate in one vessel or in several vessels?

Dr. SQUIBB.—I collect it in reservoirs and pour it into one. This strong acid is put away in a large vessel as it is collected, and then as the stock is exhausted it is brought up, adjusted, and the small bottles are filled.

Mr. DIEHL.—In regard to the tincture of chloride of iron, I have had frequent trouble with it. The conclusion I arrived at was this: when adding the second portion of acid to the mixture on the sandbath, the heat is sometimes so great that it drives off a large portion of the muriatic acid, and oxidation forms then a subchloride, and this will cause the change. As regards hydrocyanic acid, I only stated the experience that I had, but did not claim any particular value for it. I will here state that Wittstein asserts in his work that he has kept it in this manner for years

exposed to the light without any change. I myself kept a portion of that acid four months in my office exposed for six hours a day to the direct rays of the sun, and there was no change.

Mr. Spencer, of Rochester, exhibited a very neat apparatus for distilling under reduced pressure, and explained its use.

It was then moved that the thanks of the Association are due to Mr. Spencer for the trouble he has taken in exhibiting his new apparatus.

Professor Parrish moved to amend, that the apparatus be figured and described in our Proceedings.

The amendment was carried by a vote of 12 ayes against 3 nays, and the resolution as amended was then adopted.

The Business Committee offered the following resolution, which was adopted by a unanimous vote :

Resolved, That the Secretary be directed to address a vote of thanks from the Association to the Judges of the Supreme Court for the use of this room, which has been occupied by the Association only through their courtesy and liberality.

On motion of the Business Committee, it was unanimously

Resolved, That the thanks of the Association are eminently due, and are hereby heartily tendered, to the druggists and pharmacists of Detroit, for their judicious and liberal care of the Association, and for their kind and considerate hospitality to the members and their families during their visit to Detroit.

The following resolution was offered and adopted :

Resolved, That the thanks of the Association are due and hereby tendered to the corps of reporters who have so faithfully attended our several sittings.

There being no further business before the Association, the Secretary proceeded to read the minutes of this meeting, when it was moved and carried that the reading of the minutes previously read and adopted be dispensed with.

The Secretary then read the minutes of the fourth and fifth sessions, which were approved as read.

On motion, it was

Resolved, That we now adjourn to meet again at the city of New York, on the second Tuesday of September, 1867, at 3 o'clock, P. M.

The Association then adjourned.

JOHN M. MAISCH, *Permanent Secretary*.

REPORTS OF COMMITTEES.

REPORT FROM THE COMMITTEE ON THE PHARMACOPŒIA.

IMPROVED PROCESS FOR OFFICIAL FLUID EXTRACT OF BUCHU.

BY EDWARD R. SQUIBB, M. D., OF BROOKLYN.

To the American Pharmaceutical Association :

As a member of your Committee upon the United States Pharmacopœia, the writer begs to offer the following criticism upon the official process for Fluid Extract of Buchu, and to suggest some slight modifications which may be improvements if applied with the necessary care and skill. The official process is as follows :

“Take of Buchu, in moderately fine powder, sixteen troy-ounces ;

Alcohol a sufficient quantity.

Moisten the Buchu with six fluidounces of alcohol, introduce it into a cylindrical percolator, press it firmly, and gradually pour alcohol upon it until twelve fluidounces of tincture have passed. Set this aside, and continue the percolation until two pints more of tincture have been obtained ; evaporate this by means of a water bath, at a temperature not exceeding 150°, to four fluidounces, and mix it with the reserved tincture. Allow the mixture to stand for twenty-four hours, and filter through paper.”

The writer, as a member of the Committee of Revision which adopted this formula, in criticising its language, is but reproducing here arguments used in the Committee, and overruled there by much better scholars than himself, and upon competent authority ; and to bring these views forward now in public may well be

taken as evidence of captiousness, and unwillingness to submit to authority; or of a self-sufficient stubbornness which often accompanies ignorance. Still it will do no harm to others, in view of future revisions, to have the language as well as the process re-examined and re-confirmed if it be right. This is the first formula under the head of the Fluid Extracts, and its language in the points to be criticised is a type of the entire Pharmacopœia, and its process is typical of the whole class of Fluid Extracts.

Language is made to express ideas, and grammar is made for language; and, therefore, when language expresses ideas best and most definitely, grammar should establish its construction.

The writer believes the sentence "until twelve fluidounces of tincture have passed," and all others like it, to be faulty in construction. Although "twelve fluidounces" taken alone as an abstract number of ounces is undoubtedly plural, yet "twelve fluidounces of tincture" as a prescribed quantity or measure is no more plural than "a pint" would be. Beside, the "twelve fluidounces" is not the real subject of the verb, but rather an adjective used to qualify or define the quantity of the tincture, which tincture in such quantity is the real subject or nominative of the verb. This being singular would require the verb in the singular also. Suppose the sentence was constructed to read "until three-fourths of a pint of tincture," or "until the measure of twelve fluidounces of tincture," there would then be still greater difficulty in the way of using the plural of the verb. Beside this, the present construction contradicts, or rather corrects itself, in the first two words of the next sentence.

For consistency or unity of idea, as well as for the uniformity of grammatical construction, these words should be "Set these," the twelve fluidounces of tincture being understood, and not as at present, "Set this." The same sentence thus commencing with one measure in the singular ends with another prescribed measure, namely, "two pints more of tincture," in the plural. The next sentence takes up this plural again as a singular by saying, "evaporate this"—two pints more of tincture being understood, and being plural here if anywhere—"to four fluidounces" and mix "it" with the reserved tincture. The words "four fluidounces" are here used as a measure, but here do *not* render

the tincture plural. For these reasons the writer argues that the phraseology should be made to carry the idea clearly, rather than to carry out a system of grammar whose rigidity in parsing governs the *subject* of a verb by a preposition, and thus converting it, through a subject, into the *objective* case, while the so parsed preposition is in reality only a conjunction used to unite a qualifying or defining adjective expression to the noun to which it belongs.

The word "tincture" seems to be badly chosen for use in this connection, since it tends to confuse this class with the class of "tinctures," while the word percolate would appear to be more accurate as well as more appropriate.

The next criticism is upon the more important points of the practical application of the process; and here the writer feels much more within his own legitimate sphere. "Buchu in moderately fine powder" is directed. This degree of fineness is defined, on page 7, as being obtained by a sieve of fifty meshes to the inch. The writer's experience indicates that a much finer powder is better; that the ordinary dusted powder, which passes easily through a sieve of one hundred and twenty meshes to the inch, works well in practice on any scale; and that it is impossible to have the powder too fine. The most important of the cardinal rules which apply to successful percolation, and that upon which the success almost entirely depends, is the rate at which the percolate passes, and this cannot be well controlled in the use of coarse powders.

In the use of the Pharmacopœia quantities, or indeed upon any moderate scale, the percolate should pass off not faster than a drop in each second at first, getting a little faster as the exhaustion progresses. The most successful and thorough percolations are the slowest, and such require the smallest quantity of menstruum for exhausting. The best efforts of the writer, when operating on quantities of from thirty to fifty times the officinal formulas, have been with dusted powders, percolated at the rate of a drop for every three seconds, or twenty drops a minute, this rate being obtained of course through the fineness of the powder as well as by the packing.

The next point to be noticed is that the quantity (two pints)

of weak percolate directed to be obtained is excessive in view of the present cost of alcohol, and the amount of medicinal extract obtained by it. The s. g. of the alcohol used as the menstruum is .835. That of the reserved percolate is .914. That of the first of the two pints of weak percolate is .861. And that of the second of the two pints is .844. This two pints of weak percolate, when evaporated slowly to four fluidounces, has a specific gravity of 1.049, much of which gravity is due to oxidation during the evaporation. When the two portions are mixed together, and before the filtration, the s. g. is .953. After filtration it is .946. It follows from these observations that specific gravity is a good and sufficient indication of the strength of the percolate, and therefore of exhaustion of the drug. And it also follows from a crude but practical calculation or estimate, based on the specific gravities and the inert residues, that the first pint of weak percolate cannot contain more of the medicinal properties of the drug than would be contained in two and a half ounces of the powdered buchu; and that the second pint could not contain more than one seventh of this. The medicinal properties of the drug would thus be distributed in the percolate as follows :

First 12 f̄, or reserved percolate, represents	13.14 3
First pint of weak percolate	“ 2.50 “
Second “	“ 0.36 “
	16.00 “

From this it appears that the process might be terminated at the end of the first pint of weak percolate with the loss of thirty-six hundredths of the medicinal strength of one troyounce of buchu, but with the saving of one pint of alcohol; always provided the percolation be skilfully conducted.

The next point to be noticed is that in the evaporation of the two pints of weak percolate to four fluidounces, much of the medicinal portion is sacrificed,—first by being driven off, and second by oxidation and other changes. A very considerable portion of the deposit which occurs during this evaporation is insoluble in the original menstruum.

Finally, the filtration through paper is tedious and wasteful. Even when accomplished through a covered funnel into a bottle,

the loss by evaporation in moderately warm weather was two fluidounces; and the portion which refused to pass through measured nearly one fluidounce more.

The cost of a pint of this fluid extract by the officinal process is nearly as follows,—the pint weighing a little over fourteen ounces avoirdupois:

16 troy ounces = 1 lb. 1 $\frac{1}{4}$ oz. avoirdupois.	
of Buchu, powdered,	. . \$.90
3 $\frac{1}{4}$ pints of Alcohol,	. . 1.79
	\$2.69

And this without estimating apparatus, labor, time, skill, interest, risk, insurance, or anything but mere cost of material used; and of this material the alcohol costs twice as much as the drug.

As one way of remedying the disadvantages complained of, the writer would suggest to the next Committee of Revision, the following process:

Take of Buchu, in very fine powder, 48 troy ounces.

Alcohol, a sufficient quantity.

Divide the buchu into three equal portions. Moisten one portion with six fluidounces of alcohol, pack it moderately in a cylindrical percolator, and pour three pints of alcohol upon it. When the last of the alcohol disappears below the surface of the powder, remove the disc of muslin or paper from the surface, and fill up the percolator with water. Then, as the percolation slackens, scrape off the upper softened layer of the exhausted powder, and mix it thoroughly with the water by means of a square-ended wooden spatula. This scraping off of the softened portion without disturbing the hard part below is to be repeated at intervals, according to the rate of percolation, until the water becomes thick with the swollen and exhausted powder. It is then poured off and replaced with fresh water, and the scraping continued as before; and this management is repeated, more cautiously toward the close, until the alcohol is all pushed through, and water appears at the outlet of the percolator.

Receive the percolate in four separate portions of twelve, six, eight, and twenty-two to twenty-four fluidounces, and set aside the first portion of twelve fluidounces as reserved percolate.

Moisten a second portion of the buchu with the second portion of the percolate from the first percolation (the six fluidounces), pack it in a second cylindrical percolator (or the first one re-adjusted), and pour upon it the third portion of the percolate from the first percolation. When this has been all absorbed by the powder, add the remainder of the percolate from the first; and when this has disappeared, add first two fluidounces and then four fluidounces of alcohol; and then water, managing the process precisely as in the first percolation.

Receive the percolate in four separate portions of sixteen, six, eight, and ten fluidounces, and set aside the first portion of sixteen fluidounces as reserved percolate.

Moisten the remainder of the buchu with the second portion of the percolate from the second percolation, and having packed it in the cylindrical percolator, pour on the third and fourth portions of the percolate from the second percolation in succession, and after these, eight fluidounces of alcohol in two portions. Finally add water, and proceed as in the first percolation.

Receive the percolate in two separate portions of twenty and ten fluidounces (or the remainder), and set the last of these away, to be used as so much alcohol at the next making of this fluid extract.

Finally, mix all the three portions of reserved percolate together, and make the whole measure three pints by the addition of whatever may be wanting of that measure from the final percolate set away for the next making.

In repeating this process twice with care, it was found to work well in practice, and to yield a preparation which is at least equal to the officinal in therapeutic value.

The total quantities of material used are as follows :

Powdered Buchu, 3 lbs. 5½ oz. @ 80 cts.,	. \$2.67
Alcohol, 4½ pints, @ 55 cts.,	. . . 2.34

For three pints, weighing 2 lbs. 11 oz.,	. . \$5.01
“ one “ “ 14 oz.,	. . . 1.67

This requires but one pint more of alcohol for the three portions than the officinal process requires for one portion, and diminishes the cost exceedingly; but it requires more education

and skill, and involves more risk of an imperfect preparation through want of skill. The result of the first percolation is least important, since the quantity of menstruum there used is as great as in the officinal process, and the exhaustion thereby secured; but as the errors of packing and management are easily seen in this first percolation, they can be as easily corrected in the succeeding trials, and thus tend to safety and uniformity of result.

The powder, when properly moistened and packed, holds with great uniformity about fifteen fluidounces of menstruum, and by the dexterous use of water, as directed, eleven fluidounces of this may be each time recovered by pushing it through. Thus the total loss of alcohol in this way does not exceed twelve to fifteen fluidounces, the remainder of the twenty fluidounces being lost by evaporation.

The s. g. of the first reserved percolate, namely, the twelve fluidounces, is $\cdot 910$ to $\cdot 912$. That of the second reserved percolate, namely, the sixteen fluidounces, is $\cdot 915$. That of the third, namely, the twenty fluidounces, is $\cdot 912$. That of the whole when mixed together is $\cdot 914$. The s. g. of the first twelve fluidounces of the three percolations is $\cdot 910$, $\cdot 924$, and $\cdot 926$. In the officinal process it is $\cdot 914$. Each four fluidounces, after the twelve, of the middle percolation, is $\cdot 887$, $\cdot 873$, $\cdot 867$, $\cdot 862$, $\cdot 855$ and $\cdot 848$. And each four fluidounces requires about two hours to pass when the percolation is most successful. The two final portions of four fluidounces each, set away for the next making, have specific gravities $\cdot 867$ and $\cdot 857$.

Although one percolator is sufficient to carry out the process, the time may be considerably shortened by the use of two, since the second one may then be packed as soon as the second portion of the percolate from the first is received. Flasks marked to the measured quantity in the neck should always be used to receive the percolate, otherwise the evaporation from each drop as it accumulates in a slow percolation entails great loss.

The first twelve fluidounces of percolate, both in the officinal and the proposed process, must represent more than twelve troy-ounces of the drug, and yet its s. g. is far below that of the finished officinal preparation, and a little below that of the pro-

posed preparation: thus showing that s. g., though a good indication of exhaustion, is not so good an indication of medicinal value.

The avoiding of heating, evaporating, and filtering in the proposed process, are considered to be of primary importance.

Respectfully submitted by

EDWARD R. SQUIBB, M. D.

Brooklyn, August 16, 1866.

REPORT OF THE COMMITTEE ON THE INTERNAL REVENUE LAW.

To the American Pharmaceutical Association:—

MR. PRESIDENT:—Soon after the adjournment of the annual meeting of the Association in Boston, in 1865, the undersigned received the following communication from the Permanent Secretary:—

Philadelphia, Pa., Oct. 10th, 1865.

DR. E. R. SQUIBB, Brooklyn, N. Y.

SIR:—At the Annual Meeting of the American Pharmaceutical Association held in Boston on the 6th to the 9th of September last, the following resolutions were adopted:—

“*Resolved*, That a committee of five be appointed to take into consideration the whole subject of the Internal Revenue Law in its relation to the objects of the American Pharmaceutical Association, with special reference to the alcohol question, with authority to confer with the Committee of Ways and Means of Congress and the Commissioner of Internal Revenue, and who shall report* to the Association at its next meeting;

“*Resolved*, That the President be authorized to appoint the committee at his leisure, and that the members be notified of their appointment by the Secretary.”

I am directed by the President to inform you that this committee consists as follows:—

Boston, Samuel M. Colcord of the House of T. Metcalf & Co.

Philadelphia, Prof. Wm. Procter, Jr., 500 South Ninth street.

Baltimore, Prof. J. Faris Moore, Howard and Madison streets.

St. Louis, Eugene L. Massot, Fourth and Spruce streets.

New York, Edward R. Squibb, of Brooklyn, Chairman of Committee.

*In the discussion of this subject when the Committee was raised, it was ordered by the Association that each individual member of the Committee should report his views on the subject through the Chairman.

The objects of the Association are set forth in the following paragraphs of Art. I. of the Constitution :—

1st. To improve and regulate the drug market by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration ;

2d. To establish the relations between druggists, pharmacutists, physicians, and the people at large, upon just principles, which shall promote the public welfare, and tend to mutual strength and advantage ;

3d. To improve the science and art of Pharmacy by diffusing scientific knowledge among apothecaries and druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business ;

4th. To regulate the system of apprenticeship and employment, so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines ;

5th. To suppress empyricism, and (as much as possible) restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries.

You will please to carry out the objects of the Association as your judgment may direct.

Very respectfully your obedient servant,

JOHN M. MAISCH,

Permanent Secretary Amer. Pharm. Assoc.

Thus authoritatively charged with this important duty, a very little inquiry served to give a proper direction to the efforts of the Committee. A Commission had been organized by Congress, called the United States Revenue Commission, and had its principal office in the New York Custom House. This Commission was authorized and constituted as follows :—

By Act of Congress of March 3d, 1865. "The Secretary of the Treasury is hereby authorized to appoint a Commission, consisting of three persons, to inquire and report upon the subject of raising by taxation such revenue as may be necessary, in order to supply the wants of the Government, having regard to and including the sources from which such revenue should be drawn, and the best and most efficient mode of raising the same, and to report the form of a Bill ; and that such Commission have power to inquire into the manner and efficiency of the present and past methods of collecting the internal revenue, and to take testimony in such manner and under such regulations as may be prescribed by the Secretary of the Treasury."

The Commissioners acting under this law are Messrs. David A. Wells, Stephen Colwell and S. S. Hayes, with Mr. E. B. Elliot for their Secretary.

Mr. D. A. Wells, Chairman of the Commission, and the member who had charge of the subjects upon which this Committee was appointed, was seen personally, and at once willingly accepting the proffered services, suggested that the objects of the Committee should be stated to him in writing.

Accordingly, the letter officially appointing the Committee (above given) was enclosed to the Commission with the following communication :

BROOKLYN, OCT. 17, 1865.

To the U. S. Revenue Commission, New York.

GENTLEMEN :—On behalf of the American Pharmaceutical Association, I have the honor to enclose to you the precept of a Committee raised by that Association at its late annual meeting.

By direction of the Association, and by the ascertained desire of all the members of this Committee, I, as their Chairman, beg to place the services of this Committee entirely and wholly at your disposition, with a distinct recognition of the fact on our part that it is neither our province nor our desire to indicate how those services are to be rendered, if they be acceptable to you.

In the discussion of the subject of the application of the Internal Revenue Law to the interests and objects of the Association we represent, the following were the prominent points in the law which, by the general sense of the Association, it appeared desirable to have modified, provided the changes could be made consistently with the recognized objects of the law, to raise the largest possible revenue with the least possible inequality in its bearing, and, above all, with the least possible chance for individuals or individual interests to evade its full uniform operation. It seemed to be the general sense of the Association, as it is the full conviction of this Committee, that it is the equal application of the law throughout all the tortuous channels of the special interests against which it has to discriminate that presents most difficulty to those appointed to defend and guard its interests, and hence the following desires of the Association were generally expressed with respectful deference to the greater wisdom and better judgment of those having charge of the law, who regard it from a point far above the level of special interests or partial application. It is mainly, then, in the hope of adding some little to the knowledge of those whose wisdom and judgment we respect and rely on, that this Committee alludes to the wishes and objects of the Association, and desires to be heard in explanation of those wishes.

It is fully admitted that among articles of luxury liable to common in-

jurious misapplication, the discrimination of the law in favor of a large revenue from spirituous liquors is eminently proper and just. There is, however, at least one important use to which alcohol is put wherein it is not a luxury, but a prime necessity, where it is not liable to the same misapplication, and where the quantity used is comparatively small, namely, its use in legitimate pharmacy and medicine.

It was a strongly-expressed hope and desire of the Association that some plan might be devised whereby pure alcohol, for this use alone, might be supplied at such a lower cost as to interfere less with the advancement of legitimate scientific pharmacy and medicine. It is admitted that alcohol for such purposes would easily bear a moderate tax, even two or three times greater than upon the common luxuries of life, without materially injuring the interests above mentioned. But it is also freely admitted that a discrimination in favor of this particular use of alcohol would be most difficult to protect from abuse, through the premium thus offered to avarice for increasing the number of ingenious evasions of the law. With this brief introduction of the subject, the Committee submits this important desire of the Association to your favorable consideration.

The object of second importance to be asked for is that the license of the pharmacist be so defined that it shall secure to him the right to prepare all official medicines, such as the various official tinctures, extracts, ointments, syrups, pills, etc., which may be required for his own use in dispensing, to the extent of say two thousand dollars per annum in cost value of materials used, free from manufacturer's tax. But all unofficial preparations made by him to pay stamp duty.

That his license as a pharmacist may enable him to dispense for medicinal uses, and upon physicians' prescriptions only, the official alcoholic liquors in quantities not exceeding a pint of either at any one time, whether these be dispensed simple or compounded, provided the aggregate cost value of the whiskey, brandy and wines, so dispensed, simple and compounded, shall not exceed the sum of five hundred dollars per annum.

That his license as a pharmacist shall prevent him from taking out any other license, whereby he may dispense alcoholic liquors in any other quantities, for any other purposes, or in any other ways than those above specified as pertaining only to his legitimate business as a pharmacist.

The prominent aim of such provisions is to prevent the sale of a large class of alcoholic preparations, which may be, and probably are, used as beverages, without paying the stamp duty; as, for example, the various elixirs, cordials, syrups, bitters, tonics, etc., either mixed with mineral waters, carbonic acid water, soda water, or in any other way, by pharmacutists, and yet enable them to perform their legitimate functions.

Another subject of much importance may be introduced to your notice as follows :—

The Law defines patent proprietary or secret medicines (meaning such

as are used through popular advertisements, and made as a branch of common trade, independent, for the most part, of any educated or skilled application), in such a way that its provisions may be evaded simply by the publication of the formulas professed to be used in their preparation, and applies to all such preparations a stamp duty amounting to four per cent. upon the retail price as fixed by the maker of the article—that is, a one cent stamp upon each twenty-five cents of the maker's proposed retail price. If the maker of the article fix his retail price too low, in order to reduce his stamp duty, and if the retailer sells the article at a price beyond that at which it is stamped, without affixing additional stamps, the law is evaded. At the very best, the revenue upon such articles cannot exceed four per cent. on the retail price. At the time of the enactment of this provision a tax of three per cent. was placed upon all manufactures. As this was applied to the wholesale prices, and excepted the containing packages, where these had already paid the tax, its operation upon the manufacture of legitimate medicines made, as it was probably intended to do, an important discrimination in favor of legitimate, educated, or scientific medicine and pharmacy. With this discrimination, the interests of medicine and pharmacy had just reason to be satisfied, and were so. But upon a subsequent revision of the Law, the manufacturer's tax was increased to six per cent., whilst the stamp duty upon quack nostrums was left unchanged, though this class of articles are certainly not less manufactures than those of legitimate pharmacy, whilst the profits on the former are far greater, and the intrinsic importance and value far less. Their prime cost value in materials used is also far less, even including advertising as the principal and far the most costly ingredient in their production and sale. Besides this, these articles, in common with alcoholic beverages and tobacco, would not have their profits materially impaired, nor their sales or use materially diminished by any reasonable discrimination against them. Under these circumstances the Association asks to have the original discrimination restored by increased stamp duty upon nostrums, perfumery, etc. A simple plan of effecting this increase would be to assess a one cent stamp upon every ten cents retail value, directing that the retail value be ascertained by adding not less than fifty per cent. to the maker's established or common wholesale price. Any articles once so stamped and sold, might as well be declared free from additional tax, no matter what price might be afterward set upon them. This discrimination, now asked to be restored, was probably abandoned unintentionally in the revision of the Law, as its operation might very naturally be overlooked in passing an amendment simply to double the manufacturer's tax. The comparatively insignificant proportion of that lower manufacturer's tax, which was sustaining, and which was probably intended to sustain, legitimate medicine and pharmacy against a powerful rival interest which could more easily bear increased taxation, might be and probably was overlooked accidentally.

By the increase of the manufacturers' tax, manufacturing pharmacy suffered more than any other branch of manufacture which is based on absolute public necessity, in consequence of the high tax already imposed upon its most important and altogether indispensable material, namely, alcohol, and the thus doubly-increased cost of its products affects the middle classes and the poor more than it does the educated classes and the rich, because the latter, from the better sanitary conditions and provisions which education and wealth secure to them, need and use less medicine.

Nevertheless, as it is the recognized object of the Law to raise revenue, rather than to foster special interests, no matter how useful or necessary these may be, and as it is quite impossible that it should not bear with a little undue weight somewhere, the interests of pharmacy and the objects of our Association would probably be fully satisfied under the present taxation, if the taxation of our rival interest was increased in the same ratio.

These are the objects most desired by our Association, and should your Commission see fit to consider them, all the members of this Committee hold themselves in readiness to give any testimony, or information, or reasons in regard to them, that they are capable of, at any time or place you may appoint.

Very respectfully your obedient servant,

E. R. SQUIBB, M. D., *Chairman.*

This communication was submitted to each individual member of the Committee before it was presented to the Commission, with a request that each should write out his views and those of his neighboring associates in pharmacy. Upon its return, a comparison of the various views received with it appeared to warrant its being offered to the Commission, although hardly any two members agreed upon any of the subjects, though some one or two agreed to each. The prominent reasons for the paper being presented as it was, were: First, that its character and general objects were assented to by nearly all. Second, that it was now shown to be entirely impossible to prepare a paper which would suit all or even a large majority of the Committee; and third, that it appeared probable that any attempt at a better paper would hardly be more successful, unless all subjects, except that of a reduction upon alcohol, were excluded. Besides, as this paper was intended merely as a basis for systematic thought and discussion between the Commission and the Committee, in order to establish their relations upon some definite points for action, it was not deemed improper for the undersigned to present it, as Chairman of the Committee. Pre-

vious to its presentation, however, and before the Committee had perfected its official relations with the Commission, the undersigned was asked to testify under oath to many points in connection with the bearings of the Law, and gave this testimony entirely as an individual, and with great care not to involve either the Association or its Committee in any such testimony.

After the papers above copied were presented, and the official relations duly established, several interviews between the Chairman and Secretary of the Commission and the Chairman of the Committee were had, and two or more interviews between the Chairman of the Commission and Mr. Colcord were had in Boston. The results of these interviews with the undersigned were a full recognition of the importance of the objects of the Association; and the patient attention and careful consideration accorded by the Commission to the Committee, evinced a disposition on the part of the Commission to do full and liberal justice to the desires and representations of the Committee. Further than this, the Commission stated that evidence had been placed before them that through some weak points in the present Law, especially in the proviso to Section 165, the Law was now, and would be farther evaded to the injury of the revenue; and thereupon invited the co-operation of the American Pharmaceutical Association, through its Committee appointed for that purpose, in aiding the Commission to so amend the law as to draw the line of distinction more clearly and more closely around the class of proprietary articles belonging to Schedule C; and also, in general, to aid the Commission, as well in the interests of the law as in the interests of the Association, to the end that by increasing the equal and accurate application of the law to the classes which could so well bear it, the revenue from such might be so increased as to compensate and justify the reduction of duty on alcohol, so earnestly and so prominently pressed for.

Under these circumstances, the Chairman, as the representative of the Committee accessible to the Commission, had no hesitation whatever in devoting much time and effort to what he hoped might prove a useful and acceptable work to the Association, to the Committee, and to the Commission. When these interviews between the Commission and the Chairman of this

Committee had resulted in a somewhat definite and mutual understanding as to what might and what might not be acceded to on the part of the Commission, a meeting was arranged with the Commission, and the two nearest members of the Committee, namely, Messrs. Colcord and Procter, invited to be present. Mr. Colcord was prevented by indisposition, but Prof. Procter came from Philadelphia for the express purpose of attending this meeting. The interview was a long and satisfactory one, and the whole ground was thoroughly gone over and discussed in the liberal spirit in which the Commissioner had always treated this Committee. The views of the absent Committee-men were fairly presented and discussed, and the new matters regarding the application of manufacturers' licenses to apothecaries, the taxing of drug grinding, and the amendment of Section 165, were also discussed. The result of the interview was a request of the Commission, that as the arguments and reasons given for the propositions of the Committee were numerous, and the subjects embraced not very familiar to the Commission, the propositions be put in the form in which they should be, in order to change or amend the law as desired on the part of the Association, and the arguments and reasons given at length in connection with each proposed change. This involved much time and labor, but was cheerfully undertaken on the part of the Committee. Then, in order to avoid a duplication of the labor afterward, the propositions were canvassed in succession, to ascertain what parts could not be admitted by the Commission, consistently with the interests of the Law. A single example may be given to show the course pursued, and the spirit in which the Commission acted. Upon a fair representation, the Commission at once admitted that the official wines and liquors were as much a part of the *Materia Medica* as drugs in general were, and that the apothecary was as much bound to keep them of standard quality ready for instant use as any other articles of the *Materia Medica*, and therefore that his license as an apothecary as much embraced the dispensing of them as of any other articles of the catalogues in which they occur. Hence it was as freely and promptly admitted that it was unjust to require apothecaries to take out the license of a

www.libtool.com.cn This, then, covered the whole ground as far as the direct and immediate interests of the Association went, but now the Commissioner had to take up and guard the interests of the law and the revenue; and it is just here, where the public interests begin to be considered, that the individual views of the members of the Committee begin to clash.

The Commission says it is impossible that the law should leave so wide a door open to any class or interest as to allow them the unrestricted sale of articles so rigidly restricted everywhere else. And hence it is necessary to the success of your desires and proposition that you will submit to have the admitted rights of apothecaries in this respect rigidly limited and closely guarded. Then as the necessity and urgency, if not the only uses, of the officinal wines and liquors as articles of the *Materia Medica* are as remedies for the sick, and as physicians are most competent, if not alone competent, to apply the articles of the *Materia Medica* to the sick; and particularly as these articles, though in the *Materia Medica*, are most largely used elsewhere, less legitimately and for purposes that justify the largest possible revenue being raised upon them, you must permit the Commission to decide that they can only be sold by apothecaries under that license, upon the prescriptions of physicians. Should the apothecary desire to sell them otherwise, let him take out the proper license to do so, and thus constitute himself a legitimate retail dealer in liquors; and here it may be remarked that this Commission cannot consider with any favor at all the proposition of your Chairman that apothecaries licensed as such be prevented from taking out other licenses. Next, as to the quantity of spirits an apothecary may sell at a time, even upon the physician's prescription. This may be justly decided to be no greater than the quantity usually required for medical use at any one time, for here is where the apothecary's function ceases, and all beyond that is the domain of the liquor dealer. It is proposed that a pint and a half be allowed, so as to include the ordinary wine-bottle quantity. This is clearly liquor dealing, and not at all among the necessities of the *Materia Medica*, and must therefore be refused under the apothecary's license. And this cannot be a hardship upon the apothecary who desires to combine his

business ~~with dealing in liquors~~, since all other licenses will be kept open to him, and forced upon him by penalty in case of attempted evasion. Again, as physicians' prescriptions may be easily and very frequently obtained, and as papers may be presented to apothecaries as prescriptions which are only so in appearance, there appears a necessity for another check to prevent the apothecary from being, perhaps unwillingly and unwittingly, transformed into a liquor dealer. This may be prevented by deciding the amount in value of spirit per annum that may be authorized under an apothecary's license. It appears probable that an amount which would cost the apothecary three hundred dollars would supply the *Materia Medica* dispensing of the largest prescription store, and that liberally.

Somewhat in this way, or at least in this spirit and manner, not only the paragraph upon dispensing liquors by apothecaries, but all the other propositions, were canvassed, and preliminary decisions made as to what might and what might not be admitted.

In the discussion of Section 165, both here and subsequently, the broad principle was adopted that any medicine which had or claimed a proprietorship, or was owned or claimed by an alleged owner, and to which the claimant's name was prefixed in the possessive case, or anything equivalent to this, must be stamped. And further, that all medicines advertised for popular use in newspapers, or by handbills or placards, even though they might not directly claim a proprietary or vested ownership, whether they be called simply "pain-killer" or "*pilulæ catharticæ compositæ*," provided they be put up in the style and manner of proprietary medicines, and applied to similar purposes, namely, general, public and promiscuous medication on the large scale,—that all such be subjected to stamps.

But then comes a discriminating distinction. "Pure and carefully made pain-killer," with directions for use simply, and without proprietorship, but simply "prepared and sold by Perry, Apothecary," would be subject to stamp, because the formula for it could not be found in any pharmacopœia or dispensatory under this name, nor as having been published, for general use in any journal of an incorporated College of Pharmacy, even though

some such journal might have published, as an item of information, that the famous "pain-killer" had been ascertained to be only an anodyne solution of myrrh and other resinous gums, and might have given a formula.

On the other hand, however, the officinal compound cathartic pill might be put up in any style or manner, and might be advertised as such to the trade, as prepared and sold by B. & Co., manufacturers of medicinal preparations, and yet not be subject to stamp duty. To attain this exemption, however, B. & Co. must be always prepared to testify on oath that the pills are made strictly by the officinal formula, or some other, which is published in the prescribed authorities, in the prescribed way. If they call them B. & Co.'s compound cathartic pill, however, they must be stamped.

From these examples, the undersigned hopes that it will appear to the Association that the Internal Revenue Commission, in its relations with the Committee, acted in a spirit of liberal, even-handed justice, and really conceded all that could be reasonably expected from them, when all the circumstances are known and considered.

Secondly, that the Committee was not remiss in its duties to the Association; and that if all that was desired by individual members of the Committee, or by the Association itself, could not be obtained, it was because they were not consistent with either the objects of the law or the safety of its application in general.

This account of the provisional or preliminary action of the Committee and the Commission may serve as an introduction to the mere specific and definite action now to be mentioned.

As a direct result of the long and satisfactory interview with Commissioner Wells, in which Prof. Procter participated, and at the request of the Commissioner, the following paper was carefully drawn up, with the aim of presenting the strongest and most prominent reasons only, and of setting these in a broad, clear light, even at the expense of a profusion of words.

Abundant experience had shown that however long the communication, it would be sure to receive attention, provided it was clear, open and honest; and the Chairman of the Commission had suggested that in preparing it, the circumstance of its being

addressed to those who were not familiar with pharmacy and pharmaceutical matters should be borne in mind, in order to secure its being properly understood.

To the Internal Revenue Commission, New York Custom House.

BROOKLYN, Nov. 27, 1865.

Proposed modifications of the Internal Revenue Law, with some of the principal reasons therefor; drawn up at the request of David A. Wells, Esq., Chairman of the Commission.

Section 79, paragraph "Five," page 34, of the published law. Proposed to introduce between the 6th and 7th line of the paragraphs as follows:—

Provided, That nothing in this act shall be construed to prevent apothecaries from dispensing, upon physicians' prescription, the wines and spirits official in the United States and other national pharmacopœias, either simple or compound, in quantities not exceeding half a pint of either at any one time, nor exceeding in aggregate cost value the sum of three hundred dollars per annum.

The reason for this proviso is, that now an apothecary is unjustly obliged to take out a retail liquor dealer's license to enable him to sell, no matter upon what emergency, the wines and spirits which the national pharmacopœia obliges him to keep, pure and ready, at all times, night and day, for medical use, as remedies in injuries and disease, and as an important part of the legitimate *Materia Medica*. Under the present action of the law in regard to apothecaries, the retail liquor dealer's license is altogether disproportionate to the amount of business he is required to do under it, and it is therefore burdensome beyond the intention of the law. For example, his license as an apothecary covers his whole business except this very small part, and costs \$10; whilst the retail liquor dealer's license, necessary to enable him to do a very small portion of his business as an apothecary, costs him \$25.

Section 79, paragraph "Thirty-one," page 37. Proposed to add to this paragraph as follows:—

Provided, That apothecaries and druggists who manufacture for their own dispensing and sales to consumers and to physicians the medicines compounded according to the United States or other national pharmacopœias, or of which the full and proper formula is published in any of the dispensaries now or hitherto in common use among physicians or

apothecaries, or in any pharmaceutical journal now issued by any incorporated College of Pharmacy, shall not be regarded as manufacturers under this act. But apothecaries and druggists, in common with all other persons who manufacture for the dispensing and sales of others, or who make and advertise any article, medicinal or otherwise, simple or compound, with any special proprietary claim to merit or to special advantage in use or effect, whether such claim be based on the properties, qualities, price or any other distinctive or distinguishing characteristic, whether real or pretended, of the articles so made and advertised, whether such articles be or be not made according to the authorities above cited in this proviso, the maker or makers thereof shall be regarded as manufacturers under this act.

The reasons for this proviso are, that as a security for the character of medicines, and in order to fix the responsibility of the sale and use of dangerous medicines which affect health and life, and the dispensing of which not unfrequently involve criminal proceedings in law, as near as possible to the act or effect produced by their dispensing and sale, it has long been the effort of the medical profession, through their pharmacopœias and dispensaries, to cause apothecaries to make for their own dispensing and sale all the medicines in established use, by the certain authorized and prescribed formulas furnished to them for the purpose in the authorities cited; and therefore the making or compounding of such medicines is a part of their duties as apothecaries, and embraced in their license as such. Hence it becomes burdensome beyond the intent of the law to require two licenses to cover a single legitimate occupation which cannot be divided without disadvantage. Beside, the preparations or medicines so made are, in aggregate value of materials involved, comparatively small in proportion to the other operations contemplated in the application of this license, and are not strictly manufactures unless they become the objects of common trade, to be made and sold in the large way as objects of proprietary individual enterprise, production and sale. They then become, in common with other articles of trade, legitimately manufactures, and should be licensed as such. For example, cod-liver oil and laudanum are officinal medicines in the U. S. Pharmacopœia, and when made by the apothecary, as the adjunct of the physician, for his own sales to consumers, as is not unfrequently the case, their preparation constitutes a portion of his proper and

required duties as an apothecary; and as an apothecary he is licensed to perform them with an educated skill which constitutes his art or profession, and by arbitrary rules which he is obliged to follow, and which it is but right and just that he should closely follow, in view of his responsibility for the benefits or the criminal misapplication that may ensue. Now, because these duties, properly constituting the art of an apothecary, and licensed as such, happen to come within the definition of manufactures, they should only be taxed or licensed as such when not otherwise taxed or licensed. But if mercantile enterprise and the desire for pecuniary gain tempt an individual or association, though they be licensed as apothecaries, to go where codfish are largely caught, and there, by a proper apparatus, prepare on the large scale, as a special business, or even as a part of the business of an apothecary, this cod-liver oil, and advertise it as a commercial article, with a view to bringing it into general use as his or their peculiar cod-liver oil, and thus tend by property, quality, price, or otherwise, to substitute or supplant the small maker, bringing capital, position, and scale of operations to compete against the small maker, and tending to monopoly and prescriptive and proprietary use and advantage,—then he or they should take out the manufacturer's license, even in addition to the apothecary's license, when the manufacture is in addition to the apothecary's functions.

Again, if the same enterprise and desire for profit tempt an individual or association to prepare laudanum, or all the articles authorized by the pharmacopœias, or any part of them, not for his own dispensing, or for direct sale to consumers, but for sale to those who dispense or sell again, and the process being carried on upon a large scale, involving the use of special apparatus and machinery, and of labor not specially educated or skilful, then such should be regarded as manufacturers.

Section 79, paragraph "Thirty-three," page 38. Proposed to add at the end of this paragraph as follows:

The application of this paragraph to be subject to the provisions of paragraphs five and thirty-one of this section.

For reasons given in regard to paragraphs five and thirty-one.

Section 93, page 47. Proposed that the fifth line of the section, instead

of "six hundred dollars," read "two thousand dollars;" and the ninth line, instead of "one thousand dollars," read "three thousand dollars."

The reasons for this are, first, that productions of labor and skill within the proposed limit, at the present prices of material and labor of all kinds, would not greatly differ in the amount of manufacture represented from the law as it stands, if applied to the time when it was made, so greatly has the nominal value of everything increased. Take alcoholic products for example.

Second, that productions within the proposed limit, though actually manufactures, deserve discrimination in their favor to a greater extent than when the law was made, to afford them a proportionate protection against the monopolizing tendencies of large capital, as capital becomes more plenty.

Third, that they deserve effectual discrimination in their favor, as inducements to small individual labor and enterprise, and as tending to distribute the profits of labor and skill among classes where such profits tend most to foster education and common honesty; and to foster a reproduction of this labor and skill in kind; and disseminated through the masses of the people, rather than have it accumulated in large establishments where a disproportionate amount of the profits accrue to the rich.

Fourth, that it will include all such productions and manufactures as are embraced in the proposed proviso to paragraph thirty-one, as it should do, for reasons given in regard to that proviso.

Section 94, paragraph on "ready-made clothing," etc., page 54. Change the proviso on the fourth line of the paragraph to accord with the first part of Section 93, if that should be changed as proposed.

For the same reasons as given for changing Section 93.

Section 95, page 57. Proposed to add a proviso to this section as follows:

Provided, That the cutting, grinding, or otherwise comminuting drugs, chemicals, dye-woods, dyes, paints and other similar articles, when carried on as a special business, separated from the manufacture of such articles on the one hand, and their use in application on the other hand, as when a miller grinds a substance, and gets a price, direct or indirect, for the process of grinding and re-packing,—be subject to a tax of five per centum, assessed upon the price obtained for the cutting, grinding, or otherwise comminuting the said articles.

The reason for this proviso is that all drug grinding, dye-stuff cutting, etc., now escapes the tax because the increased value of the product does not exceed five per cent., while it is a business much better able to bear the tax than many others. The intent is, not to lay the tax on the powdering where it forms an intrinsic part of a manufacturing process which in its state of completion pays the tax, nor where it is done by the owner of mills upon his own material as a part of his profits in trade, upon which trade he is taxed to as great an extent.

Section 165, page 84. Proposed to substitute for the present proviso as follows:

Provided, That nothing in this act contained shall apply to any uncompounded medicinal drug or chemical, nor to any medicine compounded according to the United States or other national Pharmacopœia, or of which the full and proper formula is published in any of the dispensaries now or hitherto in common use among physicians or apothecaries, or in any pharmaceutical journal now issued by any incorporated College of Pharmacy, and not sold or offered for sale, or advertised under any other name, form or guise than that under which they may be severally denominated and laid down in said pharmacopœias, dispensaries or journals as aforesaid; nor to medicines sold to or for the use of any person, which may be mixed and compounded for said person according to the written recipe or prescription of a physician or surgeon. But nothing in this proviso shall be construed to exempt from stamp duty any and all medicinal articles, whether simple, or compounded by any rule, authority or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general, and advertised in newspapers or by public handbills for popular sale and use, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, quantity, price, use or effect, whether such claim be real or pretended.

The reasons for these changes are as follows:

The words "any of the dispensaries now or hitherto in use" are used in order to prevent the publication in future of new dispensaries for the purpose of evading the law. The words "formularies or text books in common use among physicians and apothecaries, including homœopathic and eclectic," are avoided, because formularies and text books may be found which contain the real or pretended formulas of preparations, which it is the legitimate and proper intent of the law to tax by stamps, and which really belong to Schedule C. The words "homœopathic

and eclectic " are left out, first, because physicians and apothecaries, being specified in the aggregate, include all sects, botanic, hydropathic, eclectic, clairvoyant, Swedish movement, and all others, all of whom have, in the eyes of our law makers, equal right with the homœopathic, eclectic and older school of practice. Then, as the greater always includes the less, the words "physicians and apothecaries" can only mean, in the intent of this law, *all* physicians and apothecaries, and *all* their pharmacopœias and dispensaries, without any distinction; and yet the exemption as proposed narrows the chances for successful evasion.

The last paragraph of the proposed proviso is specially intended to avoid evasions of the intent and equal operation of the law, under an indirect advantage, which has been taken of the first paragraph, whereby articles are exempted which it was not the intention of the law to exempt from stamp duty, and from which stamp revenue may justly be raised. A good illustration of the bearing of this paragraph—an illustration wherein the paragraph will bear as hard, and be as burdensome in its application as in any known instance—may be found in cod-liver oil. This oil was, some years ago, proposed as a remedy useful in retarding the progress of consumption, and was soon proved to exercise a beneficial effect in many cases of that disease, and consequently it was admitted into all the pharmacopœias, and was described and commented upon in the dispensaries, and came into extensive medical use. The prevalence and intractable nature of the disease in which it was used, and its increasing importance in the legitimate *Materia Medica*, soon stimulated mercantile enterprise and the desire for profits to manufacture it on the large scale, to supply the increasing demand for it, and gain the advantage of its high price and large profits. Thus far it was a true and legitimate process of manufacture, and should be licensed and taxed as such only; and thousands of gallons of it are made and sold annually now by the gallon or barrel which can only be justly taxed as a legitimate manufacture, although it may be distinguished and sold in trade as the make of Mr. A., or Mr. B., or Mr. C., and although Mr. B.'s oil may be more highly prized than the others, and command a higher price. But after this point in its commercial history had been reached, the

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still present desire for larger profits induces some enterprising merchants to take Mr. B.'s oil and put it up in bottles made as showy as will well comport with the main object,—namely, profits,—and which will hold as little as possible for their apparent size, and show the oil in a thin stratum, whereby to increase its transparency and lightness of color. To these qualities, real and apparent, an attractive label is added, whereupon it is designated as X. & Y.'s celebrated cod-liver oil for the cure of consumption, sold only by so-and-so, and at such and such agencies. Even thus far a very liberal construction of the present and the proposed law would, and perhaps should, regard it as a legitimate manufacture, to be licensed as such under Section 79, and taxed under Section 94. But now comes the agency which is held sufficient to remove it from the scope of Section 94, and place it under Section 165, and within the legitimate application of Schedule C. Thus put up like a proprietary medicine, and called by a proprietor's name, and set forth as a cure for consumption, and thus labelled to fit it for popular rather than for professional use, it only needs a market large enough to yield the indispensable profits for which the enterprise was undertaken. The field of professional or scientific application is not large enough for this. Beside, the getting up is not addressed to those found within this field. The masses of the people must be reached, including all who have consumption, all who think they have it, all who fear they are getting it, all who fear they may get it, and all who can be persuaded to join either of these classes. This field is large enough, and easily got at only in one way, namely, by the profuse use of capital invested in popular advertisements and placards. The expense is great,—far out of proportion to the original material involved; for while the bottle, label, wrapping, etc., usually exceed the cost of the oil, the advertising exceeds all these in an enormous ratio, at least until the market is made. The market once made, however, the profits are enormous,—quite proportionate to the skill, enterprise and capital involved, and quite sufficient to afford a stamp duty rather than as a manufacturer's tax; and if the stamp duty be not imposed in such cases, it is an unfair discrimination against the interests of the other articles enumerated in Schedule C. When a medicinal article is

put up in a uniform manner, and is styled B.'s or C.'s compound or simple, and is popularly advertised by newspapers or by handbills in any of the usual forms as B.'s or C.'s peculiar product, as a remedy for disease, it is no longer, in the eye of a revenue law which discriminates against alcoholic beverages, an article of simple manufacture which is entitled to the protection of a moderate tax, but is strictly a proprietary medicine which realizes its profits under great risk of misapplication, and the fostering of a vice which is injurious to the physical and moral condition of mankind.

But if an apothecary, for convenience of dispensing, puts up any article of the pharmacopœia or dispensatories by the authorized name, and simply with directions for use, and his own name as the maker and vender thereof, and without advertising it for popular use in the newspapers, or by handbills or placards, and without claiming that he has any individual right to it, or that it will cure any disease or diseases if taken, it is not the intention of the above proviso to render such subject to stamp duty. For example, boxes, packages, bottles, etc., of whatever kind or uniformity, no matter how put up, if simply labelled, "The celebrated cod-liver oil, carefully prepared by B. & Co. from the livers of freshly-caught codfish only, carefully put up so as to keep free from rancidity in any climate, and be found always acceptable to the most delicate stomachs. For use in affections of the chest. Dose, a tablespoonful three times a day." Or, for another example, if the apothecary X. puts up little boxes of Wistar's Cough Lozenges, and labels them "Wistar's Cough Lozenges, for the cure of coughs, colds, etc. Dose, one lozenge, to be taken occasionally when the cough is troublesome. Prepared and sold by X., No. 20 — Street."

Now, provided B. & Co. and X. show to the Assessor that cod-liver oil and Wistar's Cough Lozenges as they sell them are, the one the officinal article, and the other the article long known, used and described in the dispensatories, etc., as such, and provided they be not advertised in newspapers or by handbills as nostrums are, for popular use as special proprietary articles, then they should not be subjected to stamps as the articles of Schedule C. are.

A recently republished commentary or digest of the British Patent Medicine Act, (see *Pharmaceutical Journal and Transactions*, London, Nov. 1st, 1865, p. 253,) is very pertinent here, and may be quoted as the gradually attained result of some twenty years' experience in the application of a similar law for the same objects.

"1. No medicine is liable (to stamp duty) if it be a simple uncompounded drug. The Acts imposing the stamp duty apply only to compounded or prepared medicines.

"2. Secret medicines or nostrums sold as such are liable to the duty.

"3. Medicines that are represented to be prepared exclusively by the person whose name they bear are liable.

"4. Any medicine that is recommended on the label, or on a handbill, or by public advertisement, as a remedy for the cure or relief of any disease, is liable."

"The law is interpreted leniently with regard to ordinary domestic remedies, such as antibilious pills, cough pills, aperient pills, stomachic powder, essence of ginger, etc., which are sold by chemists without any pretension to exclusive right or mystery in the preparation. But if the words "prepared only by A. B.," be used, then A. B. is liable as the maker of a nostrum exclusively prepared by himself. Even if the formula or mode of preparation be publicly known, and the original maker or inventor state that the genuine article is prepared only by himself, all others being spurious, he is liable, as a person claiming superiority over all others. Such preparations as *liquor opii sedativus*, *liquor taraxaci*, *liquor sennæ*, etc., although each maker may profess superior skill in the manipulation, are not liable, because these medicines are not sold as nostrums for any specific purpose, but are comprised among the preparations ordinarily prescribed by medical men and used in the dispensing establishments. But if such medicines, or even preparations of the *Pharmacopœia* be sold, with labels or directions recommending them for any particular disorder, they come within the fourth condition, above named, and are therefore liable. This condition has given rise to a variety of questions and attempts at evasion, but the only qualification allowed is the following:—It is granted to be a matter of necessity, that every medicine shall be so designated that it shall be distinguishable from other medicines. For example, the words "cough pills," "anti-bilious pills," etc., may be used to identify the pills; but the words "pills for a cough," or pills for bilious complaints, etc., make them liable, because the license to use such expressions would open the door to an extensive evasion of the Act."

In order to avoid evasions, it appears to be necessary to draw the lines of distinction very finely and very closely, to enable the letter of the law clearly to define its purpose and intention;

and further experience may yet be required to ensure a just and equal operation.

Schedule C, page 92. Proposed to insert near the end of the first paragraph, under the head of "Medicines and Preparations," after the words "retail price or value," the words "as fixed by the maker of the article, the sum of ten cents one cent; and for every additional ten cents, or fractional part thereof, the sum of one cent additional;" and by omitting all under this head after the words "retail price or value," in the first paragraph. The reading would then be, "Shall not exceed, at retail price or value, as fixed by the maker of the article, the sum of ten cents, one cent, and for every additional," etc.

This proposition would increase the general stamp duty upon Schedule C to ten per cent, and upon articles which retail at 25 and 75 cents to 12 per cent.; and the reasons for this are as follows:—

In the original law the manufacturer's tax was three per cent. upon the nett sales, and the stamp duty on Schedule C was four per cent. upon the retail price, (one cent upon each twenty-five cents). This is believed to have been intended as a just and beneficent discrimination in favor of legitimate manufacture in pharmacy. At a subsequent revision of the law the manufacturer's tax was raised first to five per cent., then to six per cent., whilst the stamp duties remained unchanged. The effect of this legislation was a very important discrimination against legitimate manufacturing pharmacy, and a reversing of the original intent and effect of the law. This reversing of the original design of the law is believed to have been unintentional, as it certainly was unjust toward legitimate pharmacy, and therefore it is proposed to restore and increase the discrimination. The present stamp duty applies very unequally to a class of proprietary medicines and perfumery, the retail price of which is below 25 cents, since a 10 cent article requires now a one cent stamp; and this tax, though unequal, appears to be well borne. It is, therefore, proposed to equalize it upon this basis, as the most convenient and practically applicable of any that could be adopted, with the single exception of 25 and 75 cent articles. A stamp duty of eight per cent. would

apply better in a few cases, but it would hardly restore the original discrimination under existing circumstances, while it is maintained that the original discrimination was too small for the protection of the best interests of both the Revenue and the public. The lengthened experience of the British Excise Law has led to a very much higher stamp duty upon all this class of articles, with what is believed to be a good result. By causing the maker to fix the retail price, and to affix the proper stamps in accordance therewith, the articles might be relieved from further taxation, no matter at what advance on the retail price they might be afterwards sold, provided the maker's retail price was a fair one.

Finally, upon the most important point of all, it is proposed that the duty upon spirits be reduced to one-half the present rate, for the following reasons :—

First. Because alcohol is the most important general agent in the whole domain of medicine and pharmacy as a necessity, subserving its general purposes in medicine and pharmacy legitimately, without liability to abuse or misapplication, whilst its special purposes, wherein it is liable to abuse and misapplication here, may be very thoroughly controlled by stamp duties; and because the enormous increase in its cost to twelve times its former price has very materially interfered with the best interests of pharmacy, by tending to cramp and hinder the progress of the art, and materially lessen the use of alcohol, by encouraging the use of imperfect and improper substitutes. This diminished use has, as yet, by no means reached its limit; and it may be safely estimated for pharmacy, that if the present high rate of duty be maintained, the use of alcohol will be diminished more than one-half. With half the present rate of duty pharmacy might not be seriously affected, and if so, the revenue accruing from one-half the present rate of duty would be larger, and be more easily collected than with the present rate.

Second. Such a reduction would dispose of all the valid reasons which could now be found for either a discrimination in favor of pharmacy, or for the introduction of a methylated spirit, or any other like clumsy method, whose tendencies would probably be as bad as this.

Third. That it would diminish temptation to illicit distillation by diminishing the profits and increasing the proportionate risks, so that the present disproportionate excess of the profits over the risks would be lost, and the practice fail to become largely established. It is unquestionably true that there is a point where the profits and the risks of illicit distillation are so nearly balanced as to prevent the practice, and that point is the best for the revenue. It is rather improbable that more than six or seven gallons of spirit per diem could be produced in an illicit way without the certainty of pretty speedy detection in a large majority of instances. This, at a profit of two dollars per gallon, might warrant the risks, where cunning in the distiller happened to coincide with a want of it in the revenue officers; but at a profit of one dollar per gallon it would not be likely to be undertaken. Add to this the stimulus which would be given by a restoration of its use in many of the arts, and the result could hardly fail to be an increased revenue.

Fourth. It is a pretty general belief that the use of alcoholic beverages has not been very largely diminished by the high rate of duty, and it is probable that a portion of the small diminution has been over-compensated by an increased use of opium and other more injurious substitutes which only supplant one vice by setting a more degrading one in its place. If this be true, then the effect of the very high duty has been mainly to increase the pecuniary profits upon vice without controlling it, or raising an adequate revenue upon the process. If the attempt to discriminate against vice by the high duty has neither been successful in a moral point of view, nor in raising the greatest revenue, as is here maintained, then it is hardly worth while to interfere injuriously with so many of the established wants and necessities of civilization by continuing an unsuccessful trial.

In a brief summary of the subject it may be said that :—

The primary object of the law is to raise revenue. And the first consideration in framing it is that the revenue be raised consistently with the best interests of the public. From this last proposition follows the plan of taxing the luxuries of life as highly as they will bear, and only taxing articles of necessity when the luxuries will not yield the necessary revenue. But the luxuries

of mankind vary in the degree in which they approach the character of necessities, and it is difficult to draw a practical line of distinction between luxuries and necessities. The luxuries may, however, be divided into those whose tendencies are beneficent, those which are harmless, and those which tend to vice and degradation; and upon this classification ensues the conclusion that the raising of revenue may be incidentally used to check vice by imposing a penalty tax upon those luxuries which pander to vice. But it happens that such luxuries are they which are most difficult to tax successfully, because they are those of the lower orders of mankind, where their tendencies to vice and their connection with crime stimulate those who resist education to resist law by cunning and fraud, and evade by various devices and artifices the bearing of tax laws.

Now spirit or alcohol, in its established uses by man, pervades all the channels of civilization, and its multitudinous applications and benefits are almost beyond computation. It has a threefold character. In its highest and best applications it is among the prime necessities of man's sanitary and industrial processes, and many of the most useful arts owe their progress and perfection to its use. Much of the advancement of science, in its contributions to the general stock of knowledge, depends upon the uses and applications of alcohol. In its second character, in the form of wines and liquors of high grade or quality, it constitutes one of the most important and most widely disseminated harmless luxuries of life; whilst in its lowest character, in the form of wines and liquors of low grade, it constitutes the greatest and worst vice that has ever cursed humanity.

This ubiquitous spirit has to be taxed. In its highest mission, wherein it is not a luxury at all, it pays the tax, however high, with but little evasion, and that easily controlled; but, when the tax is too high, the stimulus to all kinds of economies in the use of the spirit, and to find substitutes for it, becomes so great that gradually the quantity consumed for such purposes so falls off as to disappoint the revenue. Science and skill in substituting other agents here take the place of cunning frauds in the lower classes, but with the same effect of diminished revenue. For example, there are perhaps two liquids which can be separated from the

so-called naphtha of mineral oil, which naphtha is now comparatively worthless, which might be substituted for alcohol in many of its applications, and under the stimulus of high duty this and other substitutions would not be likely to lie long dormant. In its second character, as a harmless luxury, it pays any tax that may be put upon it without much tendency to evasion. But as a very large proportion of the wines and spirits of high grade used here are and must be imported, in order to have the requisite quality, the revenue on such is collected, independent of this law, by import duties. In its lowest character, where every obstruction that can possibly be put in the way of its use is a benefit to all classes of the public, it deserves and should pay the very highest possible tax; and if by exorbitant taxation it could be driven out of use, the public would gain enough by this to overcompensate the loss of revenue by its disuse. This is *the* argument for high duty on spirits, and so forcible is it at first sight that its wisdom as a policy of government appears self-evident. Upon closer inspection, however, several difficulties appear, and in practice are insurmountable. First, it must be taxed in all its characters and uses alike, since so tortuous are the channels of trade that all attempts to discriminate in favor of any special character or use is attended with grave difficulties which are not compensated by the advantages gained. Then, if taxed very high, it is found easy to tax it out of very many of its uses in its first and best character, but very difficult, if not impossible, to tax it out of any of its uses in its lowest or worst applications, and a tax so high as materially to check its abuses would totally destroy most of its beneficent uses, and thus disappoint the revenue and injure the public interests.

It appears pretty plain that the higher the duty is placed the greater will be the revenue at the first full application of the law, but the greater will be the stimulus to a gradual evasion of the revenue by economies and substitutions on the one hand, and illicit distillations and frauds on the other, while every evasion of the latter character increases the proportionate burden to be borne by other interests, and the revenue is gradually disappointed and driven to other sources less consistent with the public good, whilst the anticipated effect in checking its vicious abuse fails to be realized.

A low rate of duty, however, interferes far less with any of its uses ; is more easily applied to the whole quantity produced, and therefore far more certain and uniform in its results from year to year ; is much more easily collected, and, though yielding perhaps much less revenue at first, yields this with greater security and less strain,—a less complicated revenue machinery,—and with a far better effect from any amount of vigilance likely to be accessible to the Treasury Department. All these advantages are now very easy to realize, and to secure upon the best of all bases, namely, the moral effect on the community of a reduction of the rate of taxation to one half, while reason and experience both lend much strength to the position that one dollar per gallon on the proof strength of whiskey would yield the best and most permanent revenue, and tend to check vice as much as any higher rate.

Respectfully submitted to the Commission by

E. R. SQUIBB, M. D.,

Member of the Committee of the Am. Pharm. Association.

The above communication, unsigned, was then at once submitted to each member of the Committee, accompanied by the following letter, requesting each member to write out his views upon it and transmit his report with it to the others :

BROOKLYN, Dec. 2, 1865.

Messrs. S. M. COLCORD, W. PROCTER, JR., J. FARIS MOORE and EUGENE L. MASSOT, *Committee.*

Gentlemen of the Committee ;—

After giving my individual testimony under oath before the Commission on the Internal Revenue Law, and after several interviews with the Chairman of the Commission, in one of which Prof. Procter participated, I was requested by the Chairman, Mr. D. A. Wells, to write out the changes of the law as we desired to have them made, with the reasons why, in my judgment, the proposed changes should be made. This I have done to the best of my ability, and now, as your Chairman, beg leave to submit them to you separately for your approval or dissent.

They will be sent enclosed herewith, first to Mr. Colcord, to be by him forwarded to Mr. Procter with the least possible delay. Mr. Procter will then please send them to Mr. Moore, and Mr. Moore to Mr. Massot. Mr. Massot will please return them to me with as little delay as possible.

The paper need not be signed by the members of the Committee, even if approved by all ; and it will not be presented as the report or work of

the Committee, unless it be concurred in by a majority of the members. If so concurred in, however, it will be signed by me, as Chairman, on behalf of the Committee.

Each member, on reading it, will please state briefly his objections to it, or his concurrence in it, and send his views, with the paper, so that the other members may have the advantage of his judgment.

Very respectfully, yours,

E. R. SQUIBB.

In due time the communication was received from Mr. Massot, accompanied by a full review of it by each member. These communications, which not only embrace the views of the individual members of the Committee from whom they came, but in some instances, at least, give the prevailing views of the locality from which they came, to a useful extent.

These may be regarded as the individual reports of each member of the Committee, made in accordance with the instructions of the Association ; and as such, are embodied here in the order in which they were sent with the paper of the Chairman.

MR. COLCORD'S REPORT.

BOSTON, December 7, 1865.

Gentlemen of the Committee :

I have carefully examined the papers enclosed from our Chairman, but have not examined the law, except in reference to those portions of it referred to in these documents. In general, the papers are well drawn, and I concur in them as our report, except such portions of them as I herein designate, to which I have strong objections, so strong that I should never for one moment agree to them, and, if necessary, will do what I can to oppose them. I refer to those portions of the papers which are now for the first time offered for our consideration, and which would never have arisen in the mind of any apothecary educated behind the counter.

I am surprised that our Chairman should offer such propositions, or that he could for one moment think that our Committee would agree to them ; and the more so because we have otherwise been unanimous. Such views were never intended by the law-makers ; the Association never entertained such ideas, and if they had been raised in the meeting, would have been im-

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mediately negatived. But more than this, our Committee are certainly exceeding our powers by proposing such radical notions without the known sanction of the Association.

I also have grave doubts whether the Association will sanction our recommendation to increase the tax on patent medicines to ten per cent. My opinion is that they would prefer to recommend a three per cent. tax on manufacturing. But I am willing to recommend the ten per cent. stamp tax to equalize the thing, or make it favor legitimate pharmacy, because I don't think Government will or ought to reduce the tax.

It has always been a favorite idea of mine that the best way to restrict the sale of patent medicines or nostrums, was for legitimate pharmacists to put up, recommend and sell official preparations, with or without directions, in place of them whenever we can do so. I also think that every inducement should be offered to apothecaries to manufacture and sell the best preparations that can be produced by known and published formulas, under their appropriate titles, and that so far from imposing a tax upon an article, because it is claimed to be a superior article, there should be a bounty given for its production; that the proprietor or manufacturer should be encouraged, and competition stimulated in the same direction. But to tax an article ten per cent. because of its popularity, in consequence of its superiority, and allow a common commercial article to go untaxed, is a step downward and backward, especially when the stamp is only for bottling an article which has already paid a manufacturer's tax.

Hotchkiss' oil of peppermint is an instance precisely parallel to cod-liver-oil, except that one is put up in quantities that a consumer might want. Both pay a manufacturer's tax. Their oil of mint is of superior quality, not made by them, but selected with care, costs more than the ordinary commercial article, and with their label and guarantee, is sought by our best apothecaries. And I hold that they should be encouraged, and others be stimulated by their success to do the same on other articles. With respect to stamping such articles, I place them precisely on the same footing I do Dr. Squibb's preparations, and hold that all such articles of known standard, strength and

quality, except secret formulas, should be encouraged as much as possible, especially as it does not interfere with any one else making or buying the same article in bulk or other form, and at as cheap a rate as though no such articles were so offered for sale. The fact of there being a public demand for such articles on account of their superior quality is a strong reason why they should receive protection, rather than be stigmatized as nostrums, and assessed an almost prohibitory tax, while inferior grades are allowed to go untaxed. Cod-liver oil should no more bear a proprietary stamp than wines and liquors after they are bottled, and should be less liable than fluid extracts, Seidlitz' mixture, Rochelle salts or tartaric acid of Kidder's manufacture. But there are other reasons why cod-liver oil should not be required to have affixed a proprietary stamp when bottled. Of those which are much sold, the best qualities only are bottled, and having to compete with the ordinary commercial article, it is very difficult to fix a remunerating price upon it, as it costs more in bulk, besides the expense of bottling. The care with which the *true* oil is selected, the quantity rejected, and the preference given to reliable men to prepare it, all tend to keep up the quality of the article, which is done only (or nearly so) by those whose bottled article bears a high reputation; while most of the oil sold in barrels, made on the New England coast, is a mixture of Hake, Pollock and cod oil, and often without any cod-liver oil in it at all, although to appearance it is light in color and sweet to taste and smell. Again, cod-liver oil keeps much sweeter and longer in bottles than in wood, and one of the greatest advantages is to have it of such fine quality as not to nauseate, so that it can be taken by invalids of delicate taste and appetite. So nice is the discrimination of some patients that some lots of oil can be readily taken without disgust, when other lots are rejected as very repulsive, even when of a quality considered very good in the market; and from my experience in this article, I am firmly of opinion that were it not for the article sold in bottles, by reliable men, selected with such great care, and otherwise prepared for the market, the article would go out of use for the reasons above stated. In regard to cod-liver oil sold in bottles, that which has the best reputation and most extensive sale is not advertised, nor was the demand originally created by advertising,

but solely on account of its quality, and the impossibility of getting it of the same quality in any other form. The character and position of some parties render it advantageous, both to them and the public, to pay particular attention to this branch of industry, and furnish the trade with it in places where it would be impossible to manufacture it, if not impossible to get it in bulk, of a quality suitable for those cases where it is now used so advantageously.

But our Chairman's chief objection seems to be that the article is put up more for popular than professional use, and the getting up is not addressed to those within the field of professional and scientific application. Very true; and yet these professional gentlemen are not in the least slighted or injured, or the profession itself, nor is anything of the kind intended. And now, by the way, who ever heard,—or rather, who ever hears now-a-days,—of apothecaries appealing to the patronage and support of physicians as a main-stay, or even a very important part of our business as pharmacutists? Advertisements are not put forth to those who know everything, for the reason that they are taken no notice of; and Dr. Squibb knows what it is to appeal for patronage to the medical profession, even by a brother doctor, no matter what may be his professional and moral qualifications, or the quality of his merchandize.* Of how

* The Chairman of the Committee can by no means allow this personal allusion to himself to pass without reply, since had Mr. Colcord been better informed he would never have written this sentence. The inference intended by Mr. Colcord to be drawn from his expression is entirely mistaken and inaccurate. Dr. Squibb would never have undertaken the manufacture of pharmaceutical preparations as a business except for the urgency of a part of the medical profession; and when accidentally burnt out, and nearly burnt up, could never have resumed his business without the direct pecuniary aid, afforded in the way of charity, bestowed by the medical profession and a few honorable examples in the pharmaceutical profession, of whom Mr. Colcord was one. Further than this, Dr. Squibb never would have succeeded in the sale of any considerable quantities of the medicinal articles made by him, except for the persistent and industrious patronage of the medical profession. For with a few honorable exceptions,—not enough to pay the expenses of a very small business,—the druggists and pharmacutists in general persistently declined, and do this day decline to buy Dr. Squibb's merchandize, unless forced to do so by the pertinacity of the demands of the medical profession.—E. R. SQUIBB.

little avail, therefore, is it for an apothecary to appeal to that honorable profession.

Entertaining these views, I cannot agree to recommend a stamp tax upon laudanum, liquor opii compositus, citrate of magnesia, fluid magnesia, calcined magnesia, oil of peppermint, oil of hog, oil of spearmint, oil of wintergreen, cod-liver oil, or any such articles, but am for leaving them as unrestricted as possible; and will do what I can to promote their sale as an advantage to the public, and promotive of a higher grade of quality in pharmaceutical preparations in general use.

I have drawn a pencil over such parts of the papers as I would have stricken out.

In section 79, paragraph 5, I have erased, or rather would erase the words "upon physicians' prescriptions," and alter the words "half a pint" to "a pint and a half," so that we may sell a junk bottle of these liquors, with or without a physician's prescription. The main reason for this alteration is that it should make but little difference in the sale of liquors by apothecaries whether physicians write for them or not.

Section 79, paragraph thirty-one. I would erase from Dr. Squibb's proposition to add, all that I have drawn a pencil across, because cod-liver oil is not made by apothecaries (for their own sales even), and laudanum is not sold in the way his remarks would indicate; or, in other words, his example is a very poor example, and his reasons are much better without it. (Mr. Colcord crossed out all the matter under this caption from the words "For example," including these.—CHAIRMAN COMM.)

Section 165, as the law now stands, is much better than the one Dr. Squibb proposes. I don't think there is any evasion of this part of the law of any consequence, and would much prefer that it should not be meddled with; and as I have pretty freely given my views above, will say no more here, except by erasing all our Chairman has written upon this 165th section. We shall condense our papers to within a limit that will be more likely to receive attention than to have them so voluminous. We have so much to say that our papers are necessarily somewhat extensive, but by condensing them as much as possible we shall be more likely to gain the attention of the Commission and Congress.

It has been decided of late by the Commissioner that Henry's magnesia must pay a stamp tax in addition to the foreign duty. This is operating to drive the best variety of calcined magnesia out of the market; and as it is calcined magnesia and nothing else, and the best kind, I am in favor of asking that his decision may be changed so as to allow it to go unstamped, if we can come at it without going out of our way, for reasons running through all my views expressed here.

Mr. Edward Parrish having taken a great interest in the objects for which our Committee was raised, I would like to have him examine these papers and express his opinion upon them, having great respect for his views, especially in committee, where they can be modified if necessary.

In conclusion, I beg your pardon, gentlemen, for having taken up so much of your time as well as my own, and in keeping these papers from you the past week. But I have been unable to digest and jot these ideas for you in less time for want of time; and hope you will receive them in due time, and that they will be in time. And as I have tried forcibly and freely to express my ideas, I hope each of you will do the same, entertaining, as I do, a most profound respect for your individual opinions, and hoping thereby to arrive at a plan of general action that shall express the general average sentiment of the body of the Association from whom we received our appointment.

SAMUEL M. COLCORD.

MR. PROCTER'S REPORT.

PHILAD'A., DEC. 12, 1865.

Gentlemen of the Committee :

I have examined the report of our Chairman addressed to the Internal Revenue Commission, and offer the following as my views,—viz. :

1. I approve of section 79, paragraph 5, relative to the retailing of wines and liquors by apothecaries, as drawn up by the Chairman, limiting the amount of each sale to *half a pint*, and the annual aggregate to \$300. I would gladly urge the omission of the clause requiring the prescription of a physician, did I not think it would open the door to great abuse; and am willing to

~~submit to the inconvenience~~ this will occasion, for the general good.

2. I consider the wholesale preparation of any medicine is a manufacture, whether it be laudanum, cod-liver oil, calomel, or essence of ginger, if the party making it does so for the supply of other dealers; and that the discrimination here made in favor of the apothecary who prepares his own medicines is eminently just and proper.

3. I also approve of the clause increasing the amount an apothecary may manufacture without subjecting himself to a license for manufacturing, as an inducement to apothecaries to prepare their own medicines, and be responsible for them as they should be.

4. I think drug grinding might escape the tax, as drugs are taxed sufficiently without this addition.

5. As regards Section 165, as it is proposed to alter it, I believe we should scrutinize the wording of this portion of the law very closely. I can agree to the first part down to the word "surgeon," as it stands, believing with the Chairman that the word "formularies" will include a class of recipes for quackeries not contemplated to be freed from the stamp tax, and also agree with the general reasons he has given for the alterations. But the part which follows is not so clearly unexceptionable, and I have some fear that it will be wrongly understood, and applied by many of the Assessors. "But nothing in this proviso shall be construed to exempt any and all medicinal articles from stamp duty, whether simple, or compounded by any rule, authority or formula, published or unpublished, which is put up and advertised for sale, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, quantity, price, use or effect, whether such claim be real or pretended." Now what are we to understand by "special proprietary claim to merit," etc.? What is meant by putting up and advertising for sale? If this clause would convert the box of Wistar's Cough Lozenges, *now exempt*, into stampable medicine because a printed direction explaining its use is appended, *I believe it will be wrong*, and will include a large number of preparations not intended to be stamped, which are not proprietary; but when such medicines

are made proprietary by A. B. or C.'s putting them up as their peculiar and superior make, and as embodying more virtue than those of C. D. & E., who follow the Pharmacopœia, then I think A. B. & C.'s lozenges become stampable. Again, if I go into the market here, or in Boston, and get the best cod-liver oil it affords, and which I believe to be true and genuine, and I bottle it and label it "pure cod-liver oil, sold by William Procter, Jr.," and say on the label that it has been carefully selected and bottled for medicinal use as prescribed by physicians, I should most certainly expect it to be free from stamp duty, and not within the letter of the law, as I understand it to be drawn up by our Chairman. *If I am mistaken*, then I most decidedly *protest* against the paragraph added to Section 165, and believe that the Chairman has not represented the views of the Association, and cannot offer the paper to the Commission in that form without compromising the powers of the Committee.

To be clear on this point, I am for reserving unimpaired by this Section (165,) the present right of apothecaries to put up *any and all officinal and other preparations designated in the law as exempt*, in bottles or packages as may suit them, and label them clearly with directions for use, and cautions against misuse, provided the apothecaries do not render them proprietary by title, or by special claim of merit originating in themselves as the makers. Thus Dr. Squibb puts up chloroform in this manner, with a label containing cautions, etc., which is peculiar to his article, but *I don't consider that that makes it proprietary*; it is strictly according to the Pharmacopœia.

6. In regard to the alteration or addition to Schedule C., raising the stamp duty to 10 per cent., I am in favor of it, *provided* the duty on alcohol be reduced to half its present rate, viz.: \$2.00 per gallon. But if the price of alcohol be kept where it is, I am decidedly opposed to so great an increase, especially in view of the wider scope intended for the application of the stamp law.

7. Lastly, in regard to the question of the alcohol tax, I approve of the Chairman's proposition and his arguments in support of it, and hope they may be successful, notwithstanding the doubt expressed in his note. This is the main point of the Committee, and should be more strongly insisted upon than any other.

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In concluding, I most cheerfully accord to our Chairman great credit for his devotion to the objects of the Committee, and for his honesty of purpose. I believe he will duly consider the views of the several members of the Committee, and be guided by a well marked majority in drawing up any paper for the Commission which is offered in his official capacity as Chairman, and which will carry with it the endorsement of the Association.

I will also make free to say that I believe the document would be more forcible and effective, if written in a more terse and condensed style.

Hoping our labors may be successful, I remain, gentlemen,

Very truly yours,

WILLIAM PROCTER, JR.

MR. MOORE'S REPORT.

Gentlemen of the Committee :

I have examined the report as drawn up by the Chairman, and whilst I think he has gone beyond what the Association proposed, yet I agree in the main with his report, believing as I do, that they are all subjects of importance to the Pharmaceutist.

1. I agree to the amendment to Section 79, paragraph 5, relative to the sale of spirits, but see no objection to increasing the amount to one pint, on the prescription of a physician. I would be perfectly willing to omit the requirement of the physician's prescription if I was not well aware of the advantage which would be taken of it by many who follow the profession as a means of livelihood, nor do I see why the indiscriminate sale should be allowed to the apothecary when both the General and State Governments throw restrictions around the sale by others, and although it will subject us to some inconvenience. I would prefer the amendment of the Chairman than to open the door to abuse.

2. I am clearly of the opinion that the apothecary who manufactures the various officinal preparations for his own retail sales should be exempt from the manufacturers tax, not only because it is unjust and onerous, but on account of the difficulty of assessing and collecting, and the room for fraud by designing men.

For instance, how is the amount to be assessed ? By the amount

of sales? Then we would be compelled to keep a strict account of each and every five or ten cents worth of every manufactured article sold, to be returned under oath, which would be impossible in any establishment where there was more than one engaged in the sales. Again, is it to be the wholesale value? Then how is that to be ascertained, by one who does not wholesale? Or is it the estimated value? Who, then, is to make the estimate? Yet I consider the manufacture or putting up of any medicine for the sales of others as coming under the law of manufactures, no matter what the article manufactured, or *claimed* to be manufactured, may be. The amendment, however, should be carefully worded so as not to lead to conflicting decisions by different Assessors. Many retail apothecaries manufacture certain official preparations for other dealers, and on such articles they should pay the manufacturer's tax provided the amount is sufficient to warrant the collection, but it would be unjust to compel him to pay the tax on all the preparations of the shop merely because they take out the manufacturer's license to do a specific business. For instance, A. takes out a license to manufacture soda water, and because of such license is compelled to pay tax on all the preparations of the shop, whilst B., who does not take out the license, is not required to pay.

3d. If the apothecary is not entirely exempted from the manufacturer's tax, I certainly approve of the clause increasing the amount he may manufacture without subjecting him to the license, as I think the apothecary should be encouraged in every way to prepare his own medicines, and cease to depend upon others.

4th. I approve the suggestion of the Chairman to lay a tax on drug-grinding, as I conceive it to be the duty of every one to bear their just proportion of taxation, and see no reason why a branch of trade like that should escape, whilst onerous taxes are laid on other branches of industry.

5th. In regard to the proposed amendment to section 165, I think there should be a wider range given to proprietary remedies than at present. It is a well known fact that there are many articles now in the market which are exempt from stamp duty, which should be subject to that tax, and are free merely

because the proprietor *claims* that the formula has been published,—perhaps in some obsolete journal or collection of receipts which is not accessible to one-tenth of the profession,—and where found they generally produce a different preparation from the one offered to the public.

But I do not see why the mere bottling of cod-liver oil, or any *strictly* official remedy, with directions for use, no matter how strongly the purity is set forth, should be subject to a stamp duty. Yet where proprietorship is claimed or implied, even for an official preparation, it should be stamped; and I am decidedly of the opinion that where laudanum, peppermint and like preparations are put up, representing, as they often do, but one-quarter or one-half the official strength, they should be subject to a stamp.

6. I favor an increase of stamp duty, but think one cent on ten too much, unless we have a corresponding reduction in other matters.

Finally, I am decidedly in favor of a reduction in the tax on spirits, as I consider it to be of vital importance to the pharmacist as a profession, and hope, notwithstanding the intimation of our Chairman, that it may be accomplished. Yet I do not know that I can bring any more, or stronger arguments in its favor than has been done by Dr. Squibb in his report.

With much respect I remain, gentlemen,

Yours, J. FARIS MOORE.

MR. MASSOT'S REPORT.

ST. LOUIS, DEC. 28, 1865.

Gentlemen of the Committee:

I have examined the report of our Chairman, addressed to the Internal Revenue Commission, and offer the following as my vote or views upon each proposition,—viz.:

1st. Section 79, paragraph five. I do *not* agree to the amendment as it now reads, and would prefer to leave the law stand as it now is.

As I understand it, we have the privilege to dispense brandy, etc., to any amount, when *prescribed by a physician*. So that the amendment limiting the sale at one time to half a pint, and

not over \$300 per annum, and requiring a physician's prescription, is making the law more exacting and stringent than it is at present. I would agree to an amendment to read as follows: *Provided*, that nothing in this act shall be construed to prevent apothecaries from dispensing the wines and spirits official in the United States and other national Pharmacopœias, either simple or compounded, for medicinal purposes only.

2d. Section 79, paragraph thirty-one. I agree to so much of the amendment as reads from the word "provided" down to the thirteenth line, ending with the words "dispensing and sales of others;" and object to the balance of the amendment. My reasons are:—

That apothecaries who make, prepare or manufacture the official preparations for their customers at retail, should be *exempt entirely* from the manufacturer's tax in all its forms. But any apothecary who makes, prepares or manufactures for the trade, or who does sell to the trade, should be considered a manufacturer, and pay a manufacturer's tax.

3d. Section 79, paragraph thirty-three. My views in relation to paragraphs five and thirty-one apply to this one.

4th. Section 93. Same views as Prof. Moore. If the apothecary is not entirely exempt from manufacturer's tax, I certainly approve of the clause increasing the amount he may manufacture.

5th. Section 95. My views same as Professor Procter's, and therefore object to taxing drug-grinding.

6th. Section 165. I object to altering section 165, as I can see nothing to gain by it, and prefer that it should remain as it is now.

7th. Schedule C. I fully agree to the amendment as proposed by our Chairman.

8th. In regard to the question of the alcohol tax. I am certainly in favor of its reduction, and most cordially approve of the Chairman's views, and all that he has written in favor of it.

Hoping our efforts may prove successful, at least in reducing the tax on alcohol,

I am, gentlemen, yours truly,

E. L. MASSOT.

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BROOKLYN, JAN. 11th, 1866.

Mr. David A. Wells, Chairman of the U. S. Revenue Commission, N. Y. :

SIR,—Enclosed herewith, I beg to transmit to your Commission,—

1st. A paper prepared by myself as the report of the Committee of the American Pharmaceutical Association, which Committee, I as their Chairman, have already had the honor of presenting to you, with its official authorization and objects.

2d. Four communications—one from each member of this Committee—each paper representing the individual views of the writer of it, upon the first paper, and to a useful extent representing the views of the prominent members of the Association, and those of the Pharmaceutical profession of the locality from whence these separate reports come.

From these enclosures you will please be careful to notice that the first named paper, though prepared as a Committee report, can by no means be presented to your Commission as such, since it does not at all represent the views of the Committee, and almost certainly does no better represent the Association itself. Hence, if received by your Commission, it must be as an expression of the individual views of a simple member of the Committee, but with less weight than may be justly claimed for the other four similar communications which accompany it, since unlike them it has *not* been submitted to any other members of either the Association or the profession at large, and therefore can in no degree represent any locality, or other individual than the writer of it, except so far as parts of it are assented to in the other communications. It embraces two distinct subjects, which were not specially, if at all, embraced in the duties imposed upon this Committee by the American Pharmaceutical Association, namely, the subject of drug grinding, and that of extending the application of Schedule C., so as better to prevent evasion of the law, and drawing the line of demarcation closer around articles of a proprietary character in regard to stamp duties. The consideration of these subjects by the Chairman of this Committee, as you will remember, arose, first, from the fact that the Committee was specially appointed to offer the services and knowledge of the members to those in charge of the Internal Revenue Law, in

connection with the *whole subject* of that law in its relation to the objects of the Association ;" and second, from the fact that the Chairman had faithfully transmitted this offer to your Commission ; and finally from the fact that your Commission accepted the offer, and invited the suggestions of the Chairman especially upon the second of these subjects, and generally upon any subject where the interests of the law and those of the Association might come together. This explanation is rendered necessary by the charge, which you will see is made by one member of the Committee, that the Chairman had exceeded the powers conferred by the Association upon its Committee.

Permit me to draw the attention of your Commission to the fact, that all the members of this Committee dissent from different parts of the first paper, except on the subject of a reduction of duty on alcohol, and give fair, plain arguments and reasons for the grounds taken by them ; and that hardly more than two members agree to any important point, except upon the most important point of all, namely, the reduction of duty on alcohol. And permit me farther to draw your attention strongly to the fact that upon this important subject, which was the especial charge of this Committee, and apart from which it would not have been appointed, the Committee is earnestly and firmly unanimous ; and still farther, that it is the belief of the Chairman of this Committee that not only the American Pharmaceutical Association, but the whole profession and interest of pharmacy throughout the country are earnest and unanimous upon this subject.

Finally, I beg to ask your careful attention to the views of a prominent and important member of this Committee, who earnestly and honestly opposes a very large proportion of what the Chairman, for this reason alone, rather reluctantly submits to your Commission in the first paper presented. This member, Mr. Colcord, is too well known to you to need an introduction for his opinions and arguments. He is entitled to as much weight in counsel as any member of this Committee, while his reputation, experience and practical knowledge of his profession from early life, together with his position as one of the founders and most earnest supporters of the American Pharmaceutical Associa-

tion, give to his views and judgment a significance and value that you cannot fail to appreciate.

Be pleased to accept from this Committee, for yourself and the Commission, the thanks of the American Pharmaceutical Association, for the kind manner in which you have received this Committee, and the considerate attention given to its members and its objects in the numerous interviews accorded to them amid the overwhelming duties and the far more important subjects constantly pressed upon your attention.

Very respectfully your obedient servant,

On behalf of the Am. Pharm. Assoc.,

E. R. SQUIBB, M. D.,

Chairman of Committee.

The Revenue Commission, after having duly, and it is believed very carefully, considered the whole of the five Reports thus presented from the five members of the Committee, told the Chairman of your Committee, in a subsequent interview, that the Commission had agreed to recommend to Congress all the changes asked for, or proposed in the first paper, except that to increase the amount which might be manufactured free from manufacturer's license and manufacturer's tax, and the proposition to tax drug grinding. These and the proposition of Mr. Colcord in regard to Henry's Magnesia, and that of Mr. Massot in regard to the unrestricted sale of liquors, as well as the less definite suggestions of the various members of the Committee, they declined to recommend. In regard to the reduction of the duty on alcohol they accepted all the facts, arguments, etc. of the papers as being entirely in accordance with all the best evidence obtained by them from all sources, and as confirming their judgment in the matter. Mr. Wells, under whose charge this subject of the revenue from spirits was placed by the Commission, was very earnest in the matter of a reduction of the duty, and not only urged it strongly in his Reports to Congress, but worked personally in Washington all winter long, with all the evidence from the Treasury Department, and all the testimony taken under oath by the Commission, and with all the force of the well established fact that, throughout the whole session of Congress and

for months previous, the public market quotations for whisky never once reached the nett cost of its production.

The result of all this work of your Committee, and the far more influential work of the Revenue Commission, appointed and authorized by Congress especially for this work, will be seen in the law when published, as it must be before this Report can be concluded.

It may be worth while here to show the Association how it was proved by the Chairman of this Committee to the Commission, and by the Commission to Congress, that the market price, under the present duty, was below the cost of production, that the Association may judge for itself as to this being the effect of illicit distillation, the effect of high duty, or not.

The market quotations for corn on the day when this paragraph is written, (July 21, 1866,) is 83½ to 95 cents per bushel, and for rye about the same. The lowest figures are the lowest prices at which unsound grain and that of poorest quality is sold; and these prices are about or below the average quotations for many months past. Grain, whether corn or rye, yields various proportions of spirit, according to its quality and soundness or unsoundness, from 14 quarts to the bushel up to 16, or even, it is said, to 17 quarts. But taking the year round, and the average quality as purchased by distillers, the product is about 13½ quarts to the bushel.

Upon the day on which the above quotations for grain are given whiskey was sold "on change," that is in the open public market, but at private sale, in large quantities at \$2.15 per proof gallon. It had been sold at lower prices before, and has been sold at lower prices since. The writer knows of an absolute sale having been made this week, (July 28th, 1866,) at \$2.14. This sale was 50 barrels, and 100 hogsheads were urged upon the buyer at this price, with corn now at 85 cents for unsound. The spirit here alluded to and thus sold was all regularly branded by the Government Inspectors, and guaranteed to the purchasers to be legally "all right." But if purchasers are willing to dispense with the Inspector's brand, the spirit can be bought much lower, and the writer has heard of sales at \$1.80 being privately made "on change." Alcohol has been and is now selling in this

market at \$4.12 to \$4.20 per gallon, although nominally quoted in the prices current at \$4.40, and whiskey at \$2.20 to \$2.25. On close inquiry the sales at these quotations are found to be very small.

The tax on spirit is \$2.00 per proof gallon, which tax, when deducted from the price at which it is sold, leaves the nett value at which the whiskey or spirit is sold.

In the actual sales of whiskey above given this leaves 15 cents in one case, and 14 cents in the other, per proof gallon; and for the alcohol, 9 to 12 cents per gallon for the whisky represented in it.

Now, for the sake of gaining force and simplicity for the illustration, let it be supposed that grain for making whiskey was bought at 80 cents per bushel, instead of 83 to 95 cents, and that this grain yielded 16 quarts or 4 gallons to the bushel, instead of 14 or 15 quarts; and then let it be supposed further that the distillers are willing to convert the grain into spirit, not only without profit, but without any charge for the enormous expenses of carrying on their huge distilleries, it is then only necessary to divide the 4 gallons of spirit produced into the supposed cost of the bushel of grain which yielded it, and 20 cents per gallon is thus obtained as the nett cost of spirit so produced, or \$2.20 per gallon duty paid. How, then, does it happen that the market price is twenty-five per cent. below this extremely low supposed cost? Is there any other possible way of accounting for it than by the truth that the public markets are mainly supplied by illicit distillation, and therefore that the duty is really collected upon only a small proportion of the spirit produced?

Congress and the Treasury Department seem to be the only ones who do not admit these facts and conclusions; and if either the one or the other know of any valid or plausible explanation of these facts which are so damaging to the honesty of both the distillers and the Government Inspectors, and by implication of the purchasers also, they have entirely failed to make such explanations known to others than themselves. Mr. Wells, the Chairman of the Revenue Commission, was thoroughly convinced by the abundant testimony he had taken before this Com-

mittee was known to him ; so that the evidence given by the Committee was but to reaffirm that which the Commission already well knew. Mr. Wells urged this upon the Treasury Department and upon Congress, but with only the effect of improving the Law in stringency, but without applying the main remedy urged upon them, namely, reduction of the tax. The old law was very stringent—sufficiently so to bind all persons whose dishonesty does not reach to the extent of absolute wilful perjury—and it remains now to be seen what the effect of increased stringency will be upon the class whose standard of honesty has now been so well ascertained. The tax on spirit was not reduced by Congress, nor was the vote a close one upon which they refused to admit the conclusions, or adopt the recommendation of their own Revenue Commission. It therefore now devolves upon this Association to submit to this action of Congress, not only as an imperative duty, but also to come squarely up to the most minute requirements of the Law, in the spirit of truth and honesty, as well as in the letter of the Law, remembering well that a complete truthful submission to existing authority, among the educated and honest classes of the people, is the only chance of ever obtaining a good government for the control of the vicious and the bad, and that when this honest submission is heartily given in opposition to conviction and to pecuniary interest, it becomes a virtue whose elevated character sheds an influence abroad, which wrong-doing never has been able successfully to resist. The members of this Association are now called upon, in their individual and collective capacities, to cultivate this virtue ; and just in proportion as they exhibit it by the daily practice of their lives, will their Committees on this or any other subject prove effective and influential for good in the future.

The recommendation to increase the stamp tax on proprietary articles also failed. But the reduction of the manufacturer's tax to five per cent. compensates, in a measure, for this failure, since it relieves legitimate pharmacy, and tends to restore the original balance. Besides, it is proposed, in the future, still farther to reduce and even abandon this tax altogether, whilst the stamp duties will never be abandoned. The Association should therefore be satisfied with this result.

As the Chairman of this Committee, after due consultation with the Chairman of the Commission, drew up, at the request of the Commission, the paragraphs concerning apothecaries as they are now found in the new Law, it may be well to offer a few words of explanation upon their intended operation. For, although these paragraphs passed the scrutiny of the able legal counsel of the Commission, and both Committees of Ways and Means and of Conference, they may still not be clear to the common reader; and if not, this Committee, from which they emanated, may be considered competent to define their real intention in operation.

The first paragraph in order is in Section 9 of the new law, amending Section 79 of the old law, paragraph "thirty-three," which is as follows:—

Thirty-three. Apothecaries shall pay ten dollars. Every person who keeps a shop or building where medicines are compounded or prepared according to prescriptions of physicians, or where medicines are sold, shall be regarded as an apothecary. But wholesale and retail dealers, who have paid the special tax therefor, shall not be required to pay a tax as an apothecary; nor shall apothecaries who have paid the special tax be required to pay the tax as retail dealers in liquor, in consequence of selling alcohol, or of selling or of dispensing, upon physicians' prescriptions, the wines and spirits official in the United States and other national pharmacopœias, in quantities not exceeding half a pint of either at any one time, nor exceeding in aggregate cost value the sum of three hundred dollars per annum.

By the operation of this paragraph, those apothecaries who choose to buy and sell liquors as a branch of their speculative or strictly mercantile business, can do so as freely as ever by paying the special tax as retail dealers in liquor, just as they did under the old law. But those apothecaries who choose to pursue the calling as a profession whose tone and mission is higher, and involves higher interests and a higher standard of morality than is commonly involved in mere buying and selling with money profit, and who are obliged to use and dispense a very few kinds of liquor and wine, are by it relieved from both the odium and the expense of the liquor dealer's license or "special tax," as it is now called. The apothecary who takes advantage of this new provision of the law will have to take an account of his stock of liquors on hand when the law takes effect, (August 1, 1866), by

their cost value, and then preserve all bills of his purchases thereafter. He can then, at any time, by subtracting the amount on hand from the sum of his purchases and the amount of his original stock, tell what amount he has sold within a given time, and thus keep a monthly or quarterly check upon his sales. From this amount, however, he is entitled to deduct whatever liquors and wines he may have used "exclusively in the preparation or making up of medicines," as provided for in the amended Section 81, under Section 9, of the present law. This section is as follows :—

That Section eighty-one be amended by striking out all after the enacting clause, and inserting in lieu thereof the following: That nothing contained in the preceding sections of this act shall be construed to impose a special tax upon vintners who sell wine of their own growth at the place where the same is made; nor upon apothecaries, as to wines or spiritous liquors which they use exclusively in the preparation or making up of medicines; nor shall physicians be taxed for keeping on hand medicines solely for the purpose of making up their own prescriptions for their own patients; nor shall farmers be taxed as manufacturers or producers for making butter or cheese, with milk from their own cows, or for any other farm products: Provided, That the payment of any tax imposed by law shall not be held or construed to exempt any person carrying on any trade, business or profession, from any penalty or punishment provided by the laws of any State for carrying on such trade, business or profession within such State, or in any manner to authorize the commencement or continuance of such trade, business or profession contrary to the laws of such State, or in places prohibited by municipal law; nor shall the payment of any tax herein provided be held or construed to prohibit or prevent any State from placing a duty or tax for State or other purposes on any trade, business, or profession, upon which a tax is imposed by law.

Then the only thing further necessary for him is to keep such a check upon his sales as will prevent him from overrunning the prescribed amount of \$300 per annum. Should he overrun this amount he will be obliged by the assessor to pay the special tax of a liquor dealer. And this will be the penalty of infringing any of the provisions of these paragraphs, provided he can make it clear to the assessor that he transgressed inadvertently. But should he not be able to show this clearly, he will, in addition to the tax, be subjected "to imprisonment for a term not exceeding two years, or a fine not exceeding five hundred dollars, or both," a portion of the fine going to the informer. See amended Section 73, of Section 9.

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A memorandum, showing the stock on hand, the purchases, the quantities used in making vinous preparations which are not proprietary, and in compound prescriptions, for one year, could be easily kept on a single page of an ordinary account book.

The next subject to be noticed is that of manufactures. The manufacturer's license of the old law, now called a special tax, is prescribed as follows :—

Thirty-one. Manufacturers shall pay ten dollars. Any person, firm, or corporation who shall manufacture by hand or machinery any goods, wares, or merchandize, not otherwise provided for, exceeding annually the sum of one thousand dollars, or who shall be engaged in the manufacture or preparation for sale of any articles or compounds, or shall put up for sale in packages with his own name or trade-mark thereon any articles or compound, shall be regarded as a manufacturer.

The application of this by assessors would unquestionably class apothecaries as manufacturers, and oblige them to pay the special tax as such, were it not that special provision is now made for apothecaries in the new Section 12 of the present law. This section is as follows :—

SEC. 12. *And be it further enacted,* That apothecaries who manufacture, for their own dispensing and sales to consumers and to physicians, the medicines compounded according to the United States or other national pharmacopœias, or of which the full and proper formula is published in any of the dispensatories now or hitherto in common use among physicians or apothecaries, or in any pharmaceutical journal now issued by any incorporated college of pharmacy, shall not be regarded as manufacturers under this act. But apothecaries and all other persons who manufacture for the dispensing and sales of others, or who make and advertise any article, medicinal or otherwise, simple or compound, with any special proprietary claim to merit, or to special advantage in use or effect, whether such claim be based on the properties, qualities, price, or any other distinctive or distinguishing characteristic, whether real or pretended, of the articles so made and advertised, whether such article be or be not made according to the authorities above cited in this section, shall be regarded as manufacturers under this act.

The application of this section removes legitimate professional apothecaries entirely beyond the scope of the provisions for manufactures. And so long as apothecaries are willing to confine themselves to their true professional duties as dispensers, and to confine their operations in the way of making officinal preparations for the accommodation of other apothecaries within

the limit of one thousand dollars per annum, in value as sold;—
See amended Section 93, of Section 9, as follows:—

That Section ninety-three be amended by striking out all after the enacting clause and inserting in lieu thereof the following: That all goods, wares, and merchandize, or articles manufactured, made, or produced (except refined petroleum, refined coal oil, cotton, gold and silver, spirituous and malt liquors, manufactured tobacco, snuff, and cigars) by any person or firm, where the product shall not exceed the rate of one thousand dollars per annum, and shall be made or produced by the labor of such person or firm, or by his or their family, shall be and are hereby exempt from tax; where the product shall exceed such rate, and not exceed the rate of three thousand dollars, the tax shall be levied, assessed, and collected only upon the excess above the rate of one thousand dollars per annum; and in all other cases the whole annual product, including any business or transaction where one party has been furnished with materials, or any part thereof, and employed by another party to manufacture, make, or finish the goods, wares and merchandise, or articles, paying or promising to pay therefor, and to whom the same are returned when so made and finished, shall be assessed and the tax paid thereon by the producer or manufacturer: Provided, That whenever a producer or manufacturer shall use or consume, or shall remove for consumption or use, any articles, goods, wares or merchandize, which, if removed for sale, would be liable to taxation, he shall be assessed for the tax upon the articles, goods, wares or merchandize so used, or so removed for consumption or use; but naphtha, the product of the distillation of petroleum, and other similar bituminous substances, when used or consumed on the premises for fuel or cleaning, shall be exempt from tax.

Such apothecaries will be entirely exempt, both from the special tax as manufacturers, and the general *ad valorem* tax on manufactured products.

But if apothecaries do not choose to confine themselves within their legitimate professional sphere, but choose to become manufacturers or merchants in the general sense of those terms, they can do so by paying the special and *ad valorem* taxes as such.

Having thus decided what apothecaries may and may not do under the provisions for special and *ad valorem* taxation, it only remains to show what the law will not permit in regard to stamp taxes as applied to apothecaries. Section 165 of the old law as now amended in Section 9 of the new law, is as follows:—

That Section one hundred and sixty-five be amended by striking out all after the enacting clause and inserting in lieu thereof the following: That if any person, firm, company, or corporation shall make, prepare, and sell,

or remove for consumption or sale, drugs, medicines, preparations, compositions, articles, or things, including perfumery, cosmetics, lucifer or friction matches, cigar lights, or wax tapers, and playing cards, and also including prepared mustards, preserved meats, fish, shell-fish, fruits, vegetables, sauces, sirups, jams, and jellies, when packed or sealed in cans, bottles, or other single packages, whether of domestic manufacture or imported, upon which a duty or tax is imposed by law, as enumerated and mentioned in schedule C, without affixing thereto an adhesive stamp or label denoting the tax before mentioned, he or they shall incur a penalty of fifty dollars for every omission to affix such stamp.

Section 166 of the old law remains in force as it was. This section prescribes the penalty for removing, changing, or re-using stamps.

Section 167 of the old law, prescribing the penalty for failure to affix the proper stamps upon stamp taxed articles, also remains in force as before.

Section 168 of the old law, permitting taxable medicines, etc., for exportation, to be manufactured in bond, also stands in force unaltered.

Section 169 of the old law is amended under Section 9 of the new law, as follows:—

*That Section one hundred and sixty-nine be amended by striking out all after the enacting clause and inserting in lieu thereof the following: That any person who shall offer or expose for sale any of the articles named in schedule C, or in any amendments thereto, whether the articles so offered or exposed are imported or are of foreign or domestic manufacture, shall be deemed the manufacturer thereof, and subject to all the duties, liabilities, and penalties imposed by law in regard to the sale of domestic articles without the use of the proper stamp or stamps denoting the tax paid thereon, and all such articles imported, or of foreign manufacture, shall, in addition to the import duties imposed on the same, be subject to the stamp tax, respectively, prescribed in schedule C, as aforesaid: *Provided*, That when such imported articles, except playing cards, lucifer or friction matches, cigar lights, and wax tapers, shall be sold in the original and unbroken package in which the bottles or other enclosures were packed by the manufacturer, the person so selling said articles shall not be subject to any penalty on account of the want of the proper stamp.*

Schedule C remains in force, and, so far as "medicines or preparations" are concerned, is entirely unchanged. But a new section is introduced into the present Law which defines the application of Schedule C, and draws a more definite line of dis-

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tinction between articles which require stamps and those which do not. This section is as follows:—

SEC. 13. *And be it further enacted,* That no stamp tax shall be imposed upon any uncompound medicinal drug or chemical, nor upon any medicine compounded according to the United States or other national pharmacopœia, or of which the full and proper formula is published in any of the dispensatories now or hitherto in common use among physicians or apothecaries, or in any pharmaceutical journal now issued by any incorporated college of pharmacy, when not sold or offered for sale, or advertised under any other name, form or guise than that under which they may be severally denominated and laid down in said pharmacopœias, dispensatories, or journals, as aforesaid; nor upon medicines sold to or for the use of any person, which may be mixed and compounded for said person according to the written receipt or prescription of any physician or surgeon. But nothing in this section shall be construed to exempt from stamp tax any medicinal articles, whether simple or compounded by any rule, authority or formula, published or unpublished, which are put up in a style or manner similar to that of patent or proprietary medicines in general, or advertised in newspapers or by public handbills for popular sale and use, as having any special proprietary claim to merit, or to any peculiar advantage in mode of preparation, quality, use or effect, whether such claim be real or pretended.

Now the plain English of all these sections and provisions in the intent of the law is to require stamps upon every article or package of medicines or preparations which claims a proprietorship, or which has such proprietorship without claiming it, or which seeks to obtain the character or advantages of proprietorship by assuming the style, or guise, or the management commonly adopted for proprietary articles. Experience has proved the necessity of drawing this line of distinction very finely and very closely around stamp-taxed articles, and apothecaries may confidently expect that, where there is room for doubt as to either the intention or effect of any course which comes up very close to the line on either side of it, assessors will oblige them to pay the stamp tax, and will be sustained in their decisions. If legitimate professional apothecaries, instead of trying how near they can get to this line without an adverse decision, would but try how far they can keep away from it, they would now have no trouble at all, and would avoid the stigma of being the chief instruments in fostering quackeries for money.

For example, a label simply with "Brown's Castor Oil" would

require the stamp; "Castor Oil, prepared by Brown" or "Sold by Brown," would not, unless it was put up in the style of proprietary medicines, with such descriptions, explanations and recommendations as would tend to attract for it the mercantile character and advantages which commonly belong to proprietary articles. "Castor Oil, prepared only by Brown," would require the stamp by the simple use of the word "only" or "exclusively." "Castor Oil, to be had at Brown's," would be doubtful, and, being so, many careful assessors would require the stamp, upon the suspicion that Brown intended to mean that it could not be had elsewhere. "Pure Castor Oil, always to be had by going to Brown's" would be a little broader, but still would be pretty sure to require a stamp, on appealing for a legal decision. "Pure Rectified Castor Oil, always on hand at Brown's," would incur similar risk, as the object in using any such phraseology would surely be suspected as aiming to make money by taking a cunning advantage of the means usually adopted in proprietary articles. The suspicion would be that Brown intended to produce the impression on the minds of buyers that he took care to have his castor oil purer and better than other's, and that others did not rectify theirs, and that, if they did get pure oil, or rectified oil occasionally, their supply of it was not as uniform as his. All these inferences, at least, being deducible from the phraseology, would lead logically to the conclusion that Brown's object in using it was tacitly to claim for his establishment a degree of proprietorship in his peculiar castor oil, with a view to increase its popular sale and use by taking advantage of a course which his less shrewd, but not less honest competitors might not risk until his successful example should stimulate them to try to get still a little nearer to quackery. The people of this country are eminently "progressive," and, unless the lines of law are drawn very sharply and made very prominent, the leaders in the progression are liable to get beyond them. The apothecary who chooses to carry on his business in this way—miscalled "enterprizing and energetic"—should do so boldly and squarely, paying the stamp tax when necessary without confusing assessors with nice points for decision. He who chooses to seek success by the other route should certainly do so no less

boldly, and keep as far away from the line of equivocal practices on his side.

In conclusion it may now be fairly said that—thanks to the Internal Revenue Commission—strictly professional pharmacutists have no special tax, except the one to pay, are free from all *ad valorem* taxes, except that on incomes, and are entirely exempt from the stamp taxes of Schedule C; whilst all other classes of apothecaries may go into the taxable and stamp-taxing branches of trade just as far as they please, and only pay as far as they go. All this being due to the patient, considerate attention given by the Revenue Commission to your Committee, it seems due to the Commission that the Association should express its obligation; therefore,

Resolved, That the President of the American Pharmaceutical Association be directed to express the thanks of the Association to the Internal Revenue Commission of the United States for the year 1865–6, for the favorable attention given to the interests and desires of the Association as evinced in the new Internal Revenue Law.

REPORT ON THE PROGRESS OF PHARMACY.

RECENT PUBLICATIONS RELATING TO PHARMACY.

ENGLISH LANGUAGE.

U. S. OF NORTH AMERICA.

Materia Medica for the Use of Students. By John B. Biddle, M. D., with Illustrations. Philadelphia: Lindsay & Blakiston.

Proceedings of the American Pharmaceutical Association at the Thirteenth Annual Meeting, held in Boston, Mass., September, 1865. Philadelphia.

Report on Water for Locomotives and Boiler Incrustations, made to the President and Directors of the New York Central R. R. By Chas. F. Chandler, Ph. D., Prof. of Chemistry in the School of Mines, Columbia College, New York. J. F. Trow & Co.

Photographic Mosaics. By M. C. Lea and E. L. Wilson. Philadelphia: Benerman & Wilson.

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The Druggist's General Receipt Book. By H. Beasley. Philadelphia: Lindsay & Blakiston.

Pharmaceutical Directory of all the Crude Drugs now in general use, their Etymology and Names in alphabetical order. By John Rudolphy. New York.

Instruction in the Preparation, Administration and Properties of Nitrous Oxide. By Geo. T. Barker. Philadelphia: Rubincam & Stockton.

Researches on the Medical Properties and Applications of Nitrous Oxide, Protoxide of Nitrogen, or Laughing Gas. By Geo. S. Tregler, M. D. Philadelphia: J. B. Lippincott & Co.

Stimulants and Narcotics, their Mutual Relations, with Special Researches on the Action of Alcohol, Ether and Chloroform on the Vital Organism. By Francis E. Anstie, M. D. Philadelphia: Lindsay & Blakiston.

The Student's Practical Chemistry. A Text Book on Chemical Physics and Inorganic and Organic Chemistry. By H. Morton and Albert R. Leeds. Philadelphia: J. B. Lippincott & Co.

ENGLAND.

Notes for Students in Chemistry, being a Syllabus of Chemistry and Practical Chemistry. By Albert S. Bernays. Fourth Edition, revised and corrected. London: Churchill & Sons.

A Course of Practical Chemistry, arranged for the use of Medical Students. By Wm. Odling. Second Edition. London: Longman & Co.

Chemistry as a Branch of General and Practical Education. By Dr. T. Wood. London: Hutchinson.

Diamonds and Precious Stones, their History, Value and Distinguishing Characteristics, with Simple Tests for their Identification. By H. Emanuel. London: Hotten.

Diarrhœa and Cholera, their Origin, Proximate Cause and Cure. By J. Chapman. London: Trübner & Co.

A Practical Treatise on Coal, Petroleum and other Distilled Oils. By Abr. Gesner, M. D. Second Edition. Revised and enlarged by Geo. W. Gesner, Consulting Chemist and Engineer. London: H. Baillière.

Dublin International Exhibition of Arts and Manufactures; Reports of the Series and List of the Awards. Dublin.

Introduction to Modern Chemistry, Experimental and Theoretic. By A. N. Hoffmann, F. R. S. London: Walton & Maberly.

Inorganic Chemistry for Science Classes. By Fearnside Hudson, F. O. S., etc. London: Whitaker & Co.

The Fairy Tales of Science. A Book for the Youth. By J. C. Brough. With sixteen illustrations by C. H. Bennett. Second Edition. London: Griffith & Farren.

Chemistry for Students. By Alexander W. Williamson. London: Marmillon & Co.

Watt's Dictionary of Chemistry. Vols. I., II., and III. London: Longman & Co.

Manual of Materia Medica and Therapeutics. Being an Abridgment of the late Dr. Pereira's Elements of Materia Medica, arranged in conformity with the British Pharmacopœia, and adapted to the use of Medical Practitioners, Chemists and Druggists, Medical and Pharmaceutical Students, etc. By John Farre, R. Bentley and R. Warrington. London: Longman & Co.

The Modern Practice of Photography. By R. W. Thomas. London: Harrison.

A Companion to the Medicine Chest, giving the properties and doses of the most useful domestic medicines; also directions for sick-room Cookery. By Peter Squire. London: Churchill & Sons.

Outline Facts of Chemistry, with Exercises. Intended chiefly for pupils in Government Classes. By T. Ward. Part I., Metalloids. London: Simpkin & Marshall.

The Year-Book of Pharmacy. A practical summary of researches in Pharmacy, Materia Medica and Pharmaceutical Chemistry during the year 1865. Edited by C. H. Wood and C. Sharp. London: Churchill & Sons.

Chemical Handicraft. A classified and descriptive catalogue of Chemical Apparatus, suitable to the performance of Class Experiments, etc. By S. S. Griffin. London: S. S. Griffin & Sons.

On the Nature, Cause and Treatment of Tuberculosis. By Horace Dobell, M. D. London: Churchill & Sons.

The Alkaline Permanganates and their Medicinal Uses. By J. Muter. London: Churchill & Sons.

Lectures on Animal Chemistry, delivered at the Royal College of Physicians. By Wm. Odling, M. D., etc. London: Longman, Green & Co.

An Introduction to Practical Chemistry, including Analysis. By J. E. Bowman. Edited by Chas. L. Bloxam. Fifth Edition. London: Churchill & Sons.

On Inhalation as a Means of Local Treatment of the Organs of Respiration by Atomized Fluids and Gases. By H. Beigel, M. D., etc. London: Hardwicke.

The Chemical Testing of Wine and Spirits. By J. J. Griffin, F. C. S. London: J. J. Griffin & Sons.

A Dictionary on Chemistry, etc. By Henry Watts. London: Longmans.

The Pocket Formulary and Synopsis of the British and Foreign Pharmacopœias. By Henry Beasley. Eighth Edition. London: J. Churchill & Sons.

A System of Instruction in Quantitative Analysis. By Dr. O. R. Fresenius. Fourth Edition. Edited by J. L. Bullock and A. Vacher. London: J. Churchill & Sons.

The Food of the People. By S. Brown. London: Longmans.

Medicines, their Uses and Mode of Administration. By J. M. Neligan. Sixth Edition. London: Longmans.

Chloroform, its Action and Administration. By A. E. Sanson. London: Churchill.

Elements of Chemistry, Inorganic and Organic. By J. C. Buckmaster. Second Edition. London: Longmans.

The Useful Plants of Great Britain. By C. P. Johnson and John E. Sowerby. New Edition. London: Hardwicke.

GERMAN LANGUAGE.

Commentar zur preussischen Pharmacopœ nebst Uebersetzung des Textes. Dritte umgearbeitete Auflage. Nach der 7. Auflage der Pharmacopœa Borussica bearbeitet von Friedr. Mohr Ph. D., etc. Schluss. Braunschweig, Vieweg & Sohn.

Beschreibendes und theoretisches Handbuch der Chemie. Von Wm. Odling. Deutsche vom Verfasser autorisirte Bearbeitung. Von Dr. Alphons Oppenheim. Erlangen, Fr. Enke.

Denkschrift über die Geheimmittel-Frage für Aerzte und Apotheker. Von Dr. Hirschbronn. Mannheim, Schaft & Raisberger.

Lehrbuch der praktischen und theoretischen Pharmacie. Von Dr. Cl. Marquart, bearbeitet von Dr. E. Hallier und Dr. H. Ludwig. 2. Auflage (Schluss.) Mainz, C. G. Kunz.

Pharmacopœa Germaniæ. Sumptibus editorum. In libraria Creutz Magdeburgii.

Muspratt's Theoretische, practische und analytische Chemie in Anwendung auf Kuenste und Gewerbe. Frei bearbeitet von Dr. F. Stohmann. 2. verb. und vermehrte Auflage. 2. Band. Braunschweig. C. A. Schwetzke und Sohn.

Bayern's Flora. Von Dr. A. Fr. Bernard. München, Jul. Grubert.

Leitfaden fuer den wissenschaftlichen Unterricht in der Chemie. Von Prof. Dr. W. Casselmann. 2. verm. und verb. Auflage. Wiesbaden, C. W. Kreidel.

Chemisch-technisches Repertorium für 1865. Von Dr. Emil Jacobsen. Berlin, Rud. Gaertner.

Chemische Briefe. Von Justus von Liebig. 5. wohlfeile Ausgabe. Leipzig und Heidelberg, C. F. Winter.

Xenia Orchidacea. Beiträge zur Kenntniss der Orchideen. 2. Band. Von F. H. O. Reichenbach. Leipzig, Brockhaus.

Gesammelte Beiträge zur Anatomie und Physiologie der Pflanzen. 1 Bd. Von H. Karsten. Berlin, Duemmler.

Physikalisches Handwoerterbuch. Von A. H. Emsmann. Leipzig, bei Wiegand.

Untersuchungen zur Naturlehre der Menschen und Thiere. Von J. Moleschott. Giessen, bei Roth.

Lehrbuch der Experimental Physik. Von A. Wüllner. Leipzig, Teubner.

Die Lehre von den schädlichen und giftigen Gasen. Von H. Eulenberg. Braunschweig, Vieweg & Sohn.

Taschenbuch der Deutschen und Schweizer Flora. 6. Aufl. Von W. D. J. Koch. Leipzig, Gebhardt & Reiland.

Bibliographie der künstlichen Mineralienerzeugung. Von A. Boué. Wien, Gerold's Sohn.

Ergebnisse mehrjähriger Beobachtungen über die periodischen Erscheinungen in der Flora und Fauna Wiens. Von K. Fritsch. Wien, bei Gerold's Sohn.

Neue Synthesen der Ameisensäure. Von R. L. Maly. Wien, Gerold's Sohn.

Ueber die Trennung von Rubidium und Cäsium in Form der Alaune. Von J. Redtenbacher. Wien, Gerold's Sohn.

Sitzungsberichte der Kaiserl. Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse. Jahrg. 1865. Wien, bei Gerold's Sohn.

Chemisch-Mineralogische Studien. 1, die Feldspath-Gruppe. Von G. Tschermack. Wien, Gerold's Sohn.

Beobachtung über die Farbenzerstreuung der Gase. Von E. Ketteler. Bonn, bei Henry.

Die Struweschen Mineralwasseranstalten. Leipzig, bei Vogel.

Flora Europæa Algarum aquæ dulcis et submarinæ. Auctore Ludovico Rabenhorst. Lipsiæ, apud Ed. Kummer.

Die Chemisch-technischen Mittheilungen des Jahres 1864–1865. Von Dr. L. Elsner. Berlin, Verlag von Jul. Springer.

Vollständiges Wörterbuch zur Pharmacopœa Borussica. Von Dr. A. W. Linder. Zur 7. Ausgabe der Pharmakopœ neu bearbeitet von Dr. E. Linder. 3. verm. und verb. Aufl. Leipzig, Hermann Schultze.

Grundriss der Chemie. Ein Leitfaden für den Unterricht an Gewerbeschulen und verwandten Lehranstalten. Von Dr. S. Ruchte. Rosenheim, E. Hübner'sche Buchhandlung.

Die Wilden-Medicin der Jetztzeit im Allgemeinen und Koryphæus Fr. Lampe, Hannoverscher Director einer Heilanstalt in Goslar im Harz insbesondere. Ein Buch für Ärzte, Apotheker und Laien, von W. v. V. Berlin und Charlottenburg, J. C. Huber.

Adjumenta varia et pharmaceutica atque subsidia ad parandas aquas minerales. Scripsit Dr. H. Hager. 2 Ed. Lesnæ, Ern. Günther.

Die Industrie der Fette und Öle. Von H. Perutz. Berlin, Jul. Springer.

Die Prüfung der Arzneimittel nebst Anleitung zur Revision der

~~öffentlichen und Privat-Apotheken~~, etc. Von Dr. Ewald Wolff und B. Hirsch. Berlin, Verlag der Königl. Geh. Ober-Hofbuchdruckerei.

Technologie des Anilins. Handbuch der Fabrikation des Anilins und der von ihm dirivirten Farben. Von M. Reimann. Berlin, Verlag von Jul. Springer.

Pharmazeutische Botanik. Von Dr. Otto Berg. 5. verb. Aufl. Berlin, Verlag von R. Gaertner.

Canstatt's Jahresbericht über die Fortschritte in der Pharmacie und verwandten Wissenschaften in allen Ländern im Jahre 1864. Würzburg, Stahel.

Handbuch der physiologischen Botanik, herausgegeben von W. Hofmeister. 4. Band. Leipzig, Wm. Engelmann.

FRENCH LANGUAGE.

Resumé oral du progrès scientifique et industriel. Par M. l'Abbé Moigno. Paris, Giraud.

La Chimie enseignée par la Biographie de ses Fondateurs. Par Ferd. Hofer. Paris, Hachette.

Des Champignons au point de vue de leurs Caractères usuels, chimiques et toxicologiques. Par Emile Boudier. Paris, Baillière et Fils.

Nouvelles applications de l'acide phenique en Médecine. Par M. Déclat. Paris, Delahaye.

Des Boissons Gazeuses au point de vue alimentaires. Par Lachapelle et Ch. Glover. 3me édit. Paris, E. Lacroix.

Annuaire Médicale et Pharmaceutique de la France pour 1865. Par F. Rouland.

Les Infusoires dans les Fermentations et les Maladies. Par J. P. Magnin. Paris, Asselin.

Mémoire sur une nouvelle méthode de dosage des Matières adstringentes végétales. Par A. Commaille. Paris.

Nouveaux Medicaments depuis 1830. Par V. Guibert. 2me édit. augm. Bruxelles.

PHARMACY.

PROCESSES, APPARATUS, ETC.

Fractional Condensation. C. M. Warren has constructed an apparatus for fractional distillation, by which the operator has complete and easy control of the temperature of the vapors given off in distillation, and can consequently readily separate volatile liquids of different specific gravity and different boiling point. It consists of a retort, with thermometer connected with an as-

condensing coil, secured in a bath for oil or other substances, the temperature of which can be observed and easily regulated, and a descending condensing tube. The less volatile liquids condense in the ascending coil, and return to the retort. A. J. Ph., xxxvii. 449.

An Automatic Vacuum Apparatus has been devised by N. Gray Bartlett, and described in Pr. A. Ph. Ass., 1865, 197.

Method of hastening Filtration of Dr. Piccard has been recommended by Geo. Lunge, with the condition that the column of water should not exceed one foot in length, the paper adhering close to the glass without allowing any air bubbles between; then the filtration will be ten to twelve times quicker. A. J. Ph., xxxviii. 177; Ch. N., 1866, 23.

Another *new Instrument* for rapid filtration has been made by A. B. Spencer, and exhibited by E. Parrish. Pr. A. Ph. Ass., 1865, 178.

A *new Filter*, by G. F. Shact, consists of a cylindrical vessel of tin, with a long suction tube. Pr. Br. Ph. Conf., 1865, 66.

Atomizer, or *Spray Producer*, is an instrument by Dr. Richardson which produces a minute division of liquids, and is used for the rapid evaporation of volatile liquids, thus producing local anæsthesia from cold. A. J. Ph., xxxviii. 289 and 55.

New Electrical Machine. M. Jerningham has constructed such a machine from perfectly dry wood. A. J. Ph., xxxviii. 345.

Electric Machines, with discs of sulphur. Ch. St. Claire-Deville found that sulphur, by repeated melting and sudden cooling, acquires a plasticity which permits the formation of discs of one yard in diameter, used to great advantage in the construction of electric machines. A. Ph., vol. 175, 152.

Melting Apparatus. M. Perrot has united a number of Bunsen's burners, so that their flames may form a single band of flame without penetrating each other, and thus obtained a column of heated gas of intense calorific power, and in such a position that its energy may readily be controlled. Into this he introduces air in such a manner that as little heat as possible shall be lost. With an apparatus consuming two cubic metres of gas per

hour, he has melted 670 grammes of silver, and in thirty minutes run out into bars one kilogramme of copper. D. Circ., vol. vii. 560.

Gas-heating Apparatus have been described by P. W. Bedford. Pr. A. Ph. Ass., 1865, 180.

Blow-pipe. M. Hendy has connected with the blow-pipe an India rubber reservoir, which forces the air by its own contraction through the nozzle. An elastic tube is also added. A. Dr. Circ., ix. 171.

Moses' Blowpipe. Moses, an American in Freiberg, has constructed a new blow-pipe, which excels in simplicity and usefulness. Zeits. An. Ch., iv. 406.

Ammonia Engine. M. Tellier proposes to use ammonia vapor as a propelling power of engines. A. Dr. Circ., ix. 171.

Improvement on Scales. Hempel has added to his scales a semi-circle, the centre of which laying in the beam of the scale bears a hand which serves at once as weight and as indicator; the division being made on the semi-circle. Zeits. An. Ch., iv. 83.

Vapor of Zinc. I. A. Poumarède has found that all combinations of metals with halogenes are easily decomposed by vapor of zinc, and constructed an apparatus for the reduction of these metals. Zeits. An. Ch., iv. 408.

The *Asbestos Bath* is recommended by Erlenmeyer to avoid concussions in the distillation of liquids. Zeits. An. Ch., iv. 84.

Aræometer Scales. Dr. G. Th. Gerlach has given an elaborate comparison between the scales of the different aræometers in use. Zeits. An. Ch., iv. 1, etc.

Metals are covered with an adhering and brilliant coating of other metals, according to Dr. Weil, by placing them into baths formed of metallic salts or oxides held in alkaline solution in presence of some organic substance, such as tartaric acid, glycérine, etc. The deposit generally takes place at the ordinary temperature. Ch. N., xiii. 1.

Wood rendered plastic. Muriatic acid sufficiently diluted is injected into the wood under the pressure of about two atmos-

pheres; it is then washed and dried by passing air under pressure through the cells. The moisture rapidly evaporates, and the mass contracts evenly. Colors, etc., may also be injected. A. J. Ph. xxxviii. 184; Ch. N. xii. 308.

Specific Gravity of Liquids. S. A. R. Newlands proposes to take the specific gravity by weighing a certain quantity of the liquid, withdrawing a known quantity by means of a pipette, and finding the loss by re-weighing. This weight divided by the weight of the known quantity of distilled water, will give the specific gravity. Ch. N., xiii. 50.

New process for making Fluid Extracts. N. Spencer Thomas has taken out a patent for the manufacture of fluid extracts in a cheaper manner. A. Dr. Circ., ix. 186.

Capping Bottles with Gelatine. M. Haselden recommends a mixture of gelatine with glycerine (1 lb. to $1\frac{1}{2}$ oz.), as a means to form elastic and strong capsules over bottles. An addition of aloes would prevent its attack by insects. A. Dr. Circ., x. 106; Ch. N.

Economy in the use of Alcohol in Percolation. Dr. E. R. Squibb has read his investigations on this subject before the Am. Pharm. Association. See Proc., 1865, 201.

Pharmaceutical Herbaria. Dr. Hanbury recommends, as an excellent means for instruction, the formation of herbaria of medicinal plants to all pharmaceutical societies. A. J. Ph., xxxviii. 334, fr. L. Ph. S.

A Lamp for producing the Magnesium Light has been invented, in which the magnesium is used as powder; mixed with sand and once lighted a brilliant and steady flame is produced. A. Dr. Circ., xv. 7.

Deodorizing Petroleum. S. Green deodorizes the distilled products of petroleum by agitation in vacuo, which causes the escape of the most volatile parts. A. Dr. Circ., xv. 5.

Glycerine. A. B. Taylor has reported his experiments on the use of glycerine to prevent the deposit of apotheme. Pr. A. Ph. Ass., 1865, 156.

Process of preserving Meat by immersion in Paraffine, by Dr.

Redwood. ~~lib~~ The paraffine protects perfectly the meat from decay; no substance is lost or rendered insoluble by the process. A. J. Ph., xxxviii. 341.

Magic Photography. A process is described for making "sympathetic" photographic pictures. A. J. Ph., xxxviii. 371.

POWDERS.

Narcotic Extracts. M. Behrens proposes to mix the narcotic extracts with pure dextrine, dry them perfectly, and add to the powdered mass sufficient dextrine to double the original weight. These powders shall be far less hygroscopic than those made with powdered liquorice root, according to the Prussian Pharmacopœia, 7th edit. Ph. Centr., 1865, 180.

Glutinous Substances dried and powdered. Reischauer proposes to obviate the adhesion of the elementary particles in gum and other glutinous substances, by drying them out of contact with the atmosphere, and by the aid of a suitable ethereal medium, from which the moisture is extracted by a highly hygroscopic substance. A. J. Ph., xxxviii. 74.

Gunpowder is made non-explosive by an admixture of finely powdered glass. A. Dr. Circ., x. 5, fr. Mech. Mag.

Liebig's Powder for preparing a nourishing soup for infants has been thoroughly investigated and reported on by Prof. H. C. Hecker, Dr. L. Walther, and J. von Liebig himself, in Ann. Ch. und Ph., vol. 138, p. 83, &c.

DISTILLED WATERS.

Orange-flower Water, when genuine and distilled from the flowers, yields, according to M. Gobley, a rose color to a mixture of 5 parts of the water with 1 part of a test solution, composed of 20 parts nitric acid, 10 parts sulphuric acid, and 30 parts water. Neither water from the leaves nor from the oil has the same reaction. A. J. Ph., xxxviii. 301.

Aqua Laurocerasi. M. Vock made a series of experiments with cherry laurel water, and found its amount of hydrocyanic acid constant; the residue from distillation did not produce prussic acid with an emulsion of sweet almonds. Vierteljh. Ph., xiv. 548.

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EXTRACTS.

Extract of Beef. J. Koenig adds bicarbonate of soda to the water in extracting the meat, and obtains a very soluble and clear extract, with a yield of seven drachms per pound of meat. Ph. Centr., vi. 181.

Albuminous Extract of Beef. Dr. W. Horn reports on an extract which contains all the albumen, and two ounces of which represent one pound of meat. Vierteljh. Ph., xiv. 358.

Gillen's Essence of Beef, a carefully prepared beef-juice; his

Extract of Beef Lozenges, a mixture of the essence with starch;

Liebig's Extractum Carnis, as prepared in Munich and in South America;

Concentrated Beef-tea, of the consistence of firm jelly, and containing gelatine, prepared by Fortnum and Mason; and an article called

Osmazème Glacée, imported into France from the Rio Grande, and belonging to the last class, have been reviewed by H. B. Brady before the British Pharmaceutical Conference. Pr. Br. Ph. Conf., 1865, 55.

Gail Borden prepares an extract in vacuo, containing the albumen and representing twenty times its weight of fresh beef. A. J. Ph., xxxviii. 81.

LIQUORS, SOLUTIONS, ETC.

Liquor Bismuthi. A. E. Ebert has published his formula for preparing this solution, which, it is assured, yields a more soluble and purer product than any other. A. J. Ph., xxxviii. 1.

Soluble Citrate Magnesia. M. Morelli takes 1400 parts of citric acid, 660 parts subcarbonate magnesia, and 550 parts of water, mixes, and dries them in the air after the disengagement of carbonic acid gas ceases. It dissolves in four parts of water. A. J. Ph., xxxviii. 300, fr. Rep. de Pharm.

Solutions of Hydroiodic and Phosphoric Acids, prepared in one process. Pettenkofer has modified Liebig's mode of preparing hydroiodic acid; he adds to half an ounce of phosphorus in twelve ounces of water, at 60°—70° C., about one ounce of

eight ounces of iodine. After stirring he pours the liquid, containing already some hydroiodic acid from the phosphorus, upon the balance of the iodine, which partly dissolves; this solution is returned upon the phosphorus, and the process repeated until all the iodine is dissolved. After having become colorless the liquid is filtered and distilled; it yields an acid of 1.39—1.40 spec. grav. The syrupy residue in the retort is treated with fuming nitric acid, filtered from the iodine, heated, and nitric acid added until all phosphorous acid is converted into phosphoric acid. The nitric acid is driven off in evaporating to a syrupy consistence, which yields a liquor of pure phosphoric acid. A. Ch. und Ph., v. 138, p. 57.

Solution of Arsenite of Potassa (Fowler's Solution). H. Hayer has simplified the mode of preparing this solution by mixing the powdered arsenic with the carbonate of potassa in a dry flask, and adding distilled water sufficient to moisten it. When heated it will soon liquify, and completely dissolve on boiling, after which it has only to be diluted with the necessary quantity of water. Ph. Centr., 1865, 293.

TINCTURES AND SPIRITS.

Tincture Chloride of Iron. J. C. Wharton gives a modified formula for preparing this tincture. A. J. Ph. xxxvii. 446.

Battley's Sedative Solution of Opium. Wm. Procter, Jr., recommends the deodorized tincture of opium U. S. A. in its place. A. J. Ph. xxxviii. 304.

Spiritus Saponis. A. Vogel mixes in a large flask 20 parts of caustic potash solution (1.333 sp. gr.), 40 parts olive oil, 120 parts alcohol of .841 sp. gr., and 120 parts water, and obtains, by gently heating, a perfectly clear solution, which may also be used as a reagent for the determination of the degree of hardness of water. A. Ph. 175, 151.

Tincture of Valerian and Oxalate of Cerium are reported to give great relief in sea-sickness, being administered in doses of one drachm and two grains, respectively, every thirty minutes. A. Dr. Circ. x. 35.

Flavoring Extracts. Wm. Procter, Jr., has published a number of valuable recipes in A. J. Ph. xxxviii.

Purified Tincture of Opium. Dean and Brady propose the following recipe for a purified tincture of opium:—Exhaust 96 ounces of dry opium with cold distilled water, evaporate the solution to the consistence of soft extract, redissolve in four gallons distilled water, filter after all feculence has subsided, evaporate to the consistence of treacle, and gradually add two gallons of rectified spirits of wine. When the gummy matter has perfectly subsided pour off and add distilled water to make the liquid measure eight gallons. Pr. Br. Ph. Conf. 1865, 34.

WINES.

Wine of Ipecacuanha. Geo. Johnson concludes that the deposit in the wine of ipecacuanha consists of bitartrate of potash and ipecacuanhate of emetine, and that there is less deposit when it is prepared of wines which contain a larger proportion of vegetable acid and a smaller of alcohol than sherry wine. A tincture prepared of 20 per cent. alcohol and a few grains of tartaric acid had scarcely any deposit, even after being preserved a considerable time. Pr. Br. Ph. Conf. 1865, 27.

Rhubarb Wine. Fr. Stearns noticed a wine made from the garden rhubarb, by addition of sugar and water, which resembled foreign sherry. It had a gentle influence upon the bowels. Pr. Am. Ph. Ass. 1865, 220.

Wine of Pepsine. Dr. J. C. Reeve digests fresh sheep rennets with sherry wine, and uses it with great success in all diseases depending upon debility of the stomach. A. Dr. Circ. ix. 167.

SYRUPS.

Syrup of Lactucarium. Wm. Procter, Jr., proposes to prepare this syrup according to the following formula:—Lactucarium, half an ounce; granulated sugar, an ounce; simple syrup, four and a half pints; citric acid in powder, sixty grains; orange-flower water, four fluidounces; alcohol and water, each a sufficient quantity. Triturate the lactucarium with the sugar until it is reduced to powder, put it in a funnel prepared for percolation, pour on diluted alcohol until the lactucarium is nearly exhausted, or until ten fluidounces of percolate have passed, evaporate to two fluidounces, add it to the syrup pre-

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viously heated to boiling, and mix; continue the ebullition slowly until the whole measures four pints and six fluidounces; then add the citric acid and strain, and lastly, when nearly cool, the orange-flower water, and mix them. Inasmuch as the formula for Aubergier's syrup is not practical, this ought to be used instead. A. J. Ph. xxxviii. 298.

Syrup of Copaiba and Syrup of Cubebs, as used by M. Trideau in diphtheria and croup, are prepared from—Copaiba, two troy ounces and a half; gum arabic in powder, 5 drachms; water, $12\frac{1}{2}$ drachms; essence of peppermint, 16 drops; syrup of sugar, $12\frac{1}{2}$ troy ounces. The syrup of cubebs contains 15 grains of recently-powdered cubebs to a tablespoonful of simple syrup. A. J. Ph. xxxviii. 375, fr. Rep. de Pharm. 1866, 359.

Syrup of Pepsin with bitter orange peel. M. Besrou takes the aqueous infusion of 50 veal rennets and evaporates in vacuo to 74 troy ounces; to this he adds lactic acid, 170 grains; spirit of oranges, 3 ounces; hydro-alcoholic extract of Curacao, $3\frac{1}{4}$ ounces; filter and dissolve in the liquid 144 troy ounces of sugar. An ounce of this syrup contains $2\frac{1}{4}$ grains of acidified pepsin. A. J. Ph. xxxviii. 376.

VINEGARS.

Phenic Vinegar. Dr. Quesneville recommends, as an "antipestilential disinfectant," to dissolve in 900 parts acetic acid 5 parts of camphor, and add 100 parts of phenic acid. A. J. Ph. xxxvii. 371. A. Dr. Circ. ix. 177.

PILLS.

Blue Pill. F. B. Bengel proposes to prepare blue pill mass by reducing corrosive sublimate to metallic mercury by means of protochloride of tin, washing and adding the necessary ingredients for the mass. The mercury, thus prepared, would be more uniformly divided in the mass. Pr. Br. Ph. Conf. 1865, 15.

Pills of Extract of Cod Liver. There are pills sold in London made of the watery extract of the cod liver. The analysis made of it has shown the presence of ichthyoglycine and propylamine in considerable quantity. Ch. N. xii. 264.

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CERATES, OINTMENTS, PLASTERS, ETC.

Preservation and Dispensing of Ointments and Cerates. Wm. S. Thompson recommends glass as the best means to preserve in and dispense from, cerates and ointments, which ought to be kept in a cool place. Pr. A. Ph. Assoc., 1865.

Ointment of Red Oxide of Mercury. A. B. Squire prefers the precipitated binoxide of mercury made from bichloride of mercury by solution of potash for preparing this ointment, to the red oxide produced by heat from nitrate of mercury. D. Hanbury stated that his house had prepared this ointment for some years, but the other had been returned to. A. J. Ph. xxxvii. 363, fr. L. Ph. J.

Drs. Hoffmann and Pagenstecher recommend it highly, especially for ointments used for the eye, and propose the following recipe used by them: Hydrarg. oxydat. flavi via humida parati grs. xxx. Ungt. cetacei ʒss. Misce exactissime ut fiat unguentum. If too strong it may be reduced to thirty grains to the ounce. Ch. N. xi. 39.

Ointments made with yellow instead of white wax are less liable, according to F. Bringham, to become rancid. A. J. Ph. xxxviii. 337.

Adhesive plaster is made in France by dissolving five parts of gum arabic and eight of distilled water, and adding two parts of glycerine. Ph. Centr. 1865, 356, from Union Pharm.

MISCELLANEOUS OBSERVATIONS.

The flower farms of France. An interesting description is given of the cultivation of flowers in France, and the mode of preparing scented pomades and oils in A. J. Ph. xxxviii. 63.

Alumina is employed by Bonnansy as an ingredient of soap, which makes it more powerfully detergative than the most highly alkaline soap, while remaining entirely free from corrosive properties. A. J. Ph. xxxviii. 85.

Extract of Cod-liver Oil. J. Barr speaks of an extract made from the water which exudes from the fresh cod-liver; it yields about 15 per cent. of extract, and it is asserted that it contains fully 78 per cent. of organic and inorganic matter exclusive of

oil. The extract is represented to contain thirty-five times as much bile-constituents, etc., and fifteen times as much inorganic elements as the oil. Am. Jr. Ph. xxxviii. Bg. and Ch. N. xiii. 10.

See also "Pills."

Test to distinguish Cotton from Linen. Boettger states that if the loosened thread of any fabric be dipped in an alcoholic solution of aniline red, washed well with water and then placed in ammonia, the color will be discharged in case it is cotton, but retained by linen thread. Zeits. An. Ch. iv. 239.

Resin of Jalap has been observed by M. Daenen to be adulterated with aloes. A. J. Ph. xxxviii. 375.

Balsam of Copaiba. Roussin observed that water is necessary for the solidification of copaiba balsam by lime or magnesia. Ch. N. xii. 111.

Rabot states that 32 parts of balsam copaiba, 2 parts of calcined magnesia and about one-fifth of water, heated for several minutes in the water-bath and agitated, will easily solidify, and cubebs or other powdered drugs may be incorporated with it while the mixture is still warm. With one-tenth of its weight of calcined magnesia balsam forms a mass after cooling, but turpentine makes a fine pill mass with the same quantity. Ph. Centr. 1866, 79.

Chlorodyne. Chas. W. B. Shaw offers the following recipe for making chlorodyne: Extracti cannabis indicae, grs. 8; morphiae acetatis, grs. 4; ol. capsici, ol. menthae piperitae, acidi hydrocyanici aa ʒi; Aetheris chlorati ʒiv; Theriaci ʒiss; Aceti ʒss. Dissolve the resin and the oils in the ether, mix the solution of the morphine in the vinegar with the theriac, add the ethereal solution and at last the acid; keep in dark bottles in a cool place. Ch. and Dr. vi. 158.

Freezing Mixture. Fr. Clowes observed that equal parts of sulphocyanide of ammonia and water produce an intense cold; the mercury fell to -12° C. from a temperature of $+17^{\circ}$. Ch. N. xiii. 76.

Iron Rust may be readily removed from cloth by immersing

it in a saturated heated solution of binoxalate of potash or oxalic acid, and putting some pulverized tin upon it. A. Ph. cxxv. 139.

New Cement. Iron sponge is finely trituated and mixed with pure sand which has been moistened with slightly acidulated water; the iron is oxidized and forms, with the sand, silicate of iron, which is not affected by atmospheric changes nor even by acid or alkaline liquids at a boiling temperature. D. Cosm. vii. 559.

New Artificial Light. J. Wilkinson found a mixture of phosphorus and nitrate of potash giving a light of great intensity. A. Dr. Cir. x. 5.

Cure for Hydrophobia. Wash the wound with warm vinegar, dry and pour upon it a few drops of muriatic acid. A. Dr. Cir. x. 35.

Preservation against burning of cotton and other fabric may be secured by intimately mixing equal parts sulphate of zinc, Epsom salts and sal ammoniac with three parts of ammonia alum, drying and powdering the resulting paste, and when to be used mixing the starch with half its weight of the fire-safe. V. Kletzinsky in D. Polyt. J. vol. 179, p. 405.

Water-proof Putty. Common or Venice turpentine is mixed with 3 per cent. of sulphuric acid, after 12 hours kneaded well in tepid water containing 12 per cent. of zinc white of the weight of the turpentine and dried. Linseed oil, after being mixed with 20 per cent. its weight of caoutchouc, dissolved in 20 times its weight of spirits of turpentine, is boiled down to one half, mixed to the former preparation and a gentle heat applied until they are dissolved and all the turpentine evaporated. D. Polyt. J. vol. 179, p. 405.

Cement for Microscopic Objects may be obtained by melting three parts of Canada balsam and mixing it intimately with one part fresh calcined zinc white. D. Polyt. J. vol. 179, p. 407.

Universal Cement. Mix and powder finely one part of best fresh calcined alabaster gypsum with three to five parts of well dried Senegal gum, and keep it well secured against moisture. D. Polyt. J. vol. 179, p. 407.

Medicated Pessaries and Suppositories. H. B. Brady recom-

mends uniformity of form and composition for this form of administering medicines. He believes cacao-butter, with from 5 to 10 per cent. of lard, the best excipient, and 15 grains the most convenient size for a suppository, and 2 drachms for pessaries. The active ingredients should be rubbed first with the lard, then added to the cacao-butter in a copper vessel heated by a water-bath, well incorporated with it, and, after cooling to the consistence of cream, poured into metal moulds. Ch. N. xiii. 188.

Oxygenated Saline Waters. Dr. B. W. Richardson has succeeded in combining peroxide of hydrogen (containing ten volumes of active oxygen) with various saline substances, and especially salts of iron. The waters, when properly diluted, were almost tasteless, the taste being so unobjectionable that children would drink and adults take them at meals, in place of common water or other fluid. Ch. N. xii. 121.

Acid Stains may be removed, and the delicate color of violet restored, by brushing the fabric with tincture of iodine, and after a few seconds saturating the spot with a solution of hyposulphite of soda, and drying it gradually. Ch. and Dr. vii. 30.

Preservation of Collodium Cotton. Wallis moistened collodium cotton with alcohol, and kept it for four years perfectly unaltered. Ph. Centr. vii. 71.

Calquoin's Caustic Paste. Demarquay prepares this paste of 10 parts chloride of zinc, 20 parts flour, and 4 parts glycerine. A. Dr. Circ. x. 83.

On Emulsions. B. S. Proctor has made some valuable remarks on emulsions. A. J. Ph. xxxvii. 480.

Paraffin, dissolved in benzole, is used by Vohl to coat and preserve fresco pictures. D. Polyt. J. Feb., 1866.

Caustic Collodion. Dr. G. Finco used with success a mixture of 25 grammes corrosive sublimate with 2 grammes collodium, for the destruction of syphilitic warts. St. L. M. and S. J. iii. 278.

MATERIA MEDICA.

VEGETABLE DRUGS.

RANUNCULACEÆ.

Aconitum Napellus. Prof. W. Procter, Jr., has made a comparative analysis of the American and the European aconite, and observed that the latter yielded about half the amount of aconitin which he obtained from the former.

The American aconite is cultivated in Columbia. It is planted in good soil, and one-third of the roots are transplanted every year. The leaves may already be used when the plant is two years, but the root should not be used before it is three or four years old. The roots which Procter examined weighed 40 grains each of the American, and 80 grains of the European plant. Ph. Centr. xi. 83.

Aconitum ferox. Prof. Schroff reported a case of poisoning by the administration of powdered aconite instead of jalap, for which it had been sold. N. Jahrb. Ph. xiv. 117.

Aconitum lycotonum. Hübschmann has found two alkaloids in this plant; the one, *acolytin*, is a white powder, insoluble in ether but soluble in water and alcohol; the other, *lycotonin*, is crystallizable, soluble in alcohol, but little in ether and water. A. J. Ph. xxxviii. 376.

Anemone. Dobraschinsky has obtained the active principle of the anemones by shaking the distilled water with chloroform, distilling this off to one-eighth, and adding alcohol. From the spontaneous evaporation of the alcohol the *anemonin* appears in crystals. A. Dr. Circ. x. 89.

Helleborus niger and *Helleborus viridis*. Marmé and Husemann have found *helleborin* to be the active principle of both varieties. It is a glycoside, crystallizable, slightly acidulous, soluble in water and diluted alcohol, slightly so in absolute alcohol, and not in ether. From the oil they have separated another glycoside, *hellebor-acrin*, which crystallizes, is acrid, bitter, soluble in alcohol and chloroform, slightly so in ether and water, and

~~assumes a bright red~~ assumes a bright red color when treated with sulphuric acid. Ph. Centr. 1865, 148.

Cimicifuga racemosa. The seeds of black cohosh have been examined and reported upon by E. C. Jones. Pr. Am. Ph. Ass. 1865, 186.

BERBERIDACEÆ.

Podophyllum peltatum. Dr. Pietro da Venezia has made a series of experiments with the resin of podophyllum or podophyllin, and had the most satisfactory results. Even in the smallest doses it is efficient, and is easily combined with a sedative substance. N. Jahrb. Ph. xxiv. 121.

SARRACENACEÆ.

Sarracenia purpurea. The discussions about the medicinal qualities of this plant continue in England. In France Stan. Martin has examined the root, and obtained an alkaloid which he calls sarracenin. It is white, soluble in alcohol and ether, and forms salts with acids. The sulphate crystallizes in fine needles. Viertelj. Ph. xv. 234.

PAPAVERACEÆ.]

Papaver somniferum. Prof. Gartinel made experiments with opium obtained from the white and purple poppy from Upper Egypt, and found 10 to 10·4 per cent. of morphia in the opium from the white, and 12·20 per cent. from the purple variety. A. J. Ph. xxxvii. 334.

The consumption of opium has increased in the United States since 1840 from an imported value of \$40,874, to \$932,887 in 1862. A. D. Circ. ix. 127.

H. Deane and H. B. Brady have continued their researches on opium, with a view to finish their report on the microscopic examination of opiates. They have not finished, however, but massed a great amount of valuable information. They have obtained from T. and H. Smith, of Edinburgh, the actual results from working up large quantities of Turkey opium, which yielded the following percentage :

Morphia 10, Narcotine 6, Thebaine 0·15, Papaverine 1, Meco-

nine 0·01, Meconic acid 4, Thebolactic acid 1·25, Codeia 0·3, Narceine 0·02.

Narceine is lately regarded superior to morphia in its sedative effect, and is much used in Germany. They believe that the observation of a larger or smaller amount of certain crystals in opium will furnish a pretty sure method of judging of its quality and purity. The large crystals in Indian opium seem to be due to the adulteration with palm sugar. Pr. Br. Ph. Conf. 1865, 31.

Papaver rhæas. O. Hesse has prepared from its capsules an alkaloid which crystallizes in white prisms. Ph. Centr., 1866, 148.

SAPINDACEÆ.

Paullinia sorbilis. The Guarana bread, prepared by drying and powdering the leaves of *Paullinia sorbilis*, and forming the powder with water into cakes, contains the largest amount of theine—as much as 5 per cent. Ch. C. Bl., 1865, 863.

ANACARDIACEÆ.

Rhus toxicodendron. Prof. John M. Maisch has examined the poison ivy carefully, and found from his investigations and examinations that its active principle was not an alkaloid, but a volatile acid, which he proposes to call *toxicodendric acid*. He believes the expressed juice preserved by alcohol to be the best pharmaceutical preparation. Pr. A. Ph. Ass., 1865, 166.

IRIDACEÆ.

Saffron. Prof. Bentley found a specimen of this drug which closely resembled genuine saffron in color and odor, but consisted mostly of the stamens of *Crocus sativa* dyed with some orange-yellow matter. Ch. N. xiii. 93.

RUTACEÆ.

Ptelea trifoliata. Dr. O. F. Potter has used this plant as a tonic after all grades of fevers, and found its action mild and unirritating, with soothing influence upon the stomach, promoting digestion. The bark contains mainly the medicinal qualities which are yielded to water, but more to alcohol. Med. Rep. i. 19.

www.libtool.com.cn VITACEÆ.

Vitis. Vines which had been diseased with oïdium have been the cause of poisoning in some places in France, where three persons, who had been wounded slightly while trimming the vines, received bad gangrenous ulcers on the injured places, in consequence of which they died. *Vierteijh. Ph. xiv. 428.*

LEGUMINOSÆ.

Physostigma venenosum. Dr. J. Edwards examined the Calabar bean, and found in it 30 per cent. peel and 70 per cent. white kernel. Exhausted by three times its weight of boiling absolute alcohol, it yields 5 to 6 per cent. extract, which, during evaporation, separates into two liquids, both soluble in chloroform, one only in ether. *Ph. Centr., 1865, 243.*

A. Wadgymar treated the extract with ether, and obtained a brown oily liquid, which, under the microscope, appeared a deliquescent crystalline mass, and was ascertained to be identical with the physostigmin of Jobst and Hesse. *Med. Rep. i. 49.*

Cassia. Dragendorff and Kubley have separated from senna leaves the active purgative principle—the *cathartic acid*. *Dr. Circ. x. 138.*

HAMAMELACEÆ.

Liquidambar styraciflua. Prof. Wm. Procter, Jr., examined the different parts of the sweet gum tree, and came to the conclusion that the earlier observers mistook cinnamic for benzoic acid. He could find only cinnamic acid in the samples he examined. *Pr. Am. Ph. Ass., 1865, 160.*

RUBIACEÆ.

Cinchona succirubra. J. E. Howard found in this species of bark numerous stellate groups of crystals, which he pronounced to be Kinovate of quinine. *A. J. Ph. xxxvii. 347.*

Cinchona Pitaya. R. Cross distinguishes the Pitaya from *Cinchona lancifolia* of Karsten. He considers it, with *Cinchona officinalis* from Loxa, the best species for cultivation. *A. J. Ph. xxxvii. 472.*

Cinchona Plantations in India. C. Markham makes a very

favorable report on the cinchona plantations of Ceylon. A. J. Ph. xxxviii. 353.

In Jamaica the cinchona plantations, 4000 feet above the level of the sea, have thriven with the utmost luxuriance. A. Dr. Circ. ii. 87.

The cultivation of the cinchona tree has also commenced in South America, and Don Narciso Lorenzano assures that South America will not cease to export cinchona bark. Vierteljh. Ph. xiv. 410.

Adulteration of Red Bark. Jolly states that the red bark has been adulterated for some time by steeping inferior Cinchona bark in liquid ammonia until it is perfectly permeated. Its color is so much changed that it may be easily taken for genuine red bark. N. Jahrb. Ph. xxiii. 357.

Estimation of the Alkaloids in Cinchona Barks. J. E. Howard has examined different species of cinchona by the microscope, and thinks he has determined the presence of alkaloid crystals in it. N. Jahrb. Ph. xxiv. 82.

Quina de Cuenca. J. K. Fisher has examined this bark, and found that it is gathered from Cinchona macrocalyx, Pav., according to Berg, while Weddel ascribes its origin to Cinch. condaminea Lamb. It contained 0.59 per cent. quinia and 1.79 per cent. cinchonina. Vierteljh. Ph. xvi. 181.

COMPOSITÆ.

Erigeron Canadense. The oil of the horse-weed has been strongly recommended, by Dr. J. S. Prettyman, as a remedy against gonorrhœa, in doses of ten drops. A. Dr. Circ. xi. 178.

AQUIFOLIACEÆ.

Ilex Paraguensis. The Paraguay tea contains theine, which produces the excellent effect on the nervous system experienced by the South Americans. Ch. C. Bl. 1865, 863.

LABIATÆ.

Mentha piperita. The peppermint is cultivated largely in the United States, especially Michigan. The produce of the crops from 1861 to 1864, inclusive, has been reported by Fr. Stearns. Pr. A. Ph. Ass. 1865, 221.

www.libtool.com.cn CONVULVULACEÆ.

Convolvulus Turpethum. M. Andouard recommends turpeth root for its purgative qualities, and proves by analysis that it contains 10·20 per cent. resin and 9·80 salts. Ch. N. xiii. 123.

SCROPHULARIACEÆ.

Gelsemium sempervirens, Ait. H. Bradford recommends from a number of experiments gelsemium in cases of hysteria. A. Dr. Circ. ix. 191.

ACANTHACEÆ.

Sericographis Mohitli. M. Thomas describes a deep blue coloring matter, which is hygroscopic, and acts chemically like litmus; the natural principle, which is colorless, he calls mohitleine; the color is produced in contact with the air. A. J. Ph. xxxviii. 302.

Gurjun Balsam, from the *Dipterocarpus turbinatus*, is stated to be superior to copaiba. A. Dr. Circ. ix. 171.

SOLANACEÆ.

Solanum paniculatum, a South American plant, called in Brazil jurabeba. Stan. Martin states that its leaves, fruit and roots are brought to market. The latter are from ten to fifty centimetres long, covered with minute rootlets, and of a hard and fibrous texture, the fibres being serrated. The stem is long and slender, and is studded with sharp-pointed prickles; the leaves have a fine green color, are without odor, and nearly tasteless. It is used in almost every form, and chiefly employed in affections of the liver and spleen, in vesical catarrh, anæmia, chlorosis and difficult menstruation; and promises to be the most powerful deobstruant yet met with. Ch. & Dr. vii. 30.

Datura Stramonium and *Datura Tatula*. M. Naudin found that hybrid plants of these two varieties have a tendency to separate into their two specific elements in subsequent generations. A. J. Ph. xxxvii. 341.

GENTIANACEÆ.

Erythræa Centaureum, Pers. C. Méhu describes the active

principle of centaury as neutral, inodorous, colorless and tasteless, but it assumes a rose color in the rays of the sun, without being otherwise affected. A. J. Ph. xxxviii. 303.

SANTALACEÆ.

Oil of Yellow Sandal Wood, obtained from *Sirium myrtifolium*, has been recommended by Dr. Th. B. Henderson as a remedy for gonorrhœa. A. Dr. Circ. ix. 171.

POLYGONACEÆ.

Rheum palmatum. Dr. Fr. J. Farre, in his researches on the growth and preparation of rhubarb in China, has come to the conclusion that it grows chiefly in Kansuh, south of Mongolia, and on the Kawnlun mountain, the northern boundary of Thibet. For particulars see A. J. Ph., xxxviii. 153.

EUPHORBIACEÆ.

Ricinus communis. J. Philips, of Naples, has reported to the British Pharmaceutical Conference on the culture of the castor oil plant in Italy, and the manner of producing the oil. Pr. Br. Ph. Conf. 1865, 77; A. J. Ph. xxxvii. 488.

Rottlera tinctoria. F. A. Flückiger has again examined and described kamala, the little glands on the fruit of *Rottlera tinctoria*. For particulars see N. Rep. Ph. xiv. 278, where it is minutely described.

CUPULIFERÆ.

Castanea vesca. E. Dietrich, in his examination of the chestnut, found it to contain 30 per cent. starch and 3.26 protein. Vierteljh. Ph. xv. 205.

Gallæ. Wm. Judd found in British galls, when half developed, 13.4; when mature, 17.65; and after the escape of the fly, 15.97 per cent. of tannin. A. J. Ph. xxxvii. 488.

LILIACEÆ.

Scilla maritima. Prof. Schroff, in his examination of scilla, came to the following conclusions: the red and white bulbs come from the same plant; it does not possess a volatile principle, but its effect on the skin is owing to hard crystals of oxalate of

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lime, sharp-pointed at each end. The outer scales contain the active principle, the innermost are inert. The red variety is more effective, and yields a larger amount of extract, of which the alcoholic is more efficient than the aqueous. Besides scillitin, the narcotic principle, there is an acrid one in squills, which has not yet been isolated. N. Rep. Ph. xiv. 193.

MELANTHACEÆ.

Colchicum autumnale. The seeds of colchicum have been examined by Ludwig, who confirms the statements of Oberlin, and Hubler, who thinks that colchicin, for its indifference to acids, ought not to be ranged with the alkaloids. Colchicein, the element of colchicin, is a weak acid. A. J. Ph. xxxviii. 108.

Veratrum viride. A fatal case of poisoning has been recorded by Dr. J. C. Harris. A. J. Ph. xxxvii. 374.

Chas. Bullock found two active principles in veratria, which are both soluble in alcohol, one only in ether; the former is powerfully sternutatory, of light yellow color, pulverulent; the latter has a semi-resinous form. Neither seems to be identical with veratria, and both have alkaline reaction. A. J. Ph. xxxvii. 321, and xxxviii. 97.

FUNGI.

Agaricus albus. Marquis reports that the best forests of Larix Sibirica are about 150 miles southeast of Archangel, where the agaricus is collected. It appears only on diseased trees, and seems to be formed from the decayed sap of the tree penetrating through the bark. Some fungi grow to the size of 14 pounds. The best pieces are found at a height of seven feet and over, where they are white, and composed of a mealy loose substance. They ought not to be older than one year. Vierteljh. Ph. xiv. 401.

Siccard and Shoras have isolated from mushrooms an alkaloid which is extremely poisonous, and similar in its effects to curarin. A. J. Ph. xxxvii. 335.

ALGACEÆ.

Laminaria digitata. Dr. Worster claims a great superiority for the American sea tangle over the English or any other. A. Dr. Circ. x. 177.

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ANIMAL DRUGS.

Sus Scrofa. Dr. Dobell recommends an emulsion, made from the pancreatic juice of the pig, with beef-fat, in cases of consumption attended with dyspepsia. It is a white paste of the consistence of thick cream, and administered with milk in doses of half an ounce. Ch. and Dr. vii. 6; A. J. Ph. xxxviii. 143.

Apis mellifica. Dr. Jas. S. Whitmire observed that bee-bread acted powerfully as a diuretic. A. J. Ph. xxxviii. 56.

Lytta vesicatoria. Dr. H. Burmeister describes all the different varieties of cantharides which are found in the Argentine provinces. He has collected himself eight species, of which only three were previously known. A. J. Ph. xiii. 269.

Sanguisuga. C. F. Bevan recommends washed oxide of manganese to be put in the water in which leeches are kept, and to renew daily. A. J. Ph. xxxvii. 190.

Rhigolene. Dr. H. J. Bigelow recommends this product of the distillation of petroleum at 70° F., as an anæsthetic by cold, in preference to ether. It has a specific gravity of .625, and reduces the temperature to -19° F. A. J. Ph. xxxviii. 363.

ELEMENTARY AND INORGANIC SUBSTANCES.

Aquæ Minerales. The different springs of Rothenbrunn in the Vorarlberg have been described minutely by L. Kofler. Vierteljh. Ph. xv. 161.

The Adelheid spring at Heilbronn contains boracic acid, according to Ribram, who found in 1000 parts 0.10012. Vierteljh. Ph. xv. 183.

The Pyrmont springs have been recently analysed by R. Fresenius. Vierteljh. Ph. xv. 208.

Montpellier Saline Chalybeate Water in Harrowgate has been analysed by Sheridan Muspratt. Ch. N. xii. 37.

A new Chalybeate spring has been discovered at Harrowgate, which contains chloride of iron, as stated by Sheridan Muspratt. Ch. N. xiii. 26.

Pure carbonic acid, mineral and lithia water, have been described by Prof. H. Wurtz, from a pamphlet,—Schultz and Warker's mineral spring waters, by Carl Schultz. A. J. Ph. xiii. 113.

Oxygenated Saline Waters are described and highly recommended by Dr. B. W. Richardson. Ch. N. xii. 121.

Petroleum has been used by Dr. Asché with great success against the itch, and he considers it more beneficial than any other remedy. N. Jahrb. Ph. xxiv. 38.

Arsenate of Antimony has been successfully employed by Dr. L. Papillaud in doses of one-half of a milligramme a day against some affections of the heart and phthisis. St. L. M. and S. J. iii. 274.

A Proto-persalt of Iron, followed by calcined magnesia and preceded by an alkaline solution, has been recommended by F. and H. Smith, of Edinburgh, as an antidote at once for prussic acid, antimony and arsenic. A. J. Ph. xxxviii. 14.

Tannate of Manganese. V. F. Marbetta recommends the soluble tannate of manganese as the best of the tonic, astringent and antiseptic salts. A. J. Ph. xxxvii. 337.

Bichloride of Carbon, or *Chloro-carbon*, is a transparent, colorless fluid, with an ethereal and sweetish odor; 1.56 spec. grav., and boiling point at 170° F. It is recommended as an anæsthetic in place of chloroform. Ch. N. xiii. 41; A. J. Ph. xxxviii. 171.

CHEMISTRY.

INORGANIC CHEMISTRY.

OXYGEN.

Oxygen. M. Fleitmann has found that on heating a concentrated solution of chloride of lime with only a trace of freshly prepared moist peroxide of cobalt, the hypochlorite of lime was completely decomposed into chloride of calcium and oxygen, without the formation of chloric acid. The evolution of the gas commences about 70 or 80°, and continues in a regular way with a slight frothing of the liquid. A. Dr. Cir. ix. 126 and 166, fr. An. Ch. und Ph. 1865, p. 64, and Br. Photo. J.

R. W. Artlett observed that moist peroxide of iron or oxide of copper will answer the purpose, and even nitrate of copper will have the same effect. They also do not lose like the cobalt any of their efficiency by use. Ch. N. xii. 158.

Ozone. M. Frémy considers the presence of ozone in the atmosphere doubtful, and asks for a positive proof of it.

M. Soret has experimented with ozone, and by his experiments considers it confirmed that the theoretical density of ozone, which should be one and a half times that of ordinary oxygen, or 1.658, is also the real one.

M. G. Jean states that he succeeded, by the influence of electricity, in a peculiar apparatus, in splitting up carbonic acid into carbonic oxide and oxygen, which, by its odor and other tests, appeared to be thoroughly ozonized. Ch. N. xii. 274 and 288.

Dr. B. W. Richardson, in a paper before the British Association, communicates a number of reliable facts about ozone. See A. Dr. Cir. ix. 231.

Antozone. M. Ocann has shown that the white vapor produced in the slow combustion of phosphorus in moist air, which Meissner took for antozone, is really what Schoenbein already stated, viz.: nitrate of ammonia or atmospheric air metamorphosed into a salt. Ch. N. xii. 82, fr. S. f. Pr. Ch.

Schoenbein states that paper saturated with a solution of protoxide of thallium is instantly turned brown from the formation of oxide when brought into antozonized atmosphere. Zeitsch. An. Ch. iv. 118.

Metallic Superoxides. Prof. Boettger states that the superoxides, or metallic acids of Frémy, may be obtained pure and constant by digesting the recently prepared metallic oxides with hypochlorite of soda containing some free soda. Ph. Centr. vi. 362.

A peculiar combination of oxygen and chlorine has been observed by H. Reinsch, while distilling protochloride of iron and manganese. N. Jahrb. Ph. xxiii. 341.

HYDROGEN.

Hydrogen. Its flame is recommended by J. J. Dittges as

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excellent for its reducing qualities and the coloration the gas assumes from the reduced metallic oxide. Vierteljh. Ph. xiv. 399.

If pure hydrogen be passed for hours through some metallic solutions, the salts in solution will be partly reduced to the metallic state, especially silver, palladium, platinum, quicksilver, etc., according to Brunner's experiments. Gold and iridium are not affected. Vierteljh. Ph. xv. 450.

Peroxide of Hydrogen. Prof. Schoenbein produced pure peroxide of hydrogen by agitating in a large flask, under access of air, amalgamated zinc in powder and distilled water. Oxygen is absorbed by both the zinc and the water under formation of oxide of zinc and peroxide of hydrogen. The latter is free from acid, keeps well without decomposition, and does not contain a trace of either zinc or mercury. A. Dr. Cir. xv. 155, from Mech. Mag.

Schoenbein recommends for the detection of traces of peroxide of hydrogen a reagent prepared by adding to water which has been rendered dark blue by means of solution of indigo, some hydrochloric acid and a solution of a sulphuretted alkali until the blue color has disappeared. If a liquid mixed with this solution contains but traces of peroxide of hydrogen, it will turn immediately blue upon the addition of a few drops of sulphate of iron. Zeitsch. An. Ch. iv. 116.

C. Weltzien examined the action of peroxide of hydrogen upon a large number of metals and other bodies. Ann. Ch. und Ph. vol. 138, p. 129.

The purification of water has been effected by Scherer through the addition of a solution of neutral persulphate of iron which is transformed in the water into an insoluble basic salt, carrying down with it all foreign matter. A. Ph. vol. 125, p. 139.

NITROGEN.

Nitrogen. Mr. Waltenhofen states that, in an atmosphere of nitrogen, the violet rays of the spectrum disappear before the blue and green, which leads him to believe that nitrogen is a compound body. Ch. N. xii. 93.

A series of Bodies between nitric acid and ammonia has been

observed by Dr. Lossen. It appeared that ammonia was only the last product of the reaction of nitric acid upon certain metals, and that a whole series of intermediate compounds existed between ammonio-nitric acid, the substance acted upon, and the last product of its reduction. Dr. Lossen has succeeded in isolating one of these products, which might be termed protoxide of ammonia from its composition and formula H_3NO . This substance combined with acids produces a series of magnificent salts. Ch. N. xii. 136.

Knab recommends chloride of calcium, which absorbs its own weight of ammoniacal gas, as a recipient of it in place of water. The gas is easily evolved by the application of heat. Ch. N. xiii. 192.

Volcanic Ammonia. W. D. Howard states that volcanic ammonia is derived from crude boracic acid containing salts which are separated by the double decomposition ensuing when soda ash is added to the crude boracic acid. The carbonate of ammonia escapes with the carbonic acid, and is easily condensed and purified. Br. Ph. Conf. 1865, 41.

Transformation of Nitrous Oxide into Nitrate of Ammonia. According to Persoz, the nitrous oxide produced from nitrate of ammonia may, by the influence of potassa and water at a certain temperature, be transformed into nitrate of ammonia, which with the potassa will produce nitrate of potassa and set free the ammonia. Vierteljh. Ph. xv. 273, fr. Compt. Rend. 1865, lx. 443.

CARBON.

Carbon. Prof. Goeppert, in his essay on the vegetable origin of diamonds, after having established their Neptunian origin, comes to the conclusion that if they cannot be said to be evidently and undoubtedly vegetable in their origin, it would, on the other hand, be difficult to deny their vegetable nature altogether. A. J. Ph. xxxvii. 383.

SULPHUR.

Sulphur. A. Keller has tried all the substances named by Dietzenbacher, which, fused with sulphur, would make it soft and plastic, but has never succeeded in producing the result

stated, unless he poured the sulphur into cold water, or in a very thin layer on a very cold porcelain tile, under which circumstances, sulphur alone is always made soft and plastic.

A New Acid has been observed by Terreil during the formation of sulphurous acid from sulphuric acid and carbon. It appears as a crystalline sublimate in the neck of the flask, is strongly acid, melts at a low temperature, and sublimes without decomposition. Ch. C. Bl. 1865, 702.

Trithionic Acid. M. Lunglais prepares trithionate of potassa by passing an excess of sulphurous acid into a perfectly saturated solution of carbonate of potassa until crystals of bisulphite deposit. By digestion with flowers of sulphur the liquor gradually turns yellow, which color disappears when the whole is transformed into trithionate. The crystals of trithionate of potash are very stable; the solution quickly decomposes. Ch. N. xiii. 189.

Sulphuretted Hydrogen is more uniformly eliminated from a sulphuret of calcium made from gypsum and pit coal. Ch. N. xiii. 168.

SELENIUM.

Selenium. R. Boettger has eliminated the selenium from the residue in the lead chambers of sulphuric acid factories by boiling it with a concentrated solution of neutral sulphite of soda until it has assumed a dark black color. It is thrown on a filter, and the filtrate dropped into dilute muriatic acid, when it precipitates in bright red masses. Vierteljh. xv. 270.

PHOSPHORUS.

Phosphorus. M. Baudrimont stated that *white phosphorus* is neither a hydrate nor an allotropic state of ordinary phosphorus, but that it is merely ordinary phosphorus irregularly corroded on the surface by the action of air dissolved in the water, a slow combustion which is accelerated by the action of light, and which ceases as soon as the water holds no more oxygen in solution. Ch. N. xii. 251.

Black Phosphorus has been produced by Dr. Blondlot while cooling distilled phosphorus gradually to 5 or 6°, when the

phosphorus suddenly turned to a beautiful black. It may be re-melted and re-distilled; when liquid it is colorless, but returns to black by very slow cooling. He considers it a true type of phosphorus. Ch. N. xi. 250.

Red Phosphorus. Groves has observed that red phosphorus decomposes in contact with the air, and forms the same acids and compounds as common phosphorus. Vierteljh. xv. 270.

Phosphorus, if combined with copper, imparts to it a greater tenacity and hardness. At the factory of Parks it is alloyed with the greatest success in quantities of one-eighth to half per cent. Ch. N. xii. 172.

Phosphoric Acid. J. Watts has prepared a table to show the relation between specific gravity and percentage in phosphoric acid solutions, and arrived at the conclusion that the best method of testing a pure solution of phosphoric acid was the evaporation of a weighed quantity of the solution with a known excess of pure protoxide of lead. Pr. Br. Ph. Conf. 1865, 39.

Hope Jones has discovered a mineral in Wales which contains a considerable quantity of phosphoric acid combined with protoxide of iron and lime. D. Polyt. J. vol. clxxix. p. 479.

Pyrophosphate of Iron and Soda. A solution of pyrophosphate of soda is mixed in due proportion with a solution of perchloride of iron. After precipitating and washing, the necessary quantity of solution of pyrophosphate is added; the liquid evaporated and scaled in the usual way. Its formula is $2(2\text{NaOPO}_3) + (2\text{Fe}_2\text{O}_3, 3\text{PO}_3) + 20\text{HO}$. Ch. N. xiii. 142.

Phosphate of Lime. G. C. Wittstein has prepared this salt in its two combinations $3\text{CaO} + \text{PO}_3$ and $2\text{CaO} + \text{HO} + \text{PO}_3$ by precipitating a solution of chloride of calcium with phosphate of soda. Vierteljh. Ph. xv. 189.

Koprolithes have been used by Bobliquet to produce by calcination with iron ores a phosphide of iron which contains from 14 to 15 per cent. of phosphorus. This is treated with Glauber salt and transformed into sulphuret of iron and phosphate of soda, which is mixed with a certain quantity of magnesia salt, and used as a disinfectant of sinks and privies, where it forms ammonio-phosphate of magnesia with all the ammonia,

etc., and is turned afterwards into valuable manure. D. Polyt. J. vol. clxxix. p. 409.

CHLORINE.

Chlorine Water. Millon has shown that in chlorine water exposed to air and light hypochlorous acid is produced, besides hydrochloric acid. Barreswyl has proved the formation of perchloric acid under the same circumstances, which observation has been confirmed by Schmitt. Ch. N. xii. 295, fr. l'Institute, 1865, 231.

IODINE.

Hydriodic Acid. Pettenkofer has modified Liebig's method for preparing this acid. A. Ch. und Ph. vol. cxxxviii. 57.

Iodide of Potassium. Fuchs prepared this salt by mixing iodine, pure carbonate of potash and iron filings, in the proper proportion, with water, and letting it rest on a warm place until the iron is oxidized; then he evaporates to dryness, heats to dull-red heat in an iron vessel, and exhausts the mass with the smallest quantity of water. The solution is saturated with hydriodic acid, and crystallized. D. Polyt. J. vol. clxxvii. 251.

Iodide of Iron may be well preserved, according to Carlo Pavesi, by dissolving gum arabic in its concentrated solution and pouring this in thin layers on glass or porcelain, where it will dry in a few days. Ph. Centr. vii. 86.

BORON.

Boracic Acid, treated by a current of hydrochloric or hydrobromic acid, exchanges its oxygen for chlorine or bromine, and forms chloride or bromide of boron, according to J. Nicklès. Ch. N. xi. 281, fr. Comptes Rendus.

SODIUM.

Sodium-Amalgam. H. Wurtz has combined sodium and quicksilver, and thus imparted to the latter a greatly-enhanced adhesion, attraction or affinity for other metals, which makes it more available in the arts and for separating precious metals from their ores, or recovering them from their soluble or insoluble saline compounds. A. J. Sc. and A. xii. 216.

Soda is made by a new process of A. G. Hunter's in decomposing sulphate of soda, under strong pressure, by caustic lime. A. J. Ph. xxxviii. 172.

Soda Ash is lately manufactured in the United States from cryolite imported from Greenland. Ch. N. xii. 146.

Chloride of Sodium in solid blocks and layers of considerable size has been discovered on the south side of the island of San Domingo, on the south side of Petite Anne Island in the State of Louisiana, and also in Idaho and Nevada Territory. A. J. Ph. xxxviii. 330.

Acetate of Soda crystallizes, according to Jeannet, in prismatic needles when cooled in the open air to $+58^{\circ}$; when allowed to cool in a limited amount of moist air it does not crystallize even at 0° , until exposed to dry air and touched with a dry solid body, when it suddenly assumes its ordinary crystalline form, disengaging a large quantity of heat, and rising to $+58^{\circ}$ or over it. Ch. N. xiii. 189.

Pure Potassa and Soda are prepared by Graeger by digesting the solutions of the carbonated alkalies with carbonate of silver, filtering and rendering the solution caustic by lime. The caustic solution is then rapidly filtered through washed ground marble of different fineness. Zeitsch. An. Ch. iv. 410.

Oleate of Soda is at length spoken of in A. J. Ph. xxxviii. 101.

Sulphate of Soda. According to D. Gernez, a normal constituent of the air is stated to be the cause of the crystallization of supersaturated saline solutions. Ch. N. xi. 289.

Nitrate of Soda. F. Maxwell Lyte bases the preparation of pure nitrate of soda upon its insolubility in diluted nitric acid, and washes the purified nitrate of soda with 10 per cent. of dilute nitric acid, the free acid afterwards to be expelled by heat. Ch. N. xiii. 64.

Transformation of Nitrate of Soda into Nitrate of Potassa. If concentrated and equivalent solutions of nitrate of soda and sulphide of barium are mixed, nitrate of baryta is produced; this is boiled by Condurie with sulphate of lead, and forms nitrate of lead, which, when boiled with sulphate of potassa, will yield sulphate of lead and nitrate of potassa. Ch. N. xiii. 192.

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CÆSIUM AND RUBIDIUM.

Laspayres found, in a sample of melaphyr, cæsium as well as rubidium, in small quantities. N. Jahrb. Ph. xxiv. 103.

Heintz communicates a process to separate cæsium and rubidium, by the different action of tartaric acid on these bodies. N. Jahrb. Ph. xxiv. 104.

INDIUM.

Schröetter has described this metal minutely, and states that it is very similar to cadmium in its relation to other substances. N. Jahrb. Ph. xxiv. 102.

ALUMINIUM.

E. St. Edme has observed that this metal, with hydrochloric acid as an exciting fluid, is negative to both lead and zinc; with caustic potassa or ammonia it is the reverse. A. Dr. Circ. x. 60.

AMMONIUM.

Sulphate of Ammonia. M. Marqueritte proposes a new improvement in the manufacture of sulphate of ammonia, by double decomposition of carbonate of ammonia and sulphate of lime, with the aid of chloride of calcium. A. J. Ph. xxxiii. 229.

Ammoniacal Salts are manufactured in large quantities at Bondy, from the liquor of the Bondy basin, which merely contains the liquor of cess-pools. A. J. Ph. xxxvii. 229.

Ammonium Amalgam. According to C. M. Wetherill, it is not an alloy of mercury and ammonium; but the swelling of the mass is due to the retention of gas bubbles, and the coherence of the gases and liquids concerned is changed from a normal condition, exhibiting phenomena which may be classed with those of catalysis. Ch. N. xii. 207.

Ammonium. Weyl seems to have really isolated ammonium NH_4 , and proved the existence of a metallic ammonium. But he believes, from the results of his experiments, that ammonium NH_4 was a compound, consisting of $\text{NH}_3 + \text{H}$, wherein H could be replaced by a metal and form another body; for instance:

Potassium-Ammonium $= \text{NH}_3 + \text{K}$, which has metallic qualities; a copper color, but sometimes purple.

Sodium-Ammonium has similar qualities as the former, and has been produced also by the absorption of gaseous ammonia by sodium. Poggendorf's *Annalen*, cxxi. 601, and cxxiii. 350.

Lithium, Cæsium, Rubidium and Thallium are extracted from lepidolite by A. Schrötter, who fuses the lepidolite at red heat, pulverizes and washes the vitrified mass, adds hydrochloric acid, and boils. This separates the silica mostly, and after addition of nitric acid to peroxidize the iron, the lime, alumina, iron, etc., are precipitated by carbonate of soda, taking care that the liquid is sufficiently diluted to prevent the lithia from being precipitated. The liquid is condensed by evaporation, the filtered solution saturated with hydrochloric acid, and a sufficient quantity of a solution of chloroplatinate of potassium added to precipitate all the cæsium, rubidium and thallium. The excess of platinum is separated from the liquor by sulphuretted hydrogen, concentrated, and the lithia precipitated by carbonate of soda. *Ch. N.* xii. 195.

CERIUM.

Cerium was found to be contained in a new mineral discovered by A. H. Church in Cornwall, England. It is present as a phosphate of cerium and calcium. *Ch. N.* xii. 121.

CALCIUM.

Calcium-oxide. F. Sestini prepares pure lime by mixing 100 parts powdered marble with 2 parts of sugar, calcining and treating the caustic lime with water until free of sulphuret of calcium. It is then dissolved in nitric acid, precipitated by carbonate of ammonia, washed and calcined. *Zeitsch. An. Ch.* iv. 51.

MAGNESIUM.

Magnesia. H. St. Claire Deville observed that calcined magnesia has great hydraulic qualities, and forms under water a stone of extraordinary hardness. The same is the case with dolomite, when rich in magnesia. *Ch. N.* xii. 287; *A. J. Ph.* xxxviii. 182.

The *Magnesium Light* will be produced, according to Carlevaris, by exposing upon a prisma of graphit a piece of chloride of magnesium or carbonate of magnesia to the heat of the gas compound, when the salts will be decomposed and the remaining spongy oxide of magnesium produce the light. Comptes Rendus, t. 60, p. 1252.

MANGANUM.

Alloys of Manganese. E. Prieger reports on the valuable properties of the alloys of manganese with iron and copper. Ch. N. xiii. 12.

Permanganate of Potassa. Græger proposes to prepare the permanganate of potassa from the red oxide, instead of the native peroxide of manganese. Zeitsch. An. Ch. iv. 410.

Perchloride of Manganese. M. Nicklès has proved the existence of perchlorides as well as perbromides and periodides of manganese. These compounds are not acids, for contact with bases destroys them; they are not alkaline, for they combine with ether; they are not neutral, for acids give them stability. Ch. N. xii. 70.

IRON.

Iron Ore. J. Sutherland reports on a new iron ore found in Ireland, underlying about 15 feet of peat, and containing 90.5 per cent. of ferric oxide. It is quite unacted upon by the blow-pipe, and contains no carbonaceous matter whatever. Ch. N. xii. 254.

Iron in Brass. Dr. G. Calvert states that 2 per cent. substituted for zinc in an alloy of copper and zinc makes it malleable and increases its tenacity. A. Dr. Cir. x. 66.

Nitride of Iron. Dr. Stahlschmidt made some researches on this compound, and found it an ammonium in which the hydrogen is replaced by iron. Ch. N. xii. 21, from Poggend. Annal. No. 5, 1865.

ZINC.

Amalgamation of Zinc. A ready mode for this process is described in Ch. N. xii. 242.

Zinc like Cadmium, Tin, and all metals, the oxides of which are soluble in caustic alkalies, have been observed by Dr. H. Vohl to reduce the water and become oxidized while the hydrogen escapes. The oxides dissolve in the solution. Ph. Centr. 1865, 147.

Sulphate of Zinc. Larrazin separates iron from zinc by digesting the saturated solution of sulphate of zinc with an excess of metallic zinc for 8 days in contact with the air. The iron will be entirely precipitated as oxide of iron. D. Polyt. J. vol. 171, p. 232.

CADMIUM.

Metallic Cadmium. Stadler describes the very tedious process by which cadmium is obtained at Engis, in Belgium, from zinc blende, which contains about 0.2 per cent. of cadmium. The whole product at Engis is about 220 lb. pure cadmium, and 100 lb. containing zinc. J. für Prakt. Ch. xci. 359.

Alloys of Cadmium are easily fusible and have been experimented on by C. R. Von Hauer. Ch. N. xii. 13.

BISMUTH.

Bismuth has undergone a great change in its supply and also in demand and in price. Within twenty years it costs six times, and once in 1862 it rose to ten times, its former value. Its supply began to fall off in 1858, but new sources of supply are said to be opening. Ch. N. xii. 96.

COPPER.

Copper in the Sea. S. Piesse has confirmed by experiments in the Mediterranean Sea that copper exists in it in considerable quantity. He ascribes the blue color of the Mediterranean to an ammoniacal salt of copper; and the green color of other seas to chloride of copper. A. Dr. Cir. ix. 77.

TIN.

Tin Ore from Durango, in Mexico, has been examined by Prof. C. F. Chandler. A. J. Ph. xxxvii. 295.

www.libtool.com.cn TUNGSTEN.

Tungsten is reported to have been obtained by a Swedish metallurgist in a pure metallic state and at a small expense. Ch. N. xii. 87.

NIOBIUM.

Metallic Niobium. C. W. Blomstrand agrees with Marignac in regard to the nature of niobium. Ch. N. xii. 251, from Compt. Rendus.

TANTALUM.

Tantalum has also been examined by C. W. Blomstrand, according to whom niobium and tantalum are the only metals of this group. Ch. N. xii. 106.

TITANIUM.

Metallic Titanium has been obtained in considerable quantities in Birmingham, by reduction with sodium, the resulting powder being fused into compact masses of large size. The similarity of titanium and iron is striking. Ch. N. xii. 308, from Mining Journal.

ANTIMONY.

Ore of Antimony has been found in considerable quantity in West Virginia. A. Dr. Cir. ix. 211.

Pentachloride of Antimony. Its compounds, with chloride and oxychloride of phosphorus, chloride of selenium, etc., have been investigated by R. Weber. Ch. N. xii. 21, from Poggendorf's Annal. 1865.

ARSENIC.

Arsenic Acid. Girardin treats a saturated solution of arsenious in hydrochloric acid by chlorine gas until it ceases to give a precipitate with bichromate of potassa. Ch. N. xii. 174.

SILVER.

Pure Silver is obtained from photographic remnants, according to Dr. Van Monkhoven, either by treating the solutions first with copper metal, or from the beginning with ammonia and sulphide of ammonium, and keeping the solution for an hour at 40°

C. All silver will then be precipitated absolutely pure. D. Polyt. J. vol. 179, 482.

H. Vogel condemns the use of chalk for the neutralization of silver-baths; he recommends carbonate of soda until, after shaking, a permanent precipitate is formed, then filter. D. Polyt. J. vol. 174, 483.

GOLD.

Reynolds observed that it is dissolved by sulphuric acid in the presence of nitric acid, but afterwards precipitated when diluted with water. Viertelj. xiv. 539.

MERCURY.

Sulphuret of Mercury. A mine of mercury ore with cinnabar has been discovered in Greece. Viertelj. Ph. xiv. 510.

PLATINUM.

Platinum Mirrors are prepared by M. Dode, by the reduction of an aqueous solution of chloride of platinum with oil of lavender. A. Dr. Cir. ix. 111.

ORGANIC CHEMISTRY.

Formic Acid. M. Laurin has produced concentrated and monohydrated formic acid by the reciprocal action of glycerin and oxalic acid. The temperature requires careful management to obtain the concentrated acid. Ch. N. xii. 149. A. J. Ph. xxxvii. 469.

Formic Ether. If a sufficient quantity of oxalic acid and alcohol is added to glycerin, saturated with formic acid, the equivalent quantity of the corresponding ether will be produced. Compt. Rend. t. lxi. p. 385.

Oxalic Acid has been obtained by Laurent from the waste of shoes, where leather, etc., is used. A. Dr. Circ. x. 175.

Acetic Fermentations. Pasteur states that the "mycoderma aceti," which absorbs the atmospheric oxygen and acetifies the albuminoid alcoholic or slightly acid liquid, produces acetic fermentation. A. J. Ph. xxxvii. 343.

~~Thebolactic Acid.~~ T. and H. Smith found this acid a well-determined constituent of opium. Opium yields about 2 per cent. A. J. Ph. xxxvii. 467.

Citric Acid. Fr. Row recommends the dilution of lime juice to the strength of fresh juice, to remove the mucilaginous impurities, etc., and pass the mother liquors through a fresh portion of citrate of lime, to neutralize the excess of sulphuric acid. A. J. Ph. xxxviii. 169.

M. Perrot proposes to treat the fresh lime juice with magnesia, and export dry citrate of magnesia for the manufacture of citric acid. Ch. N. xii. 100.

Pyrogallic Acid. De Luynes and Espandieu have succeeded in obtaining a product equal to the theoretic yield of pyrogallic acid from gallic acid by boiling it with two or three times its weight of water under strong pressure. A. J. Ph. xxxviii. 20.

Pyroacetic Acid. Friedrich recommends a mixture of crude pyroacetic acid and aluminous matter as a preventive against boiler incrustations. Ch. C. Bl. 1865, 976.

Chrysophanic Acid. By treating rhubarb in powder with diluted caustic alkali, adding muriatic acid to the filtrate, evaporating and extracting by chloroform, pure chrysophanic acid is produced on evaporating this solution to dryness. Its characteristic test is the deep red color produced by caustic alkalies. Ph. Centr. vi. 146.

Curarin. A. Preyer prepared curarin from curare. It is hygroscopic, very bitter, soluble in chloroform, alcohol and water, insoluble in ether, benzole, turpentine and bisulphide of carbon, and crystallizes in colorless prisms. Zeitsch. An. Ch. iv. 449.

Cytisin and Laburnin are two poisonous alkaloids prepared by A. Huseman and Wm. Marmé from the beans of *Cytisus laburnum*, Linn. Ph. Centr. vii. 318.

A New Acid has been discovered in human urine by W. Masset, who obtained 4.46 grammes from 8 litres. Vierteljh. Ph. xv. 264.

Phenyl Brown. V. Kletzinski has prepared from carbolic

acid a body which is used for dyeing purposes. D. Polyt. J. vol. clxxix. 485.

Chlorophyll. Fremy has produced in a pure state the two constituents of this coloring matter. A. Dr. Circ. x. 90.

Paraffine. A. Vogel has determined the solubility of this body and stearic acid. A. Dr. Circ. x. 127.

Benzoic Acid is manufactured by Laurent and Castelhaç from naphthalin. Vierteljh. Ph. xv. 259.

Benzoyl. The radical of benzoic acid has been isolated by Brigel while treating chloride of benzoyl with sodium. Vierteljh. Ph. xv. 260.

A New Acetylic Radical. Berthelot prepared a new derivative of acetylene—the oxide of mercurio-acetylene—which constitutes a new acetylic radical. Ch. N. xiii. 194.

Carbolic Acid (Phenyl Alcohol). H. Müller purifies it from the accompanying alcohols by partial neutralization and fractional distillation. A. J. Ph. xxxviii. 18.

Nitro-glycerine is rendered non-explosive by mixing it with methylic alcohol, which is afterwards washed out with water. Ch. N. xiii. 70.

Wood Naphtha or Methylic Alcohol, made by Eschwege's patent, is pure wood spirit, according to J. Tuck, and useful in all cases where alcohol was employed. Pr. Br. Ph. Conf. 1865, 22.

Ethyl and Ethyl of Potassium. I. A. Wanklyn cautions against the danger in the replacement of zinc by potassium when preparing ethyl or methyl. There is a considerable rise of temperature, and if the potassium should fuse, a tremendous explosion would take place. Ch. N. xiii. 14.

Starch. M. Payen has come to the conclusion that the transformation of starch into glucose by diastase can be carried to over 50 per cent. by prolonged digestion, and that the formation of glucose impedes the process of transformation only until it is transformed into alcohol. Vierteljh. Ph. xv. 221.

Beer Yeast. A. Béchamp has demonstrated that yeast abandons its phosphoric acid gradually; after losing its acid it

is still capable of transforming cane sugar into glucose. A. J. Ph. xxxviii. 161.

Creasote. Béchamp mentions that creasote most strongly opposes the *development* of organic ferments, but it does not interfere with the life of ferments or animalcules when they are once developed. Ch. N. xii. 275.

Urine. Natta observed that urine, after the administration of santonin, turned cherry red when treated with potassa. Vierteljh. Ph. xiv. 284.

Béchamp found in healthy urine a protein-like substance. He calls it nefrozymase, which is apt to transform amylum into sugar. Boiling destroys, alcohol precipitates it. Zeitsch. An. Ch. iv. 497.

G. Meissner and F. Jolly found *succinic acid* as a soda salt in the urine of dogs fed with meat and grease, and of rabbits fed with the roots of *Daucus carota*. Zeitsch. An. Ch. iv. 502.

They found also kreatin, uric acid, and allantoin in the urine of dogs fed with meat and grease. Zeitsch. An. Ch. xv. 505.

Xanthin. A. Stromeyer observed xanthin in urine, and found in corrosive sublimate an excellent test, of which one part dissolved in 30,000 parts of water will produce a distinct turbidity. Ann. Ch. und Ph. cxxxix. p. 457.

Urea has been found by Lefort a normal constituent of cow's milk. A. J. Ph. xxxviii. 397.

Illuminating Gas from Apples. M. Gouverneur has submitted the marc from the cider press to dry distillation, and obtained acetic acid, tar and a large amount of gas of fair illuminating power. Ch. N. xii. 302.

Linoleum is a product from the oxydation of linseed oil by the absorption of oxygen in combination with resinous gums and other ingredients to form a plastic mass. It is used for almost all the purposes as India rubber. A. Dr. Cir. x. 131.

Manufacture of Quinine. Clark proposes to boil the decoction of bark, treated by an alkali, with stearic acid, which combines with the quinia and cinchonia. The alkaloids are separated in the usual manner. A. Dr. Cir. x. 127.

ANALYTICAL CHEMISTRY.

GENERAL REMARKS.

Platinum Crucibles. G. C. Wittstein found that the volatilization of osmic acid, produced from the osmium present in the platinum, is the cause of the decrease in weight of platinum crucibles.

Deflagrating Flux. Chas. L. Bloxam proposes as flux for substances insoluble in water and acids, a mixture of one part charcoal and six parts nitre; 5 grs. of the substance is to be intimately mixed with 10 grs. dry carbonate of soda and 70 grs. of the flux. Where sulphates are not to be examined, a mixture of 4 parts of nitre and 10 parts gunpowder will answer, intimately mixed with 1 part of the substance and 4 parts carbonate of soda. For the detection of alkalies take one part of the substance and mix it with one part flowers of sulphur and 6 parts nitrate baryta, and fuse or heat quickly to deflagration. Ch. N. xii. 187 and 195.

Impurities in Ammonia and Water. Aug. Souchay noticed, when analyzing some chromates, that ammonia and even water, when kept long in glass vessels, will be contaminated with the substances of the glass. Zeitsch. An. Ch. iv. 66.

Estimation of Sulphur in Mineral Waters. F. M. Lyte has determined sulphuretted hydrogen in mineral waters by freshly prepared sulphate of lead.

Purification of Platinum Vessels. E. Soustadt heats dry double chloride of ammonium and magnesium in a platinum vessel, intended for purification, for an hour to about the fusing point of cast-iron. This method will remove not only iron but retrieve crucibles which have become brittle and dark colored by gas flame and attacked by silicates. Ch. N. xiii. 145.

INORGANIC SUBSTANCES.

Boracic Acid and Zirconia both redden turmeric paper, but Kraut has observed that the paper dried at 100° C. assumes a beautiful deep blue color on being touched by a dilute solution of potash if it was reddened by boracic acid, and shows the usual

alkaline reaction when reddened by zirconia. Zeitsch. An. Ch. iv. 168.

Chromic Acid. C. Rube proposes the volumetric determination of chromic acid by ferrocyanide of potassium and muriatic acid. Zeitsch. An. Ch. iv. 444.

Phosphoric Acid. M. Brassier estimates phosphoric acid in its salts of lime, iron and alumina, by precipitating it from an ammoniacal solution of citrate of ammonia, by chloride of magnesium as an ammonio-magnesian phosphate. Ch. N. xiii. 183.

According to F. Knapp it will not be precipitated in alkaline solutions by means of tartaric acid as a double salt of ammonio-magnesia as long as alumina is present. Zeitsch. An. Ch. iv. 151.

Silicic Acid has been determined volumetrically by F. Stolba, by means of fluoride of potassium. Zeitsch. An. Ch. iv. 163.

Sulphuric Acid in vinegar may be detected by boiling about 50 CC. of the vinegar with a little starch until reduced to one-half, and adding after cooling one drop of solution of iodine. A blue color signifies the absence of sulphuric acid, which, if present, has converted the starch into glucose, and prevents the appearance of the color. Ph. Centr. 1866, 148.

Titanic Acid has been reduced by Dr. T. L. Phipson by the influence of magnesium. Ch. N. xii. 171.

Carbonic Acid. Dr. E. Dietrich has paid particular attention to the determination of carbonic acid gas, and published tables for the weight, absorption, etc., of carbonic acid gas at a certain height of the barometer and a constant temperature. Zeitsch. An. Ch. iv. 142.

Spectrum Analysis applied to the detection of chlorine, bromine and iodine. Al. Mitscherlich precipitates the halogens by a silver salt, mixes with twice its weight of oxide of copper and employs this mixture in the hydrogen apparatus. On account of the different volatility of the salts their spectra appear consecutively; first, that of the chloride, then the bromide, and lastly the iodide of copper. Zeitsch. An. Ch. iv. 155.

Iodine in organic compounds will be best determined, after A. Classen, by passing over the mass calcined with lime a current of carbonic acid during several hours, heating with water, filter-

ing and neutralizing carefully with nitric acid. The iodine is to be precipitated as iodide of silver. Zeitsch. An. Ch. iv. 202.

Chrome. A. Terreil, to find traces of chrome in iron, treats the solution freed from silicic acid with concentrated caustic potash and permanganate of potash; saturates with acetic acid and tests the filtrate with acetate of lead. Zeitsch. An. Ch. iv. 441.

Bromine. Bromides are detected in chloride of magnesium, etc., according to L. Leisler, by distilling the bromine with bichromate of potash and some acid (1 part muriatic acid to each 100 parts liquid) into a condenser filled with large turning chips of iron. The bromide of iron dissolves in the condensed water, and may be determined as bromide of potassium or any other salt of bromine. D. Polyt. J. 179, 386.

Iodine, Bromine and Chlorine, in organic substances, are eliminated by E. Erlenmayer thus, that he decomposes in the usual manner, for elementary analysis, the liquid at the red hot bottom of a test tube, and observes the iodine either by its vapor or on starch test paper. The bromine and chlorine are determined by silver. Zeitsch. An. Ch. iv. 261.

Lime. Geo. Jones determines the quantity of superphosphate of lime by volumetric analysis. See A. J. Ph. xxxvii. 345.

Chlorothallate of Ammonia is used by M. Nicklés for determining bismuth in presence of lead; it precipitates the salts of bismuth, but not those of lead. Ch. N. xii. 100.

Potash. P. Rett recommends bitartrate of soda as a precipitant of potash. The liquor containing potash must be slightly acidulated before the reagent is added. Ch. N. xiii. 131.

Separation of Magnesia from the Alkalies. C. Rube proposes to precipitate the potassium as chloride of potassium and platinum, evaporate the filtrate to separate the rest of the potassa, eliminate the excess of chloride of platinum by sal ammoniac, and precipitate the magnesia with phosphate of soda; the soda, as usual, to be calculated from the difference. Zeitsch. An. Ch. iv. 160.

Separation of Magnesia from Potassa and Soda. Fr. Holba proposes to effect the separation by means of fluo-silicic acid

and alcohol, in which the fluo-silicate of potassium is insoluble. Magnesia and soda are then separated in the usual manner. Zeitsch. An. Ch. iv. 160.

Ammonia. Kletzinsky states that a dilute solution of the double salt, crystallized from a concentrated solution of cyanide of mercury and iodide of potassium, is a very delicate reagent for ammonia. Ch. N. xiii. 216.

Examination of Insoluble Substances for Alkalies. Chas. L. Bloxam recommends as ready flux a mixture of one part flowers of sulphur and six parts of nitrate of baryta, mixed with one part of the substance under examination. It enables the decomposition to be easily effected by the heat of a spirit lamp. Ch. N. xii. 195.

Separation of Magnesia from Lime. A. Chizynski has recommended to use alcohol and sulphuric acid for the separation of lime and magnesia, gypsum being insoluble and sulphate of magnesia very soluble in alcohol. This method is said to be much more expeditious than that by oxalate of ammonia. Zeitsch. An. Ch. iv. 348.

Zirconia, in presence of titanio acid, can be detected only, according to F. Pisani, with curcuma paper, after reducing first the titanio acid by means of zinc to sesqui-oxide of titanium. Zeitsch. An. Ch. iv. 416.

Zirconium. Dr. T. L. Phipson has reduced zirconia by the influence of magnesium, and obtained zirconium, in form of a velvety black powder. Ch. N. xii. 171.

Volumetrical Determination of Alumina and Phosphoric Acid. Dr. E. Fleischer bases upon the insolubility of phosphate of alumina in dilute acetic acid in presence of some phosphate, an exact process to determine volumetrically the oxide of aluminium and the phosphoric acid. Zeitsch. An. Ch. iv. 19.

New Method of estimating Sulphides. M. Verstraet substitutes ammoniacal nitrate of copper instead of silver in the volumetric test of sulphides. Ph. Centr. 1865, 178; Ch. N. xii. 109.

Determination of Nitrites in presence of nitrates. Charles R.

C. Tichborne ~~proposes two methods~~ of determining nitrites. The one is based upon the reduction of chromic acid to chromic oxide by nitrous acid, the other upon the conversion of both nitrites and nitrates into chlorides upon ignition with chloride of ammonium. Pure nitrite of sodium gives 84.78 per cent. of chloride of sodium, while nitrate of sodium only gives 68.82. From these it is easy to calculate the percentage, as anything under 84.78 indicates a nitrate. Pr. Br. Ph. Conf. 1865, 49.

Lead. M. Jeannel, in order to detect small quantities of lead in tin, treats five grammes of metal with an excess of dilute nitric acid, boils, filters, and drops into the solution a crystal of iodide of potassium. The ten-thousandth part of lead present forms a yellow precipitate, insoluble in ammonia. Ch. N. xii. 155.

Separation of Cobalt from Nickel and of Manganese from Nickel and Cobalt. A. Terreil submitted to the Société Chimique a new process for the complete separation of the above metals, and asserts that one ten-thousandth part of either metal can be ascertained. Ch. N. xiii. 133.

Arsenic. The smallest quantity of arsenic in nitrate of bismuth is discovered after Glénard by heating it on platinum until all nitric acid is expelled, and then adding a small quantity of acetate of potash, when the characteristic smell of kakodyl will appear. Zeitsch. An. Ch. iv. 257.

Mercury. H. Bonnewyn states that pure calomel will not affect a bright piece of steel moistened with alcohol or ether, while already one fifty-thousandth grain of corrosive sublimate will produce a deep black spot. A. Ph. cxxi. 52.

Sulphur. Dr. O. Lindt has determined sulphur in sulpho-metals by converting them into chloride of sulphur by passing chlorine gas over them, and decomposing it in a solution of soda. The liquid is evaporated, and the mass heated until all chlorate of soda formed during the process is decomposed, when the sulphur may be calculated from the sulphate of soda now contained in the mass. Zeitsch. An. Ch. iv. 370.

Volumetric Determination of Iron. Ch. Winkler proposes to employ an acid solution of subchloride of copper for the direct volumetrical determination of oxide of iron, and use rhodanite of potassium as indicator. Zeitsch. An. Ch. iv. 423.

Zinc. Al. Classen found that the determination of zinc as sulphuret may be accompanied with a considerable loss of weight if heated too long or excessively. He advises to abandon it altogether in quantitative analysis.

Copper. Al. Classen proposes to employ cadmium in the reduction of copper instead of zinc. Zeitsch. An. Ch. iv. 438.

Copper. To determine copper in beer, Stolba saturates filtering paper by immersing it 5—6 times in beer, then wraps it round a bright iron wire and burns it. The ashes are mixed with half the weight of pure sal ammoniac, and this mixture burned on a bright wire in the top of spirit flame; an azure blue color of the flame discloses the presence of copper. Zeitsch. An. Ch. iv. 507.

Thallium. Willm proposes to determine thallium as neutral chromate of thallium by precipitating the neutral solution containing only alkalies with neutral chromate of potash. The chromate of protoxide of thallium is a pale yellow precipitate, similar to chromate of lead, and composed according to the formula TlO , CrO_3 . Zeitsch. An. Ch. iv. 432.

Phosphorus and Arsenic, which are sometimes found combined with zinc, may be discovered by means of silver solution and Marsh's apparatus. Ph. Centr. 1865, 243.

Volumetric Test for Silver. H. Vogel mixes the solution containing the silver with fuming nitric acid and solution of starch as indicator, and precipitates with iodide of potassium. As long as there is a trace of silver in the solution, it remains colorless; but as soon as all the silver will be precipitated, one drop in excess of the iodine solution will turn the liquid permanently blue. Ph. Centr. 1866, 27.

ORGANIC SUBSTANCES.

New Test for Uric Acid. Dr. E. Dietrich states that an intense rose color is produced when a bromated alkaline solution of hypochlorite of soda is added to urine. After some time and on addition of more solution the color disappears. Zeitsch. An. Ch. iv. 176.

Citric and Tartaric Acid can be easily distinguished by being

placed upon a glass plate covered with a thin layer of a slightly saturated solution of caustic potash; the crystals of tartaric acid whiten from the formation of minute crystals of bitartrate of potassa, while the crystals of citric acid continue diaphanous. A. Dr. Cir. xv. 127, from Bull. de Thér.

Picric Acid. C. D. Braun proposes it as a reagent for prussic acid, to which it imparts a deep blood-red color. Ph. Centr. 1865, 313.

C. D. Braun also found that a solution of picric acid (1 : 250) dropped into a hot solution of grape sugar or glucose (about 90° C.) to which has been added some caustic soda or potassa, will produce a deep red color, and he recommends it therefore as a test for diabetic urine. But Dr. Mankiewitz says that every urine produces with picric acid the same red color under similar circumstances. Zeitsch. An. Ch. iv. 187.

Petroleum Oil is recommended by Laronde for the discovery of iodine. A. J. Ph. xxxviii, 300.

Bile in Urine. Cunisset treats urine with one-eighth chloroform, which takes up the bile and fatty matters. Ph. Centr. vii. 27.

Ergot can be detected in rye meal by means of dilute sulphuric acid, which dissolves it with a rose color. M. Jacoby in Vierteljh Ph. xiv. 248.

Paraffin and Beeswax. Pagen recommends the difference of the melting point as reagent for the detection of paraffin in wax. Another test is to saponify the wax, evaporate to dryness and extract the paraffin by ether. Zeitsch. An. Ch. iv. 490.

Alkaloids of Cinchona. V. Schwarzer found that if chlorine water, ferridcyanide of potassium and ammonia are added to a solution of sulphate of quinia, a red color is produced which soon passes off, while the same mixture produces a voluminous precipitate in solutions of sulphate of chinidin. Zeitsch. An. Ch. iv. 129.

De Vry proposes to mix the powdered bark with one-fourth its weight of lime and boil it with ten parts alcohol and percolating to exhaustion with boiling alcohol. After being slightly acidulated with acetic acid the liquid is evaporated to dryness, and the residue treated with water until the clear filtrate is not

affected by addition of alkali. The watery solution contains all the alkaloids, is concentrated, treated with hydrated lime, and the precipitate washed with as little cold water as possible. The filter with contents, after being dried, is treated with boiling alcohol to dissolve the alkaloids, which will all be contained in the solution, and from which they will be determined after having been evaporated and well dried. Zeitsch. An. Ch. iv. 202.

Morphine. H. Hager proposes to test opium for morphine in the following manner: 100 parts dry powdered opium are rubbed with a saturated solution of oxalate of ammonia to a thin paste, and ammonia added until its smell appears. After an hour the mass is diluted with strong alcohol, triturating it constantly to 1500 parts and filtered. The filter is well washed with alcohol and the filtrate acidulated with 5 parts oxalic acid, and after dilution with 100 parts water, evaporated until the alcohol is expelled. After cooling, 1000 parts water are added, which leaves resin and gum undissolved. The mixture, occasionally agitated, rests for a few hours, and is then filtered, the filtrate, about 1250—1350 parts, is mixed with 120 parts sal soda dissolved in 360 parts water, stirred briskly, and the precipitate thrown upon a wet filter. The filtrate is shaken with 30 to 40 parts pure ether, and after 20 hours the precipitate collected. It is dried with very moderate heat, weighed and one part of morphine added, which remains in the liquid. Zeitsch. An. Ch. iv. 204. Ph. Centr. 1864, 223.

Theïne. C. Claws exhausts tea with ether, removes two-thirds of it by distillation, treats the residue with dilute sulphuric acid until the solution of ether has lost all bitterness. The acid solution is treated with calcined magnesia, the filtrate evaporated to dryness and repeatedly treated with ether until the theïne is dried and weighed in a light flask. This method does not extract all the theïne. Zeitsch. An. Ch. iv. 205.

Cantharidin. Montreux extracts powdered cantharides by ether or chloroform, evaporates to dryness at 40° C., treats the residue with bisulphide of carbon, which dissolves everything but cantharidin, washes this on the filter and weighs; 40 grammes of spanish flies gave 20 centigrammes cantharidin. Zeitsch. An. Ch. iv. 208.

To Establish the presence of Alkaloids. R. Wagner treats a liquid with a solution of iodine in iodide of potassium, decants and takes up the precipitate with bisulphide of sodium, filters and precipitates again with an excess of iodine solution. This precipitate is dissolved in aqueous sulphurous acid, the solution carefully evaporated, by which means hydriodic and sulphurous acids are expelled, and the base left as a sulphate. Zeitsch. An. Ch. iv. 387.

Strychnia. After the stomach or other organic substances have been treated by the method of Stas, Fr. Sansseus proposes to add finely powdered bicarbonate of soda to the acid solution. The free carbonic acid will retain the strychnia in solution while being filtered, and at application of heat it will crystallize. It is then purified in the usual manner and the usual tests applied to its solution in ether or chloroform. Zeitsch. An. Ch. iv. 48.

Alcohol in minute quantities is found after M. Curstanjin, by treating the liquid with platinum black, potassa and arsenic, when the odor of kakodyl will be produced. A. J. Ph. xxxvii. 334.

Methylic Alcohol. W. Young applies solution of permanganate of potash as test for methylic alcohol. A. J. Ph. xxxviii. 58.

J. Tuck considers iodo-hydrargyrate of potassium the best reagent for methylic alcohol in the presence of ethylic alcohol and some other organic bodies which may be removed by careful distillation. The absence of a precipitate is conclusive evidence for the presence of methylated spirits. Pr. Br. Ph. Conf. 1865, 16.

Cotton Seed Oil. R. Reynolds has applied the nitrate of mercury test to the detection of cotton seed oil in olive oil. Olive oil solidifies entirely, when shaken with the test liquid, in from 3 to 12 hours, and becomes hard and friable when touched with a glass rod; cotton seed oil does not solidify, and a mixture containing 25 per cent. of it, though it becomes solid, will be found soft and pasty when taken out with a glass rod. Pr. Br. Ph. Conf. 1865, 74.

Oil of Apricots. J. Nicklés found that oil of apricots formed an emulsion with hydrated lime in powder, which slowly assumes

an unctuous consistence; oil of almonds is not acted upon in the same manner, and when adulterated with oil of apricots and treated with lime, only the unctuous compound of the latter with lime is deposited and may be separated by filtration. Olive oil and oil of colza correspond with oil of almonds, while oil of hemp seed, poppy seed, ground-nuts, walnuts and flax seed act similar to the oil of apricots. A. J. Ph. xxxviii. 299.

Cod-liver Oil and Castor Oil have been successfully flavored by M. Jeannel, with essential oil of bitter almonds and aqua laurocerasi. St. L. M. and S. J. iii. 279.

New Oleoresin. In Plumas Co., Cal., a liquid has been distilled from pine tree sap which has a fragrance like citron, and is called "erasine," on account of its value for cleansing. It is very light and volatile, and acts similar to benzine. A. J. Ph. xxxvii. 394, from A. Dr. Cir.

Test for Otto of Roses. H. Hager mixes five drops of the otto with twenty of pure sulphuric acid, and after cooling adds three drachms absolute alcohol; if the otto is pure it will remain clear after boiling, if adulterated it will be cloudy and even form a deposit. Spermaceti will float or be suspended in the liquid as a scaly crystalline mass.

Copaiba Balsam. H. Hager tests balsam by putting a few drops on strong filtering paper and warming it over a small flame, so that no visible vapors escape. The turpentine evaporates first and is easily recognized; the presence of a fat oil is easily made known by the peculiar disagreeable smell of acrolein. Ph. Centr. vi. 250.

Oil of Turpentine. Dr. J. Maier uses the saccharometer for the detection of the adulteration of essential oils with oil of turpentine; even the quantity can be determined by this method except when there are several optically active oils used in the adulteration. A. J. Ph. xxxvii. 337.

Essential Oils have been examined by H. J. Evans, for their adulteration with turpentine, in a vertical apparatus for polarization, which gave similar results as the saccharometer. Pr. Br. Ph. Conf. 1865, 68.

Arrow-root. Albers mixes one part of fecula with three parts

of a test liquor prepared from two parts hydrochloric acid, specific gravity 1.120, and one part water; the true maranta remains unchanged; starch is converted into dextrine. A. J. Ph. xxxviii. 377.

Gelatin. Carey Lea observed that acid solution of nitrate of mercury is turned red by gelatin. A. J. Sc. and A. July, 1865.

Tapioca. To discover the adulteration of tapioca with potato starch Payen recommends to boil it with water for five minutes, add a few drops of sulphuric acid and stir well; a smell of sour paste indicates starch. Zeitsch. An. Ch. iv. 255.

E. Marchand macerates and boils tapioca, filters and adds solution of iodine; pure tapioca colors the liquid for a moment light blue; when adulterated it assumes a violet color. Zeitsch. An. Ch. iv. 256.

Bees wax and Japan wax. Chloroform dissolves easily the wax of the Sumachinæ, beeswax slowly; this is not soluble in absolute alcohol while the other dissolves easily. If Japan wax is boiled with a solution of borax it dissolves, forming a gelatinous soap which quickly hardens on cooling, and from which acids precipitates the wax; bees-wax does not show a similar reaction. Zeitsch. An. Ch. iv. 491.

Aloe. C. Schacht found aloes in liquors by eliminating from them a crystalline substance which gave the characteristic reaction of paracumaric acid discovered by Hlasiwetz. Zeitsch. An. Ch. iv. 491.

Shellac. C. Schapringer uses the reaction of coccin with acids and the alteration of its color into deep violet, when saturated with alkali for the discovery of shellac in varnishes, etc. Zeitsch. An. Ch. iv. 493.

Diabetic Urine. Franqui and Van de Vyvere represent oxide of bismuth in alkaline solution an excellent reagent for sugar in urine. Vierteljh. Ph. xv. 265.

Indigotin. C. Ullgren has constructed an apparatus for the determination of indigotin. Zeitsch. An. Ch. iv.

Olive Oil can be tested by a mixture of two parts of chromic acid (containing one-eighth its weight of the acid,) and one part nitric acid of 1.38 sp. gr. which, when added in the proportion of

- one part to four parts of oil, will coagulate it in 28 hours, and turn it hard and blue in a few days; no other oil shows this reaction. Vierteljh. Ph. xv. 268.

Essential Oils. The adulteration of essential oils by alcohol has been detected by Puscher with fuchsin, which is soluble in alcohol, but not in essential oils. Ph. Centr. 1866, 219.

Oil of Bitter Almonds. The adulteration of this oil with nitrobenzole may be detected by means of sodium added to a mixture of 10 to 15 drops of the oil and 4 to 5 drops of alcohol. In case of adulteration the sodium is surrounded by yellow and even brown rings, which are white with the genuine oil. Vierteljh. Ph. xiv. 102.

Guibourt has observed that the odor of pure otto is not affected by strong sulphuric acid; in presence of other oils a disagreeable odor is developed. Pr. Br. Ph. Conf. 1865, 43.

Anise Oil. M. Ruschenberger found that oil of anise removes or covers completely the offensive odor of the tersulphides in solution as well as in ointments. A. J. Ph. xxxviii. 321.

Ol. Succini Rectificatum. A. E. Ebert read an elaborate paper on the sophistication of the rectified oil of amber before the American Pharmaceutical Association. Pr. A. Ph. Assoc. 1865, 149.

* In rendering his thanks for the kind indulgence which prompted the Association to extend his time for the delivery of the report on the Progress of Pharmacy, when events beyond his control prevented him from presenting it at the regular annual meeting, the Chairman of the Committee on the Progress of Pharmacy regrets extremely that circumstances still compel him to forward the report in a partly unfinished state, and certainly below the standard which such an enlightened body of men is entitled to expect from members who accept a position among their officers. Being entirely unable to pay that attention to the finishing of the report which is due to a labor of such extent and

* The introductory remarks to the report on the Progress of Pharmacy, had been forgotten by the Chairman when mailing the manuscript for publication. Several important suggestions being contained therein, they are appended to the report.—*Editor, Pro. Amer. Pharm. Ass.*

importance, I have been obliged to omit a considerable amount of notes already made, and hope that a mild criticism will be granted to me, as I have at least tried to avoid a delay in the publication of the Proceedings.

The humble position, however, into which I have been thrown by the events aforesaid has caused some reflections, and I venture to ask would it not be of advantage to the Association to effect an alteration in their regulations, in order to prevent any irregularity in regard to the delivery of the report on the Progress of Pharmacy? At present the Chairman of the Committee when residing some distance from the commercial centres, receives the periodicals from which to prepare his report, (not in regular intervals, according to their publication), but about two months before the term of the annual meeting. He commences his work with zeal and assiduity, progresses rapidly and feels confident of fulfilling his duty to its full extent, when accidents are thrown into his way and prevent him from bestowing that labor and time upon his task which is due to such a work and the dignity of his society. Accident follows upon accident; an epimeic appears and demands peremptorily his presence in his officine; clerks leave his employ or have to be discharged without the slightest possibility to replace them with reliable persons, sickness prostrates him at last and brings the matter to a culmination. The consequence must be that the Association either will be deprived of the annual report, or the publication of the proceedings will be delayed, or what is worse yet, they will contain an unfinished meagre collection of notes, both to the discredit of the compiler and the dissatisfaction of the members.

It occurred to my mind that all these difficulties might be obviated to a great extent by appointing a permanent reporter on the Progress of Pharmacy.

It appears that very few members are so entirely independent that they would be able to disregard their own business relations when they come into collision with their duties towards the Association; but a permanent reporter, who constantly receives the new publications immediately after their issue, will be enabled to completely organize his labor and adopt such a system that accidents will not much disturb him and a failure be rend-

ered almost an impossibility. If selected from the number of our members who devote themselves much to study and to the development of the pharmaceutical science, the reporter would even not feel the increase of his labors, he would incorporate them into regular studies, and thus be enabled to improve and turn to advantage the experience gained during his studies. Besides, the regular issue of such a report by one and the same member would not fail to attract the attention of booksellers and publishers, who would eagerly embrace the opportunity of having their publications brought to the notice of the profession through a medium which is sure to reach every person in this country, who has any interest in the advancement of scientific pursuits. It is hoped the Association will find these remarks worthy of notice.

The notes and remarks in the report have been compiled from a number of periodicals published within the last year, and it must be regretted only that your reporter has been unable to do full justice to the splendid material placed at his disposal. The following is a list of the publications, together with the abbreviations adopted according to the custom of former reporters :

American Journal of Pharmacy,	<i>Am. J. Ph.</i>
American Journal of Science and Art,	<i>Am. J. Sc.</i>
American Druggists' Circular,	<i>Am. Dr. Circ.</i>
Proceedings of the American Pharmaceutical Association,	<i>Pr. Am. Ph. A.</i>
Chemical News,	<i>Ch. N.</i>
Proceedings of the British Pharmaceutical Conference,	<i>Pr. Br. Ph. C.</i>
London Chemist and Druggist,	<i>L. Ch. Dr.</i>
St. Louis Medical & Surgical Journal,	<i>S. L. M. S. J.</i>
Medical Reporter,	<i>M. R.</i>
Dental Cosmos,	<i>D. C.</i>
Annalen der Chemie & Pharmacie,	<i>Ann. Ch. Pharm.</i>
Annalen der Physik und Chemie,	<i>Ann. Ph. Ch.</i>
Chemisches Centralblatt,	<i>Ch. C. B.</i>
Pharmaceutische Centralhalle,	<i>Ph. C. H.</i>
Archiv der Pharmacie,	<i>Arch. Ph.</i>
Neues Jahrbuch für Pharmacie,	<i>N. J. Ph.</i>

Neues Repertorium für Pharmacie,	<i>N. R. Ph.</i>
Dingler's Polytechnisches Journal,	<i>D. Polyt. J.</i>
Vierteljahresschrift für Pharmacie,	<i>Viertelj. Ph.</i>
Zeitschrift für Analytische Chemie.	<i>Zeitsch. An. Ch.</i>

The restored relations between the different parts of our beloved country, have already influenced to some extent the progress of pharmacy, and we notice with pleasure the establishment of a College of Pharmacy at St. Louis, Mo., which has added to the usual studies of the pharmaceutical students of this country, that of Botany, and enjoyed the attendance of young pharmacutists to a greater extent than anticipated. May it prosper, and continue to do its share for the advancement of science and the elevation of our profession in the estimation of the public mind.

It is but justice to the comparatively young scientific world of America, to mention the great interest which is manifested in Europe by the leaders in science with the developement of the science of pharmacy in our country; our publications are carefully perused and many of our new preparations highly spoken of, for both their scientific and practical value.

The classification of previous years has been followed in the arrangement of the material presented, and the Chairman of the Committee who is alone responsible for the delay and the insufficiency of the report, asks again for a mild and charitable criticism.

ENNO SANDER,
Chair. Com. Pro. Phar.

REPORT OF THE CORRESPONDING SECRETARY.

As the distribution of the Proceedings for the last Annual Meeting intended for foreign periodicals in exchange for their publications was attended to by the Recording Secretary, and most of the volumes for the Association were doubtless received by him, it is not within the power of the writer to give a complete list.

Those received by the writer were forwarded to the Chairman of the Committee on the Progress of Pharmacy, except a few

which arrived too late to be of any service to him. These will be forwarded to the Chairman of the same Committee to be appointed at this meeting.

The letter from the Secretary of the Pharmaceutical Society of St. Petersburg, was duly responded to.

A letter received from the Apothecary's Association of Vienna was replied to, stating "that it was doubtful if the request could be complied with on the part of this Association," and suggesting that it would be more suitable if some of the Colleges of Pharmacy, or an individual, would undertake the desired exchange. The letter is referred to this body for their action.

To P. W. Bedford, Esq., Secretary to the American Pharmaceutical Association, New York :

VIENNA, 30th Dec., 1865.

SIR,—I avail myself of the opportunity to apply to your honorable Society, in the name of the General Association of Austrian Apothecaries, for an affair I shall briefly expose in this letter. We understand that the tropical fruits are exposed for sale in the markets in New York. Considering the acquisition of tropical productions in their natural condition an enrichment of our pharmacological collection no less desirable than scientifically important, we should feel much indebted to you for prevailing on your Honorable Society to send to us tropical fruits in the state they are sold in the market. As for the mode of putting them up, we beg you to send the oily ones in cylindrical glasses with glass stoppers, filled with alcohol of 98°, in the ratio of *one* part to *three* of water; the fat ones in salt water. At the same time you will be so kind as to make us acquainted with the expenses incurred, that we may be able to reimburse them.

Entering into a closer scientific relation with your Honorable Society is one of the most lively wishes of our Association. We make free, therefore, with calling your attention to our Journal "*Zeitschrift des Allgemeinen Oesterreichischen Apothekervereins*," published at Vienna twice a month, for an exchange of articles, as well as our pharmaceutical collection, pretty rich at present, and increasing daily by our efforts and sacrifices, for an exchange of samples.

In the hope of seeing form a scientific intercourse with our brethren in profession beyond the sea, and with the assurance of true esteem, I sign,

FR. BECKERT,

Director of the Society.

From the various Colleges of Pharmacy, the following information has been gathered :

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THE MASSACHUSETTS COLLEGE OF PHARMACY.—The Massachusetts College of Pharmacy, not having the advantage belonging to her sister Colleges, of having an institution of instruction by professors, can find but little of interest to report upon at the present time. The College, however, is doing its work silently and well, and its influence is felt throughout the length and breadth of the territory embraced within the scope of its special sphere. The meetings of the Board of Trustees have been unusually well attended during the past year, and much interest manifested by all its members in the discussions of the questions important to the well being of the fraternity. The meeting of the Association in Boston last year has given a healthy impulse to the College, much instruction, enjoyment and profit having been experienced by members of the College, from the exchange of the friendly greetings between them and distant members of the Association.

THE COLLEGE OF PHARMACY OF THE CITY OF NEW YORK.—The College reports that, during the past year, they have met with good success in their various labors. The meetings have been well attended and considerable interest is manifested. The lectures were attended by thirty-two students, of whom five received their diploma after a thorough examination.

The Faculty consist of Charles F. Chandler, Ph. D., Professor of Chemistry; Ferdinand F. Mayer, Professor of Materia Medica and Botany, and P. W. Bedford, Professor of Pharmacy.

THE PHILADELPHIA COLLEGE OF PHARMACY.—This College has continued its usual courses since last report, with a class of one hundred and forty-one matriculants, of whom thirty-one graduated in March last.

Since then Professor William Procter, Jr., has resigned the chair of Practical Pharmacy, after an incumbency of twenty years, and the Board of Trustees have elected Professor John M. Maisch, formerly of the New York College of Pharmacy, to fill the vacancy thus occasioned. The Faculty now consist of Robert Bridges, M. D., Professor of Chemistry; Edward Parrish, Professor of Materia Medica, and John M. Maisch, Professor of Practical and Theoretical Pharmacy.

The American Journal of Pharmacy has resumed its former size and continues its publication as heretofore, its circulation having considerably increased since the war. No scientific meetings have taken place during the past year.

THE MARYLAND COLLEGE OF PHARMACY.—This College is progressing favorably in all its relations. The School of Pharmacy was attended during the past winter by thirty-four students, of whom five graduated in the spring. During the past year one of the Faculty, Dr. J. R. Winslow, the esteemed Professor of Materia Medica, died of typhus fever contracted while attending upon the duties of his profession.

The Faculty now consist of Claude Baxley, M. D., Professor of Materia Medica; Thomas H. Helsby, M. D., Professor of Chemistry, and J. Faris Moore, Professor of Pharmacy.

THE ST. LOUIS COLLEGE OF PHARMACY.—In the last report of this body, it was stated that the first course of lectures were announced to be given during the following winter. From information received it appears that the course was attended with greater success than its most ardent friends had anticipated. Thirty-six availed themselves of the instruction thus afforded. The prospects for the coming session are very encouraging. This institution bids fair to give a great impulse to pharmaceutical education in the West. In financial and professional relations this College is in a prospering condition.

The Faculty consists of A. Wadgymer, M. D., Professor of Chemistry and Botany; Hubert Primm, Professor of Practical Pharmacy, and J. S. B. Alleyne, M. D., Professor of Materia Medica.

THE CINCINNATI AND CHICAGO COLLEGE OF PHARMACY retain their organization, but no course of instruction is projected for the coming season by either of the institutions.

No other information has been received which can be embraced in this report.

P. W. BEDFORD,
Corresponding Secretary.

SPECIAL REPORTS AND ESSAYS.

THE PHARMACEUTICAL BUSINESS—ITS MANAGEMENT.

BY F. STEARNS.

This theme, given me for an essay, I find upon reflection, if looked at as a commercial problem, is one which, for the whole of my own business life, I have been earnestly trying satisfactorily to solve, seemingly as far from that end now, at the end of at least the first half of a long business life, as at its beginning.

In confessing this, I had rather offer myself your pupil than teacher, and only the duty I owe you in accepting a query, induces me to pen a thought or so.

The ethical relations of Pharmacutists and their æsthetical culture having been touched upon in former papers presented you, I will suppose that the *executive skill* exercised in conducting our business so as to make it successful pecuniarily is the real point in the query.

Slight observation shows to us that men are so different in ways of conducting the same business, that we find many distinct yet parallel ways of reaching the same end—pecuniary success. Each way may be consistent in itself, yet no two harmonious or rather consistent one with another.

Side by side does the penny wise and pound foolish man gather to himself money, and equally fast, too, with him who, of enlarged generosity and liberal tastes, deserves seemingly the largest reward. And in this race for substantial moneyed success, the intelligent man who prostitutes his profession in the employment of all means of quackery and dissimulation, often keeps pace with him who having the same intelligence, energy

and tact, strives to square his duty to the public by his actions toward that public. Perhaps in most instances the first one wins.

Of course the above comparison does not include conscientious considerations; it is rather drawn to show that when pecuniary success is the greater aim these widely apart parallels are lead to it. Again we see men who strive to be all things to all men, with whom "*policy is the best honesty*," who do try to leaven their course of business with a dash of righteousness, and *do* so cloak it with *hypocrisy* as to fancy after all that *they* only have discovered the happy, middle business course, which ends in moneyed success.

So far in life I am deluded with the fancy of considering money as a means not an end, and while I look with pity mingled with contempt on him in whom its possession merely is the sole gratification it affords him, it offers a pleasant contrast to turn to him of enlarged understanding, and liberal tastes who, the happy possessor of fortune, is the almoner of his own charities and patron of the noble in art.

It is an unquestioned fact that correct habits of life, such as diligence, temperance and the possession naturally of the qualities of energy, perseverance and hopefulness, as well as an understanding of the science of economics, are business requirements, regarded as necessary to moneyed success in ours, as in all other arts.

Rarely do we find in one person all these attributes, and as a consequence our fortunes vary.

Let me illustrate by examples. We find *A.* in business makes money rapidly, has a great run of trade, is looked upon enviously by the lesser lights, so called, yet this man may, by having no ideas of how economically to manage, save or invest his gains, —he either cares not or knows not—eventually lose the results accruing from his energy and power, while his neighbor, *B.*, with less facilities in every way, poorly educated, no capital, by means of perseverance and by the economical management of his gains, contrives to come out the winner in this moneyed race.

C. has a noble store in a popular street, elegantly fitted, in a large city, caters for what is called a first class trade, large expenses, extravagant ideas, works hard himself, always behind his

counter, bids high for the patronage of his medical friends by gifts, perquisites and percentages, is in a constant and chronic condition of hurried business excitement, is royal in his subscriptions, fine in his living, does not stop the small leaks in his profits, is reckless in slow expenses, leaves his finances to some one not at all interested, is showy in expenses, abounds in non-paying attractions; compelled by these very items to *urge* business, to do a *large* business, the profits to the money he handles bears no fair proportions, so he leaves his condition in mourning once in five years.

D. has a small shop, less knowledge, but is bound to win; sells what he can get to sell; his own, only clerk, lives closely, sleeps in the place if single, lives over it if a man of family, always there, no time for church-going, or politics; gives twenty-five per cent. to his medical friends for the run of their prescriptions; if *C.* sells paregoric at 10 cents the ounce he sells it at 8 cents; the only extravagance he is guilty of is a *mental one*, that of believing himself to be, by so doing, a protector of the public from the swindling of his neighbor druggist, shouting in the street "buy of me, the public benefactor." And so he wins.

E. has the same small shop; bought it out, thinking that as he made a cool thousand or so in the corner grocery trade or as army sutler he can sell drugs as well as sugar or tobacco. Proprietary nostrums being a perfectly safe field to work in, he cultivates it—has a whole *Materia Medica* bottled and boxed ready to his hand, and with the same honeyed eloquence that pushed the sale of sugar and tobacco he assists the sale of them; a familiarity with half of one per cent. of the words of the English language enables him to convince his customers that this that and the other of his is a little the best and a little the cheapest. Of course this *E.*, with no other aim, or no other knowledge, is building blocks of dwellings in the way of investment in a score of years or so.

To return to our subject, the proper management of Pharmaceutical business consists, in part, of knowing how to buy crude stock; convert this into saleable commodities; preserve it when so converted; handle stock with system and rapidity; and how to systematize and simplify office and financial duties. Other

equally important ones, scientific education and experience are presumed to be possessed, so I pass to a moment's consideration of the points first named.

Purchase of stock : the dispenser in large places will best buy at home, at least so far as his market will let him, in limited quantities and often ; this keeps the stock reduced in total value, while it may reach the fullest assortment and be always fresh. A saving of interest on an investment in a large idle stock, a good assortment of goods, though limited in quantities, well kept in hand (that is, remembered), will pay much better pro-rata than the vice-versa rule.

He who is more remote from a good market finds it necessary to buy in larger lots and, of course, with no greater capital than he of a city, must accordingly lessen his assortment. I have always thought it poor policy in the beginner in a small village, for the sake of making a show in doing business, to drag into his stock a lot of *groceries* or *paints* and *oils*, when the same capital invested in increasing his assortment of goods in our legitimate pursuits, while it would lessen perhaps the aggregate of his sales, would, in nine cases out of ten, increase his profits in a like proportion. Is it better to sell thirty thousand dollars per annum handling coarse goods to make up the bulk of it at no profit, or to sell half that in our line of goods with a profit equal to that on the former.

The judicious buyer who (supposing him to be a western man) goes to the larger markets twice or three times a year will devote considerable reflection upon his list of wants ; a schedule of his purchases of the principal items during each year for previous years will assist in judging of quantities required. If the list be long and the purse narrow, of course proportions are to be still more carefully considered, if independent of this, those periods of general stagnation which occur from a thousand causes, often each year, for a few days or weeks are inviting in which to buy. It is only, however, the large operators, with unbounded capital, who are in the markets themselves, that can feel its pulse, and corner it too, that can take the real benefit of such ebbs and flows of trade tide.

When practicable, goods slowly bought, that is, more reflecting-

ly, are better bought; do not crowd the fair work of a week into two days.

A knowledge of the value of the leading drugs, etc., in each month for the year and preceding years, affords a good rule to guide you in getting the best average how to buy.

In these days a system of brokerage has sprung up which is of much assistance to all buyers in the interior; men who, for a small commission, will purchase your list of wants perhaps better than you could yourself, by knowing the best sources of supply better than you.

He whose business is increasing and whose gains enable him to, can in no way better invest his surplus profits than in buying the more staple or non-perishable articles of his stock in *original* packages; the difference is always so considerable, and, in fact, constitutes the profit of him who is called the jobber, who is between the importer or package dealer and the small buyer.

The druggist who possesses the appliances on his own premises to manufacture to any extent the various pharmaceutical products, etc., that his business requires, will certainly buy stock only in primary form, and save by such conversions the profit of him who manufactures for those who do not make for themselves.

This point of manufacturing in each shop all that is possible to make, so far as skill and appliances go, is so obvious that nothing farther need be said concerning it.

A means of economy lies in the proper arrangements to preserve stock, until it is sold, from the ravages of vermin, the effects of dust, heat, light, moisture, etc. Necessity has led many a thoughtful one in our line to devise means to this end, and throughout our periodicals and in our text-books you will find numerous suggestions bearing upon this point, so that hardly a preparation or drug but has in its history, description or formula, suggestions to this end. And this brings up the subject of our drug literature, as affording continually in its periodicals hints and suggestions of great economic value; it is, then, economy to be a liberal patron to these.

As an efficient source of economy lies in the facility of doing a large amount of labor with a comparatively small amount of

clerk help, this facility may be and is to be only acquired by the systematic arrangement of stock and store fixtures so as to save every possible step, and to facilitate by every practicable means the rapid handling of goods. Every one who has been in business some years, knows by experience how improvements bearing on this point are continually forcing their necessity on him; this is instanced in the arranging of shop drawers and ware in a retail store, with reference to the center scale counter, so that those items most often required shall require the fewest steps to reach, and in the dispensing department by having the same drug in its various forms for instant admixture, enabling one in preparing recipes to dispense with much of the preliminary labor. I can only here example this in having quinia and morphia in solution of known strength, of chalk mixture dry mixed, ready for the liquid adjuvant, of roots, seeds, barks, ready contused, etc.

Finally, in regard to finances, in that department devoted to book-keeping, to collecting your dues and paying your debts, simplicity of system, promptness, fidelity to one's own interest, exactness in dealing with others, joined to a spirit of concession and liberality in disputes, occur to me as executive means of success. General economic law governs all business, others as well as ours, and the study of how our most successful neighbors gain their ends under this law will afford many a suggestive hint of how to go and do likewise.

If at the end of life we confess to ourselves bitterly, ours to have been an unsuccessful one, let us not look abroad as the reason for it, but at home, and charge it to the absence of those natural attributes necessary in all to insure success in any walk of life.

ON EMPLASTRUM PICIS CUM CANTHARIDE.

BY GEO. C. CLOSE.

The question referred to me for an answer is :

"What change can be made in the composition of Emplastrum Picis cum Cantharide that will render its consistence firmer in warm weather?"

It will be seen by referring to the Pharmacopœia that this plaster is directed to be made by melting together, in a water

bath, 48 troy ounces of Burgundy pitch, with 4 troy ounces of cerate of Cantharides. It appears to me that the want of firmness in the above composition, when exposed to the summer heat, must depend upon the proportion of lard contained in the cerate of Cantharides. To obviate this I propose to substitute the Burgundy pitch plaster for the Burgundy pitch, and to add Cantharides in powder, instead of cerate of Cantharides.

The formula would then be—take of Emplastrum Picis Burgundicæ 50 troy ounces and 320 grains; Cantharides, in very fine powder, 1 troy ounce and 160 grains. Melt the plaster by means of a water bath, then add the Cantharides and stir constantly until the mixture begins to thicken on cooling.

The above quantities may be reduced as follows:

Emplastrum Picis Burgundicæ 5 troy ounces and 32 grains; Cantharides, in a very fine powder, 64 grains, or what would be sufficiently accurate, 4 troy ounces of the first and $50\frac{1}{2}$ grains or 50 grains of the other.

I present some samples.

No. 1, is made by the officinal formula, using true Burgundy pitch.

No. 2, is made by the formula proposed as a substitute for the other, but using the American imitation of the pitch.

No. 3, by the proposed formula, using true Burgundy pitch.

No. 1, I find is softer than the others at a temperature of 70° and over, but cracks more readily when reduced to 60° . I perceive no difference between No. 2 and No. 3 in consistence, the American Burgundy Pitch appearing to answer equally as well as the true.

The better consistence of the plaster made by the proposed formula I attribute partly to its containing more wax than the officinal, the wax being but slightly affected by the temperature until it nearly reaches its melting point.

This also prevents its cracking when exposed to the cold, which I think is of some importance, though not embraced in the question.

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ON SUBSTITUTES FOR ETHER AND ALCOHOL IN THE PREPARATION OF THE OFFICIAL OLEO-RESINS.

BY H. N. RITTENHOUSE.

The present exceedingly high price of alcohol and its products having become so serious a question to the pharmacist and chemical manufacturer, as well as the community at large, it has become an object of importance to devise, if possible, cheaper agents or more economical methods than are now employed in effecting the requirements of the Pharmacopœia in its products.

With the single object of economy in view, it had occurred to me, before accepting the above query, that perhaps benzine, glycerine or fusel oil might, in this case, be useful, to a certain extent, in effecting a saving of ether in the preparation of the official oleo-resins, by displacing the ether with them remaining in the dregs.

I have not in this paper aimed at giving exact results, chiefly because I had neither the time or appliances for doing so. The subject of this query, being an important one, has been, and might be still further, profitably pushed in other directions where it would be of more importance than in this immediate connection.

The uniformity of the methods of preparing oleo-resins is such that what would apply to one would to all. I therefore selected cubebs for my experiments, it being the most important and the type of its class.

Without going into detail of the various trials, it will be sufficient to give the general results of my observations.

The Pharmacopœia directs 12 oz., troy, of cubebs to be percolated with ether until 24 fluidounces of percolate have passed. To obtain this quantity it is necessary to use about 36 fluidounces of ether, (the dregs retaining 12 fluidounces, or one-third the quantity used,) then recovering 18 fluidounces of ether by distilling the percolate. The dregs might also be made to yield some ether by distilling, where the appliances are at hand for so

doing; but the labor and risk of accident is apt to counter-balance any saving from this source in most cases.

Four ounces, troy, of cubebs were packed in a funnel, and 6 fluidounces of ether poured over the surface in the usual way, and the funnel covered; when percolation had ceased, 4 fluidounces of benzine were added to the drug, and the percolation continued until 6 fluidounces of percolate was obtained, the last portions coming away almost colorless. Upon evaporating the last ounce spontaneously until it ceased to lose weight, twenty-five drops only of oleo-resin were obtained, while one ounce of the first four ounces, when treated in the same way, yielded two fluidrachms of oleo-resin, having all the characteristics of a good preparation without any odor of ether or benzine.

This experiment was repeated in various ways with glycerine, benzine and water, after the ether first added had ceased to pass, with about the same results, though the benzine was the most satisfactory. It was also tried with the other officinal oleo-resins, and the same general results obtained.

Benzine, I think, answers better than any other liquid as a substitute on account of its cheapness and volatile nature. In the quantity used, very little can pass into the percolate, and that little is easily dissipated. The percolation in one case was continued after the first six ounces were obtained, but the odor of cubebs was very faint, and the color pale, almost colorless.

Prof. Procter, in the May number of the Journal of Pharmacy for this year, has given some important results in the preparation of the oleo-resin of cubebs. He there shows that the first percolate contains practically all or nearly all the medicinal virtues of the drug.

Dr. Squibb has also shown the same thing in his paper "On the Economy of Alcohol in the Preparation of Fluid and Solid Extracts," published in the March number of the same journal of the present year.

From the above reports, I think two conclusions may be drawn: 1st, That there is double the quantity of ether used in these preparations than is *absolutely* necessary; and 2d, That percolation may be stopped with advantage in this class of officinals much sooner than is now directed.

I do not claim that the drugs in this way are *thoroughly exhausted*, but for all practical purposes they are, and, as is seen, great economy will result in the use of the ether and alcohol directed to be employed. In short, "sacrifice the cheaper drug for the sake of saving the dearer menstruum."

As these preparations do not, when finished, correspond in dose to any given quantity of drug, I think the following general plan might be employed with advantage:—

Take of the drug any convenient quantity; for each ounce thus employed, $1\frac{1}{2}$ fluidounce of ether, and one ounce or q. s. of benzine. Pack the drug in a suitable apparatus, add the ether, and when it has ceased to pass, pour on the benzine in the proportion of one ounce to each ounce of drug employed, or until as much percolate has been obtained as equals the amount of ether used. Recover the ether by distillation in the usual manner.

With care in watching the process, the contamination of benzine is so slight as to be scarcely perceptible in the percolate, and not at all in the finished preparation.

Glycerine may be used instead of benzine, if preferred, as, in case any of it passes through, it being insoluble in ether, is easily separated. The oleo-resin of ginger differing somewhat in its preparation, I offer the following as a modification of the officinal process:—

Four ounces of ginger, (Jamaica,) or any convenient quantity, are to be packed in a suitable percolator; to each ounce of drug add one ounce of ether; when this has ceased to drop, pour on the dregs one ounce of benzine for each ounce of the drug; when percolation has ceased, distil the percolate, and finish the preparation in the usual way.

The resulting oleo-resin will be found to be a good preparation in every respect, and this without the use of any alcohol at all. In my experiments I used a good commercial article of benzine, and a common glycerine of sp. gr. 1200. They can both be obtained at a very low price. By their use, I think Query No. 14 can be satisfactorily answered.

Philadelphia, August 15th, 1866.

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AN ESSAY ON SASSAFRAS OFFICINALE.

BY WILLIAM PROCTER, JR.

(In answer to Query 18, for 1866.)

The Sassafras is in many respects one of the most interesting of American trees, but has attained its reputation rather from the medicinal qualities of its bark and roots, than from the stateliness of its proportions or the excellence of its timber.

Sassafras was discovered by the Spaniards early in the sixteenth century; Hernandez, in his account of the plants of New Mexico, describes it as occurring in the Province of Mechoacan, as early as 1538. The followers of De Soto also discovered it in Florida about the latter period; they called it cinnamon wood, from its odor, and hoped it would prove as valuable as the spice of Ceylon.

Sassafras was also described at an early period by the Jesuits and others in Canada, and by them introduced into France, and soon became generally known in Europe for its sudorific and alterative properties.

Sassafras is one of the most widely distributed trees of North America, being found in Canada, in all the United States east of the prairies, beyond the Mississippi, and in Mexico. In the north beyond 42d degree of latitude near the Atlantic, it is only a shrub in size, but it exists as a tree in upper Canada 20 to 30 feet high. In the Middle States it attains, in favorable positions in good soil, a height of 30 to 40 feet, and a diameter of from 12 to 18 and even 24 inches, but such trees are now rare. Further south, especially in Virginia and Carolina, it attains a greater height and size. When it occurs in dense woods it often attains a great height, with a thin, almost vine-like trunk, owing to the strong necessity of light to the health of the foliage. When standing separately, in good soil, sassafras assumes a beautiful symmetrical form, being round headed, the foliage being almost wholly on the extremities of the branches or branchlets, which are exceedingly contorted, but radiating in all directions, and, where visible, contrasting their grayish-brown color with the rich foliage.

Sassafras was separated from *Laurus*, by *Nees v. Esenbeck*, and placed in a new genus, *Sassafras*. It belongs to the natural order *Lauracæ*; it is dioecious, only the female flowering trees

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bearing fruit. The flowers appear early in May in Latitude 40° N., but much earlier at the south, and are one of the harbingers of spring. They are somewhat aromatic, and by some esteemed medicinal, have a greenish-yellow color, bloom in short racemes, several of which issue from the end of each flowering branch, around the leaf bud, and belong to Enneandria Monogynia of the sexual system. The fruit is a drupe about the size of a pea, oval in shape, deep blue when mature, and supported on a red, cup-shaped pedicel that attains its color while the drupe is yet green. The drupe contains an acrid balsamic juice whilst in its immature state.

The leaves are the most beautiful feature of this tree, being deep rich green above and paler beneath, with well-marked prominent veins, three of which radiate from the petiole and form the central ribs of the trilobate leaves. On the old trees the leaves are darker than on young plants, and are more savory of sassafras, but less mucilaginous when chewed. They vary much in shape, the lobed full grown leaves being five to six and a half inches long by four inches wide. Some of the leaves are ovate lanceolate, at other times the terminal and only one lateral lobe are developed, and these various forms are nearly always found together in each terminal group of leaves. They are frequently attacked by insects, and at such points become reddish-brown or rust-colored. The young branches near the leaves have a greenish-brown color, whilst the new shoots are green, without any brown coloring matter. Branches from half an inch and upwards in diameter have a thin gray rugged epidermis, often spotted with lichens, but immediately below this the reddish-brown color of the bark is apparent. The inner layers of the old bark are much lighter in color, whilst the new bark in contact with the alburnum is nearly white. On old trees the bark of the trunk is deeply corrugated and furrowed. Michaux says the color of the old bark is very much like that of cinchona, which is true of the red cinchona. The wood of sassafras is coarse grained, and when young is nearly white, but the heart wood of old trees has a reddish cast due to the deposition of more or less sassafrid in its cells. The root wood is nearly white in roots of four inches in diameter, easily split and in distinct annular rings. The live

bark immediately in contact with the wood is nearly white or cream colored, fleshy and perfectly free from a trace of brown; it is nevertheless highly astringent and pungent to the taste. When, however, the air acts upon it but for a short time it rapidly colors reddish brown, and eventually assumes the hue of cinchona, a change due to the oxidation of its tannic acid.

The *wood* of sassafras when well seasoned possesses considerable ability to resist decay, due no doubt partly to the presence of a little volatile oil. It is used for posts and stakes, and the larger timber has occasionally been made into furniture; veneers of the knotty curled wood were some years ago much esteemed for fancy cabinet work. When the white young wood is dried with the sap in it, the exposed surfaces acquire a reddish tint. The heart wood is considerably darker than the alburnum, and it is said that a variety exists with the heart wood of a red color, but I am inclined to think this statement applies to the heart wood of the roots of trees cut for some years.

The *bark* of the trunk of sassafras is but slightly impregnated with volatile oil, which resides chiefly in the inner bark of the root along with much tannic acid; and this inner bark is the true medicinal part of the plant, although the United States Pharmacopœia simply directs the bark of the root. The British Pharmacopœia and other European authorities recognize the whole roots, bark and wood together.

The *pith* of the young succulent shoots is recognized in the official list of the United States Pharmacopœia, under the name "*Medulla Sassafras*." The uses of this portion are solely as a demulcent. It should be collected in September or before the 15th of October, after which period it is not so well stored with mucilage, and is more apt to become discolored on drying than when extracted earlier. The mucilage of this pith is remarkably pure and free from irritating qualities and admirably adapted for collyria—taking the place of the quince mucilage of European practice. The fresh young leaves give out an abundance of mucilage to cold water, which, though not so pure as that from the pith, may be used for allaying the irritation of inflamed surfaces, in eczema, rhus poison, etc.

The proper period for gathering the bark is in the autumn

after the fall of the leaves, until the spring before the sap rises. The volatile oil then appears to be concentrated in the radical part of the tree.

In the State of New Jersey, the usual position to find sassafras trees is in fence rows, and along the edge of wood lands, where the plants originate from seed dropped by the birds; but every neglected spot soon becomes planted with sassafras by the same cause, if the soil is not too closely covered with sod.

The *commerce* in sassafras involves more labor and capital in that part which relates to the production of the volatile oil, than in that of the bark and roots, and it is only where the tree occurs abundantly that the oil is sought. So far as I have been able to learn, the largest amount of oil is distilled within sixty miles of Baltimore, which is the principal depot for its commerce. Alpheus P. Sharp, of that city, (see Proc. Am. Pharm. Assoc., 1862,) estimated the quantity produced for several years prior to that date at from 15,000 to 20,000 pounds, a figure much reduced by the war. Considerable quantities are extracted in York and Lancaster Counties, in Pennsylvania, and probably much of this makes its way to Baltimore. In some parts of West New Jersey isolated distillers, some of whom are colored men, prosecute a small business in this line. Through the aid of my kind friend Charles A. Heinitsh, of Lancaster, Pa., the following facts were obtained relative to the manufacture of the oil in that county, from Mr. Abraham Murray and Mr. Peter W. Hart, who are engaged in the business. The first point to attain is the material. This consists of the roots of sassafras, large and small, the other parts of the tree never being used, and, in fact, contain too little oil to pay for the labor of treatment. Persons owning lands with a sassafras wilderness (as it is called) upon them have the trees removed for firewood or timber, and allow the sassafras oil makers to have the stumps and roots without charge, as their removal is payment enough. The contract is cheerfully accepted by the distiller, who, for the mere expense of extracting the roots, provides his material. The labor required varies with the kind of soil and the lateness of the season, greatly increasing when frost or dry weather stiffens the soil. It is a well-ascertained fact that roots from the richest

soils produce the most oil and the best bark. Mr. Murray says there are three kinds of oil—colorless, yellow and red—and that the red oil is produced from a different sort of sassafras from the yellow and white; further, that the red oil is always *yielded in larger quantity*, the yellow next, and the white least.

Another manufacturer of the oil, Peter W. Hart, of York Furnace, York County, Pa., writes as follows:—"I have distilled, this summer, nothing but white and yellow roots, making clear oil, using an iron boiler and lead worm; I have distilled the *red root* with copper boiler and copper worm, and the oil I made was red, and the yield no better than from the white and yellow roots, which averages about four pounds to ten bushels of chips. I distil the roots with the bark on, *but don't consider there is any oil in the bark; it is only in the wood*; [!] the amount of time required to distil ten bushels of chips is from 12 to 14 hours. I cannot say how much water is distilled in the operation, and is not used over again. As to the color of the roots, I don't think there is any difference. I consider the best is one that is brittle, easily cut or split; though I consider the root don't yield as well from the 1st of May to the 1st of October. *I prefer the stump [roots] that has been cut from three to five years or longer.*"

In a subsequent letter Mr. Hart reiterates that brittle roots yield more oil than tough, fibrous ones. In reference to the "red roots," he says there is a variety of sassafras which has a *red heart* similar to the red cedar, which, he supposes, will yield red oil. It yields very abundantly, but not more than brittle roots of a yellow color.

Nevertheless, Mr. Hart, who distils all kinds of roots, gets only clear oil, which he attributes to using a lead worm, and not a copper one.

He further states that the woody part of the stump above ground, and the roots that become uncovered by soil, produce an oil of less specific gravity than the deeper roots, and that it generally passes off with the water. •

I have not been able to get at the true meaning of these statements, owing to want of time to make further inquiry for explanation, but suppose that the red oil is produced from roots

of old stumps yet containing the bark, whilst the white comes from the young woody parts alone, and the yellow from older recent roots. The sassafrid or red coloring matter of the bark does not communicate any color to the oil, even at the boiling temperature. Mr. J. J. Thomsen, of Baltimore, (see his Report on the Drug Market, Proceed. A. P. Assoc., 1864, page 202), alluding to this variation in the color of the oil, says :—"The color of the oil grades from white (colorless) to red ; but this peculiarity does not affect the quality. The distillers say the color arises from two kinds of roots used in distilling, and that the color of the oil varies with the proportion used. They make no effort to separate the varieties, as the quantity of yield is *about the same.*" I cannot reconcile these statements, and leave the question involved for future inquiry ; repeating, however, that I believe the red roots are from old stumps, as I have seen roots several years old that were strongly odorous of sassafras, and of a deep red color.

Having obtained the roots and transported them to the place of manufacture, those intended to be barked are scraped with any dull instrument to remove the dead, spongy epidermis, which is darker-colored than the underlayers, and contains much grit even after washing. The true bark is then removed in short shavings with a drawing knife, avoiding, as much as possible, the removal of any of the woody portion. The care with which this simple operation is executed materially affects the commercial value of the bark. Mr. Thomsen says that of 30,000 pounds of sassafras bark received in Baltimore in 1863, only 1000 pounds was of prime quality, the wholesale price varying from 9 to 15 and even 20 cents per pound for superior lots. When taken from vigorous roots, the bark is thick and succulent, and if dried in the shade without exposure to wet and damp it assumes a bright cinchona color, and its flavor is pungent and aromatic.

The woody portions of the barked roots, and those roots not thus treated, are now cut up into chips for distillation. The small distillers of New Jersey generally use old copper stills and direct heat, hence it is not unusual to notice such oil having an empyreumatic taint. Mr. Murray describes the following arrangement as that employed by him and others, which con-

sists of a boiler, a large cylindrical wooden still tank, and a tub and worm refrigeratory. The boiler in his case is an old still, but any steam generator will answer. The tank is of a size suited to hold eleven bushels of chips above the diaphragm near the bottom. The steam enters below the diaphragm, and, rising through the chips, raises the temperature to 212°, after which it carries over the oil gradually into the worm, and is condensed. We understand from Mr. Hart that the distilled water is not used to supply the boiler, but presume that some gain would come from using it. A charge of eleven bushels of chips yields from *one* to *five* pounds of oil, according to the quality of the roots, or, in fact, according to the amount of bark on them.

Lignum Sassafras.—It has already been stated that roots of sassafras are the parts used on the continent of Europe, and in Guibourt, Lemery, Morelot and other French authors, reference is made to the wood as obtained from America. Pereira says, (Mat. Med., vol. ii. 406,) "*Sassafras wood (Lignum radices sassafras vel ligum sassafras)* occurs in the form of large stems or branches, frequently more or less covered with the bark. The wood is soft or spongy, light, of a grayish-reddish tint, and has a fragrant aromatic odor. It is usually sold cut up into chips—*sassafras chips*." Christison says, (Disp. Amer. Edit., p. 847,) "The parts used in medicine are the root, wood and flowers; but at present the bark and wood of the root constitute the only officinal parts employed in this country [Great Britain]. The root is imported in branchy pieces, the crown of which sometimes measures eight inches in diameter, and the bark is often partially stripped off." "The wood is dirty grayish-yellow, light, porous, and it possesses the same odor and taste as the bark, but more feebly."

With these preliminary statements in view, diligent inquiry was made in Philadelphia in regard to the commerce of sassafras root wood, and I could find no traces of it among our druggists, nor had they any knowledge of the root wood being exported. Knowing Baltimore to be a mart for the bark and oil, I applied to Mr. J. J. Thomsen, Druggist, of that city, who kindly took some pains to get at the truth, which he gives as follows:—"Sassafras root is brought to Baltimore from within

of old stumps yet containing oil. This case is an oil from the young woody part of chips above the diaphragm of recent roots. The oil enters below the diaphragm, and, rising, does not communicate with the oil gradually into the worm, and is condensed. on the Dryd from Mr. Hart that the distilled water is not alluding to the boiler, but presume that some gain would be obtained by using it. A charge of eleven bushels of chips yields nearly to five pounds of oil, according to the quality of the material, in fact, according to the amount of bark on them.

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The bark, though somewhat aromatic. Macerated in alcohol, and bruising it, a greenish-brown tincture is obtained. This is evaporated spontaneously until most of the alcohol is dissipated, an oily or oleo-resinous substance separates in the form of globules, which appears to be connected with the acrimony, but it has not been investigated for want of time.

The Bark of the Root.—The best published essay on the chemistry of sassafras bark is that of Dr. H. Reinsch, (Buch. Rep., 1846). In 1000 parts of the bark he found 90 of water; 8 of light and heavy volatile oil and camphoraceous matter; 8 of tallow-like matter; 50 of balsamic resin and wax; 92 of sassafrid; 58 of tannic acid; 68 of sassafrid, tannin and gum; 6 of albumen; 30 of gum red coloring matter and salts; 289 of starch tannin, as taken up by potash solution; and 247 of woody fibre.

M. Reinsch found the light oil to pass first, and then the heavy. The former he thought to be most fragrant of sassafras.

The *sassafrid* is analogous to cinchonic red. It separates from the alcoholic tincture when it is poured into an excess of water, as a cinchona-colored precipitate which dries in a granular form like indigo. It has no odor, scarcely any taste, yields oxalic acid and other products by the action of NO^5 , is very slightly soluble in cold water, more so if tannin is present, but readily soluble in boiling water. Ether dissolves it but slightly; the alkaline solutions dissolve it very freely, and form dark red brown liquids; the alkaline earths precipitate it in combination. It is evidently a derivative of the tannic acid of the bark, and exists most largely in the exterior layers of the bark which have nearly lost their astringency.

The large proportion found by Reinsch proves that he not only analyzed dry old bark, but probably also that with the epidermis included. I have before alluded to the fact that the growing bark is nearly white; whilst the same bark, simply dried, becomes cinchona-colored exteriorly, and this change slowly extends through it. The following experiments were made:—A root of sassafras, four inches in diameter, was uncovered from soil. Four vials, one filled with pure glycerin, another with alcohol, a third with colorless fixed oil, and a fourth with water,

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were provided. The epidermis was quickly scraped off, and strips of the bark rapidly removed and introduced into the vials, so as to be completely covered with the several liquids, and before any change of color by atmospheric action had occurred. On standing a few days the alcohol had acquired quite a reddish color, which increased considerably with time. The glycerin was affected much more slowly, but gradually it was discolored throughout, extracting the tannin from the bark, and this in turn being discolored by the air acting on the surface. The bark in fixed oil was a long time intact, but at present it exhibits portions colored brown. The watery liquid rapidly colored, though not quite so soon as the alcoholic. Nitric acid applied to the fresh bark makes a brown spot, and liquor potassæ a dark brown one. Either of the solutions above noticed, except the oily one, are colored deep red brown by potassa. The solutions precipitate gelatin and tartar emetic, and are colored dark blackish-green by sesqui-chloride of iron. The alkaline solution, though dark-colored, affords but little precipitate with hydrochloric acid. It must be apparent from these results that sassafrid is, like cinchonic red, a derivative of tannic acid, and that sassafras tannin exists to a much greater extent in the fresh bark than in the dried commercial specimens. It must also be apparent that carefully-dried sassafras bark is no mean astringent with its 6 per cent. of tannin and 9 per cent. of sassafrid, and might be found useful in some forms of diarrhoea.

Volatile Oil.—Oil of sassafras varies in color from colorless to yellow and red. The New Jersey oil is generally light-colored and often colorless when recent, and often has water adherent to its surface from not having been filtered. The Pennsylvania and Maryland oil, as has been said, is red, yellow and white or colorless. Its taste is pungent and aromatic, being agreeable to most persons. Its specific gravity varies from 1.087 to 1.094, increasing somewhat by age, although by no means so easily affected as the oils of the orange or mint tribes. It is neutral to test paper, yet, according to E. S. Wayne, it acted on lead in the solder of a copper can, forming an insoluble compound. Mr. Wayne did not investigate the circumstances under which

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this supposed compound was formed, nor whether the organic portion of the compound was oil of sassafras or a derivative of it. According to St. Evre, it begins to boil at 239° F., then the boiling point rises to 440° F. In my own trial there was no preliminary ebullition, but long before boiling commenced the oil evaporated in great clouds of vapor. When the mercury approached 430° F., ebullition commenced pretty freely. Its frequent adulteration in Europe with oil of lavender, and perhaps turpentine, will account for the low boiling point of other observers. Its composition is $C_{18}H_{10}O_4$ (St. Evre). When pure oil of sassafras is cooled by a freezing mixture, it deposits *sassafras camphor*, a crystalline stearoptene, which may be obtained by pressing the cooled oil in bibulous paper. Its specific gravity is 1.245. This body has the composition $C_{20}H_{10}O_4$, containing two equivalents more of carbon than the oil. It does not appear to be a derivative of the oil by oxidation. Oil of sassafras is rapidly oxidized by NO^5 with the emission of flame, and SO^3,HO resinifies it, producing a deep red compound called *sassarubrin* by Dr. Hare. Chlorine and bromine both unite with it without disorganizing its constituents, the latter making a crystalline compound. Gaseous chlorine develops a compound having the composition of ordinary camphor.

Oil of sassafras is readily soluble in alcohol, ether, chloroform, and mixes with other fixed and volatile oils. Like oil of camphor, it is very penetrating and stimulating, being well adapted for liniments, into many of which it enters; it is also used as a carminative.

In conclusion it may be remarked that sassafras is employed much more in domestic practice than by physicians. Its bark is used officinally in the compound decoction of sarsaparilla, its pith in mucilage sassafras, and its oil in troches of cubeb; but in many cases where the bark might be employed it is passed by. When finely powdered, the bark of sassafras is better than Peruvian bark for dentifrices, having its astringency and antiseptic power with the grateful aroma of the sassafras; besides its powder is very like cinchona in color. The alcoholic extract of the fresh bark is a deep red astringent substance, strongly aromatic and pungent. It is not improbable that other barks,

as cinchona, may resemble sassafras in being nearly colorless when in a growing state and altering by the drying process. The writer believes he has somewhere seen this remarked of recent cinchona bark. It is probable that this change occurs in cinnamon bark during the process of drying, and possibly also in Krameria root. The actual changes that occur in this transformation of tannin is worthy of a closer study by organic chemists than they have yet given it.

ON GRANULAR EFFERVESCENT CITRATE OF MAGNESIA.

BY JAMES W. MILL.

QUERY 19. What is the best formula for a granular effervescent Citrate of Magnesia, which shall be permanent, readily soluble in water and suitable for general use?

Soluble citrate of magnesia, in a granular form, is most conveniently obtained according to the writer's experiments by the process of M. de Letter, detailed in the *Am. Jour. Pharm.*, July, 1863, page 312. To succeed well the ingredients should be intimately mixed and exposed in a warm, rather moist situation. The reaction is completed within a few days, and the resulting citrate, by simple trituration in a mortar and sifting, is readily obtained in a granular condition.

An effervescent citrate may be made according to the following formula:

Take of Citric acid,	ʒvij.
Carb. magnesia,	ʒiij.

Mix intimately and expose in a warm, moist atmosphere till all reaction has ceased. Dry, and by trituration and sifting reduce to a granular powder, then take of this

Acid cit. magnesia,	one troyounce.
Granulated sugar,	half "

(Flavored with oil of lemon.)

Bicarb. soda (dried at a heat under 212°) 100 grs.* Mix.

The granulated form of this preparation is handsomer in appearance and probably more permanent, but the powdered is to be preferred, nevertheless, on account chiefly of its readier solu-

bility. The writer has tried the process of M. Morelli, published in the last number of our Journal of Pharmacy, (July No., 1866,) and finds it to yield a salt of readier solubility than any he has yet tried. The following formula is based on this process:

Take of Citric Acid,	ʒviij.
Carb. magnesia,	ʒiij.
Water	fʒiiss.

Pulverize the citric acid, add the water and then incorporate the carb. magnesia. The mass should be stirred frequently during the reaction; when dried and pulverized, add to each troyounce

Pulv. sugar (flavored with oil of lemon,)	ʒss.
Bicarb. soda (dry,)	100 grs. Mix.

Chicago, Ill., 1866.

ON THE REMOVAL OF CINCHO-TANNIC ACID FROM LIQUID PREPARATIONS OF CINCHONA.

BY PROF. W. PROCTER, JR.

QUERY 20. What are the best means by which Cinchona may be deprived of cincho-tannic acid, so that its alkaloids in the form of Kinates may be retained in a permanent liquid form?

It is well known to us all that cinchona presents an instance in which nature places together incompatible ingredients which react upon each other. According to Soubeiran, as much as one third of the alkaloids in Calisaya are insoluble in water from this cause. Whether this condition exists in the growing bark, or is a result of the drying process, I am unable to say, but strongly suspect that the condition of the alkaloids are somewhat modified in that process. It is also well known that the association of iron with cinchona in the usual forms is attended by the reaction resulting in an inky mixture. The object of the query, in the writers view, was to elicit a means whereby this association might be made without producing visible change, and with the full effect of the natural alkaline salts.

Following up this idea, it was proposed to use the agency of gelatin to remove the astringent acid:—Two ounces of Calisaya, reduced to powder, were percolated with dilute alcohol till

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sufficiently exhausted, the alcohol removed by evaporation and an excess of solution of gelatin, boiling hot, was added to the cinchona liquid and heated, to favor their combination. The liquid filtered from this mixture with difficulty; it had a light brownish color, was opalescent, but intensely bitter. On testing a portion with sesquichloride of iron, it indicated the presence of some tannic acid, so that the experiment failed to accomplish what was desired; nevertheless it easily removed most of the tannin, and probably all the cinchonic red, but whether a loss of alkaloids was occasioned by a portion of cinchotannates of the alkaloids being removed in the gelatinous precipitate was not determined, as the subject was not further pursued. It is only now related to show the Association that the writer has not been unmindful of his duty to suggest to some other experimenter, a theme that promises success by further application.

ON BENZINATED LARD.

BY THOMAS DOLIBER.

QUERY 25th. What is the best process of benzoinating lard and simple ointments? Can benzoinated lard be employed for mercurial ointment, so as to prevent its strong tendency to become rancid, without hurting its medical qualities; and in what other ointments may this form of lard be advantageously used?

In order to ascertain the best process of benzoinating lard, the following experiments were tried:

Two troy-ounces of benzoin were digested with 32 troy-ounces of lard in a water-bath, in accordance with the formula of the Pharmacopœia for preparing ointment of benzoin. The residue of the benzoin, after being dried at a very moderate heat between folds of bibulous paper, was found to weigh one troy-ounce and 306 grains. There had been abstracted from it 174 grains by the lard, provided there were no loss by evaporation or by the subsequent drying. The benzoin, after being digested in the lard, appeared to be unaltered in its sensible properties.

One troy-ounce of benzoin was macerated in four fluid-ounces of alcohol, which dissolved 406 grains. The residue had no odor of benzoin, and on being digested with lard yielded no perceptible odor or color to that substance. It was thus proved that lard

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will not dissolve any portion or principle from benzoin that alcohol will not also dissolve. It was also proved, by repeated trials, that 16 troy-ounces of lard will not dissolve and retain more than 90 grains of benzoin by the process of the Pharmacopœia for ointment of benzoin.

After several trials the following formula was adopted as the best one for benzoinating lard :

Benzoinated Lard.

Take of Tincture of Benzoin four fluid-drachms.

Lard, 16 troy-ounces.

Rub them together until they are thoroughly mixed ; then melt the mixture by a gentle heat and stir the product constantly while cooling.

Tincture of Benzoin.

Take of Benzoin, in coarse powder, six troy-ounces.

Alcohol, one pint.

Macerate the benzoin with the alcohol until it is dissolved ; then filter through paper.

The benzoinated lard made by this process is beautifully white and smooth, with the odor of benzoin well marked ; while the officinal ointment of benzoin is almost always dirty white in color, and granular from long digestion in the water-bath, and if heated over a direct fire the benzoin is precipitated upon the inside of the vessel ; which precipitate cannot be re-dissolved by heating ; while the benzoinated lard prepared by the above formula can be heated to 200° without precipitating the benzoin, and consequently can be used in the preparation of any of the ointments of the Pharmacopœia.

Three portions of mercurial ointment were made. The first was prepared strictly according to the formula of the Pharmacopœia. In the second, ointment of benzoin was substituted for lard. In the third, benzoinated lard was substituted. These three portions, covered lightly with paper to prevent accession of dust, were exposed to the air at the ordinary temperature. Two were made in January, and one in June last : but as neither portion has yet become rancid, I cannot definitely answer the second clause of the query.

Three portions of ointment of red oxide of mercury were also

made: the first with lard, the second with ointment of benzoin, and the third with benzoinated lard. The three portions when made were of the same pink color and perfectly smooth; they were made on the 20th of June, and were exposed in the same manner as the mercurial ointment for nearly two months; at the end of which time they were found in the following condition:

The first, made with lard, had changed in color to dark green, had separated into a granular and a semi-fluid substance, and had become very rancid. The second, made with ointment of benzoin, had not changed color nor become rancid, but had separated in the same manner as the first. The third, made with benzoinated lard, was entirely unchanged in odor or appearance, and looked precisely as if just made.

Experiments with other ointments have not been tried, but there is no doubt that the benzoinated lard can be used in many of the ointments of the Pharmacopœia, without affecting their medicinal qualities.

Boston, August, 1866.

ON SOLUTION OF ACETATE OF AMMONIA.

BY WILSON H. PILE, M. D.

QUERY 30th. What is the most perfect and reliable process of manipulation to produce liquor ammoniæ acetatis pure, and in a neutral or slightly acid condition?

This question is one which at first sight appears rather uninviting, and devoid of interest; it being a case of simple chemical union of its elements. The directions given in the Pharmacopœia for its preparation are also so concise and devoid of ambiguity, and, in chemical language, so determinate, that it might be supposed the result would always be satisfactory in a pharmaceutical point of view. And yet the contrary to this is more frequently observed. The principle is well understood—the practice is not so readily followed; and on this account probably few preparations will be found to vary more in their sensible properties than this one. Although the writer has not been able to devise any practical method by which a solution of acetate of ammonia can be prepared with perfect uniformity,

and therefore so far has failed in giving a satisfactory answer to the query submitted to him, yet perhaps the observations which he has thrown together may prove of some interest, and will be accepted instead.

The subject, then, may be considered both in a chemical and pharmaceutical point of view, and first we will briefly allude to the pure salt in solution before entering on the main inquiry.

Solution of acetate of ammonia was first described by Boerhave, in 1732. It was also introduced into medical use by him. He prepared it in a similar manner to that followed now, by saturating the purest vinegar with carbonate of ammonia. Subsequently, Minderer, a Scotch physician, by bringing it further into notice, claimed the honor of its discovery, and the solution was hence known as "Spiritus Mindereri."

The difficulty of preparing a neutral solution, as well as the uncertainty of its strength, was early observed; and in 1773 Baumé endeavored to obtain the solid salt by concentrating the solution. In this he failed, having to encounter the difficulty of the salt being readily decomposed by heat while in a moist state,—the ammonia being first given off, and subsequently the acetic acid. Berzelius, by uniting equal weights of dry sal ammoniac and acetate of lime, and subliming by a carefully regulated temperature, obtained the dry salt by double decomposition.

In a pure state, acetate of ammonia is a white crystalline salt, easily deliquescent in a damp atmosphere. If this dry salt be dissolved in hot water to full saturation, and enclosed in flasks, upon cooling slowly the pure salt crystallizes in long acicular crystals. In this state it appears to have an acid reaction.

To prepare the solution of the salt, however, more directly, its constituents may be immediately combined:—solution of acetic acid and solution of ammonia. If these are pure and the mixture rendered perfectly neutral, the solution may be considered pure. In this state it is not a permanent salt, except in perfectly full bottles, hermetically closed. In partially full vessels at ordinary temperatures it gradually changes, the

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acetic acid becoming decomposed, vinegar animalcules appearing, and the solution becomes alkaline, carbonate of ammonia being thus generated.

The medicinal solution of acetate of ammonia,—liquor ammoniæ acetatis, or spirit of Mindererus,—is directed to be made, by our National Pharmacopœia, by saturating dilute acetic acid with carbonate of ammonia; and it is ordered, when dispensed, to be freshly made, the solution then containing a portion of the liberated carbonic acid gas.

In regard to the exact amount of each of the constituents to be employed in the above process, it happens unfortunately that neither of them is found in any very definite state of composition.

The sesqui-carbonate of ammonia, varying continually from exposure, absorbing carbonic acid and losing ammonia, becomes a bi-carbonate, so that only the translucent pieces in the interior of a lump have any very near approach to a definite chemical compound. The acetic acid, although permanent, is made with little uniformity, and its strength can only be ascertained by chemical tests. It follows, therefore, in carrying out the directions of the Pharmacopœia, we are under the necessity of falling back on that responsible, and, to many, vague phrase, of *q. s. ad saturandum*. As the amount of salt in this solution depends entirely upon the strength of the acetic acid employed, apothecaries should be aware that acid of a proper strength is not readily obtained. Acetic acid No. 8, sp. gr. 1.047, is rarely met with; the article usually called No. 8 being generally only No. 6,—*i. e.*, one pint to make six of officinal dilute acetic acid. The precaution, therefore, of diluting to a lesser extent when weaker, should be strictly observed.

The acetic acid employed in this preparation should be entirely free from empyreumatic odor, derived from the pyroligneous acid, from which it is generally obtained. If free from this and other impurities, it should be diluted with pure water until its density be reduced to 1.007 at 60° F.; the ordinary No. 8 acid requiring about five times its bulk of water to dilute it sufficiently. In taking the specific gravity of liquids varying little from the density of water, particular care should be

observed in reducing the temperature of the liquid to 60° F. Otto's acetometer will, however, be found a more reliable method of determining the strength of acetic acid,—the principle of which is, neutralizing the acid with a normal solution of ammonia; the quantity of the ammonia employed indicating directly the percentage of the acetic acid,—assuming that 100 grains of the officinal dilute acetic acid must saturate 7·6 grains of cryst. bi-carbonate of potassa. This will be equivalent to 4·55 per cent. of mono-hydrated acetic acid, (Wood & Bache give 5 per cent. as the strength). Acid of this percentage has a specific gravity of 1·0068 at 60° F., when accurately taken.

Having the acetic acid properly diluted, the directions of the Pharmacopœia are to add the carb. ammonia gradually to the acid, until this is saturated. It is just here that a practical difficulty occurs, in determining the exact point of saturation. At first the taste will sufficiently indicate if the solution is yet acid, but as the point of saturation is approached, litmus paper or solution of litmus must be resorted to. These, if proper precautions are taken, will give sufficiently accurate results. It will be observed, in testing liquids containing free carbonic acid, that litmus will be reddened, even after the solution is neutralized by an alkali. This reddening, however, is not permanent, but will disappear upon drying the paper, the carbonic acid going off with the moisture. This source of fallacy may also be overcome by gently warming a portion—say half an ounce—of the solution, to which a few drops of the solution of litmus has been added. The red color of the solution will gradually change to a violet, indicating the fact of its alkalinity. If now dilute acetic acid be dropped in until the color is slightly reddened, the number of drops required will give the proportionate amount of acid to be added to the remainder of the solution. If, on the contrary, the solution when heated should remain red, aqua ammoniæ should be dropped in until the color just begins to change, the number of drops indicating, as before, the amount requisite for the whole solution.

It has been proposed, in order to avoid in a measure the uncertainty above alluded to, to saturate the strong acid No. 8 directly with carbonate of ammonia, and afterwards to dilute to the proper degree.

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Made in this manner, there is much less difficulty in ascertaining the point of saturation, no carbonic acid being retained in the solution.

The German and British Pharmacopœias order the liquor ammoniæ acetatis to be made by the union of strong acetic acid and concentrated aqua ammoniæ; the former adding water to the neutral solution until its density becomes 1·035. The British Pharmacopœia employs it undiluted, of specific gravity 1·060; made in this way, the solution is nearly four times the strength of our own. It is also much less liable to decomposition, and no difficulty occurs in preparing it neutral, there being no carbonic acid in the solution. In commenting upon this process, Prof. Bache, alluding to the absence of the carbonic acid in the solution, says, that "a great benefit remedially is gained by its presence, which reconciles the stomach to the medicine, and sometimes even allays vomiting in febrile diseases." With this view of the subject, and believing that the remedial efficacy of a medicine should always be esteemed of the highest importance, and, in fact, as constituting its only value, I suggest the following method of preparing the liquor ammoniæ acetatis; a modification of the officinal directions, yet following strictly its spirit.

A solution of the translucent internal portion of sesqui-carbonate of ammonia is to be made according to the following data:

The pharmacopœia gives 7·6 grains bi-carbonate of potassa as the quantity necessary to saturate 100 grains of dilute acetic acid, or nearly 34·9 grains per fluidounce. As the equivalent saturating powers of bi-carbonate of potassa and sesqui-carbonate of ammonia are respectively 100·2 and 59, it would therefore require 20 grains of this latter to saturate one fluidounce of dilute acetic acid. The solution of ammonia I make of double this strength, or 20 grains to half an ounce of distilled water,—the other half-ounce requiring to be made up of a dilute acetic acid of double the officinal strength. It is in preparing this acid solution of proper strength, that the only practical difficulty lies. The method I have taken is the following: from a pipette graduated into 100 parts and filled with No. 8

acetic acid, I drop sufficient of the acid to neutralize 100 similar parts of the prepared ammoniacal solution. The quantity requisite is noted, and that amount of acid must consequently be made to measure 100 parts, by the addition of sufficient water. Thus, if 30 parts of acid were necessary to saturate 100 parts of the ammoniacal solution, then to every 30 parts of acid add 70 parts of water, and the solution is ready for use. The solutions keep well, and it is only necessary to mix them in equal quantities to produce an effervescent draught of neutral acetate of ammonia, retaining the free carbonic acid so desirable as a remedial agent.

ON VALERIAN.

BY THOMAS DOLIBER.

QUERY 35. Is the cultivated Valerian produced in New England of equal quality with that imported from England and Germany, and are there any characteristic differences by which they may be distinguished?

The Valerian of American and that of English growth were the only varieties with which experiments were made. The American came from Vermont; the English was obtained from an undoubted source. Solid and fluid extracts of each were made, samples of which and also of the roots are herewith submitted. A quantity of each fluid extract was given to several physicians and others, but the reports from them were very vague and indefinite. A few years ago a large manufacturer of fluid extracts prepared some fluid extract of each variety, American and English, and several hundred bottles of each were sent to physicians with a request to test their relative merits. The reports were generally in favor of that prepared from the American root.

As no analysis of either variety was made, I cannot state the relative amount of oil yielded by them, nor can I tell the average yield from the American root, but the oil distilled from it is of very fine quality, and is said by those who manufacture it to surpass that obtained from the foreign growth, both in quality and quantity. The amount of oil in the latter varies, according to different authorities, from .37 to 2 per cent.

The following table shows the yield of alcoholic extract; two trials were made of each variety, and the formula of the Pharmacopœia was strictly adhered to in each case. The results are stated in grains.

Yield of Alcoholic Extract of Valerian.

Variety,	1st trial.	2d trial.	Average.	Av. Per cent.
American,	1690	1648	1669	28.97
English,	964	1064	1014	17.59

Quantity used, 12 troy-ounces, or 5760 grains.

From the above table it will be seen that the average yield of alcoholic extract from two trials was 64 per cent. more from the American than from the English.

Although convinced of the superiority of the American grown Valerian to that of English growth, I cannot adduce sufficient therapeutic evidence to prove the fact.

In regard to the characteristic differences of the two varieties, I cannot give a very definite answer. In the samples which I have seen, the root in the American variety is longer, finer and lighter in color, with the peculiar odor of Valerian much more strongly marked than in the English; the odor of the latter closely resembles that of Canada snakeroot; this peculiar difference in the odor is equally well marked in the solid and fluid extracts herewith submitted. But that the difference in odor and appearance, so obvious in the accompanying specimens, is a characteristic one, or only accidental, and depending upon the age of the root, manner of collecting, washing and drying, &c., I cannot state.

The American root is raised in the northern part of Vermont, New Hampshire and New York; it is dug up in the autumn; the adhering dirt is shaken from it and it is carefully washed, generally in running water, and dried quickly in the air and shade and comes into the market very clean and light colored. It is sometimes, however, washed in still water and allowed to remain longer in the water, by which it acquires a somewhat darker color; a sample of each will be seen in the bottle containing the specimen of the American root. In making the solid extract, the first trial was from the dark and the second from the light colored.

The German root is gathered late in the autumn or early in the spring; nearly all that comes to this country is not washed and comes with lumps of dirt enclosed between the fibres. A large proportion of that which is imported as English is actually German root coming through English hands.

Valerian thrives best in a light dry soil, and that which grows in a low wet situation possesses less medicinal properties than the former.

The American variety has almost entirely superseded the foreign in this market, and a large manufacturer of fluid extracts says that he has used them indiscriminately and, of late, the American entirely.

BOSTON, August, 1866.

ON AMERICAN OPIUM.

BY ISRAEL J. GRAHAME.

At the meeting of the Association last year, (1865), specimens of "Virginia Opium" were presented for examination by W. H. Schieffelin & Co., of New York. At the request of the Association I accepted these specimens for the purpose of a morphio-metrical analysis, as upon the proportion of opium's most important alkaloid—morphia—that any specimen shall contain, should the medicinal value of the drug alone be estimated. The quantity of this, therefore, together with that of narcotina, have been the principal objects of my investigations.

Before proceeding with a statement of my experiments, I would remark that these specimens of opium, one made in 1864 and the other in 1865, were manufactured by Powhatan Robertson, Campbell Co., Virginia, from the capsules of several varieties of poppies grown by himself, as will be seen from the following extracts from a letter on the subject received from him by W. H. Schieffelin & Co.:

"The Virginia Opium was made from poppies of almost every variety—the single variety, however, with purple spots on the petals, predominating. This variety of poppy seems to yield more opium than the double, and its seed capsules are of a shape that makes the collection of the opium less troublesome."

~~“The capsules should be incised longitudinally about three or four days after the flower has dropped. The incisions may be repeated several times on the same capsule; they should be made in the evening and the opium scraped off next morning.~~

There was no bad effect observed by the person who collected this opium, but there was only a small quantity made, not more than eight or ten ounces, and not more than one hour's time was occupied every morning for about three weeks.”

“I can form no reliable opinion as to how much an acre would yield, from the fact that only a small piece of very rich land (formerly an asparagus bed) was used, and the poppies did not come up at all regularly, nor was all the opium made that might have been.”

“The seed should be drilled in rich land, in August or September, leaving room for a person to pass between the rows, and the plants to be thinned out in the spring so as to stand about eighteen inches or two feet apart.” * * *

In relation to my experiments, I have to regret at the outset that I had not in the first instance more fully considered my subject, and divided the small amount of material at hand into several portions, with a view of not only repeating the process used, for the extraction of the two important alkaloids referred to, with certain modifications, so as more correctly to ascertain the true percentage of these, but also for the purpose of ascertaining the relative proportion of these yielded by each year's product; the quantity of soluble matter yielded by each to different menstrua, and other minor points of interest in connection with the investigation of a substance of so much importance as opium produced under the circumstances of these specimens.

It was not, however, until after I had nearly completed my experiments that I took this view of the subject, which was then too late for my purpose, having already submitted the quantity I received to the two processes about to be described.

The opium in question presented physically the appearance of a good article as compared with the best varieties of the imported drug, not, however, possessing the characteristic odor in so marked a degree. I would here observe that the sample of opium marked as being made in 1864, possessed not only the peculiar

smell of opium in a higher degree than the sample made in 1865, but also a nearer approach in color to that most highly esteemed in the foreign drug.

One of the specimens being received in the form of powder, I dried the other and likewise pulverized it, and thoroughly mixed the two portions. Of this uniform powder 300 grains were incorporated with less than half of its weight of prepared sawdust* to facilitate percolation, then arranged in a suitable displacer dry, moderately pressed, and treated with cold water until the droppings passed colorless and almost tasteless. The percolate, which was a very dark, rich colored liquid, possessing a strongly bitter taste, was then concentrated by evaporation, treated with ether to remove the narcotina, and the ether separated by a suitable funnel. The liquid, thus deprived of narcotina, after being mixed with a due proportion of water and heated to expel the combined ether, was then mixed, first, with nearly an equal bulk of alcohol, and then with solution of ammonia combined with alcohol, in the manner directed by the Pharmacopœia in the preparation of morphia. The result was, greatly to my disappointment, a very moderate crop of slightly colored crystals of morphia, very little exceeding one per cent. of the opium employed.

The smallness of this result cannot be due to any incompleteness in the exhaustion of the opium, as this was most thorough, nor am I now prepared to decide the true cause which I propose to leave for future investigation. The etherial solution above alluded to, on the evaporation of the ether by exposure in a beaker glass, yielded beautiful crystals of narcotina mixed with some impurities, weighing in all nearly 10 grains. In the meantime the residual opium from the aqueous exhaustion was then treated with dilute acetic acid, which produced a light wine-colored solution, to which ammonia was added to precipitate any narcotina thus taken up. The precipitate, after being washed with water, was treated with boiling alcohol. This solution, upon cooling and evaporation, yielded a very small quantity of narcotina. The whole amount obtained, both from the etherial treatment of the aqueous solution and the acidulous treatment of the marc, not exceeding 3.5 per cent.

* Sawdust from pine, exhausted of all matter soluble in alcohol and boiling water.

From this experiment it will be observed that the larger quantity of narcotina was taken up by the aqueous treatment.

The remainder of my supply of the opium (150 grains) was then digested in ether until everything soluble therein was supposed to be taken up; this ethereal solution, exposed for evaporation, yielded what appeared to be a fair proportion of narcotina in handsome crystals associated with resinous matter.

In a subsequent treatment, to separate the narcotina from this resinous matter, an unfortunate accident occurred to the vessel containing it which occasioned the loss of all. The proportion, therefore, of narcotina contained in this portion was not determined and consequently not so accurate a percentage of its yield by the specimens of opium was arrived at as would be desirable.

After the exhaustion by ether, the opium was digested in water until everything soluble in this menstruum was taken up. The aqueous solution was then mixed, as in the previous case, first with alcohol and then with ammonia, and put aside for the proper length of time that crystals of morphia might form, which, upon being removed, weighed $5\frac{1}{2}$ grains, or very nearly four per cent. If we make allowance for some loss sustained in manipulation, first of the opium itself, and then of the morphia, we may conclude that the yield in this case was four per cent. of morphia. The morphia in both cases was comparatively light colored and the crystals of narcotina were very beautiful and still lighter colored. I did not attempt the purification of either, owing to the smallness of the quantity obtained. As before observed, I would have been glad if my supply of material had enabled me to ascertain comparative morphimetric and other results, by treatment with cold and hot water, acidulous and alcoholic menstrea.

From these experiments it would appear, then, that the specimen of Virginia opium exhibited to the Association contained four per cent. of morphia and 3.5 per cent. (approximately) of narcotina.

It becomes a matter of interesting inquiry to ascertain how far the results, in the production of this opium, would be modified by a particular mode of culture, and the character of soil and season, as it is altogether probable that its morphia-yielding quality is in a great measure dependent upon a combination of these circumstances.

VOLUNTEER REPORTS AND ESSAYS.

ON THE INFLUENCE OF HYPODERMIC INJECTION UPON THE SCIENCE OF TOXICOLOGY.

BY S. P. DUFFIELD, PH. D.

So wide has been the beneficial influence of improvements in chemical analysis, that it would be superfluous to attempt to make any further observations on the important part performed by this branch of the science.

When medicine, in earlier times, stepped forth and claimed pre-eminence and respect, while the untiring alchemist, with his *furor*, furnaces and fumes, sought for that elixir which should place eternity within his control, she was then encircled by the *fancies* of her speculative philosophy, encumbering the studies of all her collateral branches.

But in the present age, the exact methods of investigation have plunged her again into a new labyrinth of untenable theories.

The famous trial of Palmer, in England, for poisoning his victim with strychnia, drew all chemists to investigate most thoroughly the behaviour of this alkaloid to chemical reagents, and we now have very full data and methods which render its detection and recognition quite easy and simple.

The beautiful system of dialysis by Graham has been another step in advance, and can truly be called one of the esthetics of toxicology, divesting it, as it does, of the circuitous and very unpleasant course heretofore pursued in examining the viscera of a poisoned subject. But brilliant and rapid as have been the advances in this department of chemistry, those very discoveries have turned up new obstacles to be overcome.

Of late years, a system of introducing remedial agents into the circulation more rapidly than can be done through the agency of the stomach bids fair to place in the hands of designing persons a power which has never before been possessed by any within or without the profession of medicine. I refer to the system of hypodermic injections, becoming now so deservedly popular with the "regular medical profession."

This system owes its success to the facility with which poisons are introduced into the blood.

From the earliest times, *blood* has been a favorite topic.

Moses, in accordance with the views of the ancient Egyptians, placed the seat of life in the blood.

One might, therefore, reasonably have expected that a subject which had played such an important part in medicine would have had more than empirical supports on which to base some degree of accurate knowledge.

When we remember that only three-fourths of a century ago oxygen was unknown to the chemist, we can readily perceive why former investigators were powerless. Even to physics, which had solved some of the great astronomical problems, the phenomena of the animal organism were a sealed book.

Albinus took no meagre view of organic activity in nature when he established the axiom that the essence of life, or the vital force, consisted in *motion*.

Changes are continually going rapidly forward in the living body; physical forces are always striving for the equilibrium; the matter set in motion by them finds its centre of gravity—its point of rest. Force is nothing more than the expression of the causal action of natural laws; and if facts do not accord with *our* laws, we have either formed false opinions, or have imperfectly investigated the different circumstances under which they were exhibited.

Within the past few years the science of toxicology, as developed by the German and French chemists, has attained an accuracy which is surprising, when we contemplate the crude state it was in fifty years ago. But rapidly as has been its progress, there has suddenly arisen a barrier to its advance, more formidable than any it had to meet before.

Friedberg and Ritter mournfully acknowledge that the day has not yet arrived when we can detect the difference between dried human and ox blood. A few enthusiasts have claimed a *peculiar odor* to different kinds of blood; but these tests stood on so slender a foundation, and required an almost *hyper-excited* nose to detect them, that no conscientious expert will, for one moment, depend on it for convicting the criminal. The microscope, with its polarizing prism, is not able to distinguish between the most of domesticated animals' blood and that of man, after it has been dried any length of time.

We are not able at the present day to detect *absorbed* alkaloidal poisons, and that is the fact forming the subject of this essay, and to which I wish most particularly to call your attention. There can be no doubt that these powerful agents, of which strychnia and morphia are the types, are absorbed into the blood, and diffused throughout the system, like other poisons. There seems to be a want of unity in the statements relative to their deposition in the viscera, and their subsequent elimination. M. Stas, in 1847, announced the discovery of the alkaloid in the tissues; but it is questionable whether this was not some portion of the nicotina which had been *imbibed* rather than absorbed. Referring to his process, with which all analytical chemists are familiar, he says he has separated strychnia and brucia from nux vomica, veratria from extract of veratrum, emetina from extract of ipecac, colchicina from wine of colchicum, hyoscyamia from extract of henbane, and atropia from extract of belladonna. Some of the poisons mentioned here will destroy life—the fraction of a grain. Mr. Morson, of England, prepares aconitine, of which $\frac{1}{144}$ of one grain is the full dose, and says that perhaps the $\frac{1}{80}$ would prove fatal to an adult. Where is the analytical chemist who could separate, in quantity enough to give reliable color tests, and obtain crystals, visible even with the strongest microscope, this $\frac{1}{80}$ portion of a grain, after it has been thoroughly transfused through twenty-eight pounds of blood, and all the tissues and organs of the body?*

* Equals the $\frac{1}{350000}$ of a grain, assuming *only* the blood contains it. If diffused through the whole body, allowing 128 pounds for the tissues, it would then be reduced to the $\frac{1}{4480000}$.

He who has this power can detect, and separate, and weigh the specific poison of rabies or of the rattlesnake, and could justly be classed as a rival of Omnipotence itself.

Among numerous cases of poisoning by opium or its alkaloids which have fallen to my lot to examine and depose on, I cannot conscientiously say that I ever detected *absorbed morphia*.*

The same remark will apply equally to strychnia, and I cannot see how some men will state definitely they can separate *absorbed strychnia*, but have never dared to undertake the task; knowing that the patient dies from the poison absorbed, they, while claiming they can detect and separate *absorbed* poison, contented themselves with extracting the contents of the stomach. When we look back, we find that up to May, 1856, as regarded the detection and separation of strychnia, *chemical science was a blank*. In no one instance before this date had strychnia been obtained from the tissues of the corpse, and, in the greater number of cases, it had not even been found in its unabsorbed state in the stomach.

With respect, therefore, to the separation of the vegetable poisons from the blood and tissues, the results are very unsatisfactory. We look in vain in the treatises of Orfila, Kopp, Christison, and in the more recent works of Gaultier, Flandin, Casper, Otto of Braunschweig, and Böcker, for any instance in which they claim absorbed strychnia to have been detected either in the human being or in animals; and, in this particular, strychnia is but a type, for the same remarks hold good of the other alkaloids.

Dr. Harley, of University College, examined the blood of a dog killed by the $\frac{1}{12}$ of a grain of acetate of strychnia injected into the jugular vein. The blood, after the death of the dog, gave no evidence of strychnia. Mr. Horsely, of Cheltenham, examined the blood and tissues of a dog which he poisoned with

* In the case of a woman who committed suicide at one of our hotels, and whose stomach was handed me immediately after death, I was able to separate only two grains, when she had actually taken ten grains. Again, the case of a homœopathic physician, who gave solution of morphia, I detected the $\frac{1}{2}$ of a grain in a teaspoonful of the solution, and could only get a color test for morphia from the stomach.

two grains of strychnia, and could not detect its presence. Dr. De Vry, of Rotterdam, poisoned a dog with nitrate of strychnia, introduced into a wound, and, after its death, he examined four ounces of blood, but not the least trace of strychnia was detected. In another case, in which a dog was poisoned in four days by half a grain of strychnia in divided doses, the chemical analysis led to a negative conclusion, not only in the blood and tissues, *but in all* parts of the body. Dr. Crawcour, of New Orleans, gave a rabbit half a grain of strychnia; the animal died in half an hour. No trace of the poison was found in any part of the body. In a case of poisoning which occurred to Dr. Geoghegan, of Dublin, in 1856, thirty ounces of urine, which had passed the patient from the fifth to the thirty-first hour, when carefully analyzed, did not yield any trace of strychnia. A case of great bearing upon this subject occurred to Mr. Wilkins, of Newport, in the Isle of Wight, in February, 1857. A gentleman died in six hours after taking about three grains of strychnia for the purpose of self-destruction. The long period he survived was most favorable for the diffusion and deposition of the poison. The blood and heart were examined by Dr. Taylor and Mr. Scanlan, portions of the liver and lungs were examined by Dr. Christison and Dr. Douglass Maclagan, of Edinburgh, and one kidney was examined by Dr. Geoghegan, of Dublin. The result was no trace of absorbed strychnia was detected in any one part. In reference to the detection of other alkaloids in an absorbed state, there is an absence of facts. That they enter the blood by absorption is placed beyond a doubt; but whether, when there, they are partially changed, or deposited unchanged in the organs, has not yet been satisfactorily determined by experiment. Dr. De Vry has made recently experiments on the alkaloids, and arrives at the conclusion that that part of the alkaloid which acts mortally is decomposed in the living body. The examination of a large number of cases in the human subject can alone determine perfectly this most important point in toxicology.

Be that as it may, we are absolutely certain of a failure in attempting to detect the poisonous alkaloid atropia in the blood, if administered by hypodermic injection, as it would not require.

more than one-half a grain to prove fatal. Analytical chemistry, which has, up to this time, occupied so prominent a position, and been so ably associated with forensic medicine, is now perfectly powerless. She cannot solve this problem. There may come a time when more accurate methods and more delicate reagents may lead us to a satisfactory solution of it. Heretofore she has been the Nemesis which pursued, with outstretched, grasping hand, the murderer. That hand has been paralyzed by this bold application of principles of chemical physiology in the treatment of disease. The only means now of detection will lie in the testimony of the physician of the symptoms observed by him at the bedside of the dying person.

Synthesis is far ahead of analysis, and we must admit that this is a problem of great importance, and to which the attention of toxicologists should be turned. For the present we must say, as we stand groping on the confines of mortality, and straining our powers to discover in the broad, measureless eternity some means of controlling the moral effect of this fact, and some law which may lead us to processes of detection, that just now we realize how helpless the human mind is, how utterly futile has been its attempt to discover a mode of detection. In future many a throbbing heart will suddenly cease, and no eye but God's be able to detect the murderer. For the present too much weight cannot be given to the testimony of the medical witness at the bedside; if that is not had, and no physician was near at the time of death, we are cast to drift upon an unexplored and perhaps a shoreless sea.

Medical testimony now becomes all-important, and chemical testimony wanes in value, for no satisfactory results can be obtained. Juries will now, more than ever, be dependent upon circumstantial evidence.

Mortifying in the extreme as it is to our professional pride, stripped of professional honors in medico-legal investigations, the chemist and toxicologist now, if ever before, realize the truth that comes floating to us on the dying breath of La Place—"What we know is little, and what we are ignorant of is immense."

BROMINE AND ITS PRODUCTION FROM THE SAGINAW BRINES.

BY S. S. GARRIGUES, PH. D.

The following article upon the percentage of Bromine and the possibility of its practical manufacture from the Saginaw brines, has been extracted from a more extended treatise by H. Hahn, Ph. D., upon the manufacture of salt in the Saginaw Valley, with the supposition that it would be of interest to the pharmaceutical profession.

The brines, as they are obtained from the well, are free, for the most part, from the readily soluble sulphates, and contain, besides chloride of sodium, sulphate of lime, chloride of magnesium and chloride of calcium. When the wells reach the depth of 800 feet the brines produced is saturated with salt.

The brines from wells at different parts of the Saginaw Valley, vary, it is true, in strength, as shown by the salimeter, and also according to the relations of the constituents; and the following analysis of brine from the well of the New York and Saginaw Solar Salt Company will give a general idea of the character of the same.

Specific gravity 1.1930; depth of well 885 feet.

Chloride of sodium = 19.914	MgO 2CO ² = 0.0006
Chloride of magnesium = 1.419	CaO 2CO ² = 0.0001
Chloride of calcium = 3.040	Fe O 2CO ² = 0.0058
Sulphate of lime = 0.073	Fe ClFe ² Cl ³ = 0.0038
	Mn O = 0SH = 0.
	HO = 75.042

By the evaporation of the brine in the manufacture of salt, the two principal impurities, chloride of calcium and chloride of magnesium, with an amount of bromide of magnesium and a trace of iodide of magnesium, remain in the mother liquors, and a mother liquor of the specific gravity of 1.3730 contains

(2)

Chloride of sodium and potassium	1.767
Chloride of magnesium	11.131
Chloride of calcium	26.042
Bromide of magnesium	0.1539
Water	61.502

100.596

The proportion of the chloride of magnesium to the bromide of magnesium is as 100 to 1·382. Aside from a part of the bromide of magnesium lost in the evaporation, the percentage in the original brine would be = 0·0196.

A mother liquor having a specific gravity of 1·45 contains

(3)

Chloride of magnesium 13·224 = $\text{Mg Cl} + 6\text{HO} = 28·270$

Chloride of calcium 31·519 $\text{Ca Cl} + 6\text{HO} = 62·209$

Bromide of magnesium 0·1827 $\text{Mg Br} = 0·1827$

By reducing the temperature of the bitter waters, a large amount of the chloride of magnesium and chloride of calcium + 6HO, crystallize out, and the lower the temperature the greater proportion of the calcium salt.

When the temperature of such a solution is reduced to 45° F., the composition of the remaining mother liquors is as follows:

Chloride of magnesium + 6HO = 29·912

Chloride of calcium + 6HO = 46·066

Bromide of magnesium 0·460

Water 23·562

100·000

The crystals of chloride of calcium and magnesium obtained by this process can be evaporated to dryness in an iron vessel, there being at this time an extensive demand for these salts in the establishment of fruit houses.

The mother liquors, containing one-half per cent. of bromide of magnesium, can be used for the manufacture of bromine, or in the preparation of medicinal baths, in connection with salt.

By a still greater reduction of the temperature, or by again evaporating the mother liquor, No. 4, and then cooling, the amount of the bromine can be greatly increased.

To obtain bromine on a large scale it would be necessary to have large wooden cisterns, where the mother liquors, No. 3, could be stored until the winter season. After a continued period of cold the mother liquors still remaining are in a condition for further manipulation.

NOTES ON THE PREPARATION OF IODIDE OF AMMONIUM.

BY JAMES F. BABCOCK.

Having occasion some time since to prepare this salt in considerable quantities, my experience with the various processes laid down in the books may not be uninteresting.

The first process tried was that of Spencer, (*U. S. Dispensatory*, 12 Edition, p. 1537), which consists of adding hydrosulphuret of ammonia to iodine until the red color due to the solution of iodine in iodide of ammonium has disappeared. Iodine displaces the sulphur, and the liquid filtered to separate the deposited sulphur is evaporated to dryness.

The deportment of the iodide of ammonium thus formed showed that the decomposition of the hydrosulphuret involved the formation of certain combinations with sulphur, traces of which obstinately adhered to the iodide of ammonium produced, and in time, even when excluded from light, its color changed to yellow and finally to brown, evolving free iodine, which, of course, made it unreliable by varying the proportion of iodine contained in it, and hence unfitting it for accurate preparations, particularly in photography, in which, of late, it has had such an extensive use. Trials in various ways failed to remove completely the last traces of the sulphur compound alluded to above, and the process was finally laid aside for others, in which the preparation of hydriodic acid and its subsequent neutralization with carbonate of ammonia were necessary.

Different methods for preparing the acid were accordingly made use of, the first being that of the U. S. Dispensatory of 1860. It will be remembered that this is based upon the action of hydrosulphuric acid upon iodine. A quantity of hydriodic acid was accordingly prepared, and after separation of sulphur, carefully neutralized with carbonate of ammonia and the whole evaporated.

It was found, however, that the iodide of ammonium produced by this method decomposed in precisely the same manner as that prepared by hydrosulphuret of ammonia, and that traces of

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sulphur (which probably exists in combination with iodine) continued to be present, and ultimately determined the separation of iodine from its combination.

It will be noticed that this involves the interesting subject of the purity of the hydriodic acid, as prepared by the process of the pharmacopœia, and also the question, whether the tendency of hydriodic acid so produced to change color, is not partially due to traces of sulphur introduced during its preparation.

Granulated lead and iodine, according to Gmelin, (vol. ii. p. 267), shaken together with water until the solution was colorless, and the lead then precipitated by hydrosulphuric acid, was unsatisfactory, it being found that wherever sulphuretted hydrogen or alkaline sulphides were used in the preparation of iodide of ammonium, the salt produced was always liable to decomposition, even in the dark.

One part of phosphorus was melted in forty parts of water, and to the mixture twenty-four parts of iodine gradually added, with constant stirring, gave a solution of hydriodic and phosphoric acids. This was neutralized by carbonate of baryta, forming insoluble phosphate of baryta, and soluble iodide of barium. This, by double decomposition with sulphate or carbonate of ammonia, gave iodide of ammonium free from objections due to the presence of sulphur.

Iodide of zinc and iodide of iron, by decomposition with carbonate of ammonia, gave equally satisfactory results.

These processes, however, were liable to the objection that, in the precipitation of carbonate of iron or zinc, or in the separation of phosphate of baryta, and afterwards of the carbonate or sulphate of baryta, the necessary amount of washing of these bulky precipitates, to avoid loss, involved so much time and consequent exposure, that it was almost impossible to obtain a salt which did not contain free iodine. The large amount of water necessary to wash out the last portions of soluble iodide from the precipitates required considerable time in boiling to the crystallizing point, and the iodide of ammonium, an unstable salt at best, always suffered. It was desirable, therefore, to make use of a process involving as little delay in the manipulation as possible, and a method was finally adopted, which was described in the

London Chemical News, April 9, 1864, and also in the American Journal of Pharmacy, May, 1864, p. 245. It is undoubtedly the best at present in use, being capable, with slight modifications, of producing a salt absolutely pure and free from the objections to which the previous processes I have mentioned are liable.

It consists in the double decomposition of pure iodide of potassium and pure sulphate of ammonia, both of which are easily procured. Iodide of ammonium and sulphate of potassa are formed, and the latter separated by the addition of 15 or 20 per cent. of alcohol, and the whole evaporated to the crystallizing point. I have found the following proportions to give satisfactory results :—

Iodide of potassium,	5	parts by weight.
Sulphate of ammonia,	2	“ “
Water,	4	“ “
Alcohol, 95 per cent.,	1	“ “

The salts are dissolved by heat in the water, which, on cooling, deposits a large proportion of the sulphate of potassa, and when at 60° F., is mixed with the alcohol, which separates all but about one per cent. of sulphate of potassa, and the concentrated solution of iodide of ammonium, after evaporation, yields crystals of perfectly white iodide. Subsequent addition of alcohol separates the whole of the sulphate of potassa from the mother liquor, which, on evaporation to dryness, furnishes an additional quantity of the salt. The evaporation should be performed in the dark, or in the evening by gas-light, to give the best results. The solution being very concentrated, requires but comparatively little boiling, and the precipitate of sulphate of potassa being crystalline, is easily separated by filtration.

The proportions stated above gave four parts of pure iodide of ammonium, which is nearly the whole of the theoretical quantity. Iodide of ammonium by this method remains white, if carefully dried, even on exposure to light and air for a considerable period, and has been found perfectly reliable in composition, and satisfactory in all its applications in photography and pharmacy.

REMARKS ON SOME CHEMICAL PROCESSES.

BY C. LEWIS DIEHL, JR.

The object of this paper is to point out some difficulties that are met with by the manufacturing chemist and by the pharmacist in the pursuit of his calling. Our standard works on chemistry and pharmacy will give formulas which, if strictly followed and properly understood, will generally yield the desired product. Yet sometimes the operation will fail, notwithstanding the greatest care on the part of the operator, and will cause him to regard a process as faulty, which would really yield a handsome product if carried out with the proper attention to the minor details. Manufacturing chemists, as a general rule, will not publish their experience in the manufacture of their preparations, as they wish to make as much capital out of any improved process they may have, as possible. It is to be regretted that they do not show more disinterestedness in this respect, as by the publication of their experience, they would greatly advance the cause of science. The efforts of Dr. E. R. Squibb in that line are truly commendable, and to him are due many improved chemical processes now extensively applied. His example should be imitated by all true friends of science; the plea that it is against their interest to publish the result of their experience, may be met with the simple argument "that he who is capable of inventing or improving a process, will always have the start of the one who has to wait for the invention."

In explanation of the remarks I am about to make, I wish to state that I offer them simply as the result of my own experience. I do not claim any originality to any of them. I merely wish to point out the difficulties I have had, and how I have overcome them.

Acid. Phosphor. Dilut. The U. S. Pharm. directs this to be made in a porcelain dish, covered with a glass funnel. The difficulty that occurred to me was caused by the frequent breakage of the funnel and consequent loss of phosphorus, not to speak of the annoyance to the operator. This breakage is almost always caused by the addition of the water or nitric acid to the materials during reaction, and notwithstanding I always observed

the greatest care in the addition, breakage could not be avoided. I therefore concluded to try the old method, by oxidizing the phosphorus in a glass retort, with results entirely satisfactory. The following is the process pursued by me, which I can recommend as perfectly safe:

Introduce into a French glass tubulated retort of capacity of 42 parts, 12 parts of water and two parts of phosphorus. Place the retort on a sand bath and introduce through a funnel tube, fixed in the tubulure by means of a cork and reaching half an inch below the level of the liquid, eight parts of nitric acid. Apply gentle heat and watch the operation closely as soon as reaction commences. When the reaction slackens add more nitric acid in portions of about one-fourth part at a time. Should the reaction become violent, small quantities of warm water must be added until it is reduced to its ordinary action, which may be compared to the gentle boiling of water. The formation of frothy bubbles on the surface of the liquid is always the forerunner of violent reaction and should be checked at once. I have found that if it was checked at this stage, a comparatively small amount of water would answer, but if allowed to react violently a much larger quantity of water was necessary. The evaporation of the acid, after the phosphorus is all oxidized, is conducted in a porcelain capsule; towards the end of this process it will froth up, owing to the rapid disengagement of nitric oxide. The dish must therefore have about three times the capacity of the acid when concentrated, and a little distilled water should be kept conveniently near, to add in case there is danger of frothing over. It is scarcely necessary to add that the operation should be conducted under a good furnace hood, or otherwise the beak of the retort should be introduced into a good flue.

Sulphate of Manganese. Wishing to make some of this salt, I adopted the following formula, which gives an abundant yield of the pure salt:

Introduce into an iron crucible a mixture of five parts of peroxide of manganese and three-fourth parts of coarsely powdered charcoal. Cover the crucible and heat to redness until all the charcoal is consumed. Allow the contents of the crucible to cool, place in a porcelain dish and add $6\frac{1}{2}$ parts of

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sulphuric acid. Evaporate nearly to dryness, return the mass to the crucible and heat to redness. When cool rub to powder, if necessary, and treat twice successively with eight parts of boiling water; mix the liquors, filter and evaporate until a pellicle begins to form, when set aside to crystallize.

If evaporated too far an insoluble sulphate is deposited, (probably in a peculiar state of hydration), hence care must be taken to remove it from the sand-bath as soon as a pellicle begins to form. When a good article of peroxide of manganese is used, this formula will give an abundant yield of perfectly pure sulphate of manganese. Any iron or copper present is destroyed by heating the crude salt to redness.

Ammonio-ferric Alum. In making this salt according to the U. S. Pharm. formula I found that, instead of obtaining crystals of a clear violet tinge, they had a brownish color. I first ascribed it to unskilful manipulation, but on repeated trials met with similar results, sometimes, however, approaching in appearance to the commercial article. As the addition of a small quantity of sulphuric acid to a solution of salt prevents its decomposition, caused by the formation of a basic ferruginous salt, I concluded to try the effect of a little sulphuric acid, and met with perfect success. By the addition of 1 fl. oz. sulphuric acid to 1 gall. liquor ferri tersulphat., I obtained crystals of a beautiful violet tinge and perfect form. These were simply drained thoroughly and immediately bottled. I have been so far unable to obtain the salt perfectly dry without injuring its appearance. The mother liquors will yield another crop of crystals if evaporated gently and filtered. If the solution is not filtered the salt will have a rusty appearance from the decomposition of a portion of the salt. Where large quantities are made it is better to use the mother liquors with a new portion of materials.

Tinct. Chlor. Iron. When the Pharmacopœia direction is strictly followed in making the solution of sesqui-chloride of iron for this tincture, there is danger of the liquid frothing over towards the completion of the process, unless the capacity of the dish is very much larger than the bulk of its contents. By long-continued heat a portion of the muriatic acid, present in the preparation before the oxidation is completed, is also wasted

and frequently sufficient to cause a basic chloride to be formed, which, when mixed with the alcohol, is deposited, sometimes immediately, sometimes after the lapse of a few weeks. This has happened to me on several occasions and others have had similar experience. For several years I have pursued the following manipulation in its manufacture, and have met with invariably satisfactory results. The materials and relative proportions used are the same as in the officinal process:

Make the solution of proto-chloride of iron according to the officinal directions and filter. Heat it to the boiling point, add the reserved portion of muriatic acid, and take immediately from the sand-bath. Into another vessel (capable of holding one-half more than the solution will measure when completed), pour three-fourths of the nitric acid required. Place the vessel in the sand-bath from which the solution of chloride of iron has been removed, and add the latter in small portions as long as effervescence is produced. If effervescence should cease before all the iron salt is oxidized, nitric acid must be added in small portions until the completion of the process. Proceeding in this manner the same result is obtained as required by the Pharmacopœia, the danger of frothing is avoided and a permanent tincture is obtained.

Dilute Hydrocyanic Acid. It is well known that when this acid is not carefully secluded from light it is rapidly decomposed and deposits a black substance (Paracyanogen). Wittstein, in his formula for this acid, recommends the use of alcohol as a preservative, and I wish to state that I have prepared an acid according to this formula which has kept without any apparent change for four months, although freely exposed to the light during that entire period. His formula is as follows:

Dissolve 4 oz. ferrocyanide of potassium in 16 oz. of distilled water, to which add a cold mixture of 3 oz. sulphuric acid and 12 oz. alcohol, sp.gr. .840. Allow the mixture to stand for twenty-four hours, shaking it occasionally. Separate the crystalline deposit by means of a strainer and introduce the clear liquid into a retort, the bottom of which is covered to the depth of one inch with clean quartz sand. Distill off 20 fl. oz. and reduce the distillate to the proper strength by the appropriate tests.

The object of using sand in the retort is to prevent the thumbing which is always a source of great trouble during the latter part of the distillation.

Louisville, Ky.

NOTES ON LIQUOR BISMUTHI.

BY GEORGE F. H. MARKOE.

Much has been written on the preparation of Liquor Bismuthi both in this country and in England, where it was introduced by Mr. Schacht. Mr. R. C. Tichborne was the first to make known the composition of the solution, in an able paper to the London Pharmaceutical Society, in which he proved the bismuth to be present in the form of an ammonio-citrate.

Mr. N. Gray Bartlett, in a paper published in the Jan., 1865, number of the Am. Journal of Pharmacy, gave an excellent working process for the making of citrate of bismuth and ammonia in scales, and also in solution.

The writer has used Mr. Bartlett's process many times, and always with good results, but considers the modifications suggested by Mr. A. E. Ebert, published in the Am. Jour. Pharm., Jan., 1866, of much practical advantage, as it shortens the process, especially the washing of the citrate of bismuth on the filter, which is at best a tedious operation.

The writer has but one new point to suggest, and that is with regard to an improved method of assaying the bismuth solution. Sulphide of ammonium and sulphydric acid are the reagents usually employed in the assay of bismuth solutions and give very good results, but they both possess a most disgusting odor. The writer has found that sulphide of sodium, while it gives excellent results, equal in accuracy to those obtained by the use of the first named reagents, has the advantage of giving a denser and hence a more easily washed precipitate of ter-sulphide of bismuth. It has but little odor and can be used in the shop or laboratory without filling the atmosphere of the room with the smell of sulphuretted hydrogen. The point of saturation is readily determined, and the sulphide of bismuth formed is absolutely insoluble in an excess of the precipitant.

Sulphide of sodium may be prepared by the following formula:

Take of solution of soda three parts, and conduct sulphydric acid gas into the solution as long as it is absorbed, and when the saturation is complete add two more parts of solution of soda and keep the sulphide of sodium in well stopped bottles.

With a view to test the value of sulphide of sodium as a reagent a number of assays of commercial sample of liquor bismuthi were made. Both of the samples were of New York make, and are furnished to the trade in pound bottles.

No. 1. A colorless liquid with a sweet taste and the flavor of caraway, leaving an after-taste of metallic character. The specific gravity at 60° was 1.45. Four assays of this solution were made by precipitating the bismuth as ter-sulphide by means of an excess of sulphide of sodium, and the average results of these assays were eight and one-half grains of ter-sulphide of bismuth from each fluid-ounce, equal to seven and seven-tenths grains of ter-oxide of bismuth, or fifteen and four-tenths grains of ammonio-citrate of bismuth. This solution, then, is just what it purports to be, as stated on the label, which claims that the solution contains sixteen grains; the deficiency of six-tenths of a grain in a fluid-ounce being so small that it may be referred to the loss consequent on the manipulation in making the assay.

No. 2. A colorless liquid, having an alcoholic odor and a specific gravity of .995; it was free from flavor and sugar, having only an alcoholic flavor, and the peculiar metallic after-taste of ammonio-citrate of bismuth. The average result of four assays was five and six-tenths grains of ter-sulphide of bismuth, equal to five and eight-hundredths of grains of ter-oxide of bismuth, or ten and sixteen-hundredths grains of ammonio-citrate of bismuth. The label on the bottle of this liquor bismuth states that each teaspoonful of the solution contained two grains of the ammonio-citrate of bismuth, which would be sixteen grains of the bismuth salt in each fluid-ounce. The quantity found was only 10.16 grains, showing a deficiency of about six grains in each fluid-ounce.

The writer has found the loss of citrate of bismuth in his practice to be about seven per cent., a quantity too small to pay for the time and trouble of regaining by the use of sulphuretted

hydrogen, but by the use of sulphide of sodium it may be readily recovered; yet, unless the quantity is large, it will not pay. In working with twenty ounces of subcarbonate of bismuth it will require about six gallons of water to free the citrate of bismuth from the nitrate of potassa formed in the process, and in these washings the small portion of citrate of bismuth is found in a very dilute solution.

Boston, Mass.

NOTE ON THE CULTURE OF SAFFRON IN PENNSYLVANIA.

BY CHARLES A. HEINITSH.

Crocus Sativus.—Saffron, until the last few years, was cultivated in Lancaster County, Pa., to considerable extent, particularly amongst the German portion of its inhabitants, for its use as a flavoring and coloring ingredient in soups and tea, and as a domestic remedy for measles and other febrile diseases, besides making an ornamental flower-bed in their gardens.

Saffron requires a rich soil to grow it abundantly. The usual mode of cultivating it is to prepare the bed by digging deep and filling up with manure and rich soil, planting the corms or bulbs, after separating the young from the parent,* about eight inches apart in rows, (similar to onion sets,) in the month of August. Care is necessary to keep the beds free from weeds.

The flowering season commences about the middle of September, and continues until the beginning of October, according to the locality of the bed. The flowers are picked off early in the morning; the stigmas separated and dried in the shade. This continues every day until the season ends. The leaves remain green all winter. The following June the beds are cleansed from the decayed leaves, and left until renewing time in August.

Saffron must necessarily be dear, says Mr. Bently, in an article on adulterations published in last May's number of *Journal of Pharmacy*, because it takes a great number of flowers to make a pound; and there are other causes, viz., failure of

* The young corms or offshoots are attached similar to colchicum.

crops from excessive rains or drought, and attacks of the field mice, which destroy the bulbs. But withal, when we remember that all our products of the garden and farm are liable to failures from various causes, though probably not to such an extent, I think it can be profitably raised, judging from the following two calculations, taken as an average :—On inquiry from some of the growers, one informed me that about 3,000 flowers, or 9,000 stigmas, can be raised off a bed 12×6 feet = 72 square feet. Another, that often in a good season between 2,000 and 3,000 flowers can be had in one morning's picking off about 500 square feet, and this continues for a number of mornings, though not always with so large a number. These two make about the average result of experienced growers.

In counting and weighing the stigmas, I find, after several trials, that 300 weigh 13 to 14 grains, which would be a yield of about 420 grains to 72 square feet, or 33 to 36 pounds to an acre. If these calculations only approximate to correctness, at present prices it will be very remunerative to the grower in comparison with many other products.

Specimens of the stigmas and corms are submitted.

Lancaster, Pa. —*Proc. Amer. Pharm. Assoc.* 1866.

METALLIC LEAD IN FLOUR.

BY JAMES T. KING.

Within a radius of five miles of Phillipsburgh, near Middletown, Orange Co., N. Y., there occurred, during the months of February, March and April last, about two hundred and fifty cases of sickness, presenting the same symptoms, attacking often all members of a family, and for a while baffling the efforts of physicians to detect the cause; for notwithstanding the symptoms pointed strongly to lead poison, no family would admit the use of anything by which lead might have been taken into the system, in their food or drink.

The physicians' suspicions soon rested on the flour used for bread, and a sample was brought in, with the request that it be examined for lead.

The absence of all soluble salts of lead. was first ascertained.

The flour was then examined with a microscope, and minute particles of a dark metallic lustre were observed. These were dissolved in dilute nitric acid, filtered, and divided into three parts.

Iodide of potassium added to first, caused a bright yellow precipitate.

Chromate of potassa added to second, gave a yellow precipitate, soluble in potassa, but insoluble in dilute nitric acid.

Sulphuretted hydrogen was passed through the third part, causing a black precipitate, these reactions indicating lead.

By quantitative analysis I obtained .06 per cent. of sulphate of lead, equivalent to .0528 per cent. of neutral carbonate lead, which is equivalent to .041 per cent. of the metal. This would give 2.87 grains of metallic lead to one pound av. of flour.

The flour used in all of the families who were thus affected by lead was traced to one mill at Phillipsburgh, and on investigation, it was ascertained that a few weeks previous to the occurrence of these cases of lead poisoning, the miller had filled a number of the cavities in the burr-stone with metallic lead, some of them being quite large, and requiring several ounces of metal.

The burr-stones used in flouring mills are made of from 10 to 14 pieces or sections, firmly bound together, and the joints cemented with calcined plaster.

They are more or less porous, and by the necessary attrition, or wearing down of the surface of the stone in grinding, cavities are exposed, varying in capacity from a few minims to a fluid-ounce or more. These being filled flush with the surface of the stone, the lead must have gradually worn down, and fine particles became mixed with the flour; but from the percentage in the sample examined, it is probable that some of the lead became detached, and was ground into fine thin scales, sufficiently minute to pass through the bolt-cloth and mingle with the flour. This finely comminuted lead, submitted to the action of the carbonic acid, generated during the process of fermentation in preparing the flour for baking, would, in a great measure, be converted into the carbonate, one of the most poisonous salts of lead. The knowledge of the use of lead for such purpose, and of its injurious action, caused quite general inquiries to be made as to a like use of lead in other flouring mills in the vicinity, and a number were found where more or less lead was used.

One object in submitting this statement is to direct attention to this heretofore unsuspected contamination of an important article of food ; and if the practice is but in part followed throughout the country, will not this hidden source of disease aid in accounting for the increased ratio of paralysis noticed by medical men ?

Middletown, N. Y.

A DISCOURSE ON TITLES, ETC.

BY EDWARD PARRISH.

By the public acts of this Association and of the several Colleges of Pharmacy, we have repeatedly asserted our claim to the title of a Profession—the Profession of Pharmacy ;—but the public, for whom we labor and from whom we claim the fruits of our labor, are no doubt variously impressed with the justness of this claim according to their appreciation of us individually, and their understanding of the term Profession as thus applied.

Do we make good our claim by corresponding actions ? The so-called profession of medicine has a well recognized status in the community ; it has been for centuries placed in a separate and quite distinguished niche in the social edifice. Doctors were long expected to appear in broadcloth, with well polished shoes, clean soft hands and well shaven chins. They must carry themselves with a genteel and professional air, and converse in good English with some show of classic lore.

The professional intercourse of such with the public is somewhat reserved ; guided by rules of ethics that shut them out in good degree from the ordinary effects of competition, they sit in closed offices, approachable only by a knock or ring at the bell. Neither trafficking in merchandize nor creating material products, their commodities are knowledge and skill, and they exact fees rather in proportion to their reputation than the amount of labor bestowed.

In which of these points, brethren of the pestle and mortar, do we resemble these professional men *par excellence* ? As we look over our Conventions, do we recognize that odor of gentility,

that professional air, which in popular estimation would entitle us to range with these distinguished classes ?

I admit that in regard to dress and manners the old-fashioned distinction to which I have alluded has in good degree disappeared with the progress of civilization and refinement, and he must be ignorant indeed who would found any classification of his fellow citizens upon such unmeaning particulars.

Language furnishes a rather higher grade of distinction, generally giving some clue, if not to the extent and variety of education, at least to early domestic training and culture, yet who has not known most esteemed doctors of the law, of medicine and even of divinity, who have misused and mispronounced the plainest words, and have talked as unpolished English as an ordinary tradesman or mechanic ?

The truth is that now-a-days the masses are being brought up in general education and refinement where the learned professions were two generations ago, and if asked to select models of intelligent, influential and even cultivated men we should probably find almost as many in mercantile circles and among master mechanics, bankers, financiers and business men as among those formerly characterized as of the learned professions.

A long recognized difference between the professional man and tradesman has been adverted to in the fact that the former deals in ideas and opinions, and is approached through some formality in a dwelling or office, while the latter, to use the familiar phrase of the English, keeps open shop, buying and selling merchandize for a profit.

If we were to picture a preparer and dispenser of medicines who should justify the public estimate of a strictly professional man we might fit him out somewhat as follows : He should have a neat suit of rooms in a building having no aspect of a shop, no bulk windows or show cases. On entering the reception room the patron should be shown to a seat, furnished with suitable reading matter during the necessary detention. The prescription to be compounded should be taken to the laboratory adjoining, duly registered and prepared. Any medicine or medicinal appliance which should be sought without a physician's prescription could be furnished to order, or might be the subject of con-

sultation with the pharmacist, whose office should adjoin the reception room and the laboratory, and be furnished with analytical tests and apparatus, a scientific library and other conveniences. The stock, which would be strictly confined to those articles needed in sickness and as dietetics, would be arranged in the laboratory and store room and need not be displayed to the view of the public.

The numerous fancy articles, appliances for the toilet and empirical preparations which are displayed in cases in our shops, would be missed from this genteel and professional pharmacy, and their places might be filled by many appropriate and attractive features combining utility and ornament.

The proprietor of this establishment must of course be an educated man, possessing a full and accurate knowledge of all the sciences accessory to his art; his attention would be directed to giving advice equally to physician and patient, who would resort to him on the ground of his superior attainments and exclusive devotion to the professional duties pertaining to the selection, preparation and dispensing of medicines. Eschewing every species of quackery and depending only upon intrinsic merit for success, such a pharmacist might be independent of competition, and if he possessed adequate personal qualifications for his profession, a good situation and large constituency, and was respected by the medical profession as he would deserve, he might demonstrate the feasibility of taking from Pharmacy its unprofessional features and giving it the external appearance of a profession.

Keeping open shop is certainly in no sense degrading, and I would not in this portraiture of the ideal professional pharmacist be understood as setting him one whit above those of us who, in good faith toward physicians, the public and each other, fulfil the obligations of our present position; the establishment of such a professional dispensing office would be an experiment upon the public demand for something more *recherché* than we now have in this country, but it would not insure more accuracy or neatness in the execution of prescriptions or more completeness in the arrangements for supplying the wants of the sick than at present are secured in hundreds of our first class shops.

As to dealing in ideas and opinions constituting a feature of professional as contradistinguished from other pursuits, even that distinction fails when we consider how large a share these elements have in many other branches of trade and business. Science has entered the work-shop and counting-house, and is perhaps more thoroughly appreciated in many other industrial occupations than in medicine, while those branches of education the aggregate of which constitute what is technically called learning, find votaries in those of almost every business pursuit.

Our plain republicanism in America has happily abolished the aristocratic titles in which many Europeans delight, and it is equally proper that we should confine ourselves in the circles of science and professional learning to those titles which convenience calls for. The title of *Doctor* applied to the practitioner of medicine is convenient but not always indicative of a high grade of attainment. Practically it means something far less dignified than was intended when it was applied only to individuals of distinguished learning and ability.

Some years ago a physician of repute in the South, who attended my course of instruction in Pharmacy and seemed to have a pretty high appreciation of my knowledge and skill, said to me, why dont you matriculate in some medical school and get the title of M. D. to add to your name? You would find it very promotive of your reputation. This is not an exclusively southern idea, though perhaps more general in those communities in which labor is least respected; it pervades somewhat our practical northern thought, but I trust is diminishing as genuine republicanism grows. As if to cure any undue estimate of this title, it can be had from legally authorized Colleges almost for the asking.

In medicine several kinds of *pathies* are represented by chartered Colleges, and even the so-called regular practice has cheap concerns sailing under the name of Colleges and even Universities, duly authorized to confer the M. D. upon any ignoramus who may seek it at their hands almost without study—quite without any adequate instruction. Moreover, anybody who wants to present to the public his valuable cure for cancer or consumption may prefix Dr. before his name or M. D. after it, and whether

the title came to him through the formalities of a College commencement, or was assumed unasked to promote the ends of his business, it serves as a handle to his name useful in deceiving the most ignorant, but of no account in the estimation of men of intelligence and good sense.

The term *Professor* is sometimes put very prominently before us as one of superior distinction—a still larger handle to the name. We have, however, professors of hair cutting, of carpet shaking, of dancing and of the “noble art of self defence,” as well as of medicine or surgery, and if we may judge of the public appreciation of the term by the use made of it in the newspapers, it has a much wider significance than that of men of learning or science appointed to the office of teachers by incorporated Colleges, which is its technical definition.

I have alluded to the fact that among us competition is equally open to all who please to invest the necessary energy and capital in business. We have Colleges of Pharmacy and give Diplomas, and a title (which, however, is not commonly used,) and although I would be the last to discourage pharmaceutical education as carried on in these institutions, believing it to be of incalculable value not only to individuals availing themselves of them but through them to the whole community; yet we cannot disguise the fact that the Diploma is very far from giving assurance of any real superiority. Most young Pharmacists of energy and enterprise appreciate scientific knowledge so highly as to seek the Colleges and to obtain a Diploma, and yet if we look for those in our several communities who enjoy the largest share of patronage both from physicians and the public, we shall find a considerable proportion of them have never attended upon systematic instruction in a College. The young graduate in Pharmacy struggling into business thinks it very hard that he should be outstripped by a competitor who shows no diploma, and yet he finds sooner or later that, in the race for business, he wins who is the best business man, and applies himself with the most energy and ability to serve the public.

On the subject of legal protection my views have changed with the growth of experience; formerly I could see many reasons for legal restrictions protecting the professions from the results

of competition, and bestowing a sort of bonus upon scientific acquirements. Now, it appears to me that like all other partial legislation, this restrains rather than promotes the great interests involved. Let us extend intelligence among the masses, and break down every false pretense by fair and equal competition, trusting to the good sense of the people to promote and conserve the cause of education and of the public health.

Since, then, the claim the educated preparer and dispenser of medicines makes to the title of a professional man is but partially acknowledged by the public, and since in our time and country it is no discredit to the most accomplished man of science that he thrives through the honest pursuit of a useful trade, I, for one, am willing to abandon any such pretensions to the professional character as involve the use of a title of distinction.

A name or title to designate our calling is, however, a desideratum; a title which should at once be brief, distinctive, intelligible and universal, for, strange to say, though the craft of the apothecary has been practiced more or less, in connection with the science and art of medicine, from the earliest periods of which we have historical records, we have in our language no universal method of designating it. The term *Apothecary* has a different meaning in England from that applied to it on the continent of Europe and in this country. In England they call a man a *Chemist and Druggist*, who in the United States would be called a *Pharmaceutist*, though this latter term is by no means universal among us, our brethren in New England, still calling themselves apothecaries, and a very large number in all sections of the country having never yet adopted the new word *Pharmaceutist*. The French have a good name for the purpose in *Pharmacien*, and some among us have anglicized this, spelling it *Pharmacian*, corresponding in termination with physician and an improvement upon its four syllaballed synonym. This is very rarely used, however, and I think rather less adapted to our purpose than *Pharmacist*, the term I have used in this paper and which I am inclined to prefer, from its close correspondence with druggist and chemist, its easy pronunciation and spelling, and its being short and hence convenient to write and to speak. It may be said, as we have no uniformity in the use of the old terms, why introduce a new one

to complicate the matter. I reply that I consider the whole question of terms an open one at present. Uniformity would now be quite impossible, and it is necessary that by discussion we should arrive at a clear and well considered choice, adopt a term that would be uniformly acceptable, and give it the sanction of a formal approval by this and other representative bodies of those interested. This is one of the subjects which has a common interest for this Association and the British Conference, and if Pharmacist or Pharmaciaan should be the noun adopted to designate the individual, Pharmacal* might be the adjective used in connection with the respective names of our Associations, and wherever we now use the very long and awkward word Pharmaceutical. In this connection the names to be applied to our stores or shops should also be discussed. Some Pharmacists have quite repudiated the very proper term of *shop* as applied to their places of business, preferring the more pretentious word *store*, in fact the general practice indicates that choice. To this is added the adjective Pharmaceutical, or more frequently drug and chemical, sometimes all three. Since the nature of the business is equally well understood by the public in either case, the sign being less important than the appearance of the front window and of the shelving and show cases within, it becomes a matter of choice with each individual how he will designate his business on his sign, his business cards, his labels, or in his advertisements. Acting on this principle I have selected the name "Pharmacy" to designate my place of business. I find it convenient, brief and sufficiently distinctive, though liable to these apparent objections. The term Pharmacy is applied in a general way to the science and art which we practice, and the use now proposed for it is such as to give it a direction to the place in which we practice it. Moreover, my treatise on Pharmacy is commonly called among booksellers "Parrish's Pharmacy;" my store has the same appellation. These objections should be considered, however, in connection with the acknowledged flexibility of language, and the fact that the connection in which a word is used greatly modifies its accepted meaning. During the several years that I have applied it in that way it has served me a good purpose. As

* Pharmacial, as suggested at page 78.

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differently spelled, (Pharmacie) it serves the whole French nation for the same use, and I believe if it were generally adopted it would be like some other things we have borrowed from France, an improvement.

ON THE SPECIFIC GRAVITY OF MEDICINAL CHLOROFORM.

BY JOHN M. MAISCH.

While the U. S. Army Laboratory at Philadelphia was in operation, large quantities of chloroform were prepared. It being our aim to furnish all preparations in every respect up to the requirements of the Pharmacopœia, it was aimed to have the specific gravity of the chloroform between 1.490 and 1.494. A record kept of 44 carboys, with the specific gravity taken by the one-thousand-grain bottle, shows that 18 came fully up to the Pharmacopœia, ranging between 1.4901 and 1.4933. The other 26 were mostly only an insignificant fraction below the former, while several carboys were as low as 1.4841, 1.4844, 1.4846, 1.4860, &c. These variations are easily accounted for, if it is borne in mind that the preparation was made on a very extensive scale, and that in practice the specific gravity is taken with a hydrometer; then the result will be easily affected by a reduction of the temperature caused by the rapid evaporation of the chloroform, thus making the latter appear heavier than it in reality is.

It was observed that this chloroform decomposed much more rapidly than that of other manufacturers, and it was determined to ascertain the cause of it.

In the first place, pure chloroform, which had been furnished to the medical department of the army, was procured. Of fourteen samples, eleven were below 1.480, the lowest being 1.4760, the highest weighed 1.4806, 1.4815 and 1.4837. On exposing these and some made at the Laboratory to the direct sunlight, the latter was decidedly acid in the course of a day, while the former withstood the action of the light for two or three days, and its decomposition did not proceed quite as fast as in the other case.

A portion of the heavy chloroform was reduced by the addi-

tion of a little strong alcohol, when it withstood the decomposing influence of light quite as well as the samples referred to.

Some of these latter were now rectified, in order to obtain them of the standard gravity of the Pharmacopœia. Sulphuric acid was carefully avoided, because it has been asserted by some that it makes chloroform prone to decomposition. By one simple rectification from a water bath, the gravity of chloroform is not much increased. But, if previously washed with water, and rectified over chloride of calcium in a water bath, it may be obtained of the full strength required by the Pharmacopœia. If this chloroform was exposed to the light alongside of that prepared at the place, no difference could be observed in their behaviour, both being decidedly acid after one day's exposure.

It was next thought that probably the impurities contained in chloroform might cause its rapid decomposition. Some was rectified from a very carefully-regulated water bath, and it was again observed that 98 per cent. may be obtained in this way of such a purity that sulphuric acid will not be affected in the least.

This perfectly clean chloroform generated free chlorine quite as rapidly as before; if diluted with alcohol to below 1.480, it was unaffected by the light.

Mr. Augustus Henkel, now of Cincinnati, and, for a time, one of my valuable assistants at the Laboratory, made a series of experiments on the effects of light, the results of which I subjoin herewith. The chloroform used for the experiments had a specific gravity of 1.492 at 70° F., was absolutely free from acid reaction, and imparted no coloration whatever to sulphuric acid. The diluted chloroform was made of eight ounces of the former, by the addition of one fluidrachm of strong alcohol. The bottles used for the occasion were made of flint glass, of uniform size and shape, and filled alike. The experiments lasted one week during the hot days in August, 1865.

1. *Experiments with pure chloroform.*

Appearance and reaction of chloroform at the end of the week, when kept

	a. In the dark.	b. In daylight.	c. In direct sunlight.
Bots. glass-stop'd.	Extremely slight reaction.	Decidedly acid.	} Free chlorine in yellow drops and suffocating odor.
" corked.	" " "	Slightly acid.	
Cans soldered.	Unchanged.	Unaltered.	Unaltered.
" corked.	Hardly recognizable.	"	"

2. *Experiments with diluted chloroform.*

Appearance and reaction at the end of a week when kept

	a. In the dark.	b. In diffused daylight.	c. In direct sunlight.
Bottles*glass stoppered.	Unchanged.	Unchanged.	Unchanged.
" corked.	"	"	"
Cans soldered.	"	"	"
" corked.	"	"	"

It was concluded from these experiments :—

1. That in order to preserve pure chloroform of specific gravity 1.49, it should be kept totally excluded from the light.
2. That to keep chloroform in the daylight, it should be reduced in specific gravity by the addition of about two fluidrachms of 95 per cent. alcohol to one avoirdupois pound of chloroform, sp. gr. 1.492.

During the repetition of some of these experiments, attention was drawn to the presence of moisture in some of the bottles, and it was determined to try its effects on chloroform; accordingly, chloroform of 1.492, dried by standing over chloride of calcium, was kept in absolutely dry bottles and in bottles slightly moist, and both kinds exposed to diffused daylight and direct sunlight. The bottle containing the moisture always showed the presence of free chlorine much sooner than the dry one, though the entire absence of moisture would not be sufficient to preserve the chloroform unaltered. But, if the chloroform had been reduced in specific gravity to 1.475 or less, the presence of several drops of water in the bottle would not induce the liberation of chlorine after an exposure of two weeks to the direct sunlight.

No difference in the preservation and decomposition of chloroform could be observed if the bottles were stoppered with glass or cork.

Commercial chloroform was afterwards procured from several manufacturers, and in all cases it was found to have a specific gravity less than 1.480, or barely exceeding it.

I have not found the time yet to prepare absolutely pure chloroform that is absolutely free from water and alcohol, to study the effect of light upon it when preserved in absolutely dry bottles. But even if light should then have no influence on it, it would, for pharmaceutical and medicinal purposes, be of no avail whatever, since the condensation of moisture upon the

bottle in damp weather could not be prevented, and would render the chloroform again prone to change.

The practical results of these experiments are the proof that chloroform, to keep it from getting acid, should be reduced in specific gravity to about 1.475. This is effected by adding to one pound of chloroform of sp. gr. 1.492 two fluidrachms of pure 95 per cent. alcohol; the water which collects upon the surface, on standing, can be easily separated. But since, according to my experience, manufacturers always make it of about that specific gravity, the addition of alcohol to the chloroform, as met with in commerce, is unnecessary.

For medicinal purposes, that is, for inhalation, this amount of alcohol would be unobjectionable, since it amounts in one fluid-ounce only to about forty drops.

EXAMINATION OF BRANDY AND WHISKEY.

BY JOHN M. MAISCH.

At the meeting of the Association held at Cincinnati in 1864, I reported on the assaying of brandy and whiskey as done by me at the U. S. Army Laboratory, at Philadelphia. Since the civil war is ended, and operations have been discontinued at the establishment named, I propose to make a few observations on the samples of the above medicinal liquors that were submitted to my examination, prefacing them with some remarks on the fusel oil test selected by me.

Fusel oils, or fermentolea, are oily compounds, formed during the fermentation of saccharine and amylaceous substances, and imparting their peculiar odor to the alcohol generated. They consist of amylic alcohol or fusel oil proper, particularly if obtained from amylaceous material, and of different ethers of the fatty acid series. In examining alcoholic liquids to ascertain their origin two methods are followed: either the alcohol is absorbed by some substance, in order to develop the fusel oil odor and make it more perceptible, or else the alcohol is expelled and the fusel oil retained behind. If alcohol is slowly evaporated at a very moderate temperature a portion of the fusel oil will remain

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behind with the aqueous residue; but owing to the diffusion of vapors into each other a great portion of the fusel oil is carried off with the vapors of the alcohol; a loss of fusel oil is thus unavoidable.

Should the alcohol be absorbed, for instance, by carbonate of potassa, no loss will occur, but the odor will not become very prominent, because the alcohol will generally not combine chemically, consequently its odor will, to a certain extent, be mingled with that of the fusel oil. Since this latter contains usually some amylic alcohol, and since the ethers referred to above (if their acids occupy positions in the series in close proximity to each other) have a great similarity in their odor, much more so than the same acids in their free state, the liberation of these acids offers more chance for recognizing and distinguishing the fusel oils, of which they are a component part. Upon this idea Molnar's test is based, consisting in adding caustic potassa, evaporating the alcohol, supersaturating with sulphuric acid and recognizing the fusel oil by the sense of smell. In my opinion it is the best yet proposed.

To be of any value much experience is required, constant practice and a familiarity with the fusel oils of different origin; with these requisites it cannot be uncertain, but we may even become able to determine the variety of different brandies or mixtures of several liquors with the same certainty with which experienced liquor dealers detect them by the taste. With them it is indispensibly necessary to cultivate the organs of taste, there to cultivate the organs of smell to a very high degree. In both ways satisfactory results may be obtained, although precise chemical reactions would be of greater scientific value.

From the time my last report was submitted, until March, 1865, when the last samples of brandy were received, thirty-five were examined, none of which was factitious. Seven of these samples were below 60 per cent., the lowest containing 56 per cent. alcohol; one contained 64, and four 63; the balance between 60 and 62 per cent. alcohol. The samples were mostly of new brandy, probably none being over two years old. The lowest quantity of $\frac{1}{10}$ NH₃ required for 20CC M brandy was .3, .4 and .45CCM.; the highest was 1.42CC M.

During the eighteen months following our meeting in 1864, I have assayed fifty samples of whiskey, nearly all of which were of good quality, ten being below proof, the lowest containing only 44 per cent. Two of the number required for 20CC M. only .2CC M $\frac{1}{10}$ n NH_3 ; the oldest 1.75CC M; the range being about the same as in my former report, as is also the case with the alcoholic strength, one sample running as high as 60, two 56, but most ranging between 50 and 53.

It is proper to state that all the samples mentioned in my two reports were taken from barrels; all whiskies and brandies examined at the U. S. A. Laboratory, which had been bottled to supply the trade, were below proof, whiskey sometimes from five to ten per cent.; bottled brandy usually contained only from forty-five to forty-six volumetric per cent. absolute alcohol.

ASSAYS OF SHERRY WINE.

BY JOHN M. MAISCH.

In 1864, I had the pleasure of presenting to the Association a paper "on the quality of sherry wine of our commerce and its assay." Believing that the recording of such assays may prove eminently useful for future researches on similar subjects, I now lay before your body the results of all assays of such wines that were made at the U. S. Army Laboratory, at Philadelphia, from October 1864 up to the close of our late civil war; they are embraced in the following table arranged like that contained in my report of 1864:

No. 69 was Lisbon wine, and resembled closely, except in age, the Lisbon wine assayed under No. 30 of my former paper which was as follows:

.990	20	3.	.426	6.9	2.449	1.015	3.75
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Not taking into account the two samples of Lisbon wine, a record has been kept of the composition of 67 samples of commercial Sherry wine. Of that number 12 had a specific gravity between .991 and .995, 20 between .986 and .990, 25 between .980 and .985, 6 samples between .978 and .980 and of 4 it was not noted; the average specific gravity of the first 27

samples was 988, of the last 36 samples 985, and of the 63 samples noted it was 9865.

Number.	Specific gravity.	DISTILLATE.			RESIDUE.					
		Percentage of alcohol.	c. c. m. 1-10th NH_3 for 20 c. c. m.	$\text{C}_4\text{H}_4\text{O}_4$ in one pint.	c. c. m. 1-10th NH_3 for 10 c. c. m.	$\text{C}_8\text{H}_6\text{O}_{12}$ free in 1 pint.	Specific gravity.	Percentage of extract.	Contained citric acid.	
33.—981	18	.58	.082	grm.	4.6	1.633	grm.	1.007	1.75	None.
34.—982	19.5	.25	.035		3.8	1.349		1.010	2.50	"
35.—990	16.5	.85	.120		6.9	2.449		1.018	4.50	"
36.—980	17.5	.83	.118		6.0	2.130		1.010	2.50	"
37.—985	20	.45	.063		4.	1.420		1.015	3.75	"
38.—990	19	2.1	.298		6.1	2.165		1.017	4.25	"
39.—978	20	2.1	.298		6.9	2.449		1.005	1.25	"
40.—985	20	.71	.101		6.3	2.236		1.012	3.00	"
41.—985	22	1.2	.170		3.5	1.242		1.016	4.	"
42.—985	22	.93	.132		4.8	1.704		1.014	3.5	"
43.—988	20	.95	.135		4.6	1.633		1.015	3.75	"
44.—985	22	.98	.139		4.3	1.526		1.013	3.25	"
45.—982	18.5	.3	.043		3.1	1.102		1.010	2.5	"
46.—986	15	1.9	.270		6.2	2.203		1.010	2.5	"
47.—991	17.5	1.15	.163		5.5	1.952		1.013	3.25	"
48.—988	19.5	1.58	.224		5.0	1.775		1.014	3.5	"
49.—985	21	1.8	.256		4.9	1.739		1.015	3.75	"
50.—982	21	.85	.120		4.8	1.704		1.008	2.	"
51.—984	17.5	.45	.063		3.9	1.384		1.010	2.5	"
52.—985	21.5	.82	.117		5.1	1.810		1.014	3.5	"
53.—980	18.5	.3	.042		2.7	.958		1.007	1.75	"
54.—985	22	1.85	.263		5.8	2.059		1.017	4.25	"
55.—995	16	1.	.142		6.5	2.307		1.020	5.	"
56.—986	24	1.8	.256		6.5	2.307		1.016	4.	"
57.—984	23.5	1.9	.270		7.	2.485		1.014	3.5	"
58.—981	23	?	?		7.1	2.520		1.012	3.	"
59.—994	17.5	1.5	.213		5.4	1.047		1.021	5.25	"
60.—986	19.5	1.1	.156		4.8	1.704		1.015	3.75	"
61.—983	22	1.1	.156		5.7	2.023		1.012	3.	"
62.—985	22	.9	.128		5.1	1.810		1.012	3.	"
63.—985	22	.8	.114		5.2	1.846		1.012	3.	"
64.—984	20.5	.58	.082		2.7	.958		1.011	2.75	"
65.—982	19.5	.35	.050		2.4	.852		1.009	2.25	"
66.—982	20.5	.35	.050		2.7	.958		1.010	2.5	"
67.—985	17	1.6	.233		5.5	1.952		1.010	2.5	"
68.—987	15	1.25	.177		4.6	1.633		1.015	3.75	"
69.—991	19	.9	.138		5.7	2.023		1.016	4.	"

The percentage of alcohol was below 20 in 26 samples, between 20 and 22.5 in 32 samples, and between 23 and 25 in 9 samples; the average per cent. of 31 samples was 21.5, of the last 36 samples 19.74, and of all the 67 samples 20.34 per cent.

The largest amount of volatile (i. e. acetic) acid in the second series of assays was found in Nos. 38 and 39, being .298 grammes per pint, or .028 grammes less than in the first series; the average amount in the first 31 samples examined was .1375, in the last 36 it was .146, and in 67 samples .1424 grammes per pint.

The smallest amounts of free tartaric acid in one pint reported in the present paper is .852 grammes (No. 65,) and .958 grammes in Nos. 66, 64 and 53 against 1.207 grammes in No. 29. The largest amount was found in No. 58, being 2.520, while the first series contained 2.84 (No. 3,) 2.66 (No. 4) and 2.591 grammes (No. 17.) The average of the first 31 samples was 1.964 grammes, of the last 36 it was 1.751, and of the 67 samples examined 1.850 grammes.

The extractive and sugar showed the same variation as with the samples assayed before; the amount ranged between 1.25 and 5.25 per cent. The 31 samples reported on in 1864 averaged 3.46, the last 36 had a mean of 3.19, and the 67 samples examined 3.27 per cent.

The average figures, deduced from a series of 67 assays of wines of high and low grade, will give a pretty accurate idea of what a Sherry wine of fair quality ought to be.

Regarding the value of acetic acid for estimating approximately the age of wines, my remarks under 4 in my former paper have been found fault with in certain quarters. I say there:

"Diluted alcohols, on exposure to air, gradually form a small quantity of acetic acid, which increases by age; therefore, wines containing the largest percentage may be considered the oldest."

I was told that *new* American wines always contain a large quantity of this acid, and that for this reason the amount of acetic acid could not be regarded as a criterion of the age or quality of wines; it was further stated that, according to my deductions, a wine that had undergone acetic fermentation would have to be regarded as the best.

If the tenor of my whole paper presented to your body in 1864

is taken into account, it seems strange how such objections could have been raised. I nowhere claim that the acetic acid found by me in commercial Sherry wine, should be regarded as a standard for other wines, nor do or did I advocate the selection of Sherry or any other wine merely for the amount of free acetic acid that may be contained in it, without regard to its limits or without taking into consideration whether the wines have undergone or are in a state of acetic fermentation. While Sherry wine in common with all largely diluted alcohols, on exposure to the air, forms some acetic acid, which necessarily must increase with the continuance of such exposure, consequently with its age, it is not at all unlikely that the quantity formed in time may be limited, if direct acetic fermentation is prevented; this is a matter, however, which I have not touched, and which would take several years to investigate. But I do not even claim any more than a secondary importance for the acetic acid, only in so far as it is likely to aid in estimating approximately the age of the wine, for I distinctly state (see page 303 Proc., 1864) that in importance the principal constituents seem to rank in the following order: alcohol, sugar and extractive, acids, always taking the age of the wine in account, which, aside from the taste, can be best judged of from the percentage of the volatile (acetic) acid.

STATISTICS OF THE U. S. ARMY LABORATORY AT PHILADELPHIA.

BY JOHN M. MAISCH.

During our late civil war, Dr. Wm. A. Hammond, while Surgeon General of the U. S. Army, conceived the idea of establishing laboratories for the purpose of manufacturing the medical supplies for our vast armies. Heretofore the medical department depended on purchases of their wants in the open market, or chiefly on contracts. Some of the contractors furnished the required medicines of fair or even the best quality; but a very large amount was either so inferior or actually worthless, that the head of this important department worked energetically to carry out his idea, in order to supply the army with medicines of uniform and good quality. It was, I believe, in 1861 when the

Surgeon General, in his annual report to Congress, advocated the establishment of laboratories ; but it was not until the beginning of the year 1863 when his plans could be carried out under orders emanating from the War Department.

Two laboratories were established, one at Astoria, near New York, the other one at Philadelphia, and the writer has had the privilege of organizing the latter under the direction of Dr. A. K. Smith, Surgeon U. S. Army, and of remaining in connection with it until after the cessation of hostilities. To the clear judgment and the uniform courtesy of this efficient officer, as well as to the zealous aid extended to the writer by Dr. R. Murray, Surgeon U. S. A., at that time Medical Purveyor at Philadelphia, he mainly attributes his success in organizing this large establishment in so short a time, and in being able to commence operations long before the time fixed by the Surgeon General, who watched the progress with untiring interest, but never attempted to interfere with its organization, arrangements or working.

The writer arrived at his field of labors about the middle of March, 1863, and found some empty buildings rented for the purpose, which some years before had been used for a similar business, but which had only partially recovered from the effects of a flood, which visited that part of Philadelphia some six months previous. About five weeks afterwards, the engine was in running order, and the preliminaries so far arranged that work could be commenced, and on the first of May the filling of the preparations was begun with a force of three young ladies, which number in the course of time was increased to somewhat over 100 hands. Soon after a sewing department was connected with the establishment, for the manufacture of bed clothes, towels, drawers and shirts. With this department I had nothing to do, and in a short time it increased to such an extent that another large building was taken possession of, and that about 72 sewing machines and some 250 hands were employed there at one time.

The writer intended to work out a complete history of the internal arrangements, the operations, manipulations and final results, but he finds that this would require much more time than is at his command. It is to be regretted that so vast an amount of material valuable to practical pharmacy should be lost or

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remain forever buried, scattered through the various books kept at the establishment; it would require several months' labor by a thoroughly competent person, who is perfectly familiar with all the operations, &c., to sift the facts and arrange them. The writer has had time only to finish a report on the quantities of the different materials and a comparison of the cost to the Government, with their actual market value at the time of issuing them.

Besides the counting-house, the receiving, packing and shipping department, a department for receiving, storing and delivering glassware, tin cans and packing boxes, a wash-house for cleaning bottles, a stoppering room for supplying the glass-stoppered bottles, the necessary superintendence of the steam boilers and engine, and the analytical room for examining the crude articles and manufactured preparations, the labor for converting the drugs into the chemical and pharmaceutical preparations needed in the Hospital Department of the Army was divided into the following departments: A *mill-room*, for drying the drugs and reducing them to coarse or fine powder as required; a *still-room*, for furnishing all pharmaceutical and such chemical preparations in the manufacture of which steam could be employed; a *furnace-room*, where preparations were manufactured by the aid of fire; an *ether house*, being a separate building for the manufacture of chloroform and ethers; and a *filling department*, in which female hands only were engaged, and with which the manufacture of isinglass plaster, pills and bandages was connected.

We have been fortunate enough to have had valuable superintendents in these different departments, whose efforts facilitated the task of systematizing the labor so as to work to the advantage of Government and to their own credit; some of them now occupy responsible positions in private manufacturing laboratories.

The writer considered it of great interest to preserve statistical information, and the statements contained in the accompanying list may be relied on as correct. I may state here that the calculations of the market value are based on the price lists of large manufacturers, issued at the time when these preparations were delivered to the medical purveyor. To my certain

knowledge, some contractors have charged much higher prices than the original manufacturers would have charged, and in comparison therewith the savings would have been still greater. It is scarcely necessary to state that in the calculation of the cost of the preparations, *all expenses* were included.

When this laboratory went into operation, the stock of medical supplies on hand at the purveying depot in this city was very large, some portions of it never being exhausted through the continuance of the war. The list will therefore not give an accurate account of what passed through one of the large medical purveying depots during the existence of the laboratory up to the close of the war. Moreover, preparations which were on hand, or to make which we possessed all the facilities, were frequently bought in the market or ordered from private parties by medical purveyors in other cities, so that we occasionally worked to replenish our stock while such private parties worked for immediate supply.

Although not knowing the minutiae of the manner of supplying the army during our late war, it appeared to the writer's uninitiated eyes that the system is capable of immense improvement to the benefit of the suffering sick and wounded and to the saving of the Government.

Notwithstanding the opposition to the Government Laboratories and the denunciations which this one had to encounter from private parties and Government officials, it has worked its way through the dark times of civil war, and has a record to show of which it need not be ashamed.

Statement of the cost-price and market value of articles manufactured and put up at the U. S. A. Laboratory, Philadelphia, Pa., since its commencement, March, 1863, to Sept. 30, 1865.

Articles.	Quantity.	Total Cost.	Market value.
Acaciæ pulvis	10,257 lb.	7,843 28	10,108 05
Acid. aceticum.....	3,369½ "	1,375 49	1,541 55
" citric	3,050 "	4,034 61	4,459 43
" muriatic.....	3,791½ "	261 86	317 63
" nitric.....	1,739 "	411 45	366 21
" phosphoric. dil.....	721 "	254 75	522 47
" sulphuric.....	415 "	44 87	64 45
" " aromat.....	5,093¾ "	4,460 75	4,583 25
" tannic.....	21,591 oz.	8,220 63	8,481 15
" tartaric	7,142½ lb.	9,385 15	10,141 39

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Articles.	Quantity.	Total cost.	Market value.
Aether fortior.....	16,308 $\frac{1}{2}$ lb.	20,722 46	25,925 02
Alcohol fortius.....	141,436 $\frac{1}{2}$ qt.	145,594 65	160,190 91
Aloes purificata.....	748 $\frac{1}{2}$ lb.	830 00	1,047 90
“ “ pulvis.....	563 $\frac{1}{2}$ “	828 66	1,167 43
Alumen purificatum.....	6,633 $\frac{1}{2}$ “	745 64	1,176 90
Ammonia carbonas.....	3,574 $\frac{1}{2}$ “	1,354 50	1,376 97
“ murias.....	2,227 $\frac{1}{2}$ “	616 00	1,106 88
Aqua ammonia.....	19,797 $\frac{1}{2}$ “	3,532 00	4,118 85
Argenti nitras.....	3,935 oz.	4,224 55	7,021 03
“ “ fusa.....	2,463 “	2,738 90	4,688 55
Assafetida.....	2,147 lb.	1,314 01	1,489 25
Bismuthi subcarb.....	1,786 $\frac{1}{8}$ “	9,755 05	14,169 48
“ subnitras.....	25 “	103 00	221 25
Brominium.....	482 oz.	356 50	356 50
Camphora.....	3,666 $\frac{1}{2}$ lb.	3,450 85	5,646 96
Cantharidis pulvis.....	1,576 $\frac{1}{2}$ “	3,563 97	4,399 80
Capsici pulvis.....	1,696 “	1,269 03	1,476 57
Catechu.....	112 “	33 42	28 00
“ pulvis.....	2,240 $\frac{1}{2}$ “	620 45	674 23
Cera alba.....	2,093 $\frac{1}{2}$ “	1,995 00	2,879 27
Ceratum adipis.....	50,097 “	25,504 00	38,379 00
“ cantharidis.....	4,921 $\frac{1}{2}$ “	6,103 78	9,360 96
“ resinæ.....	12,326 “	4,106 75	7,922 50
Cinchonæ Calisayæ pulv.....	2,453 “	3,784 52	5,617 74
Chlorinium.....	2,565 pkgs.	3,336 00	7,413 25
“ powder for.....	360 “		
Chloroformum.....	25,300 $\frac{1}{2}$ lbs.	58,597 83	71,441 52
Collodium.....	862 $\frac{9}{16}$ lb.	1,820 91	2,058 58
Copaiba.....	14,029 “	16,411 67	18,884 20
Creasotum.....	1,291 $\frac{15}{16}$ “	2,658 05	3,036 28
Creta præcipitata.....	2,400 $\frac{1}{2}$ “	613 41	651 62
Cupri sulphas.....	634 $\frac{2}{3}$ “	363 20	374 11
Extract. aconiti rad. fl.....	4,601 $\frac{1}{8}$ “	5,231 97	8,337 64
“ belladonnæ.....	359 $\frac{1}{8}$ “	1,289 06	5,413 76
“ buchu fluid.....	5,293 “	6,008 75	15,451 19
“ cinchonæ fl.....	12,305 “	12,047 28	33,179 21
“ colchici seminis fl.....	3,576 $\frac{1}{2}$ “	4,769 40	8,950 92
“ colocynthidis.....	40 “	172 42	400 00
“ “ comp. pulv....	1,889 “	11,026 82	20 024 00
“ conii.....	258 “	742 00	3,718 10
“ ergotæ fl.....	1,088 $\frac{1}{2}$ “	2,834 48	4,120 81
“ gentianæ fl.....	6,780 $\frac{1}{2}$ “	3,431 00	11,371 01
“ glycyrrhizæ.....	11,480 “	5,745 07	6,553 52
“ hyoscyami.....	114 $\frac{1}{2}$ “	643 53	1,623 58
“ jalapæ.....	14 $\frac{1}{2}$ “	88 58	173 50
“ ipecac. fl.....	5,363 $\frac{1}{4}$ “	35,086 00	49,347 16
“ nucis vomicæ.....	219 $\frac{1}{8}$ “	592 00	2,779 50
“ pruni virginianæ fl.....	3,122 $\frac{1}{2}$ “	1,575 00	4,959 08
“ rhei fl.....	1,975 $\frac{1}{8}$ “	5,693 17	9,212 41
“ scillæ.....	238 $\frac{1}{8}$ “	368 70	764 20
“ senegæ fl.....	3,839 “	7,940 00	12,524 12
“ spigeliæ fl.....	1,878 $\frac{1}{2}$ “	3,809 90	9,316 38
“ valerianæ fl.....	3,316 $\frac{1}{2}$ “	3,063 10	8,032 17
“ veratri viridis fl.....	1,318 $\frac{1}{2}$ “	1,838 98	3,850 89
“ zingiberis fl.....	9,140 $\frac{1}{2}$ “	13,760 45	21,902 27

STATISTICS OF ARMY LABORATORY AT PHILADELPHIA. 277

Articles.	Quantity.	Total cost.	Market value.
Ferri et quiniæ citras.....	715½ lb.	5,472 55	13,163 72
“ subsulphatis pulvis.....	627½ “	560 82	1,324 04
“ oxid. hydratum, materials for	647 pkgs.	170 00	761 00
“ sulphas gran. pure	803½ lb.	370 00	609 60
“ “ common.....	2,041 “		
Glycyrrhiæ pulvis.....	4,932 “	1,577 00	1,630 60
Glycerina	5,080 “	6,118 37	6,541 75
Hydrargyri chlor. corros.....	312½ “	625 46	471 85
“ “ mite.....	149½ “	204 00	207 55
“ iodidum	146½ “	804 00	2,154 00
“ oxidum rubrum.....	419½ “	658 84	858 65
Iodinium.....	848½ “	5,950 24	5,836 14
Ipecacuanhæ pulvis.....	4,165½ “	19,686 00	27,831 80
Ipecac. et opii pulvis.....	8 02½ “	17,180 26	26,974 76
Linum.....	19,414 “	1,710 87	2,627 12
Lini pulvis.....	55,627 “	5,076 39	8,670 17
Liquor ferri subsulphatis.....	3,536 “	920 00	2,404 53
“ potassæ.....	2,246 “	164 00	833 80
“ “ arsenitis.....	2,074½ “	340 05	466 26
“ “ permanganatis.....	6,846 pt.	1,925 24	6,296 00
“ sodæ chlorinatæ.....	26,936 lb.	1,684 60	3,680 67
“ zinci chloridi.....	5,977½ “	830 77	1,759 33
“ morphiæ sulphatis Ma....			
“ gendie's.....	123½ “	577 50	908 00
“ plumbi subacetatis.....	23 “	4 25	7 70
Liniment.....	243½ “	95 00	156 00
Magnesia.....	4,477 “	7,680 00	8,385 60
Magnesia sulphas.....	62,611 “	3,085 00	3,855 36
Morphia sulphas.....	1,024½ oz.	7,655 76	9,624 64
Massa pil. hydr.....	4,560½ lb.	2,854 19	6,100 54
Oleo-resina cubebæ.....	1,721 “	6,694 50	16,148 25
Oleum caryophylli.....	131 “	32 75	32 75
“ cinnamomi.....	448½ “	2,567 33	3,712 20
“ morrhuæ.....	21,751 qt.	19,866 08	25,987 67
“ olivæ.....	31,884 “	23,294 37	37,135 53
“ ricini.....	30,969½ “	23,514 21	35,368 90
“ terebinthinæ.....	17,901 “	14,130 21	20,099 50
“ tiglii.....	556½ lb.	4,532 98	7,342 73
Opii pulvis.....	6,645½ “	88,480 00	141,877 38
Pil. camphor. et opii.....	149,659½ doz.	5,586 36	11,113 96
“ cathartic. comp.....	212,632 “	13,829 00	20,304 48
“ “ mass for.....	48,680 “		
“ ferri et quiniæ citratis.....	28,800 “	1,107 00	1,728 00
“ ipecac. et opii.....	26,519 “	787 35	1,240 78
“ opii.....	264,604 “	7,430 60	16,291 34
“ hydrargyri.....	53,760 “	340 66	1,746 60
“ quiniæ sulph. gr. ij.....	107,686 “	19,293 90	32,215 76
“ extract. colocynth. et ipecac.....	36,586 “	1,653 07	3,424 88
Plumbi acetas.....	5,930½ lb.	3,824 77	4,678 97
Potassæ acetas.....	1,299½ “	1,100 65	2,724 05
“ bicarbonas.....	3,759½ “	1,654 98	1,775 02
“ citras.....	7,550 “	5,510 00	7,773 10
“ carbonas.....	33 “		4 45
“ chloras.....	8,520½ “	6,044 00	8,990 49
“ nitras.....	4,746½ “	1,676 20	1,831 77
Potassii iodidum.....	7,438½ “	33,875 50	35,590 95

Articles.	Quantity.	Total Cost.	Market value.
Resina podophylli.....	147 $\frac{1}{2}$ lb.	927 29	2,079 40
“ scammonii.....	18 $\frac{1}{2}$ “	521 25	657 00
Rheum.....	725 $\frac{1}{2}$ “	2,344 00	2,807 87
Rhei pulvis.....	629 $\frac{1}{2}$ “	2,165 00	2,590 72
Sapo.....	944 $\frac{1}{2}$ “	240 00	257 40
Scillæ pulvis.....	263 $\frac{7}{8}$ “	207 90	336 94
Sinapis nigræ pulvis.....	31,429 “	7,406 50	12,785 24
Sodæ bicarbonas.....	9,079 $\frac{1}{2}$ “	1,145 66	1,591 21
Sodæ boras.....	6,136 “	2,619 50	2,675 50
Sodæ et potassæ tartras.....	18,621 $\frac{1}{2}$ “	13,285 00	13,845 91
Sodæ sulphis.....	75 “	12 00	37 50
Spiritus ætheris comp.....	3,537 $\frac{1}{2}$ “	6,950 38	10,332 70
“ “ nitrosi.....	21,834 $\frac{1}{2}$ “	16,397 70	24,162 33
“ frumenti.....	272,316 $\frac{1}{2}$ qt.	154,255 00	217,853 40
“ lavandulæ comp.....	10,209 lb.	4,922 20	9,822 75
“ menthæ piper.....	3,562 $\frac{1}{2}$ “	3,106 01	4,227 12
“ vini gallici.....	152,562 qt.	108,869 26	155,361 05
“ ammoniæ arom.....	2,818 lb.	2,093 00	3,519 67
Syrupus ferri iodidi.....	1,462 $\frac{1}{2}$ “	1,309 87	2,096 72
“ scillæ.....	29,863 $\frac{1}{2}$ “	7,868 14	12,761 21
Sulphur.....	3,391 $\frac{1}{2}$ “	379 03	600 64
Tinct. ferri chloridi.....	10,969 $\frac{1}{2}$ “	5,970 65	11,840 28
“ opii.....	12,496 $\frac{1}{2}$ “	17,557 00	28,641 55
“ “ camphor.....	21,064 $\frac{1}{2}$ “	12,867 89	24,336 46
Unguent hydrarg.....	8,073 “	4,923 79	12,316 96
“ “ nitras.....	1,337 “	674 63	1,183 12
Vinum Xericum.....	136,810 qt.	87,716 11	123,129 00
“ rubrum.....	29,765 “	14,062 19	20,835 50
Zinci acetas.....	429 $\frac{5}{8}$ lb.	695 48	947 63
“ carbonas.....	1,126 $\frac{1}{2}$ “	863 70	1,071 44
“ sulphas.....	2,073 $\frac{1}{2}$ “	485 00	570 33
Saccharum.....	1,269 $\frac{1}{2}$ “	317 30	333 22
Hordeum perlatum.....	12,700 lb.	1,383 90	1,670 00
Cinnamomi pulvis.....	3,646 $\frac{1}{2}$ “	4,510 00	4,878 95
Zingiberis pulvis.....	5,193 $\frac{1}{2}$ “	3,803 88	4,459 12
Myristica.....	2,243 “	2,640 00	2,860 34
Piper. nigræ pulvis.....	10,594 $\frac{1}{2}$ “	3,597 57	4,229 93
Empl. ichthyocollæ.....	34,465 yds.	18,517 32	30,070 65
Roller bandages.....	193,244 doz.	14,671 93	62,982 93
Sponges, washed.....	1,725 $\frac{1}{2}$ lb.	18,435 88	27,608 50
Total for preparations issued		1,422,525 78	2,114,541 09
Crude and manufactured articles on hand, partly accounted for in the calculation above and appearing here as excess.....		44,144 68	51,309 30
Bottles, cans, jars, boxes, corks, &c., issued & on hand		474,221 42	524,782 24
Apparatus, rent, coal, gas and repairs, &c.....		68,161 71	30,000 00
Salaries and wages, calculated in cost of the above preparations as “labor,” \$173,023 69			
Salaries and wages actually paid by Government for all officers and employees attached to the Laboratory \$118,583 41			
Excess of calculation over amount actually paid.....			54,440 28
Saving to the Government.....		766,019 32	
Total.....		2,775,072 91	2,775,072 91

LIST OF SOCIETIES, LIBRARIES, JOURNALS AND INDIVIDUALS,

To whom complimentary copies of the Proceedings of this Association are forwarded.

Bowdoin College,	Brunswick,	Maine.
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Harvard University,	Cambridge,	“
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“ State Library,	“	“
City Library,	“	“
“ Hospital,	“	“
Boston Medical and Surgical Journal,	“	“
“ Athenæum,	“	“
University of Vermont,	Burlington,	Vermont.
Brown University,	Providence,	Rhode Island.
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College of Pharmacy of the city of N. Y.,	New York,	New York.
American Druggists' Circular,	“	“
Astor Library,	“	“
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Philadelphia College of Pharmacy,	Philadelphia,	Pennsylvania.
American Journal of Pharmacy,	“	“
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Medical and Surgical Reporter.	“	“
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Linnæan Society,	Lancaster,	“
Maryland College of Pharmacy,	Baltimore,	Maryland.
Smithsonian Institution,	Washington,	Dist. Columbia.
Surgeon-General U. S. Army,	“	“
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280 SOCIETIES TO WHOM PROCEEDINGS ARE FORWARDED.

Cincinnati Lancet, Cincinnati, Ohio.
 Cincinnati Observer, " "
 Dr. Langdon, Longview Lunatic Asylum, " "
 Wayne Medical Society, Richmond, Indiana.
 Detroit Review of Medicine & Pharmacy, Detroit, Michigan,
 University of Michigan, Ann Arbor, "
 Chicago College of Pharmacy, Chicago, Illinois,
 " Medical Examiner, " "
 " " Journal, " "
 St. Louis College of Pharmacy, St. Louis, Missouri.
 St. Louis Medical and Surgical Journal, " "
 St. Louis Medical Reporter.
 St. Louis Academy of Science.
 St. Louis Mercantile Library.
 St. Louis Public School Library.
 British Pharmaceutical Conference, Dr. J. Attfield, London.
 Pharmaceutical Journal and Transactions, London.
 Chemical News, London.
 Chemist and Druggist, London.
 London Lancet, London.
 British Museum, London.
 Academie Royale des Sciences de Belgique, Bruxelles.
 Société de Pharmacie de Bruxelles.
 Journal de Pharmacie d'Anvers.
 Société de Pharmacie, Paris.
 Academie des Sciences, Paris.
 Journal de Pharmacie et de Chimie, Paris.
 Répertoire de Pharmacie, Paris.
 Schweizer Apotheker Verein, Dr. Flückiger, Bern.
 Schweizerische Wochenschrift für Pharmacie, Schaffhausen.
 Schweizerisches Polytechnikum, Zürich.
 Oesterreichischer Apotheker Verein, Wien.
 Oesterreichische Zeitschrift für Pharmacie, Wien.
 K. K. Gesellschaft der Aerzte, Wien.
 K. K. Akademie der Wissenschaften, Wien.
 K. Bayer, " " München.
 Neues Repertorium für Pharmacie, Prof. Buchner, München.
 Vierteljahresschrift " " Prof. Wittstein, München.
 Cannstatt's Jahresbericht für Pharmacie, Prof. Dr. Wiggers, Göttingen.
 Zeitschrift für Chemie und Pharmacie, Heidelberg.
 Neues Jahrbuch für Pharmacie, Dr. Vorwerk, Speyer.
 Archiv der Pharmacie, Prof. D. H. Ludwig, Jena.
 Chemisches Centralblatt, Dr. Knop, Leipzig.
 Annalen der Chemie und Pharmacie, Leipzig.
 Jahresbericht für Chemie, &c., Prof. Dr. Kopp, Giessen.

- K. Akademie der Wissenschaften, Göttingen.
 K. " " Berlin.
 Pharmaceutische Central-Halle, Dr. H. Hager, Berlin.
 Pharmaceutische Gesellschaft in St. Petersburg, Dr. Björklund, St. Petersburg.
 Pharmaceutische Zeitschrift für Russland, St. Petersburg.

LIST OF PUBLICATIONS

Received for the American Pharmaceutical Association.

Societies and Editors are respectfully requested to forward publications to the Permanent Secretary of the American Pharmaceutical Association,

JOHN M. MAISCH,

1807 Ridge Avenue, Philadelphia, State of Pennsylvania.

- American Journal of Medical Sciences, Philadelphia.
 Dental Cosmos, Philadelphia.
 Detroit Review of Medicine and Pharmacy, Detroit.
 Proceedings of the British Pharmaceutical Conference, 1865.
 Pharmaceutical Journal and Transactions, London.
 Chemical News, London.
 Chemist and Druggist, London.
 Neues Jahrbuch für Pharmacie, Speyer.
 Buchner's Neues Repertorium für Pharmacie, München.
 Wittstein's Vierteljahresschrift, München.
 Cannstatt's Jahresbericht über die Fortschritte der Pharmacie, &c., Würzburg.
 Zeitschrift des oesterreichischen Apotheker Vereines, 2. Jahrgang, Wien.
 Bericht über die vierte General Versammlung des Allgemeinen Oesterr. Apotheker Vereines, 1864, Wien.
 Verhandlungen der Kaiserl. Akademie der Wissenschaften in Wien. Mathematisch-naturwissenschaftliche Classe. 1866, i. to xxv.
 Schweizerische Wochenschrift für Pharmacie, 1864 and 1865, Schaffhausen.
 Pharmacopœa Helvetica, Scaphusiæ, 1865.
 Sitzungsberichte der Königl. Akademie der Wissenschaften, 1857—1865, München.
 Induction und Deduction. Von Justus von Liebig, München, 1865.
 Entstehung und Begriff der naturhistorischen Art. Von Dr. Carl Nägeli, München, 1865.
 Pharmaceutische Zeitschrift für Russland. St. Petersburg.

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CONSTITUTION

OF THE

American Pharmaceutical Association.

PREAMBLE.

Whereas, The advancement of pharmaceutical knowledge and the elevation of the professional character of Apothecaries and Druggists throughout the United States are dear to us in common with all well disposed pharmacutists; and *whereas*, a large portion of those in whose hands the practice of pharmacy now exists, are not properly qualified for the responsible offices it involves, chiefly by reason of the many difficulties that impede the acquirement of a correct knowledge of their business:—

Therefore, We, the members of a Convention now met at Philadelphia, [September, 1852.] composed of Apothecaries and Druggists from different sections of the Union, and from all the Colleges and Societies therein existing, with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent Association, to meet annually, at such times and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

CONSTITUTION.

ARTICLE I.

This Association shall be called the American Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmacutists and Druggists of the United States in the following objects:

1st. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2d. To establish the relations between druggists, pharmacutists, physicians and the people at large, upon just principles, which shall promote the public welfare and tend to mutual strength and advantage.

3d. To improve the science and the art of pharmacy by diffusing scientific knowledge among apothecaries and druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4th. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing, and selling medicines.

5th. To suppress empiricism, and as much as possible to restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries.

ARTICLE II.—*Of the Members.*

Section 1. Every pharmacist or druggist, of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, who, after duly considering the objects of the Association and the obligations of its Constitution, is willing to subscribe to them, is eligible to membership.

Section 2. The mode of admission to membership shall be as follows: Any person eligible to membership may apply in writing, with the endorsement of two members in good standing, to any member of the Executive Committee, who shall report his application to the said Committee.

If after investigating his claims they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present, on ballot.

Section 3. No person shall be considered a member of this Association until he shall have signed the Constitution, and paid into the Treasury the sum of three dollars as an initiation fee and the annual contribution for the current year. All persons who become members shall be considered as permanent members, but may be expelled for improper conduct by a vote of two-thirds of the members present at any annual meeting.

Section 4. Every member shall pay in advance into the hands of the Treasurer the sum of two dollars as his yearly contribution, and is liable to lose his right of membership by neglecting to pay said contribution for three successive years. Members shall be entitled, on the payment of three dollars, to receive a certificate of membership signed by the President, Vice Presidents, and Permanent Secretary, covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Section 5. Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer; but no resignation shall be accepted from any one who is in arrears to the Treasurer. All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next annual meeting.

Section 6. Every local Pharmaceutical Association shall be entitled to five delegates in the annual meetings, who, if present, become members of the Association on signing the Constitution, without being ballotted for.

Section 7. Pharmacutists, Chemists, and other scientific men, who may be thought worthy of the distinction, may be elected honorary members upon the same conditions and under the same rules as appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office or to vote at the meetings.

Section 8. Members who have paid their annual contributions for ten successive years shall be considered life-members, and exempt from their yearly payments, and entitled to a certificate to that effect.

ARTICLE III.—Of the Officers.

Section 1. The officers shall be a President, two or more Vice Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, who shall, with the exception of the Permanent Secretary, be elected annually, and shall hold office until an election of successors.

Section 2. The Permanent Secretary shall be elected to hold office permanently during the pleasure of the Association; he shall receive from the Treasurer an annual salary and the amount of his travelling expenses in addition to his salary.

Section 3. The President shall preside at the meetings, and administer the rules of order usual in deliberative assemblies. He shall nominate all special committees, except a majority of the members present direct a resort to balloting or other means.

He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer.

He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects and the object it has in view, together with such suggestions for its future management as may seem to him proper.

Section 4. In case of the temporary absence or inability of the President, his duties shall devolve on one of the Vice-Presidents in the order of their names.

Section 5. The Permanent Secretary shall keep fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays, and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with the editing, publishing and distributing the Proceedings of the Association under the direction of the Executive Committee. He shall furnish the Chairman of every special Committee with a list of its members and a copy of the minute of its appointment, and shall notify every member of the time and place of each annual meeting. He shall be a member of the Executive Committee.

Section 6. The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his

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duty to assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairman of the several Committees and with other members, in advance of the meeting promotive of its objects, and to have custody of specimens, papers and apparatus destined for use or exhibition at the meetings. He shall act as Secretary at the first meeting, or until another shall be appointed, in case of the absence of the Permanent Secretary.

Section 7. The Treasurer shall collect and take charge of the funds of the Association, and shall also hold and issue the certificates of membership. He shall pay no monies unless by the order of the chairman of one of the standing or of a special committee, authorized to appropriate funds of the Association, such order to be countersigned by the President.

He shall present a statement of his accounts at each annual meeting that they may be audited. He shall also report to the Executive Committee, previous to each annual meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and duly notified to do so.

ARTICLE IV.—*Of the Standing Committees.*

Section 1. There shall be five standing committees elected annually—Executive Committee, a Committee on the Progress of Pharmacy, a Committee on the Drug Market, each to consist of five members; a Committee on Scientific Queries and a Business Committee, each to consist of three members.

Section 2. The Executive Committee, of which the Permanent Secretary shall be one of the members, shall have charge of the revision of the roll, the investigation of applications for membership, and the publication of the Proceedings. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, also the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by this Constitution.

The annual publication of the Proceedings shall contain the corrected roll of members, full minutes of the several sittings, the Reports of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations as the Executive Committee may deem worthy of insertion. At least one copy shall be furnished each member of the Association.

Section 3. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be one of the members, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy and

the collateral branches, and on any new works bearing on these subjects published in this country or in Europe.

Section 4. The Committee on Scientific Queries shall report, near the close of each Annual Meeting, a proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable, and report before the next succeeding Annual Meeting.

Section 5. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, and with collecting, arranging and expediting the business throughout the various sessions of the Annual Meetings.

ARTICLE V.—*Of the Meetings.*

Section 1. The meetings shall be held annually, or as the Association may from time to time determine; provided, that in case of failure of this from any cause, the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

Section 2. At the opening of each annual meeting, the President, or, in case of his absence, one of the Vice-Presidents shall call the meeting to order and preside until after an election of officers; in case the President and Vice-Presidents are absent, this duty shall devolve on the chairman of the Executive Committee, or in his absence on any member chosen by vote of those present.

In the absence of the Permanent Secretary the President shall appoint a Secretary, *pro tempore*.

The order of business at the first session of each annual meeting shall be as follows:

1st. The appointment by the President of a committee of three persons to examine credentials, and report the names of those duly accredited.

2d. The Executive Committee shall report the names of new members and of persons present recommended for membership, who shall be immediately ballotted for.

3d. The roll of those in attendance, as thus completed, shall be called by the Permanent Secretary.

4th. The reports of the Standing and Special Committees shall be read by their titles, or in full, and laid on the table for future consideration.

5th. A committee to nominate officers for the ensuing year shall be appointed, consisting of one nominated by each delegation in attendance, and three members appointed by the President, from among those not delegated, to report at the opening of the next session.

The first session shall close with the reading of the President's Annual Report, and referring any portion requiring the action of Committees.

~~After the first session,~~ the order of business shall be determined by the nature of the subjects presented and by the consent of the majority.

Section 3. During periods fixed by vote for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer, from whose decisions, however, appeals may be taken if required by five members, and the meeting shall thereupon decide without debate.

A motion reduced to writing and seconded shall be open to discussion, and while it is before the meeting no motion shall be received unless to amend, divide, commit, to lay on the table, postpone or to adjourn; and a motion to adjourn shall be decided without debate.

On the call of any member, the yeas and nays shall be ordered, when every member shall vote, unless excused by a majority of those present, and the names and manner of voting shall be entered on the Minutes.

ARTICLE VI.

This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, and notice to alter or amend the same shall be given at least one sitting before a vote thereupon.

Approving of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and having read its Constitution, I hereby signify my approval of it, and subscribe to it.

Address _____

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body, if I shall hereafter cease to be connected in membership with it.

TESTIMONIALS.

The undersigned being personally acquainted with
of _____ testify to his moral character, his skill as a
practical Druggist and Pharmaceutist, and his professional probity and
good standing, and they recommend him for membership in the American
Pharmaceutical Association.

NAME

ADDRESS.

ROLL OF MEMBERS.

HONORARY MEMBERS.

Daniel B. Smith,	Philadelphia,	Pennsylvania,	1856
Thomas Farrington,	Boston,	Massachusetts,	1856
Montgomery J. Bailey, M.D.,	New York,	New York,	1856
George B. Wood, M.D.,	Philadelphia,	Pennsylvania,	1857
Elias Durand,	Philadelphia,	Pennsylvania,	1857

ACTIVE MEMBERS.

Henry T. Cummings, M.D.,	Portland,	Maine,	1853
Edmund Dana, Jr.,	Portland,	Maine,	1859
Walter F. Phillips,	Portland,	Maine,	1859
William Atwood,	Portland,	Maine,	1859
Sargent P. Coe,	Portland,	Maine,	1859
F. E. Covell,	Portland,	Maine,	1865
N. S. Harlow,	Bangor,	Maine,	1859
John G. Cook,	Lewistown,	Maine,	1859
J. R. Carpenter,	Calais,	Maine,	1861
Edward E. Shead,	Eastport,	Maine,	1866
Charles A. Tufts,	Dover,	New Hampshire,	1856
O. Gilman Dort,	Keene,	New Hampshire,	1858
Charles A. Merrill,	Exeter,	New Hampshire,	1858
George S. Kendrick,	Lebanon,	New Hampshire,	1858
Joseph H. Thatcher,	Portsmouth,	New Hampshire,	1859
John F. Rollins,	Concord,	New Hampshire,	1859
James Morgan,	Concord,	New Hampshire,	1859
George Moore,	Great Falls,	New Hampshire,	1859

Rufus W. Stevens,	Great Falls,	New Hampshire, 1859
George L. Dearborn,	New Market,	New Hampshire, 1853
Frank P. Clock,	Manchester,	New Hampshire, 1865
J. C. Bingham,	St. Johnsbury,	Vermont, 1853
Charles M. Duren,	St. Albans,	Vermont, 1865
Samuel M. Colcord,	Boston,	Massachusetts, 1852
Joseph Burnett,	Boston,	Massachusetts, 1852
Daniel Henschman,	Boston,	Massachusetts, 1853
Thomas Restieaux,	Boston,	Massachusetts, 1853
T. Larkin Turner,	Boston,	Massachusetts, 1853
Henry W. Lincoln,	Boston,	Massachusetts, 1853
Thomas Hollis,	Boston,	Massachusetts, 1853
Ashel Boyden,	Boston,	Massachusetts, 1853
Henry D. Fowle,	Boston,	Massachusetts, 1853
James S. Melvin,	Boston,	Massachusetts, 1853
William W. Goodwin,	Boston,	Massachusetts, 1853
Robert R. Kent,	Boston,	Massachusetts, 1855
Alvah Littlefield,	Boston,	Massachusetts, 1856
Charles H. Atwood,	Boston,	Massachusetts, 1856
James Gordon,	Boston,	Massachusetts, 1857
Theodore Metcalf,	Boston,	Massachusetts, 1857
Abraham S. Wiley,	Boston,	Massachusetts, 1857
William Brown,	Boston,	Massachusetts, 1858
Oliver H. Webber,	Boston,	Massachusetts, 1858
George D. Towne,	Boston,	Massachusetts, 1858
D. B. Kidder,	Boston,	Massachusetts, 1858
George D. Ricker,	Boston,	Massachusetts, 1858
C. H. Lyon, Jr.,	Boston,	Massachusetts, 1858
I. Bartlett Patten,	Boston,	Massachusetts, 1858
Leopold Babo,	Boston,	Massachusetts, 1859
E. Waldo Cutler,	Boston,	Massachusetts, 1859
Theodore S. Harris,	Boston,	Massachusetts, 1859
George H. Chapman,	Boston,	Massachusetts, 1859
Orlando Tompkins,	Boston,	Massachusetts, 1859
Isaac T. Campbell,	Boston,	Massachusetts, 1859
Thomas Doliber,	Boston,	Massachusetts, 1859
B. O. Wilson,	Boston,	Massachusetts, 1859
Michael H. Gleeson,	Boston,	Massachusetts, 1859
James A. Gleeson,	Boston,	Massachusetts, 1859
Joseph T. Brown,	Boston,	Massachusetts, 1859
Moses D. Colby,	Boston,	Massachusetts, 1859

George W. Woodbridge,	Boston,	Massachusetts,	1859
Alfred C. Dana,	Boston,	Massachusetts,	1859
Samuel H. Woods,	Boston,	Massachusetts,	1859
Henry Warren,	Boston,	Massachusetts,	1859
John Butterworth,	Boston,	Massachusetts,	1860
Elijah Smalley,	Boston,	Massachusetts,	1860
Levi Tower, Jr.,	Boston,	Massachusetts,	1860
Charles F. Rogers,	Boston,	Massachusetts,	1860
Thomas S. Moffitt,	Boston,	Massachusetts,	1861
George F. H. Markoe,	Boston,	Massachusetts,	1863
Jos. L. Parker,	Boston,	Massachusetts,	1864
W. D. Atkinson, Jr.,	Boston,	Massachusetts,	1865
James F. Babcock,	Boston,	Massachusetts,	1865
Charles Fred. Bartlett,	Boston,	Massachusetts,	1865
Henry Canning,	Boston,	Massachusetts,	1865
Solomon Carter,	Boston,	Massachusetts,	1865
John R. Colby,	Boston,	Massachusetts,	1865
J. B. Colton,	Boston,	Massachusetts,	1865
E. H. Doolittle,	Boston,	Massachusetts,	1865
Gust. D. Dows,	Boston,	Massachusetts,	1865
J. Howes Dyer,	Boston,	Massachusetts,	1865
Geo. W. French,	Boston,	Massachusetts,	1865
Wm. E. Jenkins,	Boston,	Massachusetts,	1865
J. R. Nichols,	Boston,	Massachusetts,	1865
E. H. Perry,	Boston,	Massachusetts,	1865
F. W. Simmons,	Boston,	Massachusetts,	1865
C. G. Underwood,	Boston,	Massachusetts,	1865
Eugene Whittemore,	Boston,	Massachusetts,	1865
D. G. Wilkins,	Boston,	Massachusetts,	1865
Oliver H. Webber,	East Cambridge,	Massachusetts,	1858
A. H. Ramsay,	Cambridge,	Massachusetts,	1859
John H. Hubbard,	Cambridge,	Massachusetts,	1866
Henry Thayer,	Cambridgeport,	Massachusetts,	1858
A. R. Bayley,	Cambridgeport,	Massachusetts,	1859
Joel S. Orne,	Cambridgeport,	Massachusetts,	1859
Francis D. Hardy, Jr.,	Cambridgeport,	Massachusetts,	1859
Augustus P. Melzar,	Charlestown,	Massachusetts,	1856
Levi G. Dodge,	Charlestown,	Massachusetts,	1859
Benjamin F. Stacey,	Charlestown,	Massachusetts,	1860
John Buck,	Chelsea,	Massachusetts,	1855
G. W. Churchill,	Chelsea,	Massachusetts,	1865

David Scott,	Worcester,	Massachusetts,	1855
Nelson R. Scott,	Worcester,	Massachusetts,	1859
M. S. McConville,	Worcester,	Massachusetts,	1859
Thomas A. McConville,	Worcester,	Massachusetts,	1864
George A. Kimball,	Haverhill,	Massachusetts,	1859
H. M. Whitney,	Lawrence,	Massachusetts,	1859
Edmund Bigelow,	Springfield,	Massachusetts,	1860
John E. Doyle,	Springfield,	Massachusetts,	1866
C. C. Bixby,	N. Bridgewater,	Massachusetts,	1859
Warren Tapley,	Lynn,	Massachusetts,	1859
Benjamin Proctor,	Lynn,	Massachusetts,	1859
Thomas A. Sweetser,	South Danvers,	Massachusetts,	1859
James Emerton,	Salem,	Massachusetts,	1859
S. A. D. Sheppard,	Salem,	Massachusetts,	1865
James B. Lane,	Fitchburgh,	Massachusetts,	1853
Samuel Kidder, Jr.,	Lowell,	Massachusetts,	1859
David Coggin,	Lowell,	Massachusetts,	1864
Wm. H. French,	Lowell,	Massachusetts,	1865
T. Gibson Tweed,	Lowell,	Massachusetts,	1865
E. W. Hoyt,	Lowell,	Massachusetts,	1865
Charles E. Savell,	Roxbury,	Massachusetts,	1860
Francis Tinker,	Leominster,	Massachusetts,	1860
William H. Ware,	Gloucester,	Massachusetts,	1859
Wm. L. Wetherell,	Gloucester,	Massachusetts,	1865
Eben Blatchford,	Rockport,	Massachusetts,	1857
Eben Blatchford, Jr.,	Rockport,	Massachusetts,	1865
George W. Berrian, Jr.,	North Andover,	Massachusetts,	1857
F. T. Whiting,	Great Barrington,	Massachusetts,	1863
Wm. D. Broomhead,	East Somerville,	Massachusetts,	1865
George Marsh,	Dedham,	Massachusetts,	1865
Jeremiah Sanborn, Jr.,	Dorchester,	Massachusetts,	1865
E. R. Knights,	Melrose,	Massachusetts,	1865
Andrew Geyer,	Ipswich,	Massachusetts,	1865
James E. Blake,	New Bedford,	Massachusetts,	1865
James L. Hunt,	Hingham,	Massachusetts,	1865
Wm. C. Brigham,	Woburn,	Massachusetts,	1865
Wm. Aug. Safford,	Feltonville,	Massachusetts,	1865
C. H. Lowe,	Newton Corner,	Massachusetts,	1865
Robert J. Taylor,	Newport,	Rhode Island,	1859
Wm. S. N. Allen,	Newport,	Rhode Island,	1865
Albert L. Calder,	Providence,	Rhode Island,	1859

Albert J. Congdon,	East Greenwich,	Rhode Island,	1860
F. A. Weber,	Woonsocket,	Connecticut,	1860
Nathan Dikeman,	Waterbury,	Connecticut,	1859
Alfred Daggett, Jr.,	New Haven,	Connecticut,	1865
Nathan F. Peck,	Rockville,	Connecticut,	1861
George D. Coggeshall,	New York City,	New York,	1852
Eugene Dupuy,	New York City,	New York,	1852
C. B. Guthrie,	New York City,	New York,	1852
Henry F. Fish,	New York City,	New York,	1852
Wm. A. Brewer,	New York City,	New York,	1853
Junius Gridley,	New York City,	New York,	1853
James S. Aspinwall,	New York City,	New York,	1855
John Canavan,	New York City,	New York,	1855
John Milbau,	New York City,	New York,	1855
Isaac Coddington,	New York City,	New York,	1855
Frederick Hale,	New York City,	New York,	1855
H. T. Kiersted,	New York City,	New York,	1856
Henry Haviland,	New York City,	New York,	1857
George W. De la Vergne,	New York City,	New York,	1857
John Faber,	New York City,	New York,	1857
Thomas T. Green,	New York City,	New York,	1858
Ray B. Easterbrook,	New York City,	New York,	1858
Henry King,	New York City,	New York,	1858
Henry A. Cassebeer,	New York City,	New York,	1858
Edward L. Milbau,	New York City,	New York,	1858
Lewis T. Lazell,	New York City,	New York,	1858
Edward H. Marsh,	New York City,	New York,	1858
John H. Currie,	New York City,	New York,	1858
Lucian F. Wheeler,	New York City,	New York,	1858
Robert A. Sands,	New York City,	New York,	1858
William Hegeman,	New York City,	New York,	1858
William A. Gellatly,	New York City,	New York,	1858
J. H. Westerfield,	New York City,	New York,	1858
Henry Kiersted,	New York City,	New York,	1858
Raymond Graverend,	New York City,	New York,	1859
L. Leroy,	New York City,	New York,	1859
William Wright, Jr.,	New York City,	New York,	1859
P. Wendover Bedford,	New York City,	New York,	1859
John W. Shedden,	New York City,	New York,	1859
W. Neergaard,	New York City,	New York,	1859
F. F. Mayer,	New York City,	New York,	1859

Alexander V. Blake,	New York City,	New York,	1860
William M. Giles,	New York City,	New York,	1860
Paul Balluff,	New York City,	New York,	1860
John Carle, Jr.,	New York City,	New York,	1860
Jesse M. Sands,	New York City,	New York,	1860
Jabez H. Hazard,	New York City,	New York,	1860
James Weaver,	New York City,	New York,	1860
George W. Southwick,	New York City,	New York,	1860
E. L. Johnson,	New York City,	New York,	1860
Theodore Schumann,	New York City,	New York,	1860
George G. Porter,	New York City,	New York,	1860
George E. Sheils,	New York City,	New York,	1860
Warren B. Gardiner,	New York City,	New York,	1860
Gustav Ramsperger,	New York City,	New York,	1860
B. H. Reinold,	New York City,	New York,	1861
Adolph G. Dunn,	New York City,	New York,	1862
Theobald Frohwein,	New York City,	New York,	1862
W. Fisher,	New York City,	New York,	1862
A. W. Gabaudan,	New York City,	New York,	1862
Daniel C. Robbins,	New York City,	New York,	1862
Alexander H. Everett,	New York City,	New York,	1863
Henry J. Weber,	New York City,	New York,	1863
Henry B. Morris,	New York City,	New York,	1864
George J. McKay,	New York City,	New York,	1864
F. W. Colby,	New York City,	New York,	1865
John Frey,	New York City,	New York,	1865
Max Frohwein,	New York City,	New York,	1865
Chas. F. L. Hohenthal,	New York City,	New York,	1865
C. W. Kitchen,	New York City,	New York,	1865
Gustavus Krehbiel,	New York City,	New York,	1865
Alfred Mason,	New York City,	New York,	1865
James F. Morgan,	New York City,	New York,	1865
Henry E. Webb,	New York City,	New York,	1865
Michael Flynn,	New York City,	New York,	1866
Lucian M. Rice,	New York City,	New York,	1866
James T. Skelley,	New York City,	New York,	1866
Alexander Hudnut,	Brooklyn,	New York,	1857
Tristram W. Metcalf,	Brooklyn,	New York,	1857
Edward R. Squibb, M. D.,	Brooklyn,	New York,	1858
Robert J. Davies,	Brooklyn,	New York,	1858
George C. Close,	Brooklyn,	New York,	1858

Cyrus Pyle,	Brooklyn,	New York,	1859
Thomas Kinghorne,	Brooklyn,	New York,	1860
Peter D. Leys,	Brooklyn,	New York,	1860
L. S. Hubbard,	Brooklyn,	New York,	1860
George C. Leys,	Brooklyn,	New York,	1860
W. E. P. Baylis,	Brooklyn,	New York,	1860
Richard J. Owens,	Brooklyn,	New York,	1860
Victor Heidenreich,	Brooklyn,	New York,	1860
Wm. J. Watson,	Brooklyn,	New York,	1860
Joshua G. Wilbur,	Brooklyn,	New York,	1860
John H. Niebrugge,	Brooklyn,	New York,	1861
J. F. Conway,	Brooklyn,	New York,	1862
Spencer O. Hatfield,	Brooklyn,	New York,	1864
Gilbert Long,	Brooklyn,	New York,	1864
Sylvester M. Earle,	Brooklyn,	New York,	1864
Edward H. Buehler,	Brooklyn,	New York,	1864
Thos. J. Covell,	Brooklyn,	New York,	1864
John T. Hanning,	Brooklyn,	New York,	1864
Robert R. Rhodes,	Brooklyn,	New York,	1865
George A. Newman,	Brooklyn,	New York,	1865
John I. Fellows,	Brooklyn,	New York,	1865
E. Greenville Curtis,	Brooklyn,	New York,	1866
W. S. Fuller,	Brooklyn,	New York,	1866
Chas. O. Rano,	Brooklyn,	New York,	1866
Eugene J. Weeks,	Brooklyn,	New York,	1866
R. S. McMurdy, M.D.,	Albany,	New York,	1861
William H. McRae,	Factoryville,	New York,	1861
S. G. Welling,	New Rochelle,	New York,	1860
William E. Hagan,	Troy,	New York,	1860
William G. Stephens,	Yonkers,	New York,	1860
Robert J. Toplis,	Yonkers,	New York,	1863
Eugene Alex. Houston,	Yonkers,	New York,	1864
Aug. Theodore Moith,	Fishkill Landing,	New York,	1860
H. A. Tilden,	New Lebanon,	New York,	1858
A. I. Matthews,	Buffalo,	New York,	1855
William H. Peabody,	Buffalo,	New York,	1857
H. A. Blauw,	Rochester,	New York,	1856
Alfred S. Lane,	Rochester,	New York,	1857
George Breck,	Rochester,	New York,	1866
James T. King,	Middletown,	New York,	1859
Erastus N. Champlin,	Saratoga Springs,	New York,	1864

Charles F. Fish,	Saratoga Springs,	New York,	1866
Hervey D. Thatcher,	Potsdam,	New York,	1865
Thos. V. Crandall, M. D.,	Newburgh,	New York,	1866
John E. Peek,	Newburgh,	New York,	1866
James Stratton,	Bordentown,	New Jersey,	1859
Bunting Hankins,	Bordentown,	New Jersey,	1865
Alfred J. Shipley,	Jersey City,	New Jersey,	1859
James R. Mercein,	Jersey City,	New Jersey,	1865
J. M. Abernethy,	Jersey City,	New Jersey,	1865
Peter V. Coppuck,	Mount Holly,	New Jersey,	1857
A. S. White,	Mount Holly,	New Jersey,	1860
C. H. Dalrymple,	Morristown,	New Jersey,	1860
William Ball,	Elizabeth City,	New Jersey,	1860
Wm. J. Allison,	Burlington,	New Jersey,	1862
Charles Ellis,	Philadelphia,	Pennsylvania,	1852
William Procter, Jr.,	Philadelphia,	Pennsylvania,	1852
Alfred B. Taylor,	Philadelphia,	Pennsylvania,	1852
Edward Parrish,	Philadelphia,	Pennsylvania,	1852
Peter J. Hassard,	Philadelphia,	Pennsylvania,	1853
John M. Maisch,	Philadelphia,	Pennsylvania,	1856
Israel J. Grahame,	Philadelphia,	Pennsylvania,	1856
Dillwyn Parrish,	Philadelphia,	Pennsylvania,	1857
Samuel F. Troth,	Philadelphia,	Pennsylvania,	1857
Ambrose Smith,	Philadelphia,	Pennsylvania,	1857
Thomas P. James,	Philadelphia,	Pennsylvania,	1857
Charles Bullock,	Philadelphia,	Pennsylvania,	1857
Thomas S. Wiegand,	Philadelphia,	Pennsylvania,	1857
Samuel N. James,	Philadelphia,	Pennsylvania,	1857
Evan T. Ellis,	Philadelphia,	Pennsylvania,	1857
Wilson H. Pile, M. D.,	Philadelphia,	Pennsylvania,	1857
Samuel S. Bunting,	Philadelphia,	Pennsylvania,	1857
T. Morris Perot,	Philadelphia,	Pennsylvania,	1857
Asher S. Leidy,	Philadelphia,	Pennsylvania,	1857
Edward Donnelly, M. D.,	Philadelphia,	Pennsylvania,	1857
Samuel Chapman, M. D.,	Philadelphia,	Pennsylvania,	1857
Edward H. Hance,	Philadelphia,	Pennsylvania,	1857
Charles H. Eggert,	Philadelphia,	Pennsylvania,	1857
George M. Snowden,	Philadelphia,	Pennsylvania,	1857
William R. Warner,	Philadelphia,	Pennsylvania,	1857
O. S. Hubbell,	Philadelphia,	Pennsylvania,	1857
Henry N. Rittenhouse,	Philadelphia,	Pennsylvania,	1857

William J. Jenks,	Philadelphia,	Pennsylvania,	1858
E. Raphael Perot,	Philadelphia,	Pennsylvania,	1858
W. B. Thompson,	Philadelphia,	Pennsylvania,	1858
J. A. Heintzelman,	Philadelphia,	Pennsylvania,	1858
Adolphus F. Neynaber,	Philadelphia,	Pennsylvania,	1859
Adam H. Wilson,	Philadelphia,	Pennsylvania,	1859
Benjamin F. Johnson,	Philadelphia,	Pennsylvania,	1859
Thos. A. Lancaster,	Philadelphia,	Pennsylvania,	1859
Daniel S. Jones,	Philadelphia,	Pennsylvania,	1859
James T. Shinn,	Philadelphia,	Pennsylvania,	1860
George J. Scattergood,	Philadelphia,	Pennsylvania,	1860
Charles Shivers,	Philadelphia,	Pennsylvania,	1860
William Evans, Jr.,	Philadelphia,	Pennsylvania,	1860
Benjamin J. Crew,	Philadelphia,	Pennsylvania,	1860
J. Lewis Crew,	Philadelphia,	Pennsylvania,	1860
George Blinkhorn,	Philadelphia,	Pennsylvania,	1860
Henry Bower,	Philadelphia,	Pennsylvania,	1860
Thomas R. Coombe,	Philadelphia,	Pennsylvania,	1860
J. B. Moore,	Philadelphia,	Pennsylvania,	1860
George Y. Shoemaker,	Philadelphia,	Pennsylvania,	1862
John C. Savery,	Philadelphia,	Pennsylvania,	1862
John C. Everson,	Philadelphia,	Pennsylvania,	1863
Clayton N. Wills,	Philadelphia,	Pennsylvania,	1864
Charles F. Gristock,	Philadelphia,	Pennsylvania,	1864
Edward C. Jones,	Philadelphia,	Pennsylvania,	1864
William C. Bakes,	Philadelphia,	Pennsylvania,	1864
Samuel Campbell,	Philadelphia,	Pennsylvania,	1864
S. Mason McCollin,	Philadelphia,	Pennsylvania,	1864
William Ellis,	Philadelphia,	Pennsylvania,	1864
Alfred Mellor,	Philadelphia,	Pennsylvania,	1864
George H. Ashton,	Philadelphia,	Pennsylvania,	1864
Theodore St. Clair,	Philadelphia,	Pennsylvania,	1864
James L. Bispham,	Philadelphia,	Pennsylvania,	1865
Andrew Blair,	Philadelphia,	Pennsylvania,	1865
Geo. W. Eldridge,	Philadelphia,	Pennsylvania,	1865
Ch. Eug. Haenchen,	Philadelphia,	Pennsylvania,	1865
Robert B. Parkinson,	Philadelphia,	Pennsylvania,	1865
Robert Platzter,	Philadelphia,	Pennsylvania,	1865
Alonzo Robbins,	Philadelphia,	Pennsylvania,	1865
R. M. Shoemaker, Jr.,	Philadelphia,	Pennsylvania,	1865
J. Henry C. Simes,	Philadelphia,	Pennsylvania,	1865

Wm. P. Keffner,	Philadelphia,	Pennsylvania,	1866
Charles L. Eberle,	Germantown,	Pennsylvania,	1865
Charles A. Bannvart,	Harrisburg,	Pennsylvania,	1856
William Heyser, Jr.,	Chambersburg,	Pennsylvania,	1856
Charles A. Heinitsh,	Lancaster,	Pennsylvania,	1857
John C. Long,	Lancaster,	Pennsylvania,	1863
Leander Neal,	Meadville,	Pennsylvania,	1858
M. M. Selfridge,	Bethlehem,	Pennsylvania,	1858
Joseph L. Lemberger,	Lebanon,	Pennsylvania,	1858
Washington Laycock,	Danville,	Pennsylvania,	1857
Geo. A. Kelley,	Alleghany,	Pennsylvania,	1864
Samuel K. Norgrove,	Pittsburg,	Pennsylvania,	1857
Charles H. Super,	Pittsburg,	Pennsylvania,	1858
Harmar D. Scully,	Pittsburg,	Pennsylvania,	1858
Jon. C. Mattern,	Pittsburg,	Pennsylvania,	1860
Richard Tener, Jr.,	Pittsburg,	Pennsylvania,	1863
Alfred J. Rankin,	Pittsburg,	Pennsylvania,	1864
Joseph Abel,	Pittsburg,	Pennsylvania,	1864
R. Vinton Steele,	Pittsburg,	Pennsylvania,	1866
J. C. Hughes,	Pottsville,	Pennsylvania,	1862
Francis P. Green,	Bellefonte,	Pennsylvania,	1864
Louis M. Emanuel, M. D.,	Linwood,	Pennsylvania,	1857
Wm. F. Logan,	Williamsport,	Pennsylvania,	1866
Ferris Bringham,	Wilmington,	Delaware,	1862
A. P. Sharp,	Baltimore,	Maryland,	1855
George W. Andrews,	Baltimore,	Maryland,	1856
J. Jacob Smith,	Baltimore,	Maryland,	1856
Charles Caspari,	Baltimore,	Maryland,	1856
J. H. Lemmon,	Baltimore,	Maryland,	1856
Joseph Roberts,	Baltimore,	Maryland,	1856
E. J. Russell,	Baltimore,	Maryland,	1856
J. Faris Moore,	Baltimore,	Maryland,	1856
Oscar Monsarrat,	Baltimore,	Maryland,	1856
J. B. Baxley,	Baltimore,	Maryland,	1856
Samuel McPherson,	Baltimore,	Maryland,	1856
William S. Thompson,	Baltimore,	Maryland,	1856
William Caspari,	Baltimore,	Maryland,	1856
J. J. Thomsen,	Baltimore,	Maryland,	1856
N. H. Jennings,	Baltimore,	Maryland,	1857
Elisha H. Perkins,	Baltimore,	Maryland,	1857
A. Vogeler,	Baltimore,	Maryland,	1858

Lewis Dohme,	Baltimore,	Maryland,	1859
H. A. Elliott,	Baltimore,	Maryland,	1859
John Block,	Baltimore,	Maryland,	1860
John S. Benzinger,	Baltimore,	Maryland,	1860
James E. McDaniel,	Baltimore,	Maryland,	1860
H. M. Pettit,	Baltimore,	Maryland,	1860
J. A. Wolf,	Baltimore,	Maryland,	1860
William H. Brown,	Baltimore,	Maryland,	1863
Alexander E. Brown,	Baltimore,	Maryland,	1863
Charles E. Dohme,	Baltimore,	Maryland,	1863
Gustavus Dohme,	Baltimore,	Maryland,	1863
S. Ellwood Morrison,	Baltimore,	Maryland,	1863
Joseph C. O'Brien,	Baltimore,	Maryland,	1863
John G. Nagle,	Baltimore,	Maryland,	1863
Thos. E. Kirby, M. D.,	Baltimore,	Maryland,	1863
Alonzo Lilly, Jr.,	Baltimore,	Maryland,	1863
Wm. W. Cunningham,	Baltimore,	Maryland,	1863
E. Walton Russell,	Baltimore,	Maryland,	1863
Columbus V. Emich,	Baltimore,	Maryland,	1863
John F. Hancock,	Baltimore,	Maryland,	1863
John P. Muth,	Baltimore,	Maryland,	1863
John H. Winkleman,	Baltimore,	Maryland,	1864
Michael J. Lauer,	Baltimore,	Maryland,	1865
Jonas Winter,	Hagerstown,	Maryland,	1863
Joseph G. Skinner,	Salisbury,	Maryland,	1864
Frederick A. Otto,	Frederick,	Maryland,	1866
John L. Kidwell,	Georgetown,	Dist. Columbia,	1856
Valentine Harbaugh,	Washington,	Dist. Columbia,	1856
F. S. Walsh,	Washington,	Dist. Columbia,	1856
Samuel F. Tyson,	Washington,	Dist. Columbia,	1857
James N. Callan,	Washington,	Dist. Columbia,	1857
Joseph W. Nairn,	Washington,	Dist. Columbia,	1858
S. R. Sylvester,	Washington,	Dist. Columbia,	1858
Francis Gaither,	Washington,	Dist. Columbia,	1860
Giles G. C. Simms,	Washington,	Dist. Columbia,	1860
Francis X. Dooley,	Washington,	Dist. Columbia,	1863
Talbot C. Murray,	Washington,	Dist. Columbia,	1863
R. C. Lineaweaver,	Washington,	Dist. Columbia,	1864
R. H. Stabler, M. D.,	Alexandria,	Virginia,	1856
John A. Milburn,	Alexandria,	Virginia,	1858
Alexander Duval,	Richmond,	Virginia,	1852

S. M. Zachrisson,	Richmond,	Virginia,	1853
T. Roberts Baker,	Richmond,	Virginia,	1856
James Cooke,	Fredericksburg,	Virginia,	1856
Fayette W. Johnson,	Fredericksburg,	Virginia,	1858
J. Hartley Bunn,	Lynchburg,	Virginia,	1859
F. M. Wells,	Charlotte,	Virginia,	1856
Charles K. Gallagher,	Washington,	North Carolina,	1857
Richard B. Saunders,	Chapel Hill,	North Carolina,	1858
H. J. Menninger,	Newbern,	North Carolina,	1866
John Thomson,	Sumter,	South Carolina,	1856
H. J. Macdonald,	Barnwell C. H.	South Carolina,	1856
R. H. Land,	Newberry C. H.	South Carolina,	1859
Lewis T. Sillyman,	Columbia,	South Carolina,	1859
J. Marshall Caldwell,	Charleston,	South Carolina,	1866
A. A. Solomons,	Savannah,	Georgia,	1858
W. W. Solomons,	Savannah,	Georgia,	1858
Robert Battey,	Rome,	Georgia,	1856
W. H. Warner,	Rome,	Georgia,	1859
J. B. W. Nowlin,	Rome,	Georgia,	1859
John M. Clark,	Milledgeville,	Georgia,	1857
Fleming G. Grieve,	Milledgeville,	Georgia,	1859
John S. Pemberton,	Columbus,	Georgia,	1857
J. A. Taylor,	Atlanta,	Georgia,	1859
W. A. Lansdell,	Atlanta,	Georgia,	1859
Robert J. Massey,	Atlanta,	Georgia,	1859
B. M. Smith,	Atlanta,	Georgia,	1859
J. Henry Zeilin,	Macon,	Georgia,	1859
James S. Higgins,	Jacksonville,	Florida,	1862
O. F. Cawthon,	Mobile,	Alabama,	1860
Fairman S. Taber,	Huntsville,	Alabama,	1861
F. Glackmeyer,	Montgomery,	Alabama,	1856
P. C. Candidus,	Aberdeen,	Mississippi,	1857
Crawford Blackwood,	Columbus,	Mississippi,	1857
Matthew F. Ash,	Jackson,	Mississippi,	1856
William Pryor Creecy,	Vicksburg,	Mississippi,	1860
Charles C. Thornton, M. D.,	Yazoo City,	Mississippi,	1862
A. E. Richards,	Plaquemine,	Louisiana,	1855
James A. Lee,	New Iberia,	Louisiana,	1856
John Beynon,	Shrevesport,	Louisiana,	1858
John H. Pope,	New Orleans,	Louisiana,	1860
Frederick A. Keffer,	New Orleans,	Louisiana,	1862

Hennell Stevens,	Columbia,	Texas,	1857
Wm. B. Chapman,	Cincinnati,	Ohio,	1852
W. J. M. Gordon,	Cincinnati,	Ohio,	1854
Wm. S. Merrell,	Cincinnati,	Ohio,	1854
Wm. H. Adderly,	Cincinnati,	Ohio,	1854
John Scott,	Cincinnati,	Ohio,	1854
William C. Arons,	Cincinnati,	Ohio,	1854
E. S. Wayne,	Cincinnati,	Ohio,	1854
Paul Reinlein,	Cincinnati,	Ohio,	1856
Oliver F. Gordon,	Cincinnati,	Ohio,	1857
John C. Gerhard,	Cincinnati,	Ohio,	1862
A. W. Foertmyer,	Cincinnati,	Ohio,	1864
John Keeshan,	Cincinnati,	Ohio,	1864
F. A. Crowther,	Cincinnati,	Ohio,	1864
Alfred C. Hill,	Cincinnati,	Ohio,	1864
T. L. A. Greve,	Cincinnati,	Ohio,	1864
Samuel B. Allen,	Cincinnati,	Ohio,	1864
A. Wagner,	Cincinnati,	Ohio,	1864
H. F. Reum,	Cincinnati,	Ohio,	1864
E. Berghausen,	Cincinnati,	Ohio,	1864
A. Fennel,	Cincinnati,	Ohio,	1864
Ernest Kampfmüller,	Cincinnati,	Ohio,	1864
James W. Nadand,	Cincinnati,	Ohio,	1864
E. Kunckel,	Cincinnati,	Ohio,	1864
Henry Gers,	Cincinnati,	Ohio,	1864
C. H. Bode,	Cincinnati,	Ohio,	1864
O. Heineman,	Cincinnati,	Ohio,	1864
Wm. Karrmann,	Cincinnati,	Ohio,	1864
E. W. Crowther,	Cincinnati,	Ohio,	1864
J. D. Wells,	Cincinnati,	Ohio,	1864
H. H. Hill,	Cincinnati,	Ohio,	1864
A. M. Johnston,	Cincinnati,	Ohio,	1864
James Markward,	Cincinnati,	Ohio,	1864
Wm. Tilley,	Cincinnati,	Ohio,	1864
A. Salpius,	Cincinnati,	Ohio,	1864
L. Witzell,	Cincinnati,	Ohio,	1864
William Kent,	Cincinnati,	Ohio,	1864
Henry Fritsch,	Cincinnati,	Ohio,	1864
W. E. Reifsnider,	Cincinnati,	Ohio,	1864
John McK. Walker,	Cincinnati,	Ohio,	1864
Hiram Maguire,	Cincinnati,	Ohio,	1864

W. H. Durkee,	Cincinnati,	Ohio,	1864
B. F. Oxley,	Cincinnati,	Ohio,	1864
Matthew M. Yorston,	Cincinnati,	Ohio,	1864
Michael Parr,	Cincinnati,	Ohio,	1864
S. L. Hayden,	Cincinnati,	Ohio,	1864
J. G. Fratz,	Cincinnati,	Ohio,	1864
A. Hottendorf,	Cincinnati,	Ohio,	1864
George Eger,	Cincinnati,	Ohio,	1864
Joseph H. Debolt,	Cincinnati,	Ohio,	1864
Griffith Rees,	Cincinnati,	Ohio,	1864
C. M. Helman,	Cincinnati,	Ohio,	1864
Otto Lippert,	Cincinnati,	Ohio,	1864
H. M. Merrill,	Cincinnati,	Ohio,	1864
Charles Foertmyer,	Cincinnati,	Ohio,	1864
Wm. Snyder,	Cincinnati,	Ohio,	1864
Bruce M. Brake,	Cincinnati,	Ohio,	1865
Daniel Roemer,	Cincinnati,	Ohio,	1865
Alfred V. Forgey,	Cincinnati,	Ohio,	1865
Augustus Henkel,	Cincinnati,	Ohio,	1865
J. F. Judge,	Cincinnati,	Ohio,	1866
F. M. Odena,	Cincinnati,	Ohio,	1866
George W. Wilcox,	Columbia,	Ohio,	1864
George H. Fickardt,	Circleville,	Ohio,	1846
Wm. H. Shuey,	Springfield,	Ohio,	1864
J. W. Dietrich,	Dayton,	Ohio,	1856
William Fiske,	Cleveland,	Ohio,	1857
E. W. Sackrider,	Cleveland,	Ohio,	1859
Robert C. Kennedy,	Cleveland,	Ohio,	1865
J. F. Grossklaus,	Navarre,	Ohio,	1859
Alex. Garver,	Navarre,	Ohio,	1866
T. B. Dorsey,	Dresden,	Ohio,	1866
C. J. Geiger,	Canton,	Ohio,	1866
Hamilton Creighton,	Xenia,	Ohio,	1854
John Jackson,	Knoxville,	Tennessee,	1857
J. H. Larwill, Jr.,	Columbia,	Tennessee,	1858
Edwin Scott,	Chattanooga,	Tennessee,	1865
Henry C. Steever,	Memphis,	Tennessee,	1865
Leonce Cherot,	Memphis,	Tennessee,	1865
Frederick Stearns,	Detroit,	Michigan,	1855
T. R. Spence,	Detroit,	Michigan,	1857
Samuel P. Duffield, Ph. D.,	Detroit,	Michigan,	1859

ROLL OF MEMBERS.

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George M. Wheeler,	Detroit,	Michigan,	1860
William Johnston,	Detroit,	Michigan,	1860
H. S. Biddle,	Detroit,	Michigan,	1866
Jacob S. Farrand,	Detroit,	Michigan,	1866
Frank E. Fletcher,	Detroit,	Michigan,	1866
J. H. Griffith,	Detroit,	Michigan,	1866
T. H. Griffith,	Detroit,	Michigan,	1866
H. E. Hill,	Detroit,	Michigan,	1866
Frank Lawrence,	Detroit,	Michigan,	1866
E. L'Hommedieu,	Detroit,	Michigan,	1866
Theodore Ronnefeld,	Detroit,	Michigan,	1866
S. S. Stearns,	Detroit,	Michigan,	1866
James Vernon,	Detroit,	Michigan,	1866
Sam'l. S. Garrigues, Ph. D.,	East Saginaw,	Michigan.	1855
Robert F. Lattimer,	Jackson,	Michigan,	1857
L. R. Blackman,	Jackson,	Michigan,	1865
J. M. Holland,	Jackson,	Michigan,	1866
Noah Huckins,	Jackson,	Michigan,	1866
John T. Fuller,	Ann Arbor,	Michigan,	1857
Emanuel Mann,	Ann Arbor,	Michigan,	1866
Robert C. Wardell,	Battle Creek,	Michigan,	1860
George P. Glazier,	Parma,	Michigan,	1863
A. Landon,	Parma,	Michigan,	1866
Josiah B. Frost,	Ypsilanti,	Michigan,	1866
Charles F. Uhl,	Monroe,	Michigan,	1866
Julius Weiss,	Monroe,	Michigan,	1866
Daniel W. Richardson,	Almont,	Michigan,	1866
Henry Griffin,	Grand Haven,	Michigan,	1866
Thomas H. Barr,	Terre Haute,	Indiana,	1853
James Gallagher,	Terre Haute,	Indiana,	1865
Geo. W. Austin,	Terre Haute,	Indiana,	1865
B. F. Scribner,	New Albany,	Indiana,	1858
George W. Sloan,	Indianapolis,	Indiana,	1857
E. T. Miller,	Indianapolis,	Indiana,	1859
N. M. Woods,	Indianapolis,	Indiana,	1866
Charles Pefferman,	Peru,	Indiana,	1859
W. J. Luck,	Vincennes,	Indiana,	1859
Jerome B. Jardella,	Vincennes,	Indiana,	1865
A. Sansom,	Richmond,	Indiana,	1864
C. F. G. Meyer,	Fort Wayne,	Indiana,	1860
Andrew J. Tully,	Fort Wayne,	Indiana,	1862

Edwin Tomlinson,	Fort Wayne,	Indiana,	1865
H. Van Sweringen,	Fort Wayne,	Indiana,	1865
G. W. Brown,	Logansport,	Indiana,	1865
Uriah F. Shalter,	Lafayette,	Indiana,	1864
Fred. Nest,	La Porte,	Indiana,	1866
Edwin O. Gale,	Chicago,	Illinois,	1857
William H. Gale,	Chicago,	Illinois,	1857
James D. Paine,	Chicago,	Illinois,	1857
George Buck,	Chicago,	Illinois,	1860
Wm. F. Blocki,	Chicago,	Illinois,	1863
F. Mahla, Ph. D.,	Chicago,	Illinois,	1864
Alb. E. Ebert,	Chicago,	Illinois,	1864
James W. Mill,	Chicago,	Illinois,	1864
E. H. Sargent,	Chicago,	Illinois,	1864
Henry Biroth,	Chicago,	Illinois,	1865
James V. Z. Blaney, M. D.,	Chicago,	Illinois,	1865
S. S. Bliss,	Chicago,	Illinois,	1865
Thomas Brown,	Chicago,	Illinois,	1865
A. B. Bryan,	Chicago,	Illinois,	1865
F. A. Bryan,	Chicago,	Illinois,	1865
N. T. Curth,	Chicago,	Illinois,	1865
Emil Dietzsch,	Chicago,	Illinois,	1865
Emil Dreier,	Chicago,	Illinois,	1865
Henry G. d'Evers,	Chicago,	Illinois,	1865
Henry W. Fuller,	Chicago,	Illinois,	1865
G. M. Hambright,	Chicago,	Illinois,	1865
Charles Heylman,	Chicago,	Illinois,	1865
J. H. Hooper,	Chicago,	Illinois,	1865
George McPherson,	Chicago,	Illinois,	1865
N. Mead,	Chicago,	Illinois,	1865
W. H. Muller,	Chicago,	Illinois,	1865
John Parsons,	Chicago,	Illinois,	1865
J. P. Sharp,	Chicago,	Illinois,	1865
Henry Sweet,	Chicago,	Illinois,	1865
Thos. Whitfield,	Chicago,	Illinois,	1865
Joseph Willard,	Chicago,	Illinois,	1865
Louis Woltersdorf,	Chicago,	Illinois,	1865
Stawell W. Gillespie,	Chicago,	Illinois,	1866
Ira Lackey,	Chicago,	Illinois,	1866
Phil L. Milleman,	Chicago,	Illinois,	1866
Will. Reinhold,	Chicago,	Illinois,	1866

ROLL OF MEMBERS.

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Nobel Schroeder,	Chicago,	Illinois,	1866
Louis C. Strehl,	Chicago,	Illinois,	1866
E. P. Tourtelot,	Chicago,	Illinois,	1866
Frank J. Tourtelot,	Chicago,	Illinois,	1866
H. M. Wilder,	Chicago,	Illinois,	1866
E. H. Price, M.D.,	Tamaroa,	Illinois,	1866
D. S. Dyson,	Bloomington,	Illinois,	1856
Robert Thompson,	Bloomington,	Illinois,	1860
Edwin R. Smith,	Monmouth,	Illinois,	1862
John Burrell,	Freeport,	Illinois,	1865
M. A. Breed,	Peoria,	Illinois,	1866
G. T. Chamberlain,	St. Louis,	Missouri,	1853
Eugene L. Massot,	St. Louis,	Missouri,	1857
James O'Gallagher,	St. Louis,	Missouri,	1858
Alexander Leitch,	St. Louis,	Missouri,	1858
Enno Sander,	St. Louis,	Missouri,	1858
Isaac E. Jones,	St. Louis,	Missouri,	1858
Samuel D. Hendel,	St. Louis,	Missouri,	1858
Arthur Leitch,	St. Louis,	Missouri,	1860
H. W. Scheffer,	St. Louis,	Missouri,	1863
W. H. Crawford,	St. Louis,	Missouri,	1864
Theodore Kalb,	St. Louis,	Missouri,	1864
James McBride,	St. Louis,	Missouri,	1864
Thos. Tanton,	St. Louis,	Missouri,	1865
Evermont Randals,	St. Louis,	Missouri,	1865
Ferd. W. Sennewald,	St. Louis,	Missouri,	1865
Hubert Primm,	Carondelet,	Missouri,	1855
John C. Parr,	Covington,	Kentucky,	1856
D. B. Miller,	Covington,	Kentucky,	1864
H. A. Hughes,	Louisville,	Kentucky,	1857
C. Lewis Diehl,	Louisville,	Kentucky,	1863
George H. Carey,	Louisville,	Kentucky,	1866
Thomas E. Jenkins,	Louisville,	Kentucky,	1866
George A. Newman,	Louisville,	Kentucky,	1866
Edward A. Preuss,	Louisville,	Kentucky,	1866
N. Gray Bartlett,	Keokuk,	Iowa,	1864
C. F. G. Collins,	Beloit,	Wisconsin,	1859
John R. Drake,	Milwaukee,	Wisconsin,	1860
A. Palmer,	Janesville,	Wisconsin,	1865
Robert J. Brown,	Leavenworth,	Kansas,	1862
Robert Ormsby Sweeney,	St. Paul,	Minnesota,	1866

LIST OF DECEASED MEMBERS.

John Best,	Central City,	Colorado,	1866
Benjamin E. Hays,	Central City,	Colorado,	1866
Louis D. Lanzwiert,	San Francisco,	California,	1859
Charles Hodge,	San Francisco,	California,	1859
George S. Dickey,	San Francisco,	California,	1859
George E. Hinckly,	San Francisco,	California,	1859
William H. Keith,	San Francisco,	California,	1859
James G. Steele,	San Francisco,	California,	1859
James H. Widdber,	San Francisco,	California,	1859
William H. Brigham,	San Francisco,	California,	1859
Henry Steele,	San Francisco,	California,	1859
J. L. Polhemus,	Sacramento,	California,	1866
Charles P. Pollard,	Marysville,	California,	1859
F. T. Maynard,	Petaluma,	California,	1864
Fred. Colman,	Walla Walla,	Washington Ter.,	1865
J. E. D'Avignon,	Montreal,	Canada East,	1866
William Saunders,	London,	Canada West,	1860
Wm. Maurice Moore,	London,	Canada West,	1866
George J. Waugh,	Stratford,	Canada West,	1862
James B. Heyl,	Hamilton,	Bermuda,	1863
William B. Little,	Panama,	Central America,	1857

LIST OF DECEASED MEMBERS.

HONORARY MEMBERS.

		Elected.	Died.
Franklin Bache, M. D.,	Philadelphia, Pa.,	1857,	1864

ACTIVE MEMBERS.

		Elected.	Died.
James H. Anderson,	New York, N. Y.	1859,	1866
Charles L. Bache,	San Francisco, Cal.,	1852,	1854
James Balmer,	Baltimore, Md.	1856,	1866
John W. Barry,	Baltimore, Md.,	1856,	1861
Francis O. Bigelow,	Medford, Mass.	1859,	1863
Samuel J. Billings,	New York, N. Y.	1860,	1865
Henry C. Blair,	Philadelphia, Pa.,	1855,	1862
John T. Brown,	Boston, Mass.	1859,	1860
Benjamin Canavan,	New York, N. Y.,	1855,	1857
Charles T. Carney,	Boston, Mass.,	1853,	1862

LIST OF DECEASED MEMBERS.

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W. F. Clency,	Cincinnati, O.,	1859,	1865
Walter S. Coon,	New York, N. Y.,	1858,	1861
N. Cressman,	Waterloo, Canada West,	1863,	1864
James E. Cunningham,	Pittsburg, Pa.,	1860,	1863
Alexander Cushman,	New York, N. Y.,	1858,	1861
John P. Dodge,	New York, N. Y.,	1855,	1863
George B. Fish,	Saratoga Springs, N. Y.,	1860,	1866
Richard Forester,	Brooklyn, New York,	1860,	1862
William Gay,	Cambridgeport, Mass.	1858,	1862
Andrew Geyer,	Boston, Mass.	1853,	1855
Louis Groneweg,	Cincinnati, O.,	1864,	1866
J. A. Hegeman,	New York, N. Y.,	1855,	1860
F. L. John,	Philadelphia, Pa.,	1856,	1864
Charles A. Junghanns,	Cincinnati, O.,	1858,	1862
Asbury Kent,	Cincinnati, O.,	1854,	1860
E. E. Knapp,	Norwalk, Conn.,	1860,	1862
Joseph Laidley,	Richmond, Va.,	1852,	1861
Wm. Longshaw, Jr., M. D.,	Bayou Sara, La.,	1858,	1864
John McDonald,	Brooklyn, N. Y.,	1860,	1861
T. C. McIntyre, M. D.,	Washington, D. C.,	1858,	1862
James T. Maxwell,	New York, N. Y.,	1855,	1860
John Meakim, (Pres. 1855-56,) New York, N. Y.,		1852,	1863
Wm. J. Oliffe, M. D.,	New York, N. Y.,	1858,	1866
Samuel W. Osgood,	Davenport, Iowa,	1858,	1860
Albert G. Palmer,	Washington, D. C.,	1858,	1860
S. P. Peck,	Bennington, Vt.,	1853,	1859
Samuel R. Philbrick,	Boston, Mass.,	1852,	1859
L. Phillips,	Baltimore, Md.,	1856,	1865
J. Lindley Pyle.	Brooklyn, N. Y.,	1859,	1866
Lewis Rehffuss,	Cincinnati, O.,	1854,	1856
David Roberts,	Boston, Mass.,	1858,	1863
Fred. Rollmann,	Philadelphia, Pa.,	1862,	1864
C. Augustus Smith,	Cincinnati, O.,	1852,	1862
Wm. H. Squire,	Germantown, Pa.,	1862,	1865
Henry Steiner,	Philadelphia, Pa.,	1857,	1858
A. M. Stevens,	Cincinnati, O.,	1854,	1860
Wm. Thomas,	Jersey City, N. J.,	1855,	1856
S. B. Waite,	Washington, D. C.,	1858,	1862
G. W. Weyman, Ph. D.,	Pittsburg, Pa.,	1858,	1864
Daniel F. White,	Charlestown, Mass.,	1859,	1864
W. P. White,	Chicago, Ill.	1865,	1866
Silas Whitehead,	Lynchburg, Va.,	1856,	1858
G. C. Wilson,	Boston, Mass.,	1859,	1861
C. Wiseman,	Baltimore, Md.,	1856,	1862
G. Davidge Wood,	Baltimore, Md.,	1856,	1863

LIST OF RESIGNATIONS.

			Elected.
James Boland,	Chicago,	Illinois,	1865
A. H. Grimshaw,	Wilmington,	Delaware,	1858
Wm. Reed.	Baltimore,	Maryland,	1856

LIST OF MEMBERS DROPPED FROM THE ROLL.

Abram Alburger, Jr.,	Philadelphia,	Pennsylvania,	1860
Wm. Baker,	Brunswick,	Maine,	1859
Chauncey L. Case,	Brandon,	Vermont,	1859
Julius Cone,	Concord,	New Hampshire,	1859
Wm. H. Coolidge,	Cincinnati,	Ohio,	1854
Wm. J. Darbey,	New York,	New York,*	1860
W. H. Dornin,	St. Louis,	Missouri,	1858
Fred. Dutcher,	Brandon,	Vermont,	1859
L. L. Dutcher,	"	"	1859
John H. Ecky,	Philadelphia,	Pennsylvania,	1856
Edward H. Fernald,	Boston,	Mass.	1860
Jacob T. Hasenlen, Jr.,	Pittsburg,	Pennsylvania,†	1860
Robt. Hall,	San Francisco,	California,‡	1859
J. W. Hanaford,	Cincinnati,	Ohio,	1854
John C. Hart,	New York,	New York,§	1858
Charles E. Hinckly,	San Francisco,	California,	1859
David Howarth,	Andover,	Mass.,	1862
H. W. Lesley,	Bristol,	Pennsylvania,	1862
Wm. Loeffler,	Chambersburg,	Pennsylvania,	1857
Theod. Marsh,	Cincinnati,	Ohio,	1854
H. R. Miller,	Covington,	Kentucky,	1864
G. W. Mowbray,	Titusville,	Pennsylvania,	1860
A. W. Newton,	Bristol,	Pennsylvania,	1862
Andrew J. Parker,	New York,	New York,	1858
George S. Peduzzi,	New York,	New York,¶	1861
Wm. H. Pratt,	Wilmington,	Delaware,**	1857
George A. Shuesler,	Cincinnati,	Ohio,	1858
Emery Souther,	Boston,	Mass.,	1853
Wm. B. Smith,	Cincinnati,	Ohio,	1854
John P. Toner,	Wilmington,	Delaware,	1859
J. V. Whetstone,	Cincinnati,	Ohio,	1854

* Now unknown. † Now unknown; has certificate. ‡ Now England; has certificate. § Now unknown. || Now unknown. ¶ Now unknown. ** Now unknown.

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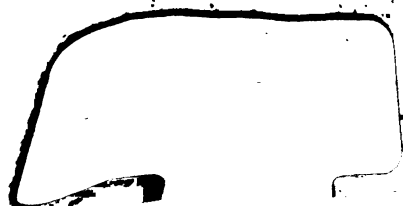
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