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AMERICAN  
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JOURNAL

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1911

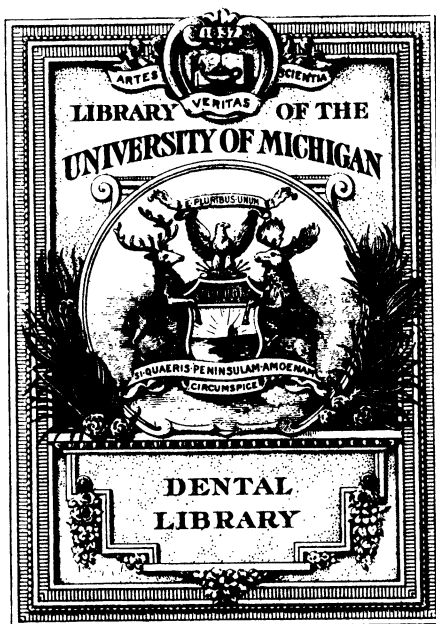
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MARCH 4th

YEAR 1911

*The*  
**AMERICAN  
DENTAL JOURNAL**

Edited By  
BERNARD J. CIGRAND, M. S., D. D. S.

**DECLARATION:**

*Devoted to advancing the art and science of dentistry;  
Arousing a deeper conception of our duty to the public;  
Instilling a broader and more liberal professional spirit;  
Aiding in elevating the plane of dental organizations;  
Supporting state boards in executing dental laws;  
Lending assistance to worthy and ethical practitioners;  
Instituting library and college extension courses;  
Pointing the way to entertainment, recreation and rest;  
Instructing in the science of proper practice building;  
Teaching the public the art of dental hygiene.*

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{ Volume X  
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# *The* AMERICAN DENTAL JOURNAL

DR. BERNARD J. CIGRAND, Editor

Published on the fourth of every month by The  
Ross Dental Manufacturing Company.

## *Editorials and Comments*

"The editor assumed charge of this journal with the signed understanding that he shall have absolute and unlimited control and supervision of the editorial and literary elements; this unusual grant makes it possible to render the profession an independent peri-

odical; the title page clearly indicates the scope under the new policy of this old established journal."—*Publishers.*

## WISCONSIN TAKES THE LEAD.

### FIRST STEP TO GRANT LICENSE TO VISITING CLINICIAN.

The state of Wisconsin ever forging to the front in civic, political and educational realms, has taken the first step to accord visiting clinicians proper legal protection while serving the community or the dental societies. This important precedent came about in a logical way. Your editor was invited to give a clinic and read a paper at La Crosse, Wis., before the Northwestern Dental Society of Wisconsin, and wishing to have legal rights as an operator while in Wisconsin the state board was informed that he could not accept the invitation of the society unless an immediate examination was accorded or that a temporary license be issued to cover the date of the La Crosse meeting. The secretary of the Wisconsin Board of Dental Examiners, G. C. Marlow, D. D. S., replied that such a license had never been issued, but after conference with the other officers it was concluded that a new form of special or temporary license be made and that the editor of THE AMERICAN DENTAL JOURNAL would be rendered license number one, of this first series of special clinical licenses.

Hence there has been established a new departure, since a legally qualified dentist, of Illinois has without examination, and without cost been granted a temporary permit to practice dentistry in La Crosse, Wis., on the dates of February 7th and 8th, 1911. This earliest license of this kind bears the seal of the Wisconsin State Board under date of January 31st, 1911.

Personally your editor thanks the Wisconsin Board for their kind consideration and legal recognition, and is satisfied that all readers of THE AMERICAN DENTAL JOURNAL, who are interested in a broader recognition of the degree of "Doctor of Dental Surgery," will cheerfully congratulate F. A. Tate, D. D. S., president, and G. L. Marlow, secretary of the Wisconsin state board of dental examiners for having manifested a spirit of logic and fairness in rendering this professional appreciation in the interest of a larger meaning and more equitable definition of clinician privileges. In fact, in this congratulator's comment, these words of gratitude are intended equally for the other members of the Wisconsin State Board of Dental Examiners.

Wisconsin has taken the initiative. She has satisfied herself that a legally qualified dentist of one state shall be given reputable consideration in Wisconsin when the service is strictly professional and in the interest of dental progress. Besides the applicant for a license was informed that his standing merited the granting of such special license without submission to examination; and by the word "standing" the board meant, that the applicant was a graduate of a reputable college, Northwestern University Dental School, and we legally practicing under license in Illinois state requiring the standard equal to Wisconsin.

This is a beginning, in what state can we anticipate further effort to accord clinicians a similar "special license" consideration?

It may not be out of accord with the intent of the editorial to add that recently the state of Connecticut placed upon her statute books, an act which, at least tends to show a higher appreciation for visiting clinicians, though no special or formal license is necessary and a legal point, arises; what has the visiting clinician in evidence that he is entitled to practice and actually protected while operating or practicing. However, your editor is indebted to Dr. William E. McMahon of Bridgeport, Conn., for sending the information regarding the new dental law as it applies to visiting clinicians in the state of Connecticut:

No. 1

## License Certificate

State of



Wisconsin

### Board of Dental Examiners

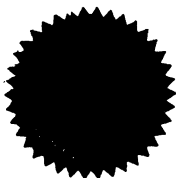
*This is to Certify*

That Bernard J. Cigrand M.D.D. a licensed dentist  
of the State of Illinois is hereby

*Licensed to Practice Dentistry*

at LaCrosse Wisconsin, on the days  
of February 7<sup>th</sup> & 8<sup>th</sup> 1911.

In Testimony Whereof are hereunto affixed the seal and  
the names of members of the State Board of Dental  
Examiners this 31<sup>st</sup> day of January  
A. D. 1911.



F. A. Tate D.D.S. President

D. C. Marlowe D.D.S. Secretary

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"Sec. 11. All unlicensed assistants who, on January 1, 1907, were actually employed in performing dental operations on patients in the office of a duly registered or licensed dentist may register their names with the dental commissioners prior to October 1, 1907, upon presentation of the affidavit of two registered or licensed dentists, stating the name and address of such applicant and the length of time he or she has been so employed, in such form as the dental commissioners shall prescribe. Any person registered, as aforesaid, may perform dental operations on patients in the office of a licensed or registered dentist, and under the immediate personal supervision of such registered or licensed dentist, but not otherwise. The provisions of this chapter shall not prevent a physician or surgeon, practicing as such, from the performance of any operation in dentistry on a patient under his charge, nor a visiting clinician at a meeting of a regularly organized dental society from performing dental operations, nor an assistant of a registered or licensed dentist from performing the so-called operation of cleaning teeth."

All these new legal ventures are in the right direction. It can well be called a venture for the real, the logical and proper law, recognizing fairly and equitably the title "D. D. S." is not yet on any state book, but by an earnest continued campaign on the part of the practitioners, the statute boards can be induced to join in evolving such new laws as may be pronounced consistent with the dignity of professional recognition.

THE AMERICAN DENTAL JOURNAL, has inaugurated this campaign in the interest of clinicians with a view that through this method of agitation, the boards will gradually realize the burlesque of limiting within a circumscribed district or state the equivalence of legalized dental practice.

When the boards once realize the good which comes from making the dental degree a dignified one, they will also awaken to the fact that as they raise the dignity of the profession they also bring to themselves a higher plane as state officials.

Now it has not been, nor is it now the policy of this journal to make such inter-state or national dental degree, recognition an easy or a simple matter; far from it—for such a procedure, would bring discredit to the calling. What the journal hopes to stand for resolves itself into this brief summary. Any practitioners having graduated from any one of the reputable dental colleges members of the

National Association of Dental Faculties, and having satisfactorily passed a state board of dental examiners, a member of the National Board of Dental Examiners, should upon proper and legal evidence of the foregoing be permitted to practice dentistry at any place on the map of the United States—provided the applicant is not a demoralized person or on trial for criminal offense. Such a construction of our legal and ethical standing would certainly be a blessing to any clean, honest, earnest, deserving and ethical practitioner, and such a conforming understanding between the Faculties' Association and Examiners' Association would redound to our national credit and bring a lasting benefit to our professional progress.

It is with considerable pleasure that THE AMERICAN DENTAL JOURNAL receives the encouraging letters in this campaign and assurance is here given that the editor and the publishers will continue the labors in this direction, feeling that a real service will have been rendered not alone the profession but humanity as well, since the individual dentist, will be legally permitted to serve the patient at any place where floats the ensign of our country.

Let the readers aid in this campaign, which will require many years and will witness not a few skirmishes between the "progressive" and the "reactionary" elements in our profession. Interest your fellow practitioner and let us hear from all, thus assuring a properly re-enforced military front.

## IN THE WAKE OF THE "ON ILLEGALITY OF DENTAL CLINICS, AS NOW OPERATED."

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BY B. J. CIGRAND, M. S., D. D. S.

The letters from the readers of THE AMERICAN DENTAL JOURNAL clearly indicate a deep concern in the problem of a better and broader recognition of the legally qualified dental practitioner. The correspondence ramifies into a variety of complexities but centralized in the present question: "Why can I not practice in such a state without being again submitted to an examination. I am of good repute, am a graduate of a school of high standing; passed my state board with good grades?"

Some of these letters show a deep concern in the other fellow's interest as is evidenced in this communication from Dr. F. R. Solmes, as follows:

"I am not optimistic, as to the result of my efforts, to aid the editor of THE AMERICAN DENTAL JOURNAL, in bringing about the universal recognition, of a dental diploma, but I am anxious to do what I can financially or morally. Your editorial in the November issue voices my idea perfectly, and I believe those of 90 per cent of practicing dentists. I know of no arguments against a universal recognition, and feel that if you can arouse the profession, from their passive acceptance of existing conditions, to an effort to remedy the wrong, you will be doing the profession a great favor. I also believe that a united effort can be made. Assuring you of my hearty support, I am yours farternally."

The following letter appealed to the editor on the grounds of its candor, also because the writer was willing to sign his name and agreeable to making the letter public. He is married, writes a good earnest plea. It does seem that any school which would educate and pronounce fit for practice, would take at least the further interest in its product to prove to the state boards that the graduate from its courses is efficient and capable. Why do not these colleges assist by giving additional instruction to those who fail before state boards. Such instruction should in all fairness be given without exacting one penny from the unfortunate candidate.

"I notice from the articles in the January journal touching on the illegality of dental clinics, that others seem to be relating their ex-

periences, in various ways. I wish, in this connection to say that I seem to be the victim of something, as far as state dental boards are concerned. If there is anyone who is in a position to offer suggestions, which they think would be of benefit to me, in my particular case, I would be delighted to hear from them through your paper.

"I am a graduate of a college of good reputation, of the class of 1906. I have never been able to establish myself, owing to the boards. I have practiced some in Mexico and various places, always in a manner to do credit to the profession. I graduated in fair standing, have plenty of good practical experience and have always leaned towards that which was ethical. I want a license in one of the middle western states, preferably Nebraska or Kansas, or the state of Michigan or Ohio, as I have interests in these states. I have been before the Michigan board at two of the regular meetings, and been thrown down twice, on a few subjects in theory. I passed a nice practical examination. But will admit that I have become a little rusty in theory. But why should they continue to hold me on these few subjects is a question I cannot answer. I have not tried the board in any of the states mentioned, but am ready to do so, if I could but get a little encouragement. I have expended about all the money on the Michigan board that I am able to expend. Dentistry is the only means I have of making a living, and it looks as though I have a long time to live yet, as far as age goes. I cannot starve. I have a family; what am I to do, is the question for anyone to answer? I have not had a fair deal. Mr. Editor, this is intended for print, but is at your discretion.

"Thanking you, I am, very truly yours,"

LEM C. PATTERSON, D. D. S.

The editor would advise that an earnest effort be made to learn more about the branches in which you failed. Possibly if you corresponded with the members of the faculty of the school from which you hail, they would assist you. It seems that your Alma Mater should aid you in giving you every possible opportunity to master the subjects in which you failed. When you paid your tuition and received your diploma, it was with the understanding that you were proficient and the school from which you came will be your best friend. However, strive to pass the board in the state you hope to practice in and diligently seek to merit the licence by honest and praiseworthy methods. If any of the readers can accord the Dr. Patterson an opportunity

consistent with the laws of the local community, the satisfaction of rendering help to one of the profession will be reaped.

From Shelby, North Carolina, came these encouraging lines:

"I have been thinking for some time of writing you extending congratulations on assuming the editors chair. I am particularly pleased in the way you go at your editorial work. There are evidences of a knowledge of any subject you choose to select, and it is plain there is earnestness, and there is enthusiasm—and it takes all of that to preach successfully through the journal the doctrines of modern dentistry. I wish you on well in your campaign for broader dental recognition."

J. R. OSBORNE.

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### SOME MORE LIGHT.

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GRAND RAPIDS, MICH., February 27, 1911.

Editor AMERICAN DENTAL JOURNAL,  
Chicago.

Dear Sir: Have just read your comment on the incongruities of the state dental laws. Will mention one example; there are probably many similar. In the great state of Texas, I think fully one-half, possibly three-fourths of the dentists are graduates of the Vanderbilt University. Some barely get through. I am a graduate of Vanderbilt. Graduated with honors. Took medal for best gold fillings. Have practiced in Grand Rapids more than 20 years. Have been a member of Michigan State Dental Association most of time. Still, I could not go to Texas to practice without undergoing a rigid examination, at considerable expense.

Send me your journal (chk. inclosed), and let the good work go on.

Yours truly,

H. M. MOORMAN.

# SPECIAL CONTRIBUTIONS.

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NOTE—Possibly no case in prosthetic procedures has received as much consideration at the hands of the inventive or constructive practitioner, as the one where on lower or inferior, the buccal teeth are missing on but one side of the jaw. Innumerable methods have been presented and much has been written and demonstrated in the hope of attaining some definite or acceptable system of procedure. The following, by a practical prosthesis is deserving of consideration since a degree of success has followed its employment.—Editor.)

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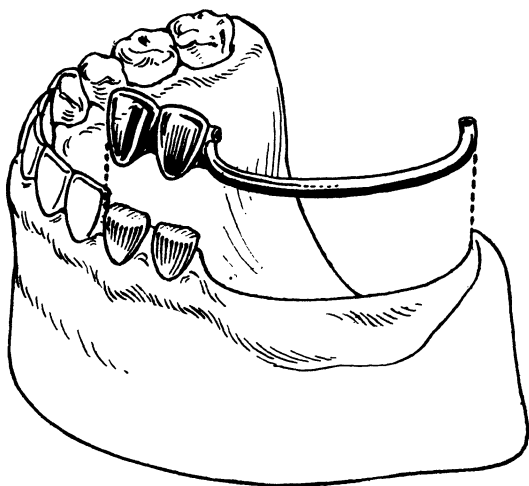
## ARTIFICIAL BUCCAL DENTURES.

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BY DR. C. J. CHRISTOPHER, CHICAGO.

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In summing up the many difficult prosthetic cases that come under the dentist's care, I dare say there are very few that cause greater anxiety and trouble than the question of a suitable appliance



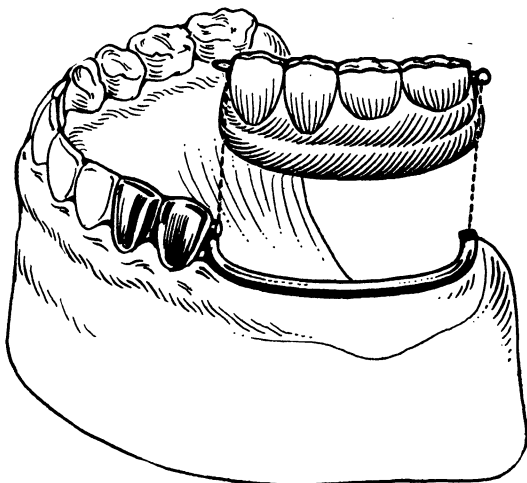
No. 1. Metallic Base on Frame.

for buccal restoration when either or both sides are involved, and where there is no posterior abutment.

The practitioner who has had occasion to make many partial lower rubber dentures, using clasp or removable attachments to teeth and crowns, has no doubt found that such cases give more or less trouble and discomfort to the patient—due to the fact that any

Denture or Appliance which fits loosely on the ridge will often cause soreness of the gum tissues, ulcerated spots or an abraded surface that treatment will not relieve unless you trim the plate considerably or ease the occlusion by grinding the teeth so that there is generally a space between the occluding surfaces. This permits a certain amount of play which makes proper mastication rather difficult.

Even if the articulation is correct when the case is first adjusted, it will be found generally that when the patient has worn the plate for some time the process gradually absorbs from the constant pres-



No. 2. Showing Teeth and Vulcanite.

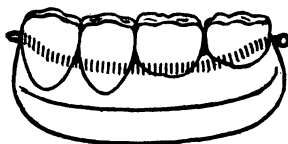
sure and force of mastication, thereby permitting the plate to settle and causing defective articulation.

When only one side of the mouth is involved the case presents far greater difficulties than when both sides may be treated, and as a solution and practical remedy for these cases I take pleasure in submitting to the profession a description of a method I have found to render good service:

Model number 1 shows a typical case for Buccal Restoration, which I have had occasion to exhibit at several of the late clinics. In this case full crowns have been used for the lateral and cuspid, although it is not necessary to confine oneself to the use of *shell* crowns. Either Richmond crowns or strong inlay attachments with

posts extending into the canals will give sufficient anchorage for the addition of the saddle and bar extension. I shall not go further into the technics of preparing the teeth for the crowns as this method is too well known to warrant comment.

The main feature for your consideration is the extension as illustrated in Model number 2. I first burnish a saddle of pure gold, (about 34 gauge and  $\frac{3}{8}$  inch wide), to the top of ridge. This should be permitted to extend on the lingual side of the crowns. I then use a half round, 12 gauge clasp wire which is fitted to the top of the saddle and waxed in position. These two parts are soldered together—using enough solder to make the sides as flat as possible, thereby facilitating the removal of the vulcanite. Then I readjust the parts to the model and wax the crowns. I then make a tube of 28 gauge



No. 3. Method of Attachment.

clasp metal that will fit the end of a 14 gauge wire—also, a tube to fit a 12 gauge wire. The first tube is soldered on the lingual side of crowns as close as possible to the distal, as shown in cut.

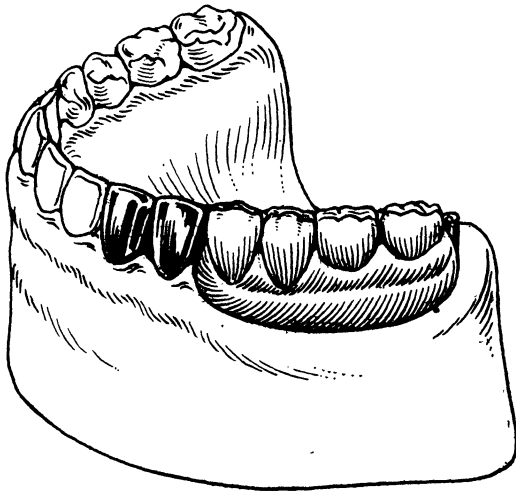
The other tube is soldered to the end of the saddle. This completes the base for the vulcanite.

Figure number 3 illustrates the method of retention of clasp wire bar in the vulcanite. The part extending into the tube in crowns is made cone shaped and the posterior part round, which must fit tightly into the tube. The center part of the wire can be roughened and is bent down to within an eighth of an inch from the saddle to prevent interference with the setting of the teeth. The vulcanite is finished in the usual manner and the connecting bar being left in position during the packing and vulcanizing. It is well to use a little plaster, whiting or blacking in the tubes and on the saddle before packing, as this will prevent the rubber from adhering to the inner sides of tubes and top of saddle.

When case is vulcanized I lift up the posterior part of vulcanite and the part resting on the gums and saddle is finished as smooth

as possible so there will be no difficulty in adjusting and removing the part as the patient may desire.

This saddle extension gives the maximum amount of strength and support to the case with a minimum amount of strain on the abutment crowns or attachments and permits the vulcanite to rest lightly on the gum tissue, thereby lessening the possibility of soreness and preserving the natural articulation by preventing the absorption which follows when the ordinary method is used.



No. 4. Case in Situation.

I am not confined entirely to the use of vulcanite for these cases as bridge teeth—either the plain, saddle back or replaceable can be used in connection with the saddle extension. Where this method is used it is necessary to make a second saddle of gold to cover the part that is originally prepared for rubber. The superstructure is then finished according to the plan or kind of teeth that are selected.

If this buccal extension is used for both sides I make the parts independent of one another or connect the two sides with a clasp wire extending around the lingual side of the incisors and below the cervical margin of the teeth. The practitioner with a mechanical turn of mind will find that certain modifications or changes can be made in this method that will meet any condition which the individual case may present.

## SPECIFIC CAUSES OF DECAY IN HUMAN TEETH.

[www.lib.queensu.ca](http://www.lib.queensu.ca) This paper will discuss,

Decay Most Rapid During Sleep. Respiratory Evaporation. Formation of Salivary Plaques, Localizes Caries Processes. Potassium Neutral Salts Cumulative. Molecular Diffusion in Salivary Plaques and Liquids. Evidences against Localized, Micro Organic Lactic Acid Decay. Miller's Destructive Logic. Decay in Human Teeth, a Slow Process of Combustion.

BY J. OXFORD KELLER, D. D. S., CHICAGO.

(Sixth Paper.)

It is now universally recognized as a fundamental scientific truth, that decay in human teeth is caused by chemism. As it is not caused by lactic acid, the neutral salts in the saliva must be the decomposing agencies, because there are no other chemical resources in the mouth or that obtain in the oral cavity, which could do the work of destruction. The chemical constitution of the salivary secretions indicate several neutral salts, either of which, in sufficient concentration, will readily destroy tooth bone. The decomposing properties of three distinct, different classes of chemical agencies in the saliva have been shown in the preceeding papers of this serial.

The writer has recently had further occasion to search "Miller's Micro-Organisms of the Human Mouth," "Black's Poisons by Micro-Organisms," several more works on human physiology, and "Black's Latest Operative Dentistry." He can find nowhere, that there has been found even a trace of lactic acid in the salivary secretion, nor even lactate salts. He observes that Miller always obtained lactic acid by fermentative processes, using saliva, or carious dentine, as a means of starting micro-organic cultures, productive of lactic acid. Then by analogy he, (Miller), endeavors to show, that because he could make such cultures and produce lactic acid from such bases, that similar fermentative processes with consequent results, takes place in the mouth and rots the teeth. Starch and sugar, according to him, are the main lactic acid carbo-hydrate ferment materials.

Miller did not take into account the small amount of carbo-hydrate material, which at most, can possibly remain in the mouth during

the masticatory processes of several meals (a few grains at most, that a quart of the most always alkaline saliva flows into the mouth every 24 hours, that said saliva with its alkaline elements and salts would neutralize many times as much lactic acid as would be formed in the oral cavity during the same time. If any forms at all, it is only in trace percentages, and this trace would become a lactate at once by chemical reaction in the surrounding saliva.

With all due respect to the illustrious dead, W. D. Miller shows no constructive logic by finding no lactic acid, nor lactate salts in the saliva, nor naming any physiological chemist who had, then by culture processes, requiring several days, using about one pint of human saliva, two pints of water and one-half pint of bouillon, he ferments lactic acid and imagines, therefore, that such process takes place in the mouth and destroys the human teeth (see Miller's *Micro-Organisms of the Human Mouth*, pp. 107, 108, and 109.) At best Miller's logic is only a point by analogy. Why should he not have analyzed the saliva itself for lactic acid, or lactate salts, instead of fermenting lactic acid with it? Such physiological chemists as Chapman, Kirke, Harris, Flint, Tomes, Bell, Hunt, Regnard, Schlenker, Magstot, and many others have made chemical analyses of human saliva for textbook works on human physiology, but none of these scholarly and able men obtain even a trace of lactic acid, or lactate salts in the oral fluids. These able analyzers, finding not even a trace of lactic acid, or lactate salts in the saliva, gives the strongest logical evidence against Black and Miller's *Micro-Organic Theories of Decay*.

There is not, nor can there be, decomposition of human teeth by lactic acid. The chemical constitution of the oral fluids forbids the entertainment of any such proposition. It cannot be considered even on the ground of analogy. Even if lactic acid should form in the mouth, in quantities sufficient to rot the teeth, the one quart of alkaline saliva flowing daily in the mouth would neutralize it, and then if caries should result from the salt formed by the union of this acid and the salivary alkalies, the decay process would be Keller's Neutral Salt Caries. These points are made strong and positive because there are some students of caries causes, who endeavor to support a lactic theory of decay in part, in connection with the chemical salts, thereby advocating decay processes with both acids and alkalies. The fact that neither lactic acid nor lactate salts has been found in saliva, should forever quiet these theorists.

*Decay Most Rapid During Sleep.*—During the hours of sleep, the salivary flow covers and irrigates the teeth. The patient breathes either through the mouth or nose. If through the nasal cavity, with the mouth closed, the oral cavity becomes an exhaust and a compress air cavity. During the inhalation the current of air to the lungs through the nasal cavity, by friction and suction, tends to exhaust some air from the closed mouth; hence, during each inhalation the air is partially exhausted from the mouth. It has a tendency to become a vacuum cavity. During exhalation a reverse process takes place. The passage of the air from the lungs through the nose, because of friction and compression, has a tendency to compress the air in the mouth, which it does to a perceptible degree. The air in the oral cavity is connected with a current of air which flows through the nose in and from the lungs; hence, these conditions take place. The mouth, therefore, becomes an exhaust air cavity during inhalation and a compress air cavity during exhalation. There is a continual current of air in and out of the mouth, even though the breathing process be through the nose.

*Respiratory Evaporation.*—Most patients, however, breathe both through the oral and the nasal cavities part of the time and some of the time through both at the same time, during sleep. The continual passage of air, largely evaporates the water from the salivary secretions. This evaporation may be so extensive as to reduce the saliva to a thick mucus. The water of the saliva only evaporates, leaving the neutral salts, acids and alkalies in the mucus. The evaporation may be so thorough as to remove as much as nineteen-twentieths or more of the salivary water. This will leave the neutral salts, acids and alkalies full twenty times stronger in the salivary mucus than in the normal salivary flow. This thickened mucus will form in plaques at most retainable places over the inside surface of the mouth, around the teeth, between them, in their dents, and interstices and in thier cavities. Because of gravity, it will collect most around the lower molar and bicuspid teeth; hence, they are generally the first to be caught in the ravages of decay.

The water evaporation from the saliva, condenses it with its neutral salts, acids, and alkalies, into a mucus plasma having ten to twenty times their usual strength. An unpleasant neutral salt, acid, or alkaline bitterish taste will result in the mouth when the patient awakes, more especially during disease. Sometimes this

mucus becomes so acrid as to cause pain, bad breath and unpleasant sensations in the teeth. The mouth becomes dry. It is during such chemism, the action of strong concentrated neutral salt conditions, plus excess acidity or excess alkalinity, that decay proceeds most rapidly, or most apt to begin. This decay may be either by direct chemical action, by chemical reaction, or by double chemical reaction, according to the class of chemical agencies concerned.

The lower anterior teeth, incisors and cuspids are the least liable to decay, because the tongue and lip movements are more apt to keep them free from the salivary flow and plaque formation; hence they are generally the last teeth in the mouth to be lost by dental caries.

*Localizing Caries.*—The neutral salts, neutral salt-acid, or neutral salt-alkaline agencies, according to a well defined law in chemistry, attack and make the tooth carious, first in its weakest part, such as sections with least resistance, least density, parts containing most organic or animal matter, and parts which are most porous and cellular. When a tooth is placed in the test tube with the test salivary salt liquid, the cementum will first decompose, because it is the most cellular and least developed in density, of any of the carbonate and phosphate parts of it. It (the cementum) contains about 32 per cent cartilage, fat and water; whereas the dentin contains only 28 per cent. The cementum, therefore, is first destroyed. Next the apex of the tooth having more organic matter than any of the other parts is next in line of attack. The cementum and end of the root would be the first to be attacked by caries in the mouth, if they were exposed to the salivary secretions. The apex is the last to decay because it is protected by the gums and alveolar process.

Decay frequently begins at pit, fissure, depression, or fault in the enamel. Pits, or fissures are frequently found in the occlusal surfaces of all the molars and bicuspids. The buccal surfaces of the molars, especially the lower first molar, have central pits or depressions. Because of faulty development, fractures and thin enamel formation, the approximal surface of all the teeth are the most liable to decay. Instead of the fundamental start of caries of the enamel being caused by Dr. Black's "nidus of each beginning on the surface of the tooth attacked, that offers the best position for the lodgement and growth of colonies of micro-organisms," said caries result from the lodgement of concentrated acrid salivary plaques, particles of food lodges in said cavities, fissures or pits, or between the teeth, acting as

a sponge to hold said mucus in ready position for attack. Salivary plaques are very adhesive and wash with difficulty from pits, fissures and cavities in which they may be located. They require much of the normal salivary flow and considerable irrigation by water to free them from their attachments. In actual contact with the softest and mal-developed parts of the enamel, it readily eats through to the dentin underneath. It is logically certain that such plaques containing the potassium and other neutral salts the concentrated salivary secretions, are rapid chemical agencies of decay in human teeth.

The deposit of certain kinds of food in faults, depressions, fissures, pits, or cavities will act as a sponge, hold the tenacious, sticky salivary plaques in said faults, etc., etc., prevent it from being irrigated and hold the neutral salt in close contact to the parts, which are most liable to carious decomposition. Particles of food in said lodgements, saturated with acrid neutral salts, either with or without excess acidity or alkalinity, would be fully more difficult to irrigate from position, than struggling colonies of micro-organisms. Furthermore, micro-organisms could not cultivate and exist in the thickest mucus, which may at times form in the mouth, by respiratory evaporation.

Water evaporation from the saliva causes the neutral salt mucus to have considerable adhesion and density. It may be so acrid upon awakening from sleep, that the patient will have difficulty to irrigate, dissolve and remove it with saliva. Lingual and masticatory manipulation is necessary to cause a salivary flow sufficient to remove and relieve.

That the neutral salts, such as potassium phosphate, potassium chloride, potassium sulphocyanid and others in sufficient strength, will decompose the lime salts of human teeth, is as certain as law in chemistry. As the agencies which must rot tooth structure are chemical, we can logically conclude that the neutral salt conditions, either alone or with excess acidity or alkalinity, are the only causes.

The foregoing logic shows that the localizing of dental caries in the enamel can more readily result from concentrated neutral salt, acid, or alkaline mucus plaques than from colonies of micro-organisms. No better start for localization could be devised, than concentrated acrid salivary plaques. Hence, the localizing of dental caries will result from action of potassium neutral salts on the most

easily decomposed parts of the teeth. Chemism starts at the easiest point of attack and continues on lines of least resistance.

*Potassium Neutral Salts Cumulative.*—Further evidence of the localization of caries of the enamel, results from the physiological law, that the potassium and its compounds in the systemic processes, are cumulative. They concentrate in the various parts of the human economy. The synovial fluids, which collect around the moveable articulation joints are examples. This fluid has been found to consist of water, albumen and various neutral salts. Soapy-like in nature, its use is to lubricate the moveable joints and sheaths in which the tendons move. It will be found also that in immobile salivary plaques during sleep, that the potassium neutral salts have a tendency to accumulate, in parts or locations which are most liable to decompose, such as pits, depressions, cavities and interstices.

*Molecular Diffusion Another Cause for Localization.*—It is law in chemism that the weakest and most accessible parts are the first liable to attack. For example, if molecules of potassium sulphate, potassium phosphate, or potassium sulphocyanid, and others, floating and in solution in the salivary secretions or in plaques, come in contact with molecules of calcium phosphate, or calcium carbonate of tooth structure, at its weakest parts, then chemical combinations, such as chemical action, chemical reaction, and double chemical reaction will take place. The calcium salt molecules of the tooth will take up and take from the saliva said potassium salt molecules. One after another will engage and disengage, first those molecules which come in contact with the calcium salts. Then the potassium molecules, near to the point of chemical action will be absorbed or abstracted from the saliva or plaque. According to the law of molecular liquid diffusion, the other molecules in the medium will move toward, into and to the point of attack and assist the other molecules in their work at breaking down the tooth structure. This law holds good even in static conditions and but for it there would be neither chemical action or reaction. Accordingly, that as the molecules become disengaged by attack and combination, others of the same chemistry rush into the point of assault and continue the deadly work until the structure is further decayed or destroyed.

*Physical Experiments.*—On each of two glass slabs, evaporate the water from successive coatings of saliva (continuous plaque), one after another, by gentle heat, say from 175 to 200 degrees Fah., un-

til the neutral salt mucus has obtained a thickness of one 32d to one 64th of an inch, or thicker as may seem best. The thicker, the better the experiment. The plaque will adhere tenaciously to the glass surface. It consists mostly of mucus, epithelium, mucin, albumen and various acids, alkalies, and salts, soluble in water and insoluble in alcohol.

Insert these glass slabs, one in a cup of water, and the other in saliva. Allow to remain several hours or days, according as necessary to make observations and tests. It will be found that the water will require more than twenty-four hours as a rule to remove the plaque from the slab by solution and absorption. More than forty-eight hours will be required to diffuse by salivary absorption. Much friction would be necessary to remove with brush and water, especially in depressions, pits, or cavities, because of its adhesive, gummy sticky nature.

These experiments show that the acrid, salivary mucus plaques may remain in locations favorable for the beginning of caries, many hours or even days before removed. These sticky, adhesive, mucus plaques formed during sleep, by respiratory water evaporation from the saliva, do most carious decomposition and ravage the cementum and alveolar process in pyorrhea.

These localizing tendencies by plaque formation are strongest evidences in favor of the neutral salt process of decay. The difficulty of dislodgement from pits, depressions, cavities and interstices, determines the beginning and localizes the decay process.

*Localizing Tendencies to Caries*, may be indicated by chemical experiment, as follows:

Pour  $\frac{1}{2}$  oz. of 25 per cent aqueous solution of lactic acid in a one flu. oz. bottle. Place in same a recently extracted human tooth, having a small cavity of decay, that is, enough decay to be well into dentin. Cork, allow to digest several days. In the meantime observe the action of the dilute acid on the tooth structure. It will be seen that decay will begin first and continue most rapidly in the carious cavity.

*Malformation* primarily, may start or result mostly in defective molecular, cellular and anatomical structure. Lack of exact chemical equivalence, according to the laws of chemical development in the formation of molecules and cells, either of the calcium oxid, or of the acids with which they are in combination (that is, a preponderance of

either the base of the acid), will result in imperfect molecular and cellular development. The formation of dentin and the enamel rods with such cellular structure would be imperfect accordingly. The enamel rods would not be regularly formed nor properly glued together. They would be weakest at the thinnest parts of the enamel. An excess of either base or acid would cause irregular physics, and render the part more liable to attack by carious agencies. These imperfections and conditions may, or may not be seen with the naked eye; but can be seen under the lens of a high power microscope. White, dark, or color spots on the enamel may indicate imperfect development, malformation and tendencies to rot.

*Evidences Against Localized Microbic Decay.*—Several able dental practitioners have told the writer that, to prevent caries in patients under their care, they have advised the use of the tooth brush, morning and night, and after meals, several times daily, with suitable mouth washes and powders. This practice was kept up during a period of several years. They hoped by the utmost cleanliness and precaution and continual use of carbonate powders and mouth washes, to obviate caries. These dentists say that notwithstanding extreme care they were not able to keep the teeth of their patients free from rot, although they felt quite sure that they may have retarded the disease.

Notwithstanding the utmost cleanliness with the tooth brush, dentifrices, rinsing of the mouth, and the use of the pick after meals, decay will result. Caries takes place frequently on buccal surfaces of the first inferior molar and in the grinding surfaces of all the molars, notwithstanding that in these locations the use of the tooth brush and powders would prevent the lodgement of microbial cultures long enough (if at all) to have any deleterious effects either by themselves or by the acids which they might excrete, or by the lactic acid in which they might be a product.

Micro-organisms form but a small percentage of the media in which they grow. The writer has quizzed several bacteriologists. Few would give a guess as to percentages. All said "very small." Some thought it might be five, one, or one-half to one-fifth of one per cent.

*Decay Not Micro-Organic.*—It will be seen according to foregoing "evidences against localized microbial decay," that caries will result in human teeth notwithstanding the most careful pains taken for prevention. The preventative measures which would retain microbial life

and decay would not interfere with the neutral salt process of decomposition. The cleansing of the teeth with brush, powder, irrigation, and pick would not and could not but possibly interfere with neutral salt plaque formations, by respiratory evaporation during sleep.

No cleansing of the mouth during the day will prevent the flow, evaporation of water from the saliva and its concentration into an acrid mucus during the hours of rest. This acrid mucus will lodge in plaque formation between the teeth, in their cavities, dents, pits and concentrate mostly in such locations. It is then that the acrid saliva eats holes through the enamel and later begins assault on the dentin underneath. Neutral salt decay will result, where cultures of bacteria cannot remain long enough to rot. It is during sleep more than other hours, that the concentrated acrid salivary mucus does the deadly work of tooth decomposition.

*Decay in Human Teeth a Slow Process of Combustion.*—Human teeth are well defined physical and chemical structures, with component anatomical inorganic parts, such as enamel, dentin and cementum. They are the most durable physical and chemical parts in the human economy. Likewise, the tree of the forest, has well defined physics and chemistry; hence when rotted or destroyed, the forces of destruction, must be physical or chemical. Both animal and vegetable matter has also a well defined atomic, molecular and cellular constitution. Breaking down or separating these chemical components requires physical and chemical forces accordingly.

Wood and coal burning in a stove, or fire-grate, oil in the lamp, or gas in the burner, generate heat and light. The oxygen of the air combines with their carbon and other elements forming carbonic acid gas and water. The parts are destroyed quickly because of the rapidity of chemical action, hence rapid combustion. But the tree of the forest will also decay. Standing or felled it becomes disintegrated by a dying process of nature. Strange as it may seem, the forces of decomposition in rotting the tree are the same as would result in the burning of the same wood in a stove or grate. In one case there is rapid chemical action, and the other a slow process of combustion by rotting. The oxygen of the air, is absorbed by the molecular vapor, in forming the rain drop. The latter permeates and moistens the wood fibre. By frequent atmospheric changes, drying and wetting, the atoms of oxygen come in chemical contact with the

carbo-hydrate wood molecules. Oxygen, carbon and hydrogen atoms unite forming carbonic acid gas and water, same as result in burning processes in grate or lamp. The chemical action is the same, except that, one is rapid and the other a slow process of combustion.

Caries in human teeth is also a true chemical process. These organs burn and rot the same as wood. In all instances the oxygen element is a support and cause of the disintegration. In the tree fibre, the oxygen acts from without, and in the decaying tooth it is within. For example, a single molecule of calcium phosphate in enamel or dentin, contains one atom of the calcium element, five of oxygen and two of hydrogen. One molecule of calcium carbonate contains four atoms of oxygen, two atoms of hydrogen and one of calcium. Then the inorganic matter of the teeth, enamel and dentin, is composed of about 95 per cent of these carbonate and phosphate molecules. It is the preponderating number of the oxygen atoms within the tooth structure, and the high chemical affinities of the potassium elements outside of tooth for the oxygen within and the organic acids for associate calcium which is the sole cause of the destruction of the teeth, giving caries and decay processes by a slow process of combustion.

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### PRACTICAL SCHOOL INSTRUCTION IN ORAL HYGIENE.

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Read before Third and Fourth District Dental Societies of State of New York at Troy, N. Y., October 21st, 1910.

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According to the estimate of Professor Irving Fisher, of Yale University, Chairman of the Committee of One Hundred on National Health, we have in the United States at all times about 3,000,000 persons who are seriously ill. When medical and dental scientists tell us that there are probably over twice as many who do not know they are ill, who do not even feel the necessity of stopping their daily toil, it becomes evident that these people who have undergone weakened infection are immensely more numerous than those who are severely attacked, and moreover they move about, while the latter class remain shut up. From these facts we may understand that disease is spread not so much by serious cases as by persons who are suffering little or no inconvenience from their indisposition.

In comparatively recent years there has come into the world a

new knowledge that is able to save man from a great part of the sickness that has hitherto afflicted him. The idea of weakened forms of germ diseases, when it has penetrated into the public brain will impose habits of decency that in time to come will save millions of lives and we come to the conclusion that people should and must be taught to devote themselves to making their bodies immune to disease. Up to the present time, however, no way of getting this knowledge to the mass of people has been found. Our efforts in the past have been misdirected to a large extent because we have endeavored to combat the effect instead of eradicate the cause. Thousands of dollars are spent annually for hospitals for the sick, asylums for the blind and insane, country houses for the poor and homes for the orphans; then in the course of events the stronger proceeds to prey upon the weaker, and the weaker, either directly or indirectly, becomes the object of his own charity and we have a continuous performance from generation to generation. Man gives liberally for the purpose of giving the children of the slums a breath of pure air, or to save the lives of sickly and impoverished babes, but he does not or has not considered it essential to assist in bettering the conditions that make such liberality necessary and the conditions remain practically the same year in and year out.

Prominent authorities assert that the public schools of this country have served as incubators for the development and dissemination of more disease than any one single cause known. If this is true why surely to compel a child to attend school and subject it to infection that may result in sickness or death, is nothing short of an unjustifiable crime. The greatest immediate service that our schools can perform then, is to put their pupils into possession of those facts that will relieve the people of the great burden of preventable disease which they are now carrying. A burden which can be shaken off completely only, when a generation of American citizens have been systematically instructed in the principles of hygiene and sanitation.

During recent years our dental journals have been filled with articles on oral hygiene, the medical journals followed suit, and by concerted effort and persuasion the public press were interested. The oral hygiene movement is not a new one by any means, but an old one brought out in a new manner. In days of old it was taught by far-sighted men who appreciated its importance but who interested only those who had the intelligence and financial ability to take ad-

vantage of their teaching. Today the scope has been vastly increased because of the economic problems involved; it being more economical to prevent the cause than to repair the results. The present movement then is an attempt to put within the reach of the masses the knowledge necessary to preserve their natural teeth in such a form as to do efficient work in mastication in order to secure proper nutrition, the very basis of life. Horace Fletcher, the world's greatest living exponent of dietetic righteousness, says, "The whole problem of nutrition, or otherwise life, can be settled within the first three inches of the alimentary canal, and that it is the only portion of this exceedingly important part of our anatomy over which we have control. Thus by the simple expediency of keeping these three inches of the oral cavity in a sound, wholesome condition so that they will perform all the functions for which they were intended, will increase the health, comfort, efficiency, prosperity and longevity of all civilized people.

To observe and to state that such is the case does not produce a remedy; and the remedy can only be secured by years of careful, intelligent research and application on the part of the dental profession. Meanwhile all of us who are interested must work together. We must have a perfect organization; an organization that educates, as the Rev. Mr. Gardiner says, in two directions.

(1.) It must educate intelligent demand on the part of the public.

(2.) It must educate its own men to fill the public's demand when educated.

It is not enough today for great department stores to educate the public by elaborate show windows and advertising. They must also see that the goods displayed and advertised are shown by an efficiently trained clerk and they maintain schools for this very purpose. It is for this reason that our profession must be better organized and its standards continually raised—then the profession's capacity to meet the public's demand will be maintained and the high standards all along the line be increased.

We pay our fees to our professional organizations and then say we don't get anything from it; lectures are not good, dinners bad, and as attendance is falling off we stop. The real trouble is that we have put in so little that we are disgusted with what we take out. We are like the intoxicated man who sat on the curb and waited for his house to come around. We will wait thinking our return will come—

but it will not. If we want real advance we must be willing to put a good deal of ourselves in, but we want methods in organization that will produce results commensurate with our investment. We will not become strong until each man puts in not only his membership fee but enough of himself as a unit in that organization.

As a member of the Oral Hygiene Committee of the National Dental Association I feel it my duty to tell you of our plans for the ensuing year.

First, we wish the president of every state society in the Union to appoint a committee on oral hygiene to work in connection with the National Committee, and to have, through them, every sub or independent organization in the states elect or appoint committees to work in connection with us. If this can be done, we will have every organization that is working along the oral hygiene line report to us directly upon what they are accomplishing, and when anything new that is worthy of consideration comes from any source whatsoever it will be compiled along with other good points, printed and mailed to the other committees at work throughout the country as well as to school boards, chambers of commerce, boards of health, charity institutions and every other organization which may be brought into play to advance the interests of this work.

This will give us the benefit of the best minds throughout the entire country, and will send a wave over the land which will do far more good in one year than could be accomplished in years by each individual organization working separately.

It is hoped that the third and fourth District Societies will each appoint a committee to co-operate in the way suggested during the present meeting.

The Oral Hygiene Committee of the National Dental Association with their limited resources have accomplished wonders during the past year. Clinics have been installed, lectures given, and literature printed, as you have read in the journals. Give us your active support during the years to come and success will crown our efforts. While all the forces that are being used, whether examinations, clinics, lectures, etc., are valuable, and each is contributing towards the desired end it seems to me that the most practical method that can be put forth is that Hygiene should be faithfully taught in every schoolroom in the land, that the purpose in teaching it is to prevent sickness and that any text on hygiene that fails to emphasize the facts that modern

medicine and dentistry has shown to be vital in health preservation, is an inferior book for school use. And speaking of inferior books—why our schools are filled with them—I refer, of course, to books on hygiene and physiology. Up to this year we had not a text-book that contained a worthy chapter on oral hygiene. While every state requires that hygiene be taught so many hours a week we know that the general opinion of the medical and dental professions is that hygiene as taught in the schools is a sinister practical joke with a calm and magnificent disregard for the urgent problems which enter our daily life such as the prevention of the predisposing causes of disease.

Realizing that the many books on oral hygiene which have been written for the purpose of educating the public have not got outside the dental profession simply because there was no demand, and also, the utter impossibility of introducing into the schools such a book as a special branch of general hygiene. The National Oral Hygiene Committee after a good deal of hard work have finally succeeded in having a chapter on oral hygiene published in the most recent and authoritatively best book ever printed for public school use. This book is published by the World Book Company, of New York, and its authors are Ritchie & Caldwell. The name of the book is "Primer of Hygiene," and although we are not acting as selling agents or receiving any commission it is certainly our duty to do all in our power to introduce it into our respective schools until at least a better one is published. The book contains many illustrations and in the various chapters wherever possible you will find oral hygiene given its true place. The Boston schools are already using this book and it remains with the dentists of this country to sweep our present force out of the schools and consign it to the junk heap where it belongs. The installation of this book or a book as good or better, into the schools of this country is to my mind the most practical and least objectionable method we have yet found. One that entails no large outlay of money; one that gives the specialty of oral hygiene its proper place and take away nothing from the other branches of medicine. The only objection to the introduction of those books would be the cost to the school boards and the school book concerns lobby at the capitols.

Examinations, free clinics, lectures, etc., all have their good influence. Permanent examinations and lectures and clinics all require a great deal of a man's time, or a corps of lecturers time, and would necessarily call for a salary from the school board, which the school

board at present is not as a rule willing to pay. Then again, lectures would furnish a precedent for others aiming at the establishment of the physical condition of other organs, but as no one can tell what the future will bring forth let us work hard and earnestly with the material at hand, for it is worthy and necessary for the proper appreciation and prevention of the need of the free clinics to a certain extent at least.

Owing to favorable circumstances my paper has been intentionally short, for I have brought with me a man well known in Boston as a powerful public lecturer on Patriotic subjects. With your chairman's consent he will tell you important facts concerning our cause in a way that I can not.

In conclusion I wish to say that I feel that we have good reasons to take courage and go forward. The signs of the times are auspicious; the spirit of hygeia seems to be in the air, the people are waking up from their lethargy and it is not too much to hope that we are now entering upon a period which will be known in the histories of our several countries as the age of hygiene.

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### THE SURGICAL SIDE OR DENTISTRY.

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BY. A. T. RASMUSSEN, D. D. S., LA CROSSE, WIS.

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That the practice of dentistry has taken on a surgical aspect during the last few years, every member of the profession who is at all alive to the advances made along all lines, as well within the field of dentistry as without, will readily admit.

I have learned that the men who are striving to reach the highest pinnacle of success in their chosen profession are not confined to any particular city or section of the country. I have also found that men all over the country are making the same mistakes, stumbling into the same pitfalls and plodding along in the same old ruts that we, who are members of this society, are apt to do. That is the reason for my remarks this evening.

The practice of dentistry may be divided into three distinct branches without going into any of the so-called specialties, of which orthodontia might be mentioned as a fair example. These three branches are the Surgical, the Medical and the Prosthetic.

I have mentioned these three in the order of their importance to

the public and our patients, whom we are trying to serve. However, these overlap and interlock with one another in such a way that it is impossible to practice one intelligently without having a good knowledge of the other two. For example, a dentist undertakes to construct a bridge to be placed in the mouth of a patient; in order to do this and to do it well he must be a good prosthetist, a good mechanic—and right here let me stop long enough to say that being a mechanic is not a thing to be ashamed of, but rather to be sought after. Without the men who make realities out of ideas this world would indeed be a sorry one. The speaker feels no small amount of pride in being able to drive a nail without hitting the thumb, making a piece of furniture or going to work in a machine shop if the occasion should demand).

But being a mechanic is not enough; he must be a metallurgist, having a knowledge of the effects of the different metals upon the tissues of the mouth when placed in contact with them for a longer or shorter period of time. Also, he must know the effects of the fluids of the mouth upon the different metals as well as other materials at his disposal. Therefore, I say, he must be a chemist.

He must be a stomatologist in order to recognize the symptoms of disease as they manifest themselves in the mouth, thereby, often concluding whether or not a certain class of work which he intends to do will be the proper thing for that particular case.

Then having recognized these things he must have a general knowledge of medicine and the practice of it, in order that he may be able to prescribe the right line of treatment to place his patient in the best possible condition physically. If the patient is anemic he must know what the trouble is and then treat accordingly and not simply say to the patient, "now, you take a bottle of tonic made by Blank, Blank and Co., just because this firm has sent more advertising matter than some other concern.

These things and a great many others he must take into consideration in each case where he undertakes to construct an artificial substitute for any of the natural organs which have been lost, either through accident or disease. All this, of course, would be simple enough were it not for the fact that rarely do we find that conditions are just alike in any two cases.

Therefore, I say that if dentistry is to be practiced intelligently these things must be a part of any individual's knowledge who takes

upon himself the responsibility of treating any abnormal condition of mouth, teeth or adjacent parts.

However, ~~dentistry to be at its best~~ must be practiced from its surgical standpoint first, last, and all the time. To go back to the making of a bridge, one of the first things to be taken into consideration is whether or not there are any roots of teeth which it is necessary to remove and why is it necessary. Then I say that the very first look into the mouth must be directed from the surgical side of the question. Some of the other things coming under this head are as follows: Are there any abscesses discharging pus into the mouth, the maxillary sinus, the outside of the face or even the pus from which is absorbed directly into the system, the latter commonly being known as a blind abscess? Are there any abnormal growths about the mouth which will be benefited or possibly aggravated by the treatment contemplated? Is the condition of the remaining roots or teeth as well as the peridental membrane and bone surrounding them in such a condition that they will be able to bear the extra stress to which they will be subjected when a bridge is placed in position? Is metabolism of the cellular elements of the tissues going on in a normal way or has the process of katabolism gained the upper hand and the tissues wasting away?

These observations having been made, of course, the proper line of treatment must follow. However, I have not time this evening to go into the detail of that but just want to call your attention to them in order that it may remind you as well as myself of the necessity of studying our patients from this standpoint. If a man becomes a close observer of conditions, in other words a good diagnostician, I have not the slightest fear of his becoming able to treat the same properly and intelligently.

The conditions being now ideal or as nearly so as it is possible to get them, we come to the preparation of the roots for the reception of the crowns which are to act as abutments for the bridge. We will say nothing about the removal of pulps and filling root canals at this time, but will speak of that a little later. The preparation of a root, the grinding and shaping of it must be done with surgical care and accuracy if we would attain the very best results. (Certainly, no one should pretend to practice dentistry or the branches of the healing arts unless he strives to do his very best in every case.) In the case of a banded crown the root should be so shaped that the band, when

in place, will fit like the hoop on a barrel. That may sound like a very homely illustration, but it is a fact nevertheless that in a great many instances the man who makes the beer keg or oil barrel is far more careful and accurate than the man who makes a band for a crown. Every man here knows too well the effects of an ill-fitting band to make it necessary for me to make any further comments on it, but I would say this, never feel satisfied until the band fits the root just as tightly as it is possible for it to fit; not some place, but all around the root. Always remember it is a surgical operation that of removing the enamel of a tooth and replacing it with a band of metal. If this were always kept in mind, most bands would fit better than they do.

Every surgeon dentist naturally makes a study of bacteriology, histology, etc., and consequently, these things will not seem like a lot of superfluous precautions but rather like very important details which cannot be overlooked.

Now, if a bridge is made, taking these things into consideration as well as some others which I cannot take time to mention this evening, we will have an artificial substitute for the natural organs which is as nearly what everyone has a right to expect, as it is possible for human mind and hand to make, viz., a first-class substitute for the lost organs of mastication, made and placed in the mouth in the most skillful and scientific manner, and above all with *surgical cleanliness*.

If these things are not properly considered it were better for the patient a thousand times that it had never been attempted.

In regard to the man who does not think he has time to consider these little things and then treat his patients accordingly, I know of no better thing to say than to use the phrase of the Master when he said, "It were better for him" (and certainly for the public) "that a millstone be hung about his neck and he cast into the sea."

Until every practitioner of dentistry fully realizes that the extraction of a tooth is a surgical operation which must be done with as much care, both as to the condition of the tissues operated upon as well as the hands of the operator and his instruments (having reference, of course, to asepsis), we shall have infection of the tissues, causing sloughing of the gums, necrosis of the bone, infection of the antrum of highmore as well as the other sinuses of the head and that whole train of troubles, all the way from a slight local disturbance to a general septicemia and death.

Death the result of the extraction of a tooth? Yes, and why not? When we take into consideration the careless manner in which this operation is often done and then remember what a slight injury will often cause death, it is a **marvel** that more fatalities do not occur from an operation which leaves a great, open, exposed wound, such as does the extraction of a tooth.

But with the knowledge of bacteriology, such as every dentist of today has (or if he has not, ought to get busy and acquire or quit **imposing** upon the public by leading them to believe that he is fitted to practice dentistry), there seems to be very little excuse for infecting the tissues with the hypodermic needle or forceps that have not been properly sterilized.

A needle is not in an aseptic condition as it is taken from the drawer of the cabinet, the box, the fancy leather case or what not. It must be sterilized every time before it is used and immediately after and then we need have no fear of the local anaesthetic causing sloughing of the gums. Then, to repeat, sterilize after every operation and always immediately before the next.

Now, if you do not think you can afford to go to all this trouble and then extract a tooth and get fifty cents for it, why charge them fifty dollars, but whatever you do, or whatever you charge—**STERILIZE, STERILIZE, STERILIZE.**

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### A CRUSADE FOR PUBLIC DENTAL EDUCATION.

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G. W. ENTSMINGER, D. D. S.

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It has been only a few years since special attention of the profession of dentistry has been called to the public school as the best place to begin the education of the rising generation as to the care of their teeth. We used to think that the home and the parents was the only place to properly train the boys and girls to care for their teeth, but time and experience has shown us it was not enough. To be sure, many a mother has been quite active and successful in training her children to cleanse their teeth, and also to take them to the family dentist at regular periods for careful examination, and to have done that which was needed.

All very good—for the few who do this—but what about the other half, the mothers who have not known the importance of this care and

training, or have willfully neglected it? That is, today, gentlemen, what we as a profession are up against. There is a part for us to play, and we must act in order to sustain the standing we deserve as a profession. The question before us today is to secure the views and plans of different men of the profession, and, after summing them up, take such as we think effective and put them into practice, provided we can secure the co-operation of the school authorities.

Pardon me if I give you my personal experience which I think is, or should be, a fair example of what we are going to try to carry out. We have a man at the head of our teaching force at the public school of Carbondale, who many of our people call a crank on the subject of public sanitation, and it is barely possible that he is a little too particular in some ways, but, gentlemen, he is all right on the teeth and mouth proposition. He has had physicians come to the schools and give talks on various subjects, and he has also insisted that the dentists come and talk to the teachers; yea, more than that, he has planned for we dentists to come and make a thorough examination of the teeth of every pupil in the school from the primary to the highest grade in the school, and we have begun it but are not through as yet. I wish we had a complete data of this school so we might give you some facts and figures. A little farther on I will give you what I have found in the two rooms I have examined. You say: "Don't you have trouble in getting the permission of the pupil?" No., they seem to be willing and anxious, and with few exceptions you get them all. Of course, at the first suggestion of having these examinations made, we heard of a few parents who were ruffled somewhat, but after a little time to reflect they saw it was all for the benefit of the child and all became sweet. Out of the 78 pupils in the two rooms I have examined, only one sent this word to me: "My papa said for *me* not to monkey with any of them doctors nor let them monkey with me." Now, as it happens, I am not acquainted with his father and I presume I am not missing much by not knowing him. I have also formed my opinion of him in connection with this examination at the school. I believe we will get a good deal of the timidity taken from the child, especially the younger ones, as they will inspire each other to confidence in us. Again, there are not the office fixtures to behold, which, to a great many is not altogether a cheerful surrounding, and by the way, let us avoid all unnecessary display of instruments in our office; then, with our first visit with them at the school, we will have less trouble

when we have to begin the work of treating and filling for our little patients.

Now, as promised, I will give you the result of my examination of these two rooms. In the Lincoln School, the first room I examined was the first primary, numbering 45 pupils; a total number of teeth, 993. Of this total I found 129 defective teeth, which is 13 per cent of the whole number, bad. Of this number of 45 pupils 13 had no bad teeth, which is 28 per cent good. The pupils are of the age of 6 to 8 years.

Second room examined—fourth grade pupils, age 7 to 10 years; 32 pupils; number of teeth, 738; defective teeth, 90 or 12 per cent bad. Of these 32 pupils six had all good teeth or 18 per cent good. I also found that fully 95 per cent used the tooth brush.

Now, this is the beginning of getting the examination and data, but I trust as time goes on we will have a universal system of data of this grand work we are to do. There is so much to be said about this work I will now stop my part and trust we may all enter into a free discussion, which, as a rule, is the very best part of a paper.

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### SIT UP AND TAKE NOTICE!

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#### Minimum Price List of The Knox County Dental Society. Adopted April 14th, 1910.

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We hereby agree to abide by the minimum scale of prices of the Knox County Dental Society, adopted December 9th, 1905 and revised February 22d, 1907, and further revised and adopted by the society, April 14th, 1910.

[The above was signed by 95 per cent of the Dentists.]

#### PRICE LIST.

|                                                                                 |         |
|---------------------------------------------------------------------------------|---------|
| Gold crowns, anterior to the molar.....                                         | \$ 7.00 |
| Molar .....                                                                     | 8.00    |
| Porcelain crowns, banded .....                                                  | 10.00   |
| Not banded .....                                                                | 7.00    |
| Bridge work, per tooth.....                                                     | 7.00    |
| Full upper and lower dentures on rubber base, including ex-<br>traction .....   | 30.00   |
| Full upper and lower dentures on rubber base exclusive of ex-<br>traction ..... | 25.00   |

One-half of the above price for either upper or lower denture.

|                                                         |       |
|---------------------------------------------------------|-------|
| Partial dentures .....                                  | 5.00  |
| And for each additional tooth.....                      | 1.00  |
| Resetting dentures .....                                | 8.00  |
| Repairing dentures .....                                | 2.00  |
| And for each additional tooth.....                      | .50   |
| Aluminum dentures swaged .....                          | 15.00 |
| Aluminum dentures cast either upper or lower.....       | 25.00 |
| Gold crowns for artificial dentures.....                | 5.00  |
| Gold fillings in artificial teeth for dentures.....     | 2.00  |
| Lower clasp denture using iridio-platinum wire.....     | 20.00 |
| Clasps for dentures, per clasp.....                     | 2.50  |
| Gold fillings .....                                     | 2.00  |
| Enamel fillings, Ashers'.....                           | 2.00  |
| Silver fillings .....                                   | 1.00  |
| Silver fillings, compound .....                         | 1.50  |
| Silver fillings where roots are filled in bicuspid..... | 2.50  |
| Silver fillings where roots are filled in molars.....   | 3.00  |
| Extraction, simple .....                                | .50   |
| With local anesthetic .....                             | .50   |
| Gas or Somnoform .....                                  | 2.00  |
| And for each tooth extracted.....                       | .50   |
| Impacted lower wisdom .....                             | 5.00  |
| Deciduous teeth, filling .....                          | .50   |
| Treatment .....                                         | .50   |
| Extraction .....                                        | .25   |
| Porcelain inlays .....                                  | 5.00  |
| Gold inlays .....                                       | 5.00  |
| Devitalization, anterior teeth .....                    | 1.00  |
| Bicuspid .....                                          | 1.50  |
| Molars .....                                            | 2.00  |
| Cleaning teeth .....                                    | 1.00  |
| Treatment for pyorrhea, per hour.....                   | 2.50  |

# EUROPEAN PROGRESS.

CONDUCTED BY THOMAS L. LARSENEUR, D. D. S.

## TOBACCO AND ORAL PROPHYLAXIS.

BY DR. G. GAVALLARO.

(La Stomatologia, Oct., 1910.)

Tobacco has been, by some at all times, proscribed as the principle cause of all sufferings. The truth of this may be found in a just medium.

In moderate doses, tobacco will have no injurious action on the organism, particularly on the functions of the digestive organ, but in high doses it becomes toxic. In fact it contains several injurious elements.

In the first place, all tobaccos contain more or less nicotine. The tobacco containing the most is that which comes from Italy, having a percentage which will reach as high as 10 per cent. The greatest part of nicotine is burnt and will be found in the tobacco smoke.

Its action is very injurious to the nervous system, to the circulation, and to the respiration (by the exciting action which it has on the pneumogastric), but moderate use of tobacco may have no serious results. In other words, tobacco, if used in high doses may result in serious troubles of the oral cavity.

Other toxic products are found in tobacco, but are not so violent as nicotine: for instance: pyridin, which is 15 times less toxic.

We shall not study these general troubles brought upon by the use of tobacco but will limit ourselves to the action of tobacco upon the oral cavity.

We should always have in mind the importance of the cleanliness of the mouth as it is a very good soil for the development of micro-organisms. A slight irritation will sometimes cause these bacterias to manifest their virulence; consequently, the affections of the mouth are often the result of its condition.

### ACTION OF TOBACCO ON THE SALIVARY GLANDS AND MUCOUS MEMBRANE.

The irritation produced by smoking on the mucous membrane is entirely due to the temperature of the smoke. As to the glands, their excessive activity will sometimes cause indurations, specially the sub-

lingual and the submaxillary. If the habit of smoking determines cessation of salivation, this will produce pain. These facts have been confirmed by several experiments upon animals (Injections of nicotine).

#### GINGIVITIS AND THE SO-CALLED SMOKER'S STOMATITIS.

I do not really think that these diseases are caused by the use of tobacco, but entirely to the unclean condition of the mouth. Tobacco smoke and the absorption of nicotine in themselves are not capable of producing pathological conditions such as stomatitis, even if there should be a predisposing condition. However, if there is a simple stomatitis or gingivitis existing, it may very well be aggravated by the absorption of nicotine, being a powerful irritant.

As to leukoplakia buccalis, to which formerly tobacco was incriminated, it is of syphilitic origin.

#### SMOKER'S PATCHES.

With some smokers we find at the *commissure* of the lips, where the cigar is held, patches of irregular form and of a peculiar color, which are nothing else but an alteration of the mucous membrane.

#### EPITHELIOMA OF THE TONGUE.

Tobacco should not be blamed as the cause of this disease, as its etiology is not, as yet well known.

#### EPITHELIOMA OF THE LIPS.

Commonly called smoker's chancre, is a cutaneous chancre which, in most cases is localized on the lower lip, the cause of which, according to many authors, is tobacco.

#### ACTION OF TOBACCO ON THE TEETH—BLACKENING.

Black deposits are found on the teeth of smokers and these stains are most often found at the cervix, generally having the form of a half moon. The labial and lingual surfaces of the teeth are also affected by tobacco smoke, specially that of the insisors. These stains are very difficult to remove once they have become imbedded into the dental tissue. They are not found in the mouths of all smokers, but only in those of a certain age. With young individuals where the enamel is healthy and the teeth free from tartar and in a clean condition, small black spots will sometimes be found. In others, the enamel is so highly polished and smooth that the smoke will have no effect on the teeth.

The blackening of the teeth arises from substances which are deposited by the smoke and not, as usually thought, by the nicotine; the following experiments will demonstrate this. A perfect tooth is immersed in a solution of nicotine which is gradually increased in strength until a concentrated solution is obtained and the tooth is left in this solution for several months. The first days the enamel is not affected and retains its color, but after several months the root will show black stains similar to those found on the surface of the teeth of smokers. When the enamel is perfect and healthy it is never affected by this test.

If on another hand, if a tooth is submitted to the smoke of a few cigarettes it immediately takes a yellowish color and black stains will be noticed on the root. Nicotine nor smoke seem to alter the dental tissue. We should not blame tobacco for abrasion and erosion and other diseases which may be found on the teeth of smokers.

Of course the pipe or cigarette-holder may be the cause of abrasion of the teeth which holds them, but this phenomena is purely mechanical.

#### ACTION OF TOBACCO ON MICROBES.

The bactericidal action of tobacco is of long years a known fact and is more recognized today than ever. Certain authors affirm that smokers who are living in an atmosphere impregnated with tobacco smoke are safe from epidemics.

Dimerbrack, Rausfson., treatise on pestilence, highly recommends tobacco smoke against this epidemic. Visalli has observed that during the epidemics of cholera of Messina 1854-67-87, smokers would be immune from the disease. In 1889, during the epidemic of influenza, tobacco workers were saved from the disease; the same condition was noticed in Florida in 1887 when many were affected with yellow fever. Tobacco will also act in the same manner with dysentery and typhoid fever. Tuberculosis will rarely develop with people who are working in tobacco manufactures and W. Cock affirms that the habit of chewing tobacco will prevent the development of tuberculosis in subjects who are predisposed to the disease. Dogs who are inoculated with this disease will prove to be immune if they are kept in an atmosphere saturated with tobacco smoke.

These properties of tobacco smoke and smoke in general are readily explained by its composition; it contains carbon dioxide, nitric acid, sulfuric acid, carbonic acid. These products of combustion

contain a much higher percentage of creosote and phenol, but rarely the following acids: sulfuric, cyanhydric and butyric. The bactericidal action of smoke is principally due to the products of combustion. The other substances owing to the small proportion they have in smoke simply act as paralyzing agents upon the life of the microbes.

If smoke in general is bactericidal as it has been proven by the experiments of Palozzi, it should be much more the case with tobacco smoke which contains the same elements as ordinary smoke *plus* nicotine and pyridin.

From all these facts, Tassinari, "Action of tobacco on certain pathogenic microorganisms, *Annali d'Igiene sperimentale* 1891" concludes as follows upon the use of tobacco: Far from being condemnable, it may be used to great advantage in fighting epidemics and it should be given due consideration as an agent for oral hygiene and prophylaxis.

On another hand, Miller has demonstrated before Tassinari the germicidal action of tobacco by proving that the smoke of a cigarette could sterilize 10 cmc. of food products.

Hepburn (*Westfälischer mercus*, May 24, 1884; *British Medical Journal*), claims that the bactericidal action of tobacco smoke is sufficiently powerful to arrest the putrefaction of carious teeth and neutralize the acidity of the mouth.

My personal researchs on the action of tobacco smoke and nicotine upon pathogenic germs, especially those found in the mouth, such as in caries, permit me to state and affirm that tobacco certainly has an antiseptic power.

These experiments were made on the following microorganisms: staphylococcus albus, streptococcus, diplococcus of Frankel, staphylococcus aureus, etc.

Our experiments were made with infusions of tobacco, tobacco smoke and nicotine. For the infusions strong tobaccos were used (Neapolitan, Tuscan and the Virginia), from 20 to 25 grammes in 100 per cent of water. For the smoke, strong and weak tobaccos were used—(Neapolitan, Tuscan, Virginia, Havana, etc. . . .)

For the experiments with the smoke a glass retort was used, having at the center the shape of a balloon and the size of an orange, having at the center a small aperture, a little metallic hook of 20 centimetre in length and 1 centimetre wide. A small piece of cotton (absorbant) saturated with sterilized water was suspended to the hook

of the balloon; this was done in order to maintain a certain quantity of water vapor in the apparatus.

When the apparatus was properly sterilized, sterilized nutritive gelatine (about 10 cc.) upon which, in the usual manner, the culture of microbe for the experiment was placed, and the whole was finally placed in the balloon.

In order to prove the value of the culture, part of it was inoculated to another gelatine.

Tobacco smoke was then forced into the balloon through the tube, taking care to close the opening of the tube after each puff of smoke.

The exposure of the different cultures to the action of tobacco smoke was from 40 to 45 minutes, and the amount of tobacco consumed was 15 grammes.

Of the different experiments which made, the following results were attained: nicotin would retard more or less the development of these cultures, and with some, it would effect a complete sterilization. With a few, such as (basilli of cholera and pneumonia), complete sterilization was obtained with every variety of tobaccos; others who are more resisting will only be retarded in their development; they are: (the staphylococcus mesentericus vulgatus, bacterium coli, bacterium *similitifo*).

Strong tobaccos will invariably destroy microbes, due to the amount of nicotin which they contain.

The practical conclusion of this would be that tobacco, and especially tobacco smoke are energetical disinfectants of the oral cavity, but in order to favor its bacterical action on the tissues of the mouth, the latter should be kept scrupulously clean.

#### CONCLUSIONS.

1. Tobacco is endowed of an antiseptic strength which is very energetical.
2. Tobacco sterilizes the saliva.
3. Tobacco may darken the teeth, but it does not alter their tissue or substance.
4. The secretion of the salivary glands increases with small doses of nicotin, and is diminished with high doses.
5. Gingivitis and stomatitis, so called of smokers, are not caused by the tobacco, but by the aggravation of an inflammatory condition or by a pre-existing infection of the gums.

6. It is not proven that epithelioma of the lips and tongue are exclusively caused by the action of tobacco.

7. Tobacco is known to have an antiseptic action upon the oral cavity, and instead of condemning it, its use should be advised in oral prophylaxis.

8. The antiseptic power of tobacco in the mouth is increased, inasmuch as it is kept in a clean condition.—(*Le Laboratoire et le Progres Dentaire Reunis*, Paris, Dec. 10, 1910).

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### SOME RARE ABNORMALITIES IN TEETH.

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BY W. RAMSEY SMITH, D. SC., M. B., C. M., ADELAIDE, S. A.

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(*The British Journal of Dental Science*, London, October 15, 1910.)

When making inquiries into the dentition of Australian aborigines and South Sea Islanders, I took occasion to show some interesting teeth to Professor Watson, of the Adelaide University, and Mr. Crank, D. M. D. In the course of our examination, Dr. Crank produced several teeth which I had asked him to present to odontological collections; and Professor Watson thought it was a pity they should go undescribed, seeing that they presented some very rare abnormalities and he made me promise to prepare a description for publication. The following is the result: Fig. 1. Fusion of two upper central incisors, from a boy 8 years old. These grew on the right side of the mouth, in the place where the lateral incisor and canine should be. They made the lower lip so sore that he had to hold it out when eating.

The mass measures 23 mm. in length and 13 mm. in greatest width. The roots are nearly equal in size, but the right crown is larger than the left. The large, single, constricted pulp cavity is surrounded by a thin tube of dentine. The vertical ridge on the front (Fig. 1), belongs to the right tooth; the line of demarcation between the teeth passes downwards on its left, and makes a notch on the border at a distance of 5 mm. from one border and 8 mm. from the other. On the cutting edge of the left tooth there are five small pits, and on the edge of the right there are ten. The posterior surface of the mass (Fig. 2), shows great growth of the cingules of both, which gives rise to very deep vertical pits.

The point of greatest interest here is the small amount of

separation to be observed in the case of central incisors, which grow in separate bones. Fusion to an equal extent to this is figured by Tomes (Fig. 3), in the case of central and lateral incisors in the upper jaw (*Dental Surgery*, 3rd. ed., p. 129). Tomes has also figured a case (Fig. 4), of fusion of two upper central incisors by their crowns, and a relatively small portion of their roots, the greater bulk of the roots being distant (*Dental Surgery*, 3rd. ed., p. 128). There appears, however, to be no recorded instances of such fusion as I now describe.

Two lower canines with double roots. The first (Fig 5, 6), measures 25 mm. in length, and 9 mm. in greatest width. It shows complete bifurcation of the root for a distance of 7 mm. The double nature of the root is shown by well-marked grooving continued on each side up to the level of the neck. The roots are nearly equal in size. On the crown the labial stanchions, four or five in number, are well marked. Otherwise the crown is normal.

The second (Fig. 7, 8), also measures 25 mm. in length and 9 mm. in greatest width. The root is bifurcated for a distance of 7 mm. The interesting point in connection with this specimen is that the two roots are unequal. The buccal root is the main one, and it shows grooving which divides it roughly into two. The labial root looks like an adventitious root that has become fused in its upper part to the inner surface of the otherwise normal and grooved root of the canine, the grooving being distinct up to the enamel. On the crown are three well-marked stanchions.

A good example of "concrecence" of teeth is afforded by the first upper left molar, which the second molar nearly reversed (Fig. 9), the two being firmly fixed together by their roots. Both teeth are of large size, and each has three roots. The angle enclosed by the long axes of the teeth is about  $140^{\circ}$ . Hypercementosis is well marked in connection with both teeth. The phenomenon of concrecence seems to be less common between the first and second molars than between the second and third molars. The case figured by Burchard (*Dental Pathology and Therapeutics*, 2nd. ed., p. 224), of second and third molars, shows roughly an angle of  $90^{\circ}$ . Tomes (*Dental Surgery*, 3rd ed., p. 130), shows drawings of a case where the angle was about  $50^{\circ}$ , and another (p. 237), where the wisdom (Fig. 10), was completely inverted and embraced within the roots of the second molar. Dr. Cryer, in *The American Text-Book of Operative Dentistry*, p.

593, figures six cases of this condition, without stating what the teeth are.

Fig. II is an upper left wisdom of a male 38 years old. It possesses four roots, but it has other characters that are of much greater interest. On the lingual margin of the crown there are two small enamel tubercles, and from the enamel ridge runs upwards to the end of the bifurcation of the roots in a line with one of the tubercles.

This condition is of interest in connection with another tooth. The Curator of the Museum at Noumea, New Caledonia, was good enough to allow me to examine certain native necklaces made of Kanaka teeth, and to take what I wanted. I inspected several hundred teeth, and took one specimen. It exhibits a little pearl-like tumor at the junction of a labial with a lingual root (Fig. 12). A specimen of this sort is figured by Buchard (*Dental Pathology and Therapeutics*, 2nd ed. p. 226). He says: "A small nodule or cap of enamel overlying dentine, and itself over-lapped at the edges by the cementum, may be found upon the root of a molar, usually upon the side of an upper third molar at a point about  $\frac{1}{8}$  inch from the cervical margin of the crown enamel. A thin ridge of enamel sometimes, though not usually, seen connecting then indicates the nodule to have been formed by a detached portion of the original enamel organ. This formation is known as an enamel nodule. It may occur upon a lower molar, though usually found upon the upper molars" (Fig. 13).

Mr. S. J. A. Salter, in *A System of Surgery*, Holmes and Hulke, vol. ii., p. 461, figures an instance (Fig. 14), which he describes as a characteristic specimen. He refers to his description of these growths in *Guy's Hospital Reports*, 1869. He says that these enamel nodules, forming little pearl-like tumors, are essentially *submerged cusps*, each consisting of a little cone of dentine, covered by a thick tubercle of enamel which is clothed by a true enamel-pulp.

It will be seen that in all three instances the tumor occurs between the labial and the lingual roots, and also that in all three a ridge of enamel runs from the tumor to the crown. The Kanaka tooth, however, shows an additional feature of interest, *viz.* a small cusp at the margin of the crown, and a smaller one near it which is situated at the extremity of the enamel ridge running from the enamel tumor. The tumor is also at a much greater distance from the crown

than in either of the two other specimens. This tooth is of great interest in connection with Salter's theory of submerged cusps.

The subject from which the Kanaka tooth has been taken appears to have been a young one, since the three roots are incomplete and show the "persistent pulp" structure.

Fig. 15 is an upper left wisdom from a male 19 years old. The condition of two of the roots is one of apposition, not fusion. The root most bent is grooved and slightly forked at its extremity, and the tips of all the fangs consist of very dense dentine and cementum.

Figs. 16, 17, 18, are two upper canines and a left first bicuspid from a male 55 years old. They show long, thick, peg-like roots.

Fig. 19, is a lower right first molar from a boy 12 years old. The amount of grooving exhibited suggests five roots.

Fig. 20, is a lower left wisdom from a girl 16 years old. It is remarkable for the association of a large number of cusps with a single long peg-like bent root.

Fig. 21, is a lower right second bicuspid from a subject 14 years old. The amount of grooving exhibited suggests four roots.

With the exception of the Kanaka's tooth, all these specimens are from white people, and most of them were given me by Mr. Mallan and Mr. Maughen, dentists of Adelaide, to whom I feel much indebted for the opportunity of describing such interesting abnormalities.

## ERRONEOUS BELIEFS ABOUT EGYPTIAN DENTISTRY.

The statement has long been current that the Egyptians were able to make false teeth, or to stop teeth with gold. There is, however no evidence of this in any of the mummies which have been examined.

They appear to have paid but little attention to the teeth during life, although prescriptions for toothache and face-ache are found in the Ehro and other medical papyri. Most of the royal and priestly mummies that have been unrolled and examined show that where the teeth remain they are fairly good, although the higher class lived on soft food.

Such teeth are not half worn down like the teeth of our ancestors as exhibited in the skulls from ancient fields of battle. Nothing dental is more striking than the strength, evenness, completeness, and perfect soundness of the teeth, albeit the squareness of the jowls of

the Picts and Britons would shock our present-day sense of beauty.

The nearest approach to dentistry among the Egyptians is found in the period of the 21st Dynasty, about B. C. 900. The mummies of that time show that where teeth were missing they were sometimes replaced during the embalming process by similar teeth taken from other bodies and cemented in with bitumen, or with a paste made of wax scented with balsam.

In Ptolemaic times, when mummies were very luxuriously prepared for burial, the teeth were often covered with a thin plate of gold, and the small portions which remain have given rise to the idea that the teeth had been stopped with gold.

The only example of dental work is found in a mummy of a priestess of Graeco-Roman time, about the second century A. D., in the museum at Vienna, where a loose tooth is held in place by a thin gold wire twisted round the sound tooth next to it.

The earliest use of false teeth, made of hard wood, is attributed to Aaron, the Hellenic Jewish physician, of Alexandria, who made teeth of acacia wood, and secured them in position with gold or silver wire. His date of existence is the fifth century A. D.—(*Ashe's Quarterly*, October, 1910).

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## PROSTHETIC TREATMENT OF PYORRHEA ALVEOLARIS AND DISPLACEMENT OF THE TEETH.

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BY CHAS. B. SMITH, OF CANNES.

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(*Paper read before the general meeting of the "British Dental Association, Liverpool, August, 1910.*)

(*Le Laboratoire et le Progres Dentaire Reunis, Paris, Dec. 25, 1910.*)

My paper refers to the case of a woman aged 30, of whom the mouth was in a very neglected condition. Most of the teeth were missing in the upper jaw; some had been extracted and others had been destroyed by the action of caries. The central incisors were still in place, but were protruding about 15 mm. away from the lower incisors.

Mastication was very difficult to perform owing to the lack of occlusion, the result of which was general ill health.

The treatment of the upper teeth was rather simple, as the only resort was to extract them and replace them by an artificial denture,

in which the molars were given as much masticating surface as was possible.

The treatment of the inferior maxillary was more complex and offered more difficulties. There was any amount of tartar and supuration; the crown of the right canine had been almost totally destroyed by caries of the fourth degree; the same condition existed with the left canine. This condition with the pyorrhea caused the incisors to spread apart one from the other.

(Fig. 1a and 1b show the maxillary before treatment).

The gums responded rapidly to the treatment, and in a week's treatment suppuration had entirely disappeared and they were apparently in a healthy condition. (Fig. 2, condition of the teeth after treatment and scaling).

The next step to follow was to grind and prepare the teeth for Carmichael's system of crowning. It is of the utmost importance to prepare the teeth for crowning before attempting to bring them back to their normal position.

The crowns in this case were made separately and were temporarily placed in position on each tooth as the sharp edges of the teeth after the grinding would lacerate the patient's lips and also cut the silk ligatures which were used to regulate the teeth back into normal position. Figs. 3a and 3b show the teeth prepared and ready to receive the bridge, the parallelism of the vertical grooves which is very well marked does not appear clearly on the cuts as it is impossible to secure an impression with these grooves.

For regulating the teeth, silk floss is used for several reasons. It is almost invisible and it occupies very little space; it acts rapidly, and when well tied will not slip.

In this particular case, although the teeth were not as loose as we usually find them in pyorrhea cases, two weeks only were required to bring the teeth to their normal position, the right lateral incisor having been displaced 5 mm.; in fact, all the teeth had to be regulated from right to left.

The Carmichael crowns were not all soldered together at once, owing to the fact that once the ligatures removed from the teeth they would at once go to their first irregular position. When the teeth were all regulated together, they were ligatured from left to right, *i. e.*, the left lateral incisor and the left central incisor were brought together while the right central incisor was being regulated to the required

position and was then united to the two first ones and finally the right central incisor was brought and firmly attached to the other ones. It was only when all the teeth were regulated to their normal position that I attempted and succeeded in making the dowel crowns for the cuspids which were then soldered to the Carmichael crowns. (Fig. 5).

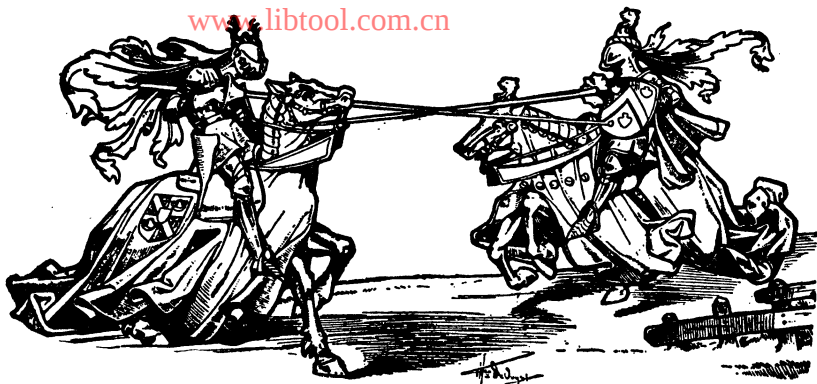
While the bridge was being completed, the patient waited as it had to be cemented in the same day, otherwise the teeth would have gone to their old position.

Figs. 4a and 4b, 7 and 8 are photographs showing the lingual and labial surface of the mouth. Fig 6 is a photograph of the mouth with the bridge cemented in position.

This treatment was started July 5, 1910, and the bridge cemented in place August 2d.

# PROFESSIONAL ARENA.

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[In the space devoted to this department many of the so-called solved problems are to be opened for re-examination. Besides such other topics as are of greatest importance will be brought to the attention of the readers, and ablest talent will be engaged to discuss interesting dental themes.]

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## WHY DONT WE PUT IN BETTER SILVER FILLINGS.

BY F. U. EMLEY, BELLE PLAINE, KANSAS.

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With all due respect for Dr. Harris and his article in December, 1910 AMERICAN DENTAL JOURNAL, in my judgment Dr. Root in his reply in January, 1911 issue, has the best of the argument; but I for one would like to know more about why poor silver fillings are so numerous and the remedy.

I believe we all know or should know how to prepare and fill a cavity properly with silver alloy so that it will be a lasting comfort to the patient and a credit to our skill. Taking the above for granted, why don't we put in such fillings? I see silver fillings every day that never were any good and the patients, well, I guess we would not feel flattered as a profession if they always expressed their opinion.

We dentists are to blame for the great number of poor silver fillings we see today and not the alloy. What is the remedy and what is our excuse for this condition? If we have an excuse, probably the first one we would offer would be low price filling, which no small number of patients demand.

Can we take time to do the work properly at the customary price of \$1—? If we estimate our charges according to our living and office expenses, those who charge the highest will be idle more than half the time, and if we estimate our charges on the quality of service performed, I am afraid some of the fillings would hardly be worth the minimum charge.

Would our second excuse be high cost of living? Everything we use in the office or home has advanced from 25 per cent to 100 per cent, yet the charges for every service a dentist performs today are as low as 15 years ago, if not lower.

Either competition is too sharp or we are easy, because we give the public what they demand and that is our services for the lowest possible figure (the advertiser's price), and they are getting it, to the detriment of both their teeth and pocketbook. To meet this demand some of us are using both cheap materials and slighting methods of operating.

If anyone doubts that there are no considerable number of patients who go to the low priced man, let him look around, especially in the advertiser's offices and dental college infirmaries. You will say, "This is a class of patients I don't care about," but let me tell you we can't all have the cream and their money is as good as anybody's, if we can only educate them to consider the quality of work they get for little money.

A woman is usually suspicious of a low priced dress-maker and a man of any low priced workman, but when selecting a dentist the masses do not use the same reasoning ability but select one who hurts least, charges less or has a pleasing personality irrespective of all other qualifications a D. D. S. is supposed to have.

# JOURNALISTIC GEMS.

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## THE TAGGART-BOYNTON SUIT.

The following circular letters relating to the above suit should be read by every dentist:

### Dental Protective Association.

#### AGREEMENT WITH DR. W. H. TAGGART.

The Dental Protective Association of the United States was organized by Dr. J. N. Crouse of Chicago, in 1888, when it was quite common for patent claimants to collect unjust and exorbitant royalties from the members of the dental profession. Since this association was organized it has succeeded in preventing patent claimants from abusing the profession, and its strength and influence is recognized by all who are familiar with its history.

About four years ago Dr. W. H. Taggart of Chicago described by means of papers and clinics a new and original method of making inlay fillings. Briefly stated, the method consists of making the inlay in wax and reproducing the wax inlay in gold or other metal by a casting process. Since the introduction of the so-called Taggart method the practice of dentistry has been in a large measure revolutionized.

Dr. Taggart is now the owner of certain United States letters patent and applications for United States letters patent relating to the method and apparatus for casting inlay fillings according to this method; and he has brought suit against at least one member of the profession and has threatened the members of the association with litigation based upon the alleged infringement of said letters patent.

The question arose as to what action the association would take in case any of its members were sued for alleged infringement. To engage in a long series of litigation is as unsatisfactory as it is unprofitable for all concerned. Let it be understood that the Dental Protective Association was organized to *prevent abuse* of its members, not to defraud any man of his just due. Dr. Taggart has offered to sell his machine for casting, including the permission to use the method, for \$110, or the permission to use the method alone for \$50. Was this an abuse of the dental profession? Many dentists, including association members, felt that it was not and at once purchased Tag-

gart's machine, others felt that Dr. Taggart was asking too much, since the process could be carried out successfully with a less complicated and therefore much cheaper machine.

Every dentist realized the value to him individually of the Taggart method; and it can be said that most practitioners felt that they were in some way indebted to Dr. Taggart. How much in money value they were indebted, and how the debt could be liquidated, were points which did not seem to be clear in their own minds. Therefore, the board of directors of the association was urged to take the matter up with Dr. Taggart and see if amicable terms could not be made by which its members, present and prospective, could practice the method with the machine they were now using without danger of litigation. The board took the matter under consideration and caused an investigation to be made respecting the validity of the letters patent, and after being convinced that the same would probably be sustained in whole or in part if litigated, concluded that if a compromise agreement could be effected between the association and Dr. Taggart a threefold object would be accomplished.

First. The members of the association, both present and prospective, would be protected, without litigation, in case Taggart succeeded in validating his patents.

Second. It would afford an opportunity of banding the profession together into a strong and permanent protective association.

Third. It would give Dr. Taggart, without litigation and without a hardship on any dentist, a just and reasonable compensation for his valuable invention.

It is with a great deal of satisfaction, therefore, that we are able at this time to announce to the members of the association and to the profession at large that an agreement in writing was entered into between the board of directors and Dr. Taggart, and the same was duly signed and delivered on the 5th day of December, 1910.

The terms of the agreement are such that any member of the association in good standing can secure the present Taggart machine for the cash sum of \$75, including the permission to use the method, or he can obtain the permission to practice the Taggart method alone for the life of the patents (seventeen years) with any machine he may now be using for the cash sum of \$15, provided the amount is paid before the entry of any decree of judgment finding Taggart's patents valid or granting damages for infringement.

The agreement further provides that any member of the profession who joins the association within the time above specified can also secure such permission on the same terms.

The fee for membership in the association is \$10. It will be seen, then, that for \$25 any member of the profession can obtain membership in the association and the permission to use the Taggart method. The board of directors feel that this is a just and fair proposition for all concerned, and they earnestly hope that the members of the association, both present and prospective, will realize and appreciate the delicate situation with which we were confronted and accept at once the terms of the agreement. We ask you to carefully read the accompanying amended by-laws and trust that you will immediately sign and return the same, together with your check, to the president, Dr. J. N. Crouse, 2231 Prairie avenue, Chicago.

(Signed)

J. N. CROUSE,  
C. N. JOHNSON,  
J. P. BUCKLEY,  
*Board of Directors.*

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#### The Crouse-Taggart Deal.

PERVERSION OF THE DENTAL PROTECTIVE ASSOCIATION.

Washington, D. C., January 6, 1910.

*Dear Doctor:*

Referring to a recent circular letter to the profession, entitled "Dental Protective Association Agreement with Dr. Taggart," which letter wishfully requests members of the dental professions to "read the accompanying *amended* by-laws," and "immediately sign and return the same, together with their check," and to pay Taggart "before the entry of any decree or judgment finding Taggart's patent valid," I, as chairman of the committee conducting the defense for the profession in the Taggart test suit respectfully ask your attention from another viewpoint.

The Dental Protective Association collected large sums of money under the alleged chief object of defending "any of its members in any of the State or Territories when prosecuted for the infringement of patents, the validity of which has not been fully established."

But, first conceiving and entering into an agreement with Dr. Taggart by which the Dental Protective Association would share with him the pecuniary benefits to be derived from the third party—the

dental profession being made the third party without its knowledge or consent—the next move in the scheme was to so change and pervert the stated object of the D. P. Association that it might appear to have authority to use its funds, its influence and its machinery in affiliation with the patentee for the collection of license fees for the use of the Taggart process patent. This being accomplished, a la Crouse, the next move in the scheme was the sending out of the circular letter which expressly states that the object of making collections of license fees “*before the entry of any decree or judgment,*” etc.

Your mind should now revert to the fact that about three years ago Dr. Taggart entered suit under circumstances that then appeared to be a sincere attempt to test the validity of his patent and the profession was forced, by reason of his exorbitant demands and extraordinary claims, to join with him in the test. Dr. Taggart delayed the progress of the suit while overtures were being made from some to others of his friends and finally negotiations were concluded with his neighbor, Dr. Crouse of the D. P. Association. The unseemly and undue delay impelled the court to issue an order in behalf of the defense which compels the plaintiff to close his case next month (February). Therefore, notwithstanding this extraordinary interpolation and unseemly interference with a pending suit, the defense in behalf of the profession will be continued to the only legitimate end, a final decision, and without the least taint of compact of alliance with any interest.

Neither the committee nor any of the many members of the profession supporting the defense have the slightest personal prejudice nor the least objection to any payment to Dr. Taggart that may be made by any one of those who Dr. Crouse, at this late day, comes out and says “felt they were in some way indebted to Dr. Taggart.” But there is objection to Dr. Crouse, acting in behalf of the Dental Protective Association, and of Dr. Taggart, interfering with a pending suit, and representing to the profession that the validity of the patent will probably be sustained in connection with an implied threat and a direct request for the immediate signing and returning of the *amended* by-laws, together with check for the payment of Dr. Taggart “before the entry of any decree or judgment” in this case.

Dr. Taggart did not seek, so far as we know, an amicable and equitable settlement with the defendant profession. He selected the nominal defendant and the jurisdiction best suited to his purpose

and forced the beginning of a suit that called for a defense in behalf of the profession in general.

Scores and hundreds have joined the committee in the difficult task of raising funds to meet the necessarily heavy expenses of taking testimony in various states, but the interest of the profession has not and shall not suffer because of the difficulty of raising much needed funds. The defense is and all the time has been anxious to reach a conclusion. The plaintiff delays while negotiations are carried on for the purpose of giving Dr. Crouse control of more money that may be used to prevent the testing of the validity of patents which are granted by the patent office without a contest in the routine procedure of that office. The condition of the profession would be deplorable if there were no opportunity for testing the validity of patents granted after a hearing of only the patentee. What the condition will be if our associations, organized and supported for the sole purpose of testing the validity of patents, pervert their objects and seek to involve the profession and embarrass its defenders in pending patent suits, we leave to you to judge. But of this be assured, the recent order of the court compelling Taggart to close his case next month will give us the opportunity we need to force the case to an early adjudication. We have the utmost confidence in the judgment of our lawyers who assure us that the defense is more than abundantly sufficient to win a verdict for the profession and to save it from the yoke of a process patent and an office license of the Good-year-Patent kind. Send Crouse and Taggart "immediately" all the checks you wish before the suit is decided by the court, but don't do so with the idea that the defense conducted in your behalf lacks in evidence, in common sense or in legal talent. The defense committee lacks nothing but money with which to force the plaintiff to submit the insufficient evidence on which his case rests, but in some proper way will meet the expense.

Do a little thinking for yourself on Crouse's proposition. If the validity of the Taggart patent will probably be sustained, why does the plaintiff have to be forced by the defense, after about three years, to submit his case? And why has the plaintiff come down from the exorbitant demands to the meager sum for which he negotiates through his neighbor, Dr. Crouse? Would not the value of the patent and license to use the method increase with the near approach of a verdict sustaining the claims of the patentee? And, again, why did

our great defender against patents "the validity of which had not been fully established" go off for years on a Rip Van Winkle sleep while the profession has been strenuous in taking evidence in various states on which the court will reach a decision Dr. Crouse now seeks to forestall? And, further, why should Dr. Crouse seek and claim to have legally secured a far-reaching perverse change from the objects and purposes for which the fees we have paid the protective association may be used?

The profession's defenders in this case are not seeking a compromise nor affiliation with any patentee or organization, but are using every dollar the committee can raise to speed the day when this case will be decided on its merits as shown by the evidence in the case, and be assured no fear need be felt because of the evidence so far recorded.

Fraternally, MARK F. FINLEY,  
*Chairman Committee for the Defense.*  
*The Texas Dental Journal.*

1928 I Street, N. W.

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### SOME POINTERS IN CASTING.

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F. G. W.

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In the investing of a wax pattern that is to be burned out and gold or other metal cast into the mould, care should be taken to so place the sprue that the metal will be cast in a forward direction or at right angles; that is, none of the metal should have to *come back* beyond the level of the point where the sprue joins the pattern. If it does, it will not be apt to cast sharply at that point.

In melting out the wax pattern the heat should be applied so slowly that the wax is first melted into the investment and then burned out. If the heat is applied too rapidly, so as to boil the wax out at the sprue hole, it is apt to bring with it some particles of the investment from around the walls of the mould and so cause a change in shape. This applies especially if the heating up begins before the investment is thoroughly hardened.

If the gold used is not pure and any cleaning is necessary, it should not be done directly on the investment or the tray of the casting machine. To melt gold in the tray from which it is to be cast, or directly on the investment as in the various suction machines,

and add borax to the mass in that situation, is almost to insure a defective cast. The gold should be fused on a charcoal block, boraxed and pickled before fusing at the point from which it is to be cast. This applies, of course, only to alloys and not to pure gold.

For bridge dummies, cusps and inlays in the occlusal surfaces of bicuspid and molars, twenty-two carat plate is preferable to pure gold on account of its greater hardness. An excellent method of disposing of plate and solder scrap is in casting solid dummies. For inlays in the anterior teeth pure gold should be used both on account of its color and the softness which permits of marginal burnishing.

Casting directly against porcelain is a far more risky procedure than at first appears. Such casts frequently appear perfect, no checks showing in the porcelain, yet after a short period of wear the porcelain crumbles from the backing. This is doubtless due to minute cracks around the pins which do not show on the surface. If it were possible to have the porcelain at just the same temperature as the molten gold at the moment the cast is made the checking would probably not occur; but as this is not practicable the fact remains that checking *does* occur. Of course not all, not even a majority, of the cases made in this way will fail, but there will be a large enough percentage of failures to contraindicate the method except for special reasons in some particular case. If a cast backing is desired it is better to press inlay wax over the back of the facing, trim to the desired form, then remove the cast. Carbon points can be put in the pinholes when the case is invested.

Cast bridges are not as strong as soldered ones. If, therefore, a bridge piece is comparatively light it is better to cast the dummies separately and assemble them with solder. If the work is heavy, so that broad surfaces of dummies approximate, it is permissible to cast them all in one piece.—*Western Dental Journal*.

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### A STEP TOWARDS RATIONAL DIET.

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BY C. LUCY PALMER (NEWMARKET), L. D. S., ENG.

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In spite of the many advances which have been made in dental science, we dentists do really very little in the way of preventing our patients suffering from dental caries and irregularities, and it seems to me that there is a grand work for some influential body to do; and

why should not the British Dental Association make an effort in that direction?

In the medical profession there is what is known as "preventive medicine," which has for its object the formation of a physically fit race of human beings, and probably it should be one of the functions of preventive medicine to investigate the subject of dental degeneration, but I fear it either does not do so, or the members of the medical profession are singularly slow in accepting its teachings, as it seems to me that medical men are as lax as the laity as to their diet. So if a body of dentists can educate the public only a little as to what they should eat, and should not eat, they can claim to have been instrumental in the formation of what may be called preventive dentistry.

The medical inspection of school children has drawn attention, *inter alia*, to the dreadful condition of children's teeth, and much has been written about the treatment of these teeth, but can nothing be done to prevent future children getting into the same deplorable condition. I am strongly of the opinion that a great deal can be done, not only towards an improvement in the condition of their teeth, but also towards an improvement in the state of their alimentation generally, as I take it that carious teeth must be considered a sign of deranged health.

We must first consider to what cause we may attribute this abnormal amount of decay. Shall we say it is due to imperfect development of the teeth, or to deterioration after development has taken place? I am inclined to think the primary cause is developmental, and to a great extent pre-natal, although the trouble is largely augmented by a continuance of the errors of diet in later life. To my mind, it is of the utmost importance to let our consideration of this matter begin with the early days of pregnancy, not only with regard to the teeth of the child, but also with regard to the health of the mother, for I am convinced that if that ever present constipation could be overcome we should not so frequently hear the statement made that mothers cannot nurse their children, either because they have no milk, or that milk disagrees with the children. If women will only keep themselves healthy with plenty of exercise, natural food, and no late hours during pregnancy, I believe the majority of them could nurse their children, in spite of what may be said by the medical and nursing professions. Given a healthy mother, living on plain, natural food, who can and will nurse her child, any such child must surely have a better

chance in life than a child born of a mother who pays no regard to her health, and which is later fed by artificial means. The alternative to mothers' milk is generally cows' milk in some form or other, and I should like to call attention to the fact that the human being is an omnivorous creature, whilst the cow is a herbivorous ruminant, producing milk eminently suited to the rearing of other herbivorous creatures, but possibly not quite suited to the human race.

The fact of teeth being so bad is only a symptom of the fact that our diet is sadly amiss somewhere, and it is with regard to one very evident error that I wish to speak today, although there are probably several factors to be considered when speaking of dental caries.

Seeing that the last two generations have shown such a rapid degeneration, as we are accustomed to see, and that dental troubles are pretty common to all classes, it is evident that the mischief is one which has had cause of origin in some article of diet which is generally consumed and comparatively recently introduced. Roller mills, from being rare sixty years ago, have become gradually more common until now the bulk of our flour is produced by them, and with their introduction biscuit factories have sprung up. We are probably all agreed that the highly refined flour which is produced by these mills is the chief cause of dental degeneration, *but the public does not know it*. The object of this paper is to see if some suggestion can be made to draw public attention to this matter, for if we are agreed that it is a matter of importance, it is surely our duty to enlighten the public.

If I am right in assuming that the cause of dental trouble is developmental, it is hopeless for the majority of the present inhabitants of this earth to expect to get any material improvement in their teeth, however conscientiously they eat nothing but whole-meal bread, but I firmly believe that a vast improvement will be noticed in the next generation in all families where white bread and biscuits are avoided and whole-meal bread takes their places.

There is probably not one in 100,000 of the public who knows that the calcification of the teeth is largely completed *in utero*, and that where calcification has taken place only very slight improvement takes place afterwards. The public does not consider teeth until it sees them or until they ache.

To begin with, the future mother must entirely abstain from eating bread and biscuits made from refined flour and replace these with whole-meal bread; this is to help to avoid constipation in addition to

providing the child with its natural requirements. During lactation the same care must be taken by the mother, and from the day that the child begins to eat anything until above the age of sixteen this care must be maintained.

In my own practice I am continually lecturing my patients on this subject, but, alas! I fear with little success. One reason for my failures is that the public absolutely cannot purchase whole-meal bread, and that is because the millers will not produce whole-meal flour, except in very small quantities, and the bakers do not actually know how to make the bread, but will insist upon mixing some questionably whole-meal flour with their white meal sponge, and the resulting loaf is as dry as sawdust, whereas a loaf made from coarsely ground stone-milled flour is at its best from two to five days' old. What scientific knowledge has the miller or the baker of the physiological requirements of the human race with regard to this important article of diet? The processes of evolution have done much to enable the human race to adapt itself to a diet very different to that on which it originally subsisted, but surely the millers and the bakers are taxing these processes beyond their endurance in asking them to enable the human race to forego its whole-meal bread, on which it has subsisted for many centuries, and to accept what they consider best for it; and all this in two generations?

I do not intend to go into the analysis of whole-meal flour; but suffice it to say that it contains nothing but what we require to build up bone, tooth, and brain substances, and of most importance from a general, as distinct from a dental point of view, it contains, in its cellulose, a natural aperient, whereas refined flour consists almost exclusively of starch, and, as you all know, this is converted into cane sugar, then into grape sugar by the action of the ptyalin of our saliva, and the pancreatic juices; and as grape sugar it is absorbed through the intestinal mucous membrane to build up into fat; thus, we are not only deprived of our chief source of supply of bone, tooth, and brain-forming substances, but of our natural aperient, and to make up for the latter we fly to the patent-medicine vendor, who flourishes exceedingly.

The indigestible portion of the grain of wheat causes a slight irritation of the intestinal mucous membrane, causing increased peristalsis, whereby not only is the intestinal content forced onwards, but the very use of the muscles stimulates them to further development. This

is infinitely better than that drugs should be taken, which usually stimulates the digestive glands and have a purgative action.

I am very fond of pointing out to my patients that of all animals the human race suffers most, not only from dental caries, but also all intestinal troubles, and that is because dumb animals are still living upon the same food as they did at the time they were created, and that the human race has altered its diet not so much by addition as by subtraction from its chief article.

For the proper development of our teeth I maintain that it is necessary for us to eat whole-meal bread up to the age of sixteen, and for the sake of our general health we must continue to eat it to the entire exclusion of white bread to the end of our days.

I have only incidentally mentioned biscuits, but in infancy they are even more injurious than white bread, because children are continually munching them both in bed and out of bed, and their teeth have continuously a coating of starch upon them, and this, after its conversion into sugar, is changed into lactic acid, which, of course, has a direct decalcifying action on the teeth. Biscuits must be put in the same class as sweets.

There is another subject which has a great deal to do with perverted digestions primarily, and dental caries secondly, and that is with regard to the consistency of food which is given to children to supplement, and later to replace, lactation, but as that is beyond the scope of this paper I will only refer shortly to it. It seems to be a general belief that children must have all soft food, such as bread and milk, minced meat and so on, but from the time that the first temporary teeth are cut surely this must be entirely wrong, as it tends to inculcate the habit of bolting food, which habit is never got rid of. Instead of the meat being minced or finely cut up, it would be infinitely better if children were given a piece too large to swallow, which would need mastication, but I suppose aesthetic objections would be raised to such a course being adopted.

Now we must briefly consider how it is that these errors have come about. I believe the origin has been in a lack of knowledge of physiological principles. Analysis of certain foodstuffs show that they are made up of certain substances to which the physiologist attaches certain values and the medical practitioners, forgetting the possibility of the innutritious substances having any value, have recommended foods in which the innutritious substances being largely eliminated

demand has created supply, and now we have concentrated foods of all sorts, which are much vaunted by their vendors for commercial reasons. Unfortunately, mothers gain a lot of their knowledge about the bringing up of children from maternity nurses, who as a class are wonderful experts on the values of patent foods and who dearly love their biscuits and white bread. The elementary principles of physiology should be understood by all who have to do with children, and if attention were paid to these principles instead of to the analyses of patent foods, we should find healthier children.

In an exhibition of bakers' and millers' produce, it always seems to me to be a great anomaly for prizes and diplomas to be granted for greatest purity and whiteness of flour, yet this is an ordinary occurrence, and great use is made of these prizes and diplomas to advertise nothing but starch and fool the people. Government inspection should be extended to bread foods, so that people could know the real food values of what they believe is the staff of life.—*British Dental Journal*.

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Nature requires that the food shall be crushed and pulverized by the teeth and softened and chemically changed and prepared by the saliva, and when these two processes are accomplished the food is ready for the stomach. The present prepared foods do not beget jaw action, hence, I contend, do not receive the proper amount of parotid saliva, and the foods lacking this pre-stomachic treatment must of necessity lack in the blood-producing elements. The mischief of this poorly prepared morsel may be one of the prevailing ailments of dyspeptics, and may also be conducive to the ravaging increase of consumption. Tuberculosis makes great headway in any system that is exhausted; in any person whose vitality is low; in any individual whose energy is lessened through impoverished blood. The action of the jaw being omitted, the flow of the parotid saliva is scant, the food morsel improperly prepared, digestion disturbed, the blood impoverished, and hence with the organic and systemic energy tuberculosis, pyemia and all consuming diseases readily progress.

# ANNOUNCEMENTS

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## NATIONAL DENTAL ASSOCIATION CLINICS.

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The Clinic Programme for the meeting at Cleveland promises to be an unusually interesting and profitable one. Every effort is being put forth to secure the very best talent as clinicians in the profession.

It is our intention to make this clinic the most interesting and profitable one in the history of the National Association. We have at this early date (March 1st) secured men of national reputations to clinic on the following subjects: Oral Surgery, Prophylaxis, Orthodontia. We hope to arrange a Concerted Gold Filling Clinic in cavities in pearl matrices (by 10 operators) under the direction of Dr. Southwell of Milwaukee; Progressive Gold and Porcelain Clinics; Gold Inlays and many other demonstrations. Canada and Europe will be represented and we are making great efforts to have every state present their best clinicians. We solicit clinics from any member of State or District Society and a most cordial invitation extended to our Canadian brethren.

Send in your names at once with title of Clinic to any member of the committee, that we can have the programme published in the Journals, June issue.

D. O. M. LE CRON, *Chairman*,

501 Missouri Trust Bldg.

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## ILLINOIS STATE DENTAL SOCIETY.

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The forty-seventh annual meeting of the Illinois State Dental Society will be held at Peoria, May 9, 10, 11, 12, 1911.

J. F. F. WALTZ, *Secretary*,

J. P. LUTHRINGER, *Chairman*,

Decatur.

Local Arrangements Committee,

Peoria.

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## ALUMNI ASSOCIATION OF WASHINGTON UNIVERSITY.

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A reunion and clinic of all graduates will be held under the auspices of the Alumni Association of Washington University Dental School, April 10th and 11th, at the college building, 29th and Locust streets.

An unusually interesting programme is in preparation and the meeting promises to be the best in the history of the the school.

All graduates should mark the dates in their Appointment books and make a special effort to attend. They will be well repaid for the time spent. All ethical dentists are invited to attend.

ROBERT A. HARRIS,  
E. A. WOLK,  
W. H. SCOTT,

---

*Publicity Committee.*

#### **KENTUCKY STATE DENTAL ASSOCIATION.**

The forty-second annual meeting of the Kentucky State Dental Association will be held at Owensboro, May 23rd, 24th and 25th, 1911. This will be the last State Dental Society to hold its annual meeting in accordance with the circuit established between Iowa, Illinois, Indiana and Kentucky, hence we expect to have an unusually large exhibit, as well as a good programme. All members of the profession are cordially invited.

W. M. RANDALL, *Secretary*,  
Corner Brook and Broadway, Louisville, Ky.

#### **MINNESOTA STATE DENTAL ASSOCIATION.**

The twenty-eighth annual meeting of the Minnesota State Dental Association will convene in Masonic Temple, Minneapolis, June 9-10, 1911.

A number of clinicians in addition to home talent will be present, and a manufacturers' exhibit is also being arranged.

The profession is cordially invited. Address inquiries or suggestions to

BENJAMIN SANDY, *Secretary*,  
827 Andrus Bldg., Minneapolis, Minn.

#### **NORTH DAKOTA DENTAL ASSOCIATION.**

The sixth annual meeting of the North Dakota Dental Association will be held at Fargo, North Dakota, on May 16 and 17, 1911.

F. A. BRICKER, *Secretary*, Fargo, N. D.

#### **NATIONAL DENTAL ASSOCIATION.**

A complimentary dinner will be given by the members of the Southern Branch of the National Dental Association during its meeting in Atlanta, Ga., April 4, 5 and 6, to Dr. Frank Holland of Atlanta, Ga.

THOS. P. HINMAN, *Chairman*.

# EVERYBODY'S CORNER.

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Dentist Seriously Injured—Dr. F. J. Boynton of Neenah, Wis., was injured in a train wreck January 28th and fears for his life are entertained.

Tooth Pulling Fatal—Miss M. Dyce of Streator, Ill., died February 9th. She had some dental work done recently from which she contracted blood poisoning and this caused her death.

Grows New Set of Teeth at Age of 99—Mrs. Sarah Stallard, who will celebrate her one hundredth birthday this year, has grown a new set of teeth. The teeth are all perfect and regular.

Dentist Arrested—Dr. Justo Guitarius of Chicago, Ill., was arrested February 11th for disorderly conduct. He is a graduate of the University of Pennsylvania, but is a victim of the drink habit.

Appointed Prison Dentist—Dr. C. B. Lewis of Ennis, Texas, has been employed by the board of penitentiary commissioners as dentist for the prisoners, a position provided for by the prison reform law.

Dentist Shot in His Office—Dr. Frank J. Doland, a dentist in New York City, N. Y., was shot January 29th in his office as the result of a quarrel with a man over some money. It is believed he will recover.

Dentist Stricken with Paralysis—Dr. Daniel B. Bower, a retired dentist at Boyertown, Pa., was stricken with paralysis of the optic nerves, destroying the sight of one eye while only a trifle remains in the other.

Dentist Injured—Dr. G. C. Hiatt, a practicing dentist in Bloomington, Ill., was badly burned about the hands and face by a gasoline explosion in his office February 2d. It will be some time before he can resume his practice.

Wears Chinese Dentistry—There is now on the active list of the United States army an accomplished officer who, during an extensive sojourn in China had some work done on his teeth by a native dentist which is wonderful to behold. In the place of three missing teeth the Chinese operative appears to have anchored a single strip of gold which seems to serve the intended purpose all right, but without a line of curve to show the contour of individual teeth.

# IN MEMORIAM.

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Dr. Benjamin F. Soby—One of the oldest dentists in the state of New Jersey, died February 15th at his home in Beverly, N. J. The doctor was 82 years old, cancer caused his death.

Dr. Ammon Farnsworth Davenport—The oldest practicing dentist in North Adams, Mass., died February 17th after a short illness. The doctor was 84 years of age and is survived by a wife and two children.

Dr. John Evans—An American dentist residing in Paris, died January 29th.

Dr. D. H. Longnecker—A well-known dentist in Brooklyn, N. Y., died February 3d. He was 56 years of age. Death was due to heart disease. He is survived by a widow and three sons.

Dr. Ed. B. Wicht—A practicing dentist in Brooklyn, N. Y., died suddenly February 17th. He is survived by a widow and two sons.

Dr. J. S. Jordan—A practicing dentist in Etoile, Ky., died February 23d of heart disease. He was 67 years old and is survived by his three children.

Dr. Henry S. Abendschein—A practicing dentist of Baltimore, Md., died March 2d. Death was due to paralysis. He was 52 years old and a member of the Maryland State Dental Association. He is survived by a wife, one sister and three brothers.

Dr. Victor Godfrey—A practicing dentist in Alpena, Mich., died February 20th. He was 54 years old and is survived by a widow and five children.

Dr. George M. Holt—A practicing dentist in Clarksburg, W. Va., while celebrating his 26th wedding anniversary was stricken with heart disease and died within a few seconds.

Dr. George Shollenberger—A well-known dentist of Hamburg, Pa., died of diabetes. The doctor was 57 years old and is survived by two sisters and three brothers.

Dr. Ralph Barton—Twenty-four years old, among the youngest practitioners of dentistry in Zanesville, Ohio, died March 4th after a short illness of tuberculosis. He is survived by his parents and one brother.

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### FOR SALE—Dental office, 25 years

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### FOR SALE—An established practice,

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method of finding buyers is successful. No publicity for you. Write for information. Unlocated dentists write for bargain sale lists. Mention states desired. The Dentists' Middleman, C. M. Cryor, D. D. S., Box M., Franklin Grove, Ill.

### FOR SALE—Good practice and out-

fit, cheap. Selling on account ill health. New growing Montana town, railroad division, no opposition, fees big, 1,500 people, large Ransom and Randolph Inst. Case, late make Archer Chair, instruments, etc., complete, a snap, price \$250.00 cash. Address "Melstone," care American Dental Journal, 39 State Street, Chicago, Ill.

### FOR SALE—Somnoform outfit com-

plete, new rubber, \$7.50. Address Dr. M. A. Teeling, 1378 E. 55th Street, Chicago, Ill.

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