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ORIGINAL COMMUNICATIONS.

EDITORIAL NOTES ON PRACTICAL SUBJECTS.

DESTROYING THE VITALITY OF THE PULPS OF TEETH.

BY W. GEO. BEERS.

Whenever it is absolutely necessary to destroy the vitality of the pulp of an incisor, cuspid, or bicuspid, previous to filling, I prefer doing so by immediate extirpation with an instrument, if possible, rather than by means of arsenic. Any one acquainted in the smallest degree with the anatomical and physiological character of the tooth structure and adjacent parts, must admit the occasional tendency of such poisons as arsenic to be absorbed beyond the particular point for which they are intended; and also the risk one runs in using it at all in the highly vascular teeth of children, and where the full development of the fangs may not have been an accomplished fact.

That arsenic has been a boon to the intelligent dentist, who could discriminate when and how to use it, is not denied; but that it has led to grave mistakes and much malpractice, particularly in the hands of quack practitioners, is a fact which any honest man, using his ordinary powers of observation, can scarcely venture to dispute. The possession of a substance which will mitigate the agony of hyper-sensitive dentine, and rid the quack of the impediment of an exposed pulp, is a substance sure to be abused, and a dangerous article to admit into the dental pharmacopœia. Unquestionably, many pulps are destroyed by its use, which are worthy of conservative

treatment; and we seriously question, if the amount of harm it has been made to do in our specialty has not doubly counterbalanced its good, since the time of its discovery.

The destruction of the pulp of a tooth by arsenic or any other similar poison, has always seemed to me to be contrary to pure science and philosophy. I cannot understand the great merit of introducing a known deadly poison into the cavity of a tooth for the destruction of its pulp, which is so often followed by hours of intense pain, and subsequent irritation of the surrounding tissues, showing an unnecessary and undesirable extension of its effects. In every instance where it is applied, there is also a certain amount absorbed into the dentinal tubuli, with results which can certainly never be for the health and longevity of the tooth. The pulp, too, is reduced to a decomposed mass, like so much putrid meat, which in nine cases out of ten can hardly ever be as thoroughly removed as one alive. The presence in the canal of this decomposed mass, is followed by more or less generation of gases, and absorption of both into the tubuli and through the foramen, causing frequent irritation, inflammation and alveolar abscess. The poison once introduced, and the pulp once decomposed, there is always a possibility of future irritation, whether the tooth is filled or not. The broach or other instrument used to remove the dead mass forces portions of it towards the foramen; whereas by extirpation of the live pulp, it can often be removed entire at once. It is nothing very rare to take out a whole pulp hanging to the end of the broach like a minute worm on a hook, though we often meet with canals too small to admit the broach sufficiently far enough. I then extract all I can; dose the cavity with strong creasote and iodine for a day or two, cleanse the root and fill.

Extirpating a pulp is a delicate operation. It must be done knowingly and deliberately. Previous to attempting it, remove as much decayed dentine as possible in the vicinity of the pulp chamber, and obtain free access to the cavity of the tooth, and an uninterrupted view of the pulp. A good surgeon should not make a slip. Inject gently a little warm water into the cavity; with a small strip of punk absorb the moisture; apply carbolic acid and morphia for a few minutes, which will partly numb the head of the pulp and render it more tolerant of interference. Dip the broach in the preparation, and commence by *slowly* inserting it, proceeding according to the temper of the pulp. I believe the principal pain often caused at this

time is owing to the neglect of a few preliminary rules, such as enlarging the edges of the chamber and exposing the pulp as much as possible with a very sharp excavator. Unnecessary pain is given, too, if the broach is inserted directly into the pulp, instead of being gradually coaxed up closely to the sides of the chamber. The pain is greater, too, if the broach is barbed on all sides. Such a broach is barbarous. It should have a smooth side, and this side should be kept next to the pulp, and the barbs towards the bone. When it is sufficiently far up, revolve it once or twice, bringing the barbs against the pulp, and quickly draw it out.

In some cases we can so deaden sensibility by the use of carbolic acid and morphia, that the pulp can be removed with comparatively little pain; but what are we to do when the patient is nervous and irritable, and the least touch is the height of agony? What are we to do with the large number of cases met with, when the patient will not stand experimenting? In such cases, rather than use arsenic in the incisors, cuspids and bicuspid, which nearly always become more or less blue after its use, I prefer extirpation when the patient is under the influence of an anæsthetic. If it is proper at all to administer anæsthetics for dental operations, I know of no occasion demanding them more than the extirpation of a live and kicking pulp. For some time back I have experimented to discover something to obtund the sensibility of the pulp during the moment of extirpation. The idea of applying a substance which would at once act upon the fleshy pulp, robbing it of sufficient vitality, *without decomposition*, to permit of its painless and immediate extirpation, was suggested to me by observing a corn-doctor applying belladonna to an extremely sensitive corneous tumour on one of the little toes of a friend. After a few moments the base of the corn, which was buried deep in the integuments, entirely lost its sensibility, and the root, which at first was comparatively soft, was removed in one hard piece, very similar in appearance to gluten. I have tried a number of articles to bring about a similar effect on the pulps of teeth, but so far have not been at all successful. I have also tried the electric current directly upon the nerve by means of a broach, but found it increased the pain. For the removal of pulps of low vitality and far gone disease, *which cannot be saved*, it would be a great boon to have a substance to take the place of arsenic in the manner mentioned. It should invariably, however, be the principal, to make every effort to preserve before deciding to destroy.

THE HYGIENIC MEANS OF PRESERVING THE TEETH.

BY G. O. Fiset, D.D.S., QUEBEC CITY.

The teeth are a set of organs which are often neglected, that is, the proper hygienic means for their preservation is not known by patients, or if instructed by their dental attendant, they refuse or neglect to perform the duties necessarily attending such advice. We all know by the least experience and practice that the ravaging influence of decay cannot be counteracted altogether, but it can to a certain degree. The dental tissues belong to that class of tissues of the human organism which have not the power of recuperation.

Caries dentium is the most ravaging disease by which the dental structures are attacked, and is a mortification of the dentinal fibrillæ and a decomposition of the dentinal salts, induced by chemical action; its causes may be divided into, predisposing and exciting. The predisposing causes are, the relation of the teeth to each other, their malformation being incidental upon the diseases of dentition and infancy, thereby preventing a sufficient deposition of calcareous salts, involving an improper fusion of the enamel at the points of junction, and as a consequence producing an abnormal formation of the organs, the dentine being in that manner exposed to the action of deleterious agents. The exciting causes are, the action of certain agents forming part of our food upon the dental tissues, changes of temperature, many of the medicines administered for the treatment of disease, especially tonics, which are frequently acids, not only acting upon the dentine but also on the enamel; all diseases, constitutional as well as local, affecting the salivary secretions.

Acids, both vegetable and mineral, decompose the salts of the enamel as well as those of the dentine. The acid penetrating to the dentine from a defect in the formation of the enamel, as before stated, or a small crevice caused, perhaps, by the biting of hard substances, (which should be avoided as one of the necessary means of dental preservation,) or by thermal changes, the dentine having thereby become exposed; in that manner the foundation of a cavity is laid, and albuminose as well as vegetable and other substances lodging in those crevices or depressions, and there fermentation occurs, the same action being communicated to the surrounding tissue, its very decay generating an acid, the consequence being that we often discover large cavities with small orifices. Those acids chiefly used as articles of food are, viz.: acetic, (vinegar), citric, malic and tartaric.

They all combine with the earthy base of the dental structures to form new compounds. Dr. Westcott has discovered, in his experiments on the action of food upon the dental organs, that acetic and citric acid so corroded the enamel in forty-eight hours that much of it was removed with the finger nail, but citric acting more readily than acetic. Malic acid, (the juice of apples,) and the acid of some of the other acidulous fruits also corrodes the teeth. Tartaric acid is the acid contained in raisins, it acts more promptly than any of those already mentioned. The acidulated beverages such as cider, orangeade, lemonade, lime juice, vinegar syrup, &c., are often taken during the hot season on account of their refreshing properties, and in order to counteract their evil influence upon the teeth, an alkali should be given to patients as a mouth-wash, composed of

℞ Sodæ Bicarbonas, dr. 1,
Aqua, ℥. 4.

If acids of any kind, or macidulous fruits be taken, the above should be used immediately.

Muriatic, sulphuric, nitric and lactic acids are remedies frequently given as tonics, and physicians should be careful in administering them through a glass tube in order to protect as far as is in their power, those valuable organs without which the process of digestion cannot be properly performed. Dr. Westcott says: Sulphuric and nitric ethers have a similar deleterious effect, these are frequently used as diffusible stimulants. The acids of some of the salts also corrode the teeth. Super-tartrate of potash, or cream of tartar destroys the enamel very readily. This article is frequently used to form an acidulated beverage. (It is also the basis of certain popular dentifrices, which whiten the teeth by corroding their surfaces.) It is easily understood that the acids of some of the salts given as medicines corrode the teeth, their acids having a greater affinity for the enamel and dentinal salts, a new compound being formed by their combination. Potassa fusa, although an alkali, acts injuriously upon the teeth, it has no effect whatever on the enamel, but it unites with the organic matter of the dentine.

As I said before, the position of the teeth and the fissures or indentations attending their malformation, are receptacles for both vegetable and animal food, particles of which are retained into those minute depressions or between the teeth after eating, and there fermentation commences, an *eremacausis* of the ferment taking place, which in other words is a decomposition of its molecules, the same

action spreading to the contiguous mass, which necessarily becomes involved in the change, its products being acetic and carbonic acids ; the latter being set free on its generation, and the former remaining stationary in those fissures or depressions. The nitrogenized bodies or vegetable substances are capable of fermentation at certain temperatures, their respective juices containing saccharine matter. The albuminoid or animal substances act upon the tooth structures while in a state of putrefaction, the products being water, carbonic and acetic acids, ammonia, carburated hydrogen, and a semi-putrid substance which has an infect odour, the acetic acid being the active principle, but the relics of putrefaction are deposited upon the teeth and constitutes that species of calculi which is commonly known under the name of *green tartar*. It acts in a slow but deleterious manner upon the teeth, by absorbing small quantities at a time of the acids forming part of our food. It is the only species of that deposit which acts chemically upon the teeth.

To prevent the accumulation of food between the teeth, and in fissures or crevices, a brush corresponding in width to the length of the teeth, and of moderate hardness, the use of which should be recommended morning and evening ; in the former instance it is used for the purpose of removing the mucus deposits which adhere to the teeth during sleep, the precaution is always necessary after sleep. The brush should be used upwards and downwards, so as to reach as much as possible the mesial surfaces of the teeth. It should likewise be used both anteriorly as well as posteriorly, as far as it can reach, applying it to the labial, buccal and lingual surfaces, equally. When I say it should be of moderate hardness. I mean that its bristles should be pliable on slight pressure, for the proper use of a brush of the requisite width and stiffness may be considered as one of the numerous prophylactics against dental disorders. A very stiff brush, after its protracted use, causes an abrasion of the enamel, which, it is unnecessary to say, exposes the dentine to become diseased. The objections attending the use of a soft brush are, that the bristles do not penetrate sufficiently far to remove the foreign matter thoroughly, and by that very fact defeats its purpose. The use of the brush should not be abused of, its use morning and evening, as before stated, is all that is necessary. Some people, among the educated class, imagine that the more frequently they use it, the better. It is an error that we dentists should rectify every time such patients fall into our hands. The too frequent use of the brush involves,

(even with one of moderate stiffness,) not only an abrasion of the enamel, but also causes an insensible absorption of the alveoli.

The name of dentifrice is given to different powders and pastes, and are used, as the name implies, for the purpose of cleansing the teeth. Elixirs are also used for the same purpose, but powders are the only class of dentifrices that, in my opinion, accomplish the purpose for which they are intended. The object of a dentifrice is to remove the food accumulating around the teeth during meals, and prevent the deposition of salivary calculus to a certain degree, and for the removing of of mucus adhering to them during sleep, but especially the latter, consequently its action should be mechanical, and in order to remove the mucus deposits successfully, it requires that the various ingredients composing the dentifrice be brought to an impalpable powder, and should possess some gritty substance which is of an opposite nature to the mucus it is meant to remove. The dentifrice should contain no acidulous salt, for reasons already mentioned. Many dentifrices of a simple nature have been recommended, such as pulverized charcoal, soap, &c., but they have their objections. Charcoal is objectionable, because of its well known tendency to stain the edges of the gums after a prolonged use. Chalk, alone, should be forbidden to patients who have a tendency to the accumulation of salivary calculus, for it accumulates at the necks of the teeth, and unites with animal food and saliva to form calculus. Soap also fails to attain the object for which it is used, it being too much of the nature of mucus and cannot remove it perfectly, that very thing being most desirable. Pastes are objectionable for the same reasons. Although the mechanical action of soap is unfavorable, its chemical action is beneficial in neutralizing the acid generated by caries, and destroys the animalcules present in the mouth. Elixirs are also used largely, in this city and Province especially, their action upon the teeth is as harmless as that of water, and have the same effect; but the astringent principle they possess are beneficial to the gums, but not to the teeth; for that reason they can safely be used, but in conjunction with a powder.

I would recommend the the use of waxed floss silk or a tooth-pick to pass between the teeth, after every meal, in order to remove any particles of food which might have accumulated during mastication. A tooth-pick should be of some soft and pliable material that would not injure the enamel, the quill or the wooden tooth pick being the

best to use; any hard substances, such as metal should be avoided.

Patients should be instructed to consult the dental surgeon every six months about the state of their teeth, especially those whose idiosyncracies have a natural tendency to the accumulation of salivary calculus. In some cases patients take an interest in following the advice of the dental surgeon, and although they make use of the hygienic resources for the preservation of their teeth, they nevertheless require to be treated pathologically by the dentist, the teeth being unable to resist disease, all depending upon the state of their health.

Sugars are divided into two classes, viz.: the *true sugars* or those capable of fermentation, and the *imperfect sugars* or those incapable of fermentation. Of the former class we have the hard and liquid sugars, they are classified as follows, by Dr. Dunglison:

Species.

Varieties.

- 1.—Hard sugar of the cane, maple, beet, chesnut, &c.
- 2.—Liquid sugar, sugar of malt, of the sweet potato, molasses, honey, &c.
- 3.—Hard sugar of the grape, ripe fruits, starch, &c.
- 4.—Hard sugar of the mushroom.

Those sugars of the latter class are, according to the same author, viz.:

Species.

Varieties.

- 1.....Manna.
- 2.....Sugar of milk.
- 3.....Sugar of jelly or glue, (gelatin).
- 4.....Liquorice
- 5.....Picromel.

Sugars of the former class themselves do not have an injurious effect upon the teeth, but like the vegetable and animal food, the products of their fermentation causing the evil results. Cane or muscovado and maple sugars in their natural state, that is, the way in which they are sold in commerce, are not injurious to the teeth, although they are capable of acetous fermentation, because the former is of a granulous nature and does not chrySTALLIZE on being masticated, and the latter is incapable of rechrystallization under the same circumstances; but when used in the manufacture of confectionary they chrySTALLIZE, their nature are thereby changed, and on mastication lodge in the defective parts of the teeth and cause mischief by fermentation. Particcles of bread or substances of the same character saturated with molasses or other liquid sugars, also lodge during mastication in defective parts of the grinding surfaces of molars and bicuspids, and between closely set teeth, and act by fermentation.

Confectionary may be divided into three distinct classes, viz.: First, that coloured with certain mineral substance. Secondly, that coloured with vegetable substances. Thirdly, that which is colourless, or the natural colour of the sugar after it has been boiled.

[To be Continued.]

THE APPLICATION OF HOMŒOPATHY TO DENTAL SURGERY.

BY THOMAS NICHOL, M.D., BELLEVILLE, ONTARIO.

NO. I.—ARNICA MONTANA.

I purpose writing a series of papers on the applications of Homœopathy to Dental Surgery, making them as concise and practical as possible. The resources of all schools of medicine are open to the dental surgeon, and I am satisfied that to him homœopathy offers many valuable remedies.

Arnica montana was a popular remedy for wounds and bruises for a long time, when, about two centuries and a half ago, a Belgian physician named Fehrins wrote a treatise showing that it was a specific remedy for sanguineous effusions, ecchymoses, sugillations, etc. A large number of Continental physicians acted on these suggestions, and the remedy was soon in extensive use. But, in the course of time, *arnica* fell into almost complete disuse till it was revived by Dr. Samuel Hahnemann, who assigned it the chief place among external remedies.

This remedy is peculiarly adapted to sanguine plethoric persons, with lively complexions and disposed to cerebral congestions. On the other hand, it has but feeble action on anemic persons of feeble muscular powers. Hence it is peculiarly adapted to the inflammatory stage of the diseases in which it is used. *Arnica* has special action on the muscles, tendons and fasciæ; on the capillaries and on the *vasa vasorum* of the arteries and veins; on the lymphatic system; on the cellular and dermoid tissues; and, lastly, on the nervous system. Its action on the muscular system is very evident, especially in the almost protean forms of myalgia, but its action on the capillaries is of more moment to the dental surgeon. It principally affects the arteries of secretion, hence its power in hemorrhages, extravasations of blood, and effusions of serum. It is emphatically an *absorbent* remedy. From its action on the venous capillaries and absorbents it causes the absorption of blood extravasated into the cellular tissue. Its influence upon the lymphatics is much less than upon the venous capillaries. In its action on the nervous system, it principally affects the motor nerves, though its action on the nerves of sensation is distinctly marked.

Dr. Alphonse Veste remarks:—"The sphere of *arnica* comprises,

then, all *traumatic lesions*, (*contusions, cut and torn wounds*,) with their immediate consequences, (*internal or external hemorrhages, fractures, luxations, sprains, traumatic fever, syncope, tetanus, paralysis, pneumonia, hepatitis, etc.*) or their remote consequences, (*partial emaciation, neuralgia, intermittent fevers, encysted tumors, etc.*) An infusion or diluted tincture of arnica forms an excellent soothing wash after the extraction of teeth, and it is also useful in arresting the bleeding that sometimes follows. Hahnemann says, "Even in the most dangerous wounds by balls and blunt instruments, arnica is very efficacious; it is also eminently useful against the pain attending the pulling out of teeth, or other surgical operations, in which sensitive parts have been violently strained—such operations as reductions of joints, etc." Dr. James W. White, in his admirable *Dental Materia Medica*, says, that "the special use of this remedy is to prevent suppuration and ecchymosis in fresh bruises and ragged wounds," but calendula is much better adapted to ragged wounds and to prevent suppuration. It is likewise specific in the fever that often follows wounds and operations, though sometimes aconite is more suitable to fever following operations. Arnica is homœopathic, according to Hartung, after the extraction of teeth; it stops bleeding quickly, and also sometimes cures toothache with throbbing, pressing pain, with sensation as if the teeth were too long, with congestion of the gums, worse on touching, and hard swelling of the cheeks. It is also of use in arthritic toothache when the pains are stitching and tearing and the face burns and looks swollen. Ruckert reports the following case:—"A lady was suffering terribly from toothache, heat and swelling of the gums, and drawing, stitching pain in the teeth of the right superior maxillary bone, extending up to the ear; face red, burning hot, with swelling of the cheek; worse in the air and on applying heat. She had two teeth plugged a few days ago. Arnica 30th gave almost instantaneous relief."

This remedy has been used in all dilutions from the full strength recommended by Dr. White to the 30th dilution. For external use I place a teaspoonful of the tincture in half a teacupful of pure water, while for internal use I some times prescribe a similar solution, but oftener the third decimal dilution or a trituration of it. Dr. Constantine Hering says, in his sententious way, that "no arnica should be used except such as is made from the root," an opinion in which I entirely coincide.

FISTULOUS OPENING FROM A DEVITALIZED TOOTH.

BY A. C. COGSWELL, D.D.S.

A young lady, aged 18, called at our office a few months since, with a fistulous opening on the left side of her chin, below the second inferior bicuspid tooth, which had been discharging, and causing pain and annoyance for nearly three months.

The history of the case was this. When trouble first commenced by gradual enlargement and constant pain, she called in her family physician, who, in diagnosing pronounced it a tumor, prescribed local applications, and painted the surface with iodine. This treatment was continued until she was obliged, by the persuasion of her physician, to have an opening made in the outside, so as to give vent to the laudable pus formed, which gave some relief and removed that intense throbbing pain so general in such cases. After repeated visits from her physician the discharge seemed rather to increase than otherwise, pain not so severe as at first, but from confinement to the house, and being generally of a weak anæmic constitution, she began to grow quite feeble, and, with loss of appetite and want of exercise, she confined herself to her home, and as the discharge became so disagreeable and offensive, her pride forbade her being seen only by those in her own family.

After every conceivable remedy was resorted to, to prevent the discharge from the face, by her physician, she was advised by some of her family to consult a dentist, but to this suggestion, when mentioned to her physician, he thought there was no need, as he felt convinced the trouble could not arise from the teeth in any way, as the tooth that formerly occupied the now vacant space had apparently been removed, although the patient had no recollection of ever having a tooth removed, but had lost several by decay. Not satisfied with this the young lady called some days after, and in order to convince her respecting what might be the cause of all the above trouble, I carefully examined by means of a probe, and found at once a large portion of the root of the bicuspid tooth still remaining in the process. This was removed after some little difficulty, as it was deeply imbedded far down, and in removal there came away with it a large portion of the peridental sac, which is often seen in the removal of such teeth, but in this case it was unusually large, in size quite like a large bean.

This was sufficient to prove the cause of all the trouble, which resulted in a cure.

The parts were carefully syringed several times during the following week, with tepid water and tannin, from the inside through the opening made by the removal of the root. The patient rapidly recovered, but the scar *still* remains, which might have been prevented had there been a more careful examination on the part of the physician, or had he advised the patient to consult one of the dental profession earlier. These cases should *not occur*, especially when the advice of those who make dentistry a specialty can be obtained, and as the fair sex have not the alternative, like some gentlemen, of covering their faces with *beard*, but requiring in this world at least a *scarless* face if not a handsome one, as the latter is often their passport in society.

PROCEEDINGS OF SOCIETIES.

ANNUAL MEETING OF THE ONTARIO DENTAL SOCIETY.

The Society met in Halley's Hall, corner of King and Bay streets, Toronto, June 7th, at 2 p.m.

The President, Mr. C. S. Chittenden, in the chair.

The minutes of last meeting were read and confirmed.

The roll was then called, when about thirty answered to their names.

Mr. N. Pearson, of Newmarket; Mr. C. H. Bosanko, of Barrie; and Mr. J. F. Wilkie, of Clinton, were elected members of the Society, and signed the Constitution.

The election of officers being the next in the order of business, Mr. G. V. N. Relyea, of Belleville, was elected President; Mr. John Leggo, of Ottawa, Vice President; Mr. W. H. Branscombe, Secretary; and Mr. John Bowes, Treasurer.

The retiring President read a short address on retiring, after which the newly elected officers were conducted to their seats, each making a few appropriate remarks.

On motion, Mr. Chittenden's address was ordered to be printed.

The President appointed Messrs. Lennox, Sabine and Willmott a committee to prepare a programme of proceedings for the session.

On motion, it was decided to hold the next meeting of the Society

in Toronto, in July 1871, at the time fixed by law for the meeting of the Board.

A discussion then followed on the subject of dental fees, in which Messrs. Leggo, Chittenden, Clements, J. W. Elliot, Wells, Adams, G. L. Elliot and Burns took part, and each and all urged the necessity of elevating our tariff of fees.

Mr. Kahn, in reply to the remark that it would be impossible for dentists in small towns to obtain as high fees as those in large towns and cities, said, "that he thought the dentists of Toronto had done more to lower the standard of fees than the country dentists, and gave an instance, in which a person had obtained a set of teeth for less than half the fee which is charged in the locality from which he came."

Mr. Chittenden moved, seconded by T. J. Jones, That a petition be presented to Parliament at its next session, praying for amendments to the Act respecting dentistry, and that the President appoint a committee to draw up such amendments, said committee to report to this meeting before the final adjournment. Carried.

The President appointed Messrs. Leggo, J. W. Elliot and L. Clements.

As the election of a new Board of Directors and Examiners of the Royal College of Dental Surgeons was to take place at seven in the evening, it was moved that the meeting do now adjourn till to-morrow morning at 9 o'clock. Carried.

SECOND DAY.

Wednesday, June 8th, 1870.

The Society was called to order at half-past nine a. m. Minutes were read and confirmed.

Mr. Willmott read an essay "On Notes of some Experiments in Vulcanizing India Rubber," after which a discussion followed.

Mr. Chittenden preferred black rubber for many cases on account of its greater strength; vulcanized it at the usual temperature. Uses a Whitney Vulcanizer with the mercurial bath thermometer.

Mr. McLaren, in connection with his brother, uses black rubber very extensively for artificial limbs, but vulcanizes it at 260° for thirty-six hours. Thinks the rubber is better when vulcanized at a low heat, and for a longer time.

Mr. Bowes has found that it takes a much higher heat to harden black than red rubber.

Mr. Willmott thinks we are all running the heat too high, and not giving time enough to obtain the best results; that the rubber itself is as good as any we have ever had, but that, by steaming it at such high temperatures, we do not get as strong plates as formerly.

Mr. Bowes disagrees with Mr. Willmott in regard to the strength of the rubber now in the market, as compared with that sold when we first commenced using this substance. Thinks that if we could get the same quality of rubber now that the old Rubber Company used to make, our sets of teeth would be better than they are.

Dr. Wells wished to ask whether there is greater pressure in the heater with a large, than a small quantity of water.

Mr. Adams thinks that a small quantity of water, only, is necessary

Dr. Stone has found that where two flasks are steamed at the same time, the upper one was not hardened as much as the lower one. Thinks that both flasks should be covered with water, or neither should. Does not consider the thermometer a perfect indicator of the heat in the interior of the heater.

Dr. Rowe has always found thermometers reliable, and believes all are carefully tested before being offered for sale.

Mr. Wilzie has found that the pressure on the heater is very much greater when it contains a large quantity of water than when but little is used, and that the flask at the bottom of the vulcanizer is harder than the one at the top, when two cases are vulcanized at the same time.

Mr. Branscombe said he had not met with the difficulties which had been described by those who had preceded him. He vulcanized at 345° for eighteen minutes.

Mr. Willmott was positive that the sudden cooling of the flasks after vulcanizing injured the quality of the rubber.

Mr. Trotter vulcanizes at 360° and prefers it.

At the close of the discussion a vote of thanks was given to Mr. Willmott for his essay, and a request was made to have it published.

On motion, Dr. Nelles read an essay on Dental Hygiene, which elicited a lengthy discussion.

Mr. Chittenden said he could not agree with Dr. Nelles in regard to two or three of the assertions made in his paper. 1st. In his practice he has found that the German population, as a class, have much worse teeth than the Americans, a fact, which his intercourse with the German people led him to doubt somewhat about the

teeth being injured by "the pampering of the appetite" to as great an extent as Dr. Nelles seems to think. 2nd. He cannot believe that the teeth are injured to an appreciable degree by indulgence in thoroughly ripe fruits. It is possible that badly formed teeth may be affected somewhat, but he certainly would not advise his patients to deprive themselves of the luxury of eating such fruits as are produced in the climate in which they were reared, on account of their having any deleterious effect on their teeth.

Mr. Wood agreed with Mr. Clittenden as to the eating of fruits. He had thought much and read much on the subject of the decay of the teeth, and the best means of preventing it, but was not fully satisfied as to the cause or causes. Reports show that the teeth of the full-blooded blacks of the Southern States are good; that those of the whites are not as good; while the teeth of those of mixed blood are, as a rule, decidedly bad. It was, he thought, possible that the crossing of the blood, or rather the mixing together of so many nationalities in this country, was one of the causes of the decay of the teeth, or rather of their being formed of materials not sufficiently solid to enable them to ward off decay. He had heard it positively asserted that the crossing of the breeds of cattle deteriorates the race for two or three generations, and he was inclined to believe that the bad teeth of the people of this country arise from this and the fact that the teeth are actually starved for want of lime.

Mr. Willmott said, I have, in connection with my practice as a dentist, carried on the drug business, and I have noticed that a very large part of the community have purchased feeding bottles for their infants. I feel sure that in the section in which I live a large portion of the infants are not raised on a mother's milk, but on food composed to a great extent of starch, and I have no doubt the same practice prevails in other communities. I believe that this manner of feeding children is one reason for their poor teeth.

Mr. Relyea thinks that the diet of infants has a great deal to do with the future health of the teeth as well as of the body.

Remarks were made by Messrs. Bosanko, Wilkie, Willmott and Adams, on the use of phosphates during gestation and lactation, and urging all to prescribe them to their patients.

A vote of thanks was passed to Dr. Nelles for his valuable paper.

On motion, the President appointed Messrs. Lennox, Pentland and Sabine a committee to make arrangements for the reading of essays at the next annual meeting.

Messrs. Neelands, Penland and Clements were appointed as a Committee of Finance; and Messrs. Snider, Adams and Myers were named as local Committee, to make the necessary arrangements for the next annual meeting. Adjourned.

AFTERNOON SESSION.

The chair was taken at 2:30 p.m.

The subject for discussion being "The different kinds of gold used for filling teeth." The President called on Mr. Chittenden to open the subject.

Mr. Chittenden said he considered all the different preparations of gold to be valuable. Some could be used in nearly every tooth that one meets with, while others could only be employed in particular cases. He always intends to have a small quantity of each kind on hand, so that he can use it when he requires it. He has used a good deal of the different plastic golds and likes them all, in what he considers their proper places, viz.: in the bottom of the cavity, or at least where the fluids of the mouth cannot reach them. He would not say that a perfect filling cannot be made entirely of plastic gold but in his practice he has found it exceedingly difficult to condense it so thoroughly that the fluids of the mouth will not disintegrate it. Prefers No. 3 foil for general use, but would not be willing to be restricted to any one No. Has used Nos. 10, 20, 40, 60 and 120, and likes them all. Uses them for facing fillings, and finds them most valuable adjuncts to other preparations of gold. He had never attempted to make the body of a filling of these high numbers yet, as he has only been using them for a short time, but is feeling his way with them to see what can be done. Almost invariably commences a filling with soft foil, or one of the plastic golds, and finishes off with adhesive foil, and suits the number of the foil to the case in hand.

Mr. Adams. Do you think that the surface of a filling, made with heavy foil, will wear as well as one made of the lower numbers?

Mr. Chittenden. I do.

Mr. Adams. How do you anneal your foil?

Mr. Chittenden. I prefer passing it through the flame. I do not say that that is the *best* way of annealing, but it suits me better than the annealing pan.

Mr. Adams. Do you use the hand or spring mallet?

M. Chittenden. Formerly, I used the hand mallet exclusively,

but latterly, I have learned to use the automatic so well that I prefer it in most cases. I use two now, but intend to get a third one soon. I think, *now*, (I may change my opinion if I see reason for doing so,) that with three automatic mallets a dentist can do his condensing better than an assistant can do it for him.

Mr. Sabine thought that the alcohol would require to be very pure to enable one to use it for annealing the foil.

Mr. Relyea said he uses a substance called "taggs" for annealing. Uses Velleau's gold foil, and finishes with Kearsing's fibrous gold.

The President called on Mr. Leggo, who came forward and read a very instructive paper entitled "Common Sense," for which he received a hearty vote of thanks. On motion, it was ordered to be printed. After which a short discussion ensued.

Mr. Callender thought that operative dentistry ought to be separated from the mechanical branch, and that we should use our endeavors to bring about such a separation at as early a day as possible. In order to bring about this desirable end, we must do away with all those petty feelings of enmity existing between those practicing in the same vicinity. Of course, it can not be done at once. At the present time every man is working for himself, but he trusted that those who come after us will be in advance of us, and will be prepared and willing to adopt many reforms which we can now see ought to be adopted.

Mr. Wood fully agreed with Mr. Callender, and thinks that a separation of the two branches of the profession may be effected in towns where there are a number of dentists, and that each would succeed better than at present.

Mr. Willmott said he thought we were not sufficiently careful to learn whether those who come to us as students are qualified to become dentists. He thought that many could never learn the business thoroughly.

Mr. Callender thought that some system should be adopted, by which those who are incapable, by nature, from learning dentistry should be prohibited from making the attempt to do so.

Mr. Adams agreed with Mr. Callender.

Mr. Chittenden referred to the lack of even an English education on the part of a large proportion of those who had passed their examination, and urged, for the credit of the profession, that some standard of educational qualification should be fixed, by which all who

wish to study dentistry must be tried before they be allowed to article themselves.

Mr. Callender hoped that a committee would be appointed at once to take the matter into consideration.

The Finance Committee reported a balance of \$7.00 in hand, after paying all indebtedness. Adjourned.

EVENING SESSION.

The closing session opened with an essay on "Dental Education," by Mr. C. P. Lennox, which contained matter with the right ring in it, and brought nearly every one present to his feet, all the speakers agreeing entirely with the writer. A vote of thanks was given to Mr. Lennox, and on motion it was ordered to be printed.

An hour was spent in conversation on subjects connected with dentistry, when the Society adjourned for another year.

After the adjournment a few friends of Mr. O'Donnell presented him a handsome meerschaum pipe, as a mark of the esteem in which he is held by them. The presentation was made by Mr. Lennox in a very pleasing speech. Mr. O'Donnell, on receiving the gifts, made a suitable reply.

THE ELECTION OF THE NEW COLLEGE BOARD.

In accordance with the statute to that effect, the licentiates of the Province met at St. Lawrence Hall, Toronto, on Tuesday the 7th inst., for the purpose of electing a new Board of Directors of the Dental College for the ensuing two years.

The attendance was not as large as was expected, there being only fifty-two present who were entitled to vote.

Mr. O'Donnell, the Secretary, on behalf of the retiring Board, read a short report of the proceedings of the Board for the last two years.

A little time was taken up in deciding in what way the vote should be taken, some being in favor of an open vote, but a majority were in favor of the ballot.

Before the voting commenced, Mr. Chittenden rose and stated that he could not undertake the duties of a member of the Board during this term, and would therefore urge his friends to vote for some one else.

Messrs. Bogart, Lalonde, Meacham and Elliot also declined.

The ballots were then circulated, and resulted in the election of Messrs. Leggo, Day, Relyea, Wood, Rowe, O'Donnell, Callender, Willmott, Bowes, Nelles, Stone, and Wells.

The new Board met and elected Mr. Wood, President; Mr. O'Donnell, Secretary; Mr. Stone, Treasurer; and Mr. Willmott, Registrar.

SELECTED ARTICLES.

SOFT GOLD FOIL.

BY EDWARD J. KING, DECATUR, MICH.

Years ago, in common with the rest of the profession, I used soft foil, and the softer I could get it the better I liked it. Presently there came a whisper, softly at first, but growing louder and louder by degrees, that a great discovery had been made. Hard foil was the thing. I got some of it, of course, and I worked and worked until the perspiration rolled in drops from my forehead in the vain endeavor to make a filling of it. I then procured all the different patterns of tongue-holders and cheek-distenders, duct-compressors and saliva-pumps, rubber-dam and boiled cotton, flax, spunk, bibulous paper, and napkins for stuffing the oral cavity. There was a change. I cried eureka! I could hold myself and my patient while I introduced ten or twelve leaves of Watt's best. In vain was it for my patient to strangle and struggle, or make abortive efforts to order me to stop and extract the tooth. I had him. I kept on in supreme indifference, conscious that I was engaged in a great work, indorsed as it was by the fathers in the profession. I have had seven or eight years of this glorious work, good for the teeth, and necessarily so for the patient. I have just commenced using a little *common sense* with my gold foil.

I see no reason why I should be four hours filling a cavity when I can do it just as well in two; and before anybody tells me I can't do it as well, I want him to give the common-sense method a trial. There are a few cavities, owing to form, position, etc., to which it is not applicable, but to the majority it is. Make one or two retaining points and fill with adhesive gold, putting on a piece or two more after they are full; warm one side of a soft foil pellet, and press it home; then fill the remainder of the cavity with large pellets of soft foil without warming, condensing as much as possible. With wedge-

pointed instrument form retaining points in the body of the gold, and fill them with adhesive foil, and so proceed until the wedge refuses to enter again. Doubts may arise in the minds of some as to the relative durability of a filling made in this way, because it cannot be so absolutely solid as when all adhesive foil is used. I will state it as my humble opinion, that we are in the habit of making fillings too solid for any good purpose.—*Dental Cosmos*.

CLEFT PALATE.

STAPHYLOGRAPHY—URANOPLASTY.

BY J. HENRY CARSTENS.

In January, Prof. McGraw operated before the class of the Detroit Medical College, for cleft palate, according to Langenbeck's method. The patient, a young man, 20 years of age, suffered from congenital fissure of the hard and soft palate. The fissure of the hard palate extended through the palate bone, and measured three-fourths of an inch in length and three-fourths of an at its greatest breadth.

The professor called the attention of the class to the great vascularity of the parts, stating that severe lacerated wounds about the head would heal, when in other parts of the body such injuries would seem almost hopeless; and that this very vascularity, though the cause of great hemorrhage sometimes in operative procedures, made plastic operations more successful in this part of the body than elsewhere.

Professor McGraw first performed the operation of uranoplasty according to the method described in the following translation of Langenbeck's article, and then that of staphyloraphy. Between the two operations there was an interval of one week. The patient was kept perfectly quiet for some days, and was not allowed to speak nor to eat solid food. This is absolutely necessary to the success of the operation. Two weeks after the last operation the young man left the hospital. Union had had taken place by first intention, and only a very small opening, one line in diameter, remained at the anterior angle. It was noticed by all who heard him speak before and after the operation, that his articulation had already somewhat improved.

Thinking it of interest, perhaps, to the readers of the *Review*, I take this occasion to write a few words about this most difficult of

surgical operations; an operation most trying to the surgeon—one which requires from one to two hours to complete—an which is most painful to the patient, on account of its being impossible to give an anæsthetic.

Staphyloraphy, an operation to close the fissure of the soft palate, has been performed for a number of years, with more or less success, and is too well known to require description.

Ph. J. Roux was the first who operated successfully for acquired defect of the hard palate, in 1831, and established a distinct operation in surgery by transplanting flaps of mucous membrane. (*Quarante années de Pratique Chirurg.*, 1854.) The plan originally practiced by Roux has been variously modified by Warren, Field, Dieffenbach, Baizeau, and others. It seems strange that the success of Roux (recovery of three of his four patients) should not have removed the unfavorable impression of the French surgeons of the last twenty years, in regard to this operation.

Krimer operated successful for congenital cleft of the hard palate, it is claimed, in 1824, causing the greatest astonishment in the surgical world. Velpeau's trial in 1839 was unsuccessful, although Pancoast, of Philadelphia, in 1840, lessened a syphilitic perforation one half. (*Med. Ex. and Rec.* 1844.)

To Langenbeck, of Berlin, is undoubtedly due the merit of establishing *uranoplasty* as a distinct surgical operation. Of his description I have made the following translation :

“Three different operative processes may be made use of. *First*, the edges of the fissure in the hard palate may be horizontal. In this case, by an incision deep into the bone on each side, close to the teeth, commencing at the incisors and diverging to the velum pendulum palati, I form two muco-periosteal flaps, which are, by means of an elevator and scalpel, loosened and stripped off the bone, by commencing at the alveolar process on each side, and cutting inwards. These muco-periosteal flaps, which are to be glided towards the median line, represent the whole involucrem palati duri, and the bony palate is thus completely denuded of periosteum. Each of these flaps, however, remains attached by a strip three or four lines wide, behind the incisor teeth (anterior nutrient bridge), and at the velum (posterior nutrient bridge). These incisions are nearly the same as those made by Dieffenbach, Field, and Baizeau for the construction of their flaps of mucous membrane. Should the cleft in the hard palate be incomplete, these incisions are not to be carried

farther forward than is necessary to secure the movability of the flaps, that the same may be secured in the median line.

Second—If one edge of the cleft in the hard palate is horizontal, and the other edge rises vertically on the vomer and into the nasal cavity, the horizontal half may be operated on as described in No. 1 ; but the other half requires a different operation. We must then make an incision in the muco-periosteal covering, where it joins the mucous membrane of the nose, viz. : at the boundary line of the vertically rising palatine process with the vomer, the whole length of the cleft, from the velum forward to the teeth, and then we must loosen the whole covering, from the commencement of the incision to the inner side of the alveolar process. During this very tiresome operation the operator sits before the widely opened mouth of the patient (whose head is at the same time pressed backward), and uses the instruments with the right hand, if the right half the palate is the perpendicular ; with the left hand if the opposite is the case. The covering of the palate which has been separated in this manner, then takes a horizontal position, forming a kind of curtain, which is attached externally the whole length of the alveolar process to the gums, and behind to the velum, and can now be accurately united with the flap of the opposite side.

Third—If the edges of the cleft of both sides rise vertical, with great width of fissure, the operation is the same on both sides, as described in No. 2. To avoid having the two flaps, which are only attached anteriorly to the gums, and posteriorly to the velum pendulum palati, follow the law of gravitation, and when taking the horizontal position, sink to deep, it is advisable to attach the same at several points to the vomer. To accomplish this, the whole under surface of the vomer must be denuded of a very thin slice of mucous membrane. The stitches which shall fix the curtain-like flaps to the vomer, are brought, after passing through the left flap, through the remaining submucous fascia and periosteum of the vomer, and then through the right flap. If the soft covering of the vomer does not offer sufficient support for the stitches, and it is feared the same may tear, one of the sutures, the middle, must pass through the bony substance of the vomer itself, by puncturing the bony vertical septum of the nose with the needle, or in adults with a stronger instrument. Three such sutures ought to be enough in all cases, although generally one is sufficient. By tying the sutures, not only the flaps are brought in apposition but also their denuded surfaces are brought

in contact with the denuded surface of the vomer, effectually preventing the flaps from sinking too low. If the vomer occupies a very high position it will be impossible to bring the denuded surfaces together; still, it is necessary that the vomer be the fixing point of the flaps. Instead of the last described proceeding, the operation No. 1 may be used; but in this case we can not expect to close the anterior angle of the cleft, which will require a second operation.—*Detroit Review of Medicine and Pharmacy.*

(To be Continued.)

WEDGING FOR APPROXIMAL CAVITIES IN MOLAR AND BICUSPID TEETH.

BY H. N. CASE, LITTLE ROCK, ARK.

Seeing the question of opening approximal cavities in molar and bicuspid teeth so often discussed in the dental journals, I have thought that perhaps my mode of procedure in these cases might not be uninteresting to your readers. I have not used the file for separating teeth for many years; but open for *all* approximal cavities with the wedge.

One would suppose at first thought that molar teeth could not be opened in this way, but I have very rarely met with teeth that cannot be opened just as wide as is necessary, even as far back as second molars and dentes sapientiae. I use hickory, and put the wedge in no tighter than I can push it with the hand. I have wedged teeth by the slow process for ten years, and without the slightest ill effects, except in a single case, and even this one I never believed to be directly chargeable to wedging. The case in question was that of a young lady, aged eighteen years, of a scrofulous diathesis, residing in a swampy, malarious district.

She had no trouble with the teeth until more than a year after the operation was performed. Then the teeth ached and caused the face to swell. I give this rather vague and indefinite result, as this was all I could learn from her friends, never having seen the patient since the operation was performed. I am inclined to think that, in cases where slow wedging have produced bad results, it was because rubber was used. The wedge is changed every other day, unless there is too much soreness; then twice a week will be sufficient. I think perhaps the success of slow wedging depends a great deal on avoiding all undue soreness. The best way to cut the wedge off

smoothly, so as to be comfortable to the patient, is with the nail blade of a pocket knife, kept for that purpose very sharp and ground thin ; rest the thumb upon the end of the tooth, and the file portion of the blade will protect the lip and thumb from being wounded.

Now I am aware that the great objection to this mode will be that it is too much trouble. If there is any one thing which, more than another, results in loss of teeth to the patient, and reputation and practice to the operator, it is this unwillingness to bestow the necessary amount of time and labor on operations.

The great object with many is to cheapen dentistry, and turn off an immense quantity of work ; while the true interest of the practitioner is to exalt the standard of excellence. It appears to be the prevailing idea with most dentists that, in order to compete successfully with a neighbor, one must work as cheap or cheaper ; but my word for it, no dentist can compete with that operator who performs none but superior operations and then charges a good price for them. These things are—when properly done—done for a lifetime, and although the patient may even grumble at the time, time alone will vindicate your price and make him your friend and advocate. This mode of opening bicuspid and molars gives the operator more perfect access to the cavity, both to prepare and fill it properly. When an approximal cavity is cut into with the file, chisel, or drill, it is almost impossible to round and smooth the edges of the cavity properly, and utterly impossible to condense and polish the filling well down to the neck of the tooth, and then the food crowding down upon the gaps through the space that is left between the teeth will prove a serious annoyance for a lifetime ; while, if the teeth are opened with the wedge, the operator has room to prepare the cavity and condense the filling properly, and finish it nicely, and then the teeth will close up again *perfectly* natural.

Many will pass this by, thinking that it is a "hobby" of mine, but I think that no dentist who ever gives it a thorough trial will ever abandon it. It renders comparatively easy a class of operations which are well known to be the most difficult ever met with.—*Dental Cosmos*.

DR. P. H. GARRITSON narrates in the *Medical Archives* the case of a carpenter, aged forty two, who dislocated his humerus downward into the axilla by imprudently sneezing while combing his hair. We have frequently heard of severe injuries inducing a state of *coma*, but never of the reversed order of affairs.

ARE THE MINERAL ACIDS FORMED IN THE MOUTH ?

BY E. C. CHASE.

I propose to take the affirmative of the above proposition, and I shall attempt to show that the powerful mineral acids, sulphuric, nitric and hydrochloric are formed in the mouth under certain circumstances; namely, when the food is allowed to remain around, upon and between the teeth day after day. They then are constantly being formed slowly, and in small quantities, to be sure. It is conceded by all who have given the subject any thought, I believe, that *organic* acids, such as *lactic*, *acetic*, etc., exist in the mouth, under certain conditions, in sufficient quantities to be detected. This is a well known fact and will not be denied, and it is not probable that they alone are the only acids which cause such disastrous results to the dental organs. It is true, the only positive evidence we have that nitric and sulphuric acids are ever present in the oral cavity, are the effects which they produce upon the teeth; but as for hydrochloric acid it has often been detected by reagents.

It seems to be a pretty well settled fact that dental decay is due to the action of certain *acids*, and if we knew to what acid or acids this action was due it would be an easy matter to apply the proper remedies.

I will now proceed to consider the action and formation of the different acids, and see if under any circumstances they could possibly be formed in the mouth. I will commence with

SULPHURIC ACID. H_2SO_4 . As its formula indicates, it is composed by weight of two parts of hydrogen, sixty-four of oxygen and thirty-two of sulphur. A great number of the nitrogenous compounds, as albumen, caseine, gluten, &c., besides containing carbon, oxygen, hydrogen and nitrogen in their composition, have a trace of sulphur. If for example a fibre of meat is caught between the teeth and allowed to remain there a sufficient length of time, it will undergo decomposition, a part of its hydrogen uniting with part of the nitrogen, forming ammonia, NH_3 , its carbon uniting with part of oxygen forming carbonic acid CO_2 , and the sulphur combining with the remaining hydrogen, in contact with the oxygen of the air, is decomposed; the hydrogen uniting with the oxygen, forming water, and the sulphur set free. This sulphur being in the nascent state and having a great affinity for oxygen, is oxidized, and the result is

sulphurous acid SO_2 , which is converted rapidly into *sulphuric acid* in the presence of the water of the saliva; thus $\text{SO}_2 + 2\text{H}_2\text{O} = \text{H}_2\text{SO}_4$. The acid thus formed immediately acts upon the carbonate of lime, decomposing it, and charring the animal portion. This acid can neither decompose the phosphate of lime nor dissolve it. Therefore the latter, with the animal portion of the tooth, acts as a barrier, protecting the portion of tooth beneath it. It is probable that the "black variety" of decay, where but little of the tooth substance has been removed and the disintegrated portion is tough and cuts like leather, is caused by the slow but constant action of sulphuric acid. The acid blackens the organic or animal portion of a tooth by its great affinity for water, therefore it causes a portion of the oxygen and hydrogen of the organic substances to unite, *forming water*, leaving an undue portion of carbon, which gives it its black or brown color. Owing to the small amount of sulphur which is present in the mouth under the most favorable circumstances, it necessarily follows that but a small quantity of sulphuric acid would be formed, and this immediately acting upon the teeth or some ingredient of the saliva, may account for its never being discovered in the mouth in an uncombined state.

NITRIC ACID.—Symbol HNO_3 , is, as its symbol indicates, composed by weight of one part hydrogen, forty-eight parts of oxygen and fourteen parts of nitrogen; in one hundred parts we have, hydrogen 1.59—, oxygen 77.19—, nitrogen 22.22—.

It is commonly prepared by the action of sulphuric acid upon potassium nitrate; the reaction is as follows: $\text{KNO}_3 + \text{H}_2\text{SO}_4 = \text{KHSO}_4 + \text{HNO}_3$. Nitric acid is characterized by its great affinity for bases and for its property of furnishing oxygen in its nascent state to oxidizable substances. It acts energetically upon a tooth, decomposing the carbonate of lime, setting carbonic acid free and forming the nitrate of lime and water, thus: $\text{CaCO}_3 + 2\text{HNO}_3 = \text{Ca(NO}_3)_2 + \text{CO}_2 + \text{H}_2\text{O}$. It cannot decompose the phosphate of lime, but readily dissolves it. It decomposes and destroys the animal portion of the tooth.

Thus we see that nitric acid removes each constituent of the tooth as soon as it comes in contact with it, either by decomposing it or dissolving it. This powerful acid is sometimes administered as a medicine, as is also sulphuric and hydrochloric; but probably not sufficiently often to account for its effects, which are constantly seen upon the teeth according to many practitioners. Watt says "It is

the principal agent in the production of the 'white decay.' By the putrefactive decomposition of any nitrogenous substance ammonia is evolved. And although nitrogen has a very feeble affinity for oxygen, yet under certain circumstances it combines with it, and forms several different compounds; and is it not reasonable to suppose that when some albuminous substance is undergoing decomposition in the mouth some of the conditions are present for the formation of some oxide of nitrogen? Although this has never been demonstrated, yet I think it very probable, for hundreds of chemical combinations and decompositions are taking place throughout the organism every hour that could not take place outside of the body except under entirely different circumstances: for instance, hydrochloric acid is found in the gastric juice; this must evidently have been formed in the body by the decomposition of some chloride, the chloride of sodium probably. Now, to generate hydrochloric acid outside of the body by the decomposition of this salt requires a greater heat than that of the body. Suppose that an albuminous substance is decomposed and *nitric oxide* NO, is formed, which is not improbable; this coming in contact with the oxygen in the saliva is immediately converted into *nitric trioxide* N²O³, and this in the presence of the water in the saliva is decomposed into nitric oxide and *nitric acid*. The reaction is as follows: $3\text{N}^2\text{O}^3 + \text{H}_2\text{O} = 2\text{HNO}^3 + 4\text{NO}$. Thus by the decomposition of a particle of meat or a portion of the gluten of flour, or of epithelium we may and probably do have formed one of the *strongest acids*. Watt says that the ammonia which is generated "exposed to the action of oxygen is *always* decomposed, an oxide of nitrogen being formed, and of course *nitric acid* is the result."

Hydrochloric Acid. Symbol HCl, is, as its name indicates, composed of hydrogen and chlorine. The action of this acid dilute upon the teeth is very energetic. It decomposes the carbonate of lime forming the chloride of calcium and liberating the carbonic acid; the hydrogen of the acid unites with part of the oxygen, forming water, thus $\text{CaO}^2\text{C} + 2\text{HCl} = \text{CaCl}^2 + \text{H}^2\text{OCO}^2$. The phosphate of lime is not decomposed but is very soluble in the hydrochloric acid and in this way is removed from the tooth. If the acid is strong some of the organic portion of the tooth is also acted upon. The action of the acid upon the teeth may account for that variety of decay where the inorganic portion is removed and the animal portion remains.

Now the question arises, how is this acid formed in the mouth? As I said before, it has frequently been detected by means of

reagents. The chlorides of sodium and potassium are always present in the saliva, and it is undoubtedly formed by the decomposition of one of these salts, its chlorine combining with the hydrogen of the water; and thus the acid is formed. Again, if there were different metals in the mouth, such as gold fillings and those of amalgam; or a gold plate, and plugs of some other metal or *vice versa*, we would have galvanic currents which would readily decompose the water and the chlorides, setting the elements free, and each one would unite with the one for which it had the greatest affinities. Now, hydrogen being an *electro positive* element, and chlorine *electro negative*, their affinities for each other consequently great, they would unite, and the result would be hydrochloric acid.

The soluble chlorides are no doubt decomposed by other means which we may never be able to demonstrate. Probably no man would pretend to say just how every chemical change in the body took place. These are some of the mysteries which, it would seem, were not intended for us to know.

In this paper I do not wish to be understood as intimating that the decay of teeth is entirely due to the action of the mineral acids, far from it; but I do think they exert a great influence upon dental decay, and in some cases it may be that it is entirely due to their action. The action of the organic acids that are found in the mouth no doubt is about the same as the other acids, but much less rapid in their effects.—*Missouri Dental Journal*.

At the meeting of the medical Society of London held in April last, Mr. Napier read a paper "On an improved method of Stopping or Plugging Teeth," and exhibited some specimens in which the cavities caused by decay were severally filled up with hippopotamus ivory, mother-of-pearl, and india rubber, vulcanised to the consistence of ebony. Mr. Napier desires to obviate the necessity for using metal in any form for stopping teeth, and read this paper with a view to prove the importance of the object he advocated. He argues that one of the principal causes of chronic inflammation in teeth that have been stopped according to the method now in general use, is that metal is a readier conductor of heat and cold than the natural substance of which a tooth is composed. The improvements he advocated would benefit both operator and patient.—*Medical Gazette*.

REPLANTATION OF TEETH IN CHRONIC PERIODONTITIS.—There is nothing perhaps, so unsatisfactory to the dentist as the extraction, in the general run of cases, of teeth for the relief of periodontitis, though it is followed by the cessation of acute pain, especially about the gums and the like, since the teeth themselves are often almost perfect, or at least *per se* in a condition fit for doing good work for many years. The success, therefore, obtained by Mr. Coleman (the details of which will be found in the "Transactions of the Odontological Society" for the month of March) in replanting teeth in the disease in question will be received with unquestionable satisfaction, and the plan no doubt largely imitated. The method of procedure is to remove the diseased tooth; if carious, clean out its pulp and fang cavities, filling them up, after cleansing with carbolic acid, with cotton wool impregnated with the same; then to fill the pulp and carious cavities; next to scrape the fangs free from all diseased periosteum and cementum, but preserving the mucous membrane about the neck; and, after bathing in a solution of carbolic acid the tooth, as well as the alveolus, to return the former to its place. Mr. Lyons carried this out in fourteen cases for Mr. Coleman with success, in the case of bicuspsids and molars, no mechanical appliances being used to keep the teeth supported until they had become firm. Mr. Coleman believes replantation will become the legitimate mode of treating chronic periodontitis—a mode in which medical practitioners can not fail to take an especial interest, and which harmonises well with the prevailing surgical conservation of the day. —*Lancet*.

THE CAUSE OF DEATH DURING INHALATIONS OF CHLOROFORM.—Dr. Jeannell considers that the fatal issue is principally owing to the terror felt by the patient before the operation, and advises the following precaution. When consent has been given to an operation, the patient should not be made acquainted with the precise day. Whilst he is quietly in his bed the chloroformist should pay him a visit, and say that he wishes to learn whether it will be possible to make him sleep when the day of the operation shall have come round. The patient without fear or apprehension submits to the trial, and, when he is narcotised, is carried into the operating theatre where the operation is at once performed. All this is done without exciting the least anxiety in the patient, and placidity removes the danger which arises from nervousness and trepidation.—*Lancet*.

OSSIFICATION OF THE DENTAL PULP.

When ossification of the pulp takes place, it is but fair to infer that it follows upon the irritation which nature establishes to protect the highly organized and sensitive pulp from exposure; and when ossification begins, the process is usually continued till the whole pulp is converted into a substance analagous in its arrangements and constituents to cementum. This change takes place when the pulp is subjected to a moderate amount of irritation and vascular action, but in cases where inflammation succeeds irritation a different result is produced.

Sometimes the irritation which causes ossification comes from causes which may be said to be strictly constitutional; but, as a large majority of cases it is caused by extremes of heat and cold, transmitted through a filling, or through a layer of dentine. While the process of ossification is going on, the patient feels a numbness, and pains more or less severe, lasting for a moment, but as it causes little annoyance, but little notice is taken of it.

When the process of ossification is complete, the inner walls and the crown of the tooth have lost all their vitality, yet, unlike necrosis—as we stated in our last number—there is no appearance of death or decay in the tooth structure; as the central cavity being filled with semi-translucent osteo-dentine, the crowns keep the natural color. Of course, we have no cause to remove a tooth because of ossification, if no other symptoms present themselves. Ossified teeth are useful for mastication and ornament a score of years after the process is complete.—*Dental Office and Laboratory.*

Be patient with your patients. Teach them that dentists are not made by inspiration; that a dentist—to be worthy of the name—does not become so in a day; that we are professional men; not plasterer's or stone masons; that there is the same difference between the *true* dentist and the charlatan, that exists between the dauber who paints a sigh and the master who brings to his studio the knowledge gained by a life time of study of anatomy, coloring etc. Respect yourself, and let the quack have his day. *His* sunset will come at 9 o'clock A. M. Never degrade yourself by doing poor work for a poor price. Merit will, sooner or later, bring its reward, in the answer of a good conscience and "greenbacks."—*Dental Office and Laboratory.*

EDITORIAL.

UNPROFESSIONAL SIGNS.

In spite of the resolution unanimously passed last September, in the Quebec Dental Society, to abolish the use of show cases and such unprofessional means of attracting attention to one's office, three or four members still continue their use. About a year ago there was only one on exhibition in Montreal, and the party using it had only imitated a custom of the time he commenced. A confrere removed his office to the vicinity of this show-case, and found that a number of his patients were misled by it, and attracted to its owner. Now, another confrere who has practiced over twenty-five years and never used one, has lately opened an office in the same locality, and says he will be compelled in "self-defence" to hang out a case. "I will take this course, too," he says, "for the benefit of the profession at large, and to force out the unprofessional practice." Several Quebec (city) dentists have also written to us on the subject, and the question has been asked "have we the power to prevent their use?" We think not. The law cannot step in, and dictate how a man shall advertise. No code, but one of ethics adopted by the Society or a resolution such as that passed in September, can affect the question, and only then when the users of show-cases are members. The Board of Examiners have no power to act in the matter. The best way to have it settled is to bring it up pointedly at the next meeting of the Society. Mutual conciliation always works better in such matters, than fisticuffs. Whoever uses a show-case or similar unprofessional sign, must expect it to be taken as an indication of quackery. Let them be hung in the surgery if desired; but not at our doors, where they always present a disgusting aspect to intelligent people, and serve to mark a serious line of demarcation between men who would have no other objection to meet together were they removed. Their absolute removal would be one great advance towards that harmonious union of the profession for mutual instruction, for which we hope and work. Take them down just for one year to try the effect.

W. G. B.

LATE.—We have to crave the indulgence of our readers, on account of the late appearance of this No. and No. 12. We will try to be more punctual in future.

THE MEETING OF THE DENTAL SOCIETY.

The meeting of the Ontario Society, on the 7th inst., was one of the most harmonious dental meetings that has ever been held in the Province. The proceedings commenced at the hour named and were carried on with spirit throughout the session. We sincerely regret that so few of the members of the profession attend these meetings, forty-five, we believe, was the highest number in attendance at one time during the session. The essays were good and brought a good deal of profitable discussion, and we feel certain that those who remained at home would be far better off one year from this, had they attended the meeting, than they will be as it is.

A committee was appointed to draft such amendments to the Act as they might think necessary, and to report before the final adjournment. That committee, in the report, very properly, we think, suggested the propriety of relaxing the present stringency of the law in regard to foreigners, and also, the recognizing of the diplomas of the American colleges. The idea of such liberality was too much altogether for the weak nerves of some of those present, and of course it was thrown out. One of the arguments against recognizing the diplomas of the American colleges, was that it would injure our own school. If our school is to be propped up by such means, it had better be done away with at once. Make our school equal to theirs and we need have no fear of competition. It is natural that Canadian students should prefer Canadian institutions of learning, and they will remain here if they can get as good a dental education here as in the States.

We are sorry to see such narrow-minded views prevail, but hope that before long a majority of our brethren will see the propriety of admitting all foreigners to our ranks, if they are as well qualified to practice as we are ourselves.

C. S. C.

We have received the annual announcements of the Pennsylvania College of Dental Surgery; and the Philadelphia Dental College. We are gratified to learn of the continued success of these invaluable adjuncts to dental education.

SPECIAL NOTICE TO SUBSCRIBERS IN ARREARS.—As the next number will complete Volume 2, we earnestly beg our friends in arrears to remit without delay. We are anxious to wind up the accounts of the present volume before entering on the next.