ITEMS OF INTEREST.

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Shots from the Profession.

HOW TO HAVE HEALTHY TEETH, AND HOW TO TREAT THEM IF DECAYED.*

DR. HENRY S. CHASE, ST. LOUIS, MO.

The development and nutrition of both the temporary and permanent teeth, are dependent on the nursing mother up to the time of weaning. The mother's blood must be well supplied with the inorganic materials that are a necessary part of the teeth. The same is true of the growing and weaned child.

Teeth of the second dentition will become better and better calcified as adult life approaches, if the blood is well supplied with the salts of lime. And the contrary is equally true. Lime salts, to be appropriated by the teeth, must be found in organic life. Artificial salts are a snare and a delusion.

Infancy, Adolescence, Adult life, are all conditions in which the teeth may become harder or softer, depending on a phosphatic diet. Teeth with plugged cavities come under this rule. All foods are phosphatic that have not been robbed of their natural constituents.

Through the whole life of man the Enamel as well as the Dentine is constantly nourished by the blood. The crowns of even pulpless teeth receive a diminished supply of blood-plasma. I daily see "soft teeth" as the result of non-phosphatised diet. I often see poor Dentos improved by a natural diet. Natural foods abound in phosphates.

The teeth of infants should be daily cleansed. If the gums are swollen, from the "coming tooth," the gum should be cut through

*[The following is the 2nd part of the address intended for the New England Dental Society, which met in October; but Dr. Chase was unable to attend, and the Ex. Com. were hardly willing to have it read without the Doctor's being present to defend it in an after discussion. It will well repay perusal; for, though the we may not all agree with everything that is said, it behooves us all to study well the teachings of such a successful life. As Dr. Chase says, "Not that I wish you to follow me, but that my daily life may serve you as a *hint*."—Ed. ITEMS.]

till the tooth is felt. It will save the life of many a child. Only last week I said to a mother, "your baby's gums should be cut, otherwise it is liable to have convulsions." She objected to the operation. The next day that child had two convulsions, and the next day two convulsions, and in one week it died. It was apparently well up to the time I saw it, never having had a sick day.*

The temporary teeth decay; I plug them with some plastic. Metals are not harmonious with tooth structure, which is so ready to take on retrograde physiological action. The dissolving away of roots and crowns in order to give place to the permanent teeth, show the living motion of their miscroscopical structure. Even the dentine of permanent teeth sometimes changes into its original morphological elements under a metalic plug, thereby exposing the pulp.

Plugs in children's teeth must be considered very temporary, and not much must be expected of them; and still they are a necessity.

Contraction of the jaw from premature extraction of the temporary teeth, is very little, if anything; but the loss of mastication of food is much.

Inflammation of the teeth pulps, and of periosteums and pericementums must not be allowed to continue for any length of time, as the health of the child and the normal development of the advancing permanent teeth are paramount in importance.

The First Permanent Molar I try to preserve till the 12th year, then all four of them may go; otherwise four biscupids. This as a rule. For I thoroughly believe in room—room for all the teeth retained in the mouth. Contact and pressure are great enemies of the teeth. Give the permanent teeth plenty of room, and they are easily preserved. A condition far short of crowding, is a *dangerous* condition.

Extraction of molars or bicuspids, or both, is highly important in a vast majority of cases, when the child is twelve or thirteen years old. Ask yourselves this question: "Which will be the best course, in order to give my patient the best denture at the age of twenty-five years?"

I have had the thanks of many adults for inducing their mothers to allow me to give room to their teeth, when children, in the way

[Dr. Chases' estimate of the importance of dental skill in irritation of this kind, well accords with our own experience. Take the following instance:

*"Doctor," said a physician to me once, as I was on my way to dinner, "I have just left a little girl 20 months old to die As I saw you, the thought struck me. "May not these convultions, after all, be from bad teeth? If you will go with me, I'll go back and see what you think. I hate to see the little darling die, though it seems inevitable." After learning specifically of the case, I returned to my office for forceps and went with him. The child was in a terrible convultion when we arrived; and, to appearance, was beyond all help. I thought I saw the cause and immediately extracted the roots of the upper four incisors. The crowns had entirely decayed away and the roots were badly ulcerated. "That is all, doctor," said I to my companion; "I am confident the child will not have another spasm, or need another drop of medicine. The cause is removed." And so it proved. Normal relaxation of the muscles began almost immediately. and in twenty minutes she slowly awaked rational in mind and quiet in body. She recovered from that hour.—Ed. Items.]

spoken of. And I have had many, also, say, "Oh, Dr. Chase, I am *so* sorry that my mother did not follow your advice about the extraction of my small grinders when I was thirteen years old."

Ah, my brothers, I'm afraid I cannot induce many of you to follow my practice, but if I could; if I only could, what an immense amount of good you could do, over and above what you would otherwise do. This is my experience. And I shall advise you to no practice that my experience has not commended to my judgment.

The teeth of persons under twenty years old should, as a rule, be filled with some plastic material. Call it temporary, if you please. Metals are less compatible than their oxides or salts. Gutta percha and gums are more harmonious than metals. Gold is too negative, electrically, to dentos, and, besides, makes not so water-tight a filling as plastics. Oxides of metals are antiseptics, and plugs which rust next to open dentinal tubes have a preservative and antiseptic influence on the dentine.

Teeth should be well calcified to warrant gold fillings. Amalgams containing ten per cent. of copper are more antiseptic than others. The forty-years-ago silver coin amalgam showed this to be true.

Cavities to be filled with gold should be lined, if possible, with some plastic; amalgams, bone, or gutta percha.

Gingival borders of any of the teeth not exposed to sight should be covered with an amalgam, where gold is to be the main filling.

Non-cohesive foil is best for the greater proportion of the cavity for gold fillings, as a rule, the remainder of the cavity to be finished with cohesive foil. The cylinder is the best form for non-cohesive foil. After excavating, cavities should be well wiped with alcohol, creosote or oil of cloves. Retaining points should be avoided, if possible, as they are dangerous near the pulp, and invite decay anywhere.

"Contour work" in plugs which will increase the masticating surface of a tooth is not worthy of practice, as a rule, as it very much lessens the chances of preservation.

Room should be left between proximate plugged surfaces of teeth, to assist in cleanliness. Cut or filed proximate surfaces are often a sorrowful necessity. The extraction of four teeth in early life will often obviate that necessity. Room, room, room between the teeth, with the enamel intact, is what we must labor for.

Wisdom teeth are too often troublesome. Twenty-eight teeth in the mouth are enough. But if the first molars or bicuspids have been extracted before the eruption of the wisdom teeth, the latter are worth retaining. The third molar is as easily saved by plugging as is the second molar. In painful and difficult eruptions of the wisdom tooth, it is often good practice to extract the second molar.

For the filling of roots, a thick solution of gum Sandarach and cotton, is good; it soon becomes dry and hard from contact with water. The second best filling is solution of gutta percha and gutta percha spindles.

Pericementitis is best combatted with "mercurius vivus" in two grain doses every hour, and application of tincture of iodine to the neck of the tooth and its adjacent gum. Half food rations, also, until better.

Alveolar abscess is successfully treated by forcing through the root and gum a stream of carbolic acid or creosote, from the tooth through the external opening in the gum. The canal previously to be washed with water, and then with alcohol.

Pyorrhoea Alveolaris is treated with chloride of zinc paste, first scraping the roots with paper-thin spring-tempered instruments. This has been my practice for seventeen years. The diet of the patient must be attended to in bad cases, in which common salt and all irritating condiments must be forbidden. Lemon juice should at the same time circulate abundantly in the blood.

Exposed pulps I endeavor to save, but fail in half the cases I have. I treated them in the orthodox fashion. When I destroy the pulp I have good success in preserving the health of the tooth. My method is to apply arsenic and creosote, and remove the poison next day. Not until fourteen days do I try to remove the pulp and root vessels. Then it can be done without pain.

The roots are then cleaned with water, then alcohol, and plugged with a thick solution of gum Sandarach and cotton. The crown is filled with the same. Thus the tooth remains for a month or longer, for the plug is good for three months. In a month or three months after the removal of the pulp the crown is permanently filled. The root already contains its permanent plug.

Cleanliness is the great preventive of dental decay. Room, room; non-contact of the teeth is a necessary condition.

Psychological influence is an important factor in painless dentistry. The earnest desire of the dentist, to inflict no suffering on the patient, will often so act on the nervous system that the patient will feel less pain than otherwise, beyond and outside the fact of delicate manipulations as the result of that desire.

HOW IS THIS?

A report of the proceedings of the Ohio Dental Society says: "The incessant wrangling of the association has disgusted a large number of the members, and kept them from attending the meeting. There are 600 dentists in the State, and from 300 to 400 have been members of the Society, but only one-twelfth of the members and one-twenty-fifth of the dentists of the State are now in attendance."

REFLEX PAIN.

KATE CAMERON MOODY, D.D.S., MENDOTA, ILL.

Read before the Illinois State Dental Society.

The common use of the word "reflex," as we all know, is the name given to that influence which, when exerted on the periphery, or terminal branches, of a nerve, is conveyed to the center by an afferent, or sensory fiber, to be "reflected" by an efferent or motor fiber; the reflex impulse being one of *motion*, and not of *sensation*. An example: We take hold of a hot iron; the impulse conveyed to the center gives a sensation of pain; the center immediately sends out an impulse through the motor fibers which causes the muscles to relax and and, we drop the iron. This is "reflex" action, pure and simple. But there is another application of the word which is quite commonly made, and which is employed here, namely, the designation of perverted nervous function, which occurs simultaneously with phenomena produced by other than peripheral irritation—the difference being that the reflected impulse is one of sensation instead of motion, also called sometimes *sympathetic* pain; though it has been doubted by good authority whether the sympathetic system is capable of transmitting such influences.

There are three great centers of reflex action—the brain and cord, the stomach and digestive apparatus, and the reproductive system. When any one of these centers is disturbed the influence is likely to radiate in any and all directions. In this way disturbance may arise in portions of the body quite distant from the true seat of irritation; hence the difficulty in diagnosis when judging from the locality of the symptoms. If there be over-excitement or worry of the mental faculties, it does not necessarily follow that the *head* will be the first to cry out in pain; there may be disturbance of the *stomach* instead, or, if the digestive organs become disarranged, the head may be the first to give notice. Thus it is that, in attempting to cure disease by removing the cause, we sometimes find ourselves in deep water.

We have always been taught to define pain as "an impingement upon a nerve." Let us consider it as an abstract. Physiologically, what is it? or, shall we say *pathologically?* What is that condition of the nervous system which our consciousness interprets as "pain." Is it, as some claim, only an excess of ordinary sensory functions? The function of any organ or tissue is the work it does when in a healthy condition. The work of the nerve is to convey impulses to and from the center; then, if some other than normal work is done by a nerve, we conclude that something is wrong, some change *somewhere* causing this perverted function.

It is within the delicate, mysterious chambers of the brain, where

resides this hard-to-be defined influence or sensation we call "pain." It is here the change from afferent to efferent impulses takes place. When, therefore, pain is felt in a part, as the result of reflex influence of some remote irritated part, may not the fault lie in the *center*, which fails to transmit correctly? thus making the secret of reflex pain a *physchological* and not a *pathological* one. How, otherwise, explain the instantaneous relief from reflected pain on the removal of the real cause? Can there be real molecular changes existing which would cease immediately, without time for the usual repair of tissue necessary to complete absence of pain? Tuke, in his "Influence of the Mind on the Body," says: "Emotional impulses may act on the sensory ganglia and nuclei of the nerves of sensation so as to produce any of those sensations which are ordinarily induced by impressions on their periphery; such sensations, although central, being referred by the mind to the peripheral terminations of the nerves."

To return to the work performed by the nerves. In what does this change of function consist? The cutaneous nerves convey to the center a sense of comfort when the surrounding atmosphere is neither too hot nor too cold; but let these same nerves be exposed to a cold wind, and quite a different sensation is produced, which causes the reflex movements of shivering, or, if long continued, of aching pain. In the same way intense heat, when applied to the surface, will cause pain. Now, both heat and cold produce an agreeable sensation when applied in a certain degree to the surface, but an entirely different sensation when the degree is increased. So we see that if a force which produces an agreeable sensation be increased to a certain extent, the result is a sensation of pain. Then does it not seem that the difference between comfort and pain is one of intensity only, *quickened impulses*, just as the difference in wave lengths of light will produce different colors; or may not the different results produced by nervous impulses be due merely to a difference in wave lengths of the impulse —or, in other words, only a "mode of motion?" A nerve, like a faithful messenger, is going about its daily duties, performing its normal functions—an impingement occurs—*it merely hurries up to tell the news!*

It is not necessary that any tissue of the body should be putting forth its greatest effort when producing normal results. Nature has provided, in various way, against accident and disease in our bodies. A blood vessel is not distended to its utmost when simply carrying the blood at a normal rate; the large sinuses of the brain provide against an engorgement or obstruction in that important part; the heart possesses a capacity which permits great acceleration of motion in cases of excitement; the lungs, likewise. A man may walk three miles in a leisurely way and feel refreshed, but if he put forth extra

effort, and walk five mile in the same length of time, he will become fatigued, although he use the same muscles for the work. But what of the nature of this force? Who shall say? Will scientists finally solve the question?

In a recent scientific journal the similarity between nerve force and electrical force is discussed, and their identity well nigh proven; or, at least, nearly enough to make the theory seem very plausible. This—in connection with the late experiments of Prof. Hughes, of England, by which he has shown all matter to possess an inherent property, manifested to us, under certain conditions, in the phenomena of magnetism and electricity—makes a strong argument in assuming this nerve force to be but another manifestation of this same mysterious property common to all matter.

It is through the vast net work of nervous structure, interwoven, crossing, recrossing, and uniting, like lines of telegraph, in every part of the body, that these impulses are constantly being conveyed; their connections and relations being so intimate that one portion of the body cannot suffer alone, but a deep sympathy is found to exist in the surrounding parts, and if the injury be great the whole body is involved. Whether these impulses are conveyed entirely by the sympathetic system of nerves, or whether through the continuity of fibers at the origin of the main nerves is a question. It is a fact that the fibers of some of the main nerves, may be traced to the same point in the medulla, either in their deep or superficial origin. Anstie speaks of the close juxtaposition and intimate reflex relation existing between the roots of the fifth cranial and pneumogastric, so that the impressions madeon the fifth, in extracting teeth, exert a powerful stimulating effect on the pneumogastric. Why may not the pain in the stomach and the œsophagus, "the lump in the throat"—of hysterical patients, after an operation—be due to the same cause? Irritation ofthe fifth has been known to cause violent fits of vomiting and cardiac pains, as in the eruption of the third molar.

Of all nerves in the body, the fifth cranial is the most interesting to us, as dentists, not merely because its branches supply the dental organs, but because it is most often the seat of neuralgic affections, with the exception perhaps of the sciatic, and when thus affected, yields less readily to treatment than any other nerve. Also, owing to its large and much exposed peripheral expanse, the complex nature of its functions and its close connection with other important nerves, its affections are most likely to cause secondary or "reflex" disturbance of wide extent. Without taking this into consideration, it would seem strange that cervico-brachial neuralgia, or disturbance of digestion, should be caused by carious teeth. Yet not only these, but parts more distant will often become thus affected. There seems to be an

especially close relation existing between the teeth and the reproductive organs, and, at times, when the latter are peculiarly engaged, it is not an uncommon occurrence for us to be called on to treat perfectly sound teeth; though, of course, more often those which are unsound. Again, the careless, (or shall we say *ignorant*?) practitioner, will sometimes remove a sound tooth without relief to the patient, when the true cause of the trouble may lie no further away than the opposite side of the mouth. Simply because a person, almost insane with pain, demands treatment of a certain tooth, is no reason why a cool-headed dentist should not make a thorough examination of not only all the teeth, but, by using his knowledge of nervous distribution, inquire into the general systemic condition. We do not wish to be understood as asserting that such an examination and inquiry will invariably bring to light the lurking cause; but that the removal of an obscure cause does very frequently produce the desired result, is sufficient reason for exercising more care, yes, *more knowledge*, than is sometimes used,

I am aware that the temptation is sometimes strong to use our skill only so far as we are compensated; and yet, is it the highest aim of our profession to accumulate wealth? Is there not a more noble object to be gained—the allevation of suffering as well as the more selfish one of self-improvement, in adding to our knowledge of the delicate structures under our care? We cannot be too well informed on these things; besides, it behooves us, as specialists, not only to post ourselves on what others have found out by experiment and investigation, but also to experiment and investigate for ourselves. Let us not leave it to the medical profession to prepare our food for us, and be content to open our mouths and swallow any thing they may prepare.

An eminent medical authority, in his review of the state of ophthalmology for the year 1883, says: "The influence of carious teeth in producing affections of the eye is neither sufficiently considered nor understood. The relation between the two is often very noticeable." Do not we, as dentists, share this implied reproach on the medical profession? We are willing enough to confess our ignorance; but this is not sufficient. Let as "*observe, compare, reflect, record.*" There is ample room for research on this one subject of "reflex pain." As I said before, the meagerness of our literature on this subject, to one in search of facts, is very striking. It cannot be that there are not frequently occurring, in our many dental offices, such incidents, which, if recorded, with the results of proper research, would help many another, who may be puzzling over the strange occurrences which baffle all his skill. Let us honestly and faithfully record the results of our research—not being too fearful of criticism—

and thus help to diffuse the knowledge we all need. If you have a patient with an inflamed and painful eye, which has refused to be comforted by all other treatment, but is immediately relieved after the treatment of a carious tooth, don't keep the good news to yourself, but "call your neighbors in," and divide; after first satisfying yourself as to the probable reason of this sympathetic action between the different branches of the nerve, whether it be due to want of tone of the system, or to whatever exciting or predisposing cause, make a short and concise note of it, and send it to one of our journals, which will gladly assist you in your efforts to do good, by publishing it.—*Dental Register.*

A NEW METHOD OF SECURING ADHESION.

A. H. BEST, M.D., L.D.S.I., SAVANNAH, GA.

Most dentists have had difficulty in obtaining for upper dentures that adhesion which comfort requires. Cases frequently occur, in which the ordinary methods prove quite inadequate. Accurate adaptation is the most essential requisite of an artificial denture. To secure this there must be a good impression, a correct model and skilful workmanship. Sometimes something more is necessary. It is with these occasional cases that we are at present concerned.

The various forms of suction-disks, air-chambers, etc., have been already fully discussed. I seldom use anything of the kind, and was for this reason led to make a trial of the method for obtaining suction, about to be described.

Having adapted an artificial denture for a patient, I found that the form of the mouth, and the few lower teeth, made success doubtful. I concluded to cut an air-chamber, in order to improve adhesion. I took a small round bur, and began operations; but by the time I had pretty well covered the surface with these small pits, it occured to me that perhaps these same pits would serve the purpose of the more extensive chamber. I therefore cut the entire palatine surface with similar pits. I was gratified to find the adhesion more than equal my most sanguine expectations.

Since then I have tried the same method in many cases, in some of which the pitting was carried even to the surface of that part of the plate that covers the external alveolus, and always with successful results. I have not tried it for lower dentures, but I do not doubt it would prove equally advantageous in those cases.

The New Jersey Dental Law is a good one—perhaps too good; for though it has been "in force" several years it has not been enforced yet. Resistance is sure to defeat the purpose of the law, and let its violator off "scot free."

DISEASES OF THE SOFT TISSUES OF THE MOUTH.

"FROM A MOTHER TO MOTHERS."

There are some diseases of the soft tissues of the mouth, (or rather of the gums) which require brief mention, in connection with the care of the teeth, especially those which result from lack of proper care of the teeth.

In their healthy condition the gums are firm and tough, forming regular *festoons* around and between the teeth; their color is even and fine, and not too high; their nerves are not sensitive, and their slightly *acid* secretions are neutralized by the *alkaline* saliva. When diseased, the tissue becomes soft and flabby; the color denotes inflammation, and they bleed at the slightest touch; or pus (matter) is discharged from around the necks of the teeth; their nerves become acutely sensitive; the secretions abnormally acid, causing sensitive grooves around the necks of the teeth, which may eventually decay. The breath is also rendered foul and offensive, sending poisonous effluvia to the lungs, and poisoning the blood.

The *causes* of this diseased condition of the gums are various, but all are traceable to the same general source—namely, neglect of the teeth, and *ignorance* of the consequences.

Particles of food, crowded down under the edges of the gum, generate acids and cause irritation and inflammation.

The saliva deposits more or less *tartar* upon the teeth; soft and pasty, and small in quantity at first, and easily removed by the brush; but if allowed to accumulate, increasing rapidly—like attracting like and becoming hard and gritty, working its way under the gums down the roots of the teeth, it loosens them, sometimes detaching them entirely and causing them to fall, whole and undecayed, from their sockets.

The only treatment for this is—*prevent* it in the first place, by absolute cleanliness of the teeth, and have it removed by the dentist with proper *instruments* if you have allowed it to accumulate.

All *washes* or other preparations, advertised as being able to *dissolve* the tartar, will also dissolve the enamel of the tooth itself.

The same may be said of the removal of *green* or *brown* discolorations or stains, seen around the necks of the teeth of both children and adults.

Gum-boils are the result of disease of the pulp (or nerve) of the tooth, preceded by decay. They are prevented, by preventing decay, and cured by proper treatment of the tooth by the dentist.

Swelled face results from the same cause, and requires the same treatment.

Never pultice or make hot applications of any kind *on the outside*,

or a disfiguring *scar* may be the result. Reduce the inflammation by *cold applications* externally, and apply a hot roasted raisin or fig, on the outside (the proper spot will indicate itself,) and see your dentist.

In the care of the teeth, as well as of the general health, too much importance cannot be attached to *lime-water.*

A pitcher appropriated solely to its preparation, should be found in very household, and a bottle of clear lime-water should have a place on the side board, and on every washstand in the house.

It is always ready, and requires no preparation as is the case with bi-carbonate of soda and other alkaline preparations. It is equally invaluable to both adult and infant.

If the mouth be well rinsed with lime-water after every meal, and especially after eating any acid fruit, or drinking lemonade, and also just before retiring at night, a large proportion of the teeth that, without this simple precaution, would decay, may be kept sound, without any further care or expense than the use of the brush and tooth-pick.

The toothache of pregnancy may frequently be relieved by this simple remedy.

A spoonful, in a little clear water, swallowed on the first symptoms of indigestion, (such as a feeling of fullness, acid risings in the throat, etc.,) will often act like a charm in preventing any farther indisposition.

Added to the milk fed to an infant, it prevents the formation of tough curds and renders the milk more easily digestible.

The vomiting and diarrhœa of an infant may also often be checked by the frequent administration of a teaspoonful of lime-water in three or four of water or milk.

But especially, in the care of the teeth, it is invaluable as a prophylatic, or preventive of decay.

And now, my dear young friend, a brief enumeration in my next letter, of a few of the diseases which may fairly be attributed to *decayed teeth* as their first cause, must bring to a close this already too lengthy correspondence.

Under the stimulus of our appreciative replies, and your repeated requests for still further information, it has grown into almost a *scientific dissertation,* far beyond its original design.

"A VISIT TO THE DENTIST."

Editor ITEMS:

Evidently "J. R. Trust" cannot see or take a joke.

"This and nothing more."

"ONE WHO HAS BEEN THERE."

GOLD AND SILVER SOLDERS.

W. R. HALL.

There are few dentists who have no dread of soldering a full upper denture of gum teeth. The fear of cracking the teeth, or warping the plate, makes the most phlegmatic person somewhat nervous; this nervousness lasts all through the operation, destroying the calmness that is necessary to do good work. A great deal of this feeling results from a want of practice, or knowledge of the materials, and application of the proper heat.

If the solder has been purchased from a depot, it doubtless varies in fusibility, or a want of affinity to the gold or silver plate; possibly the materials of the solder have been improperly or imperfectly melted, resulting in balling or non-fusion of the solder. This variability must be expected to occur where parties make it for others to use. not testing it themselves before selling. It takes but a few minutes to make a small piece of solder, if the materials and appliances are at hand, resulting in a saving of time and money, and a better knowledge of what you are using. It will be necessary to keep in mind, the fact that solder must flow at a lower point of fusion than the plate ; for, if too high, the plate will be so much softened that it would be likely to warp out of shape in the soldering process.

The only reliable metals to mix with gold and silver for solders are copper and zinc. The fusing point of zinc is 773°. When forming a part of solder it brings down the fusing point quickly, and is very volatile when melted, flying off in vapor, thus making it difficult to obtain uniform alloys. To get over this difficulty as much as possible I have been using, for the last few years, a good quality of brass wire, composition of which is about 70 parts of copper to 30 parts of zinc, thus using the copper and zinc in combination instead of adding them separately.

Silver solder should fuse at a dull red heat; gold solder at a full red heat. In either case, when heated up to the proper degree, it should run quickly, and not be allowed to remain too long at the melting point, or too frequently melted, as the solder might eat into and melt a hole in the plate.

After a course of experimentation for some years, I selected the following system of recipes as the best for practical use in the laboratory. It will be seen that they are based on 18-karat gold instead of pure gold or gold coin, as directed in the old style of recipes. This plan lessens the amount of alloy to be added, and gives a chance to use the gold oldscraps and filings. It frequently happens that it is necessary to make a small piece of solder when hurried, and time

is limited, and these recipes are so formed as to be easily put together in large or small quantities.

USUAL GOLD SOLDER.	
Gold Plate, 18-karat,	1 dwt.
Silver Coin,	2 grs.
Brass Wire,	4 "

THIN FLOWING GOLD SOLDER.	
Gold Plate, 18-karat,	1 dwt.
Silver Coin,	2 grs.
Brass Wire,	4 "
Zinc,	1 "

These two solders are very near 15 karat fine, are of good color and tarnish but little in the mouth. The first recipe is a good filling solder, and does not spread much. The second spreads over the plate more, at the same time fuses at a lower point of temperature. An 18-karat solder is made by substituting gold coin in the place of 18-karat plate, but requires more heat than the first two recipes.

The two parts of silver is added to toughen the solder, so that it may be rolled or hammered without much cracking. Solders are harder, and not so dense as the pure metals; they are less malleable, and require frequent annealing when rolled or hammered.

USUAL SILVER SOLDER.	
Silver Coin	1 dwt.
Brass Wire	8 grs.

THIN FLOWING SILVER SOLDER.	
Silver Coin	1 dwt.
Brass Wire	6 grs.
Zinc	2 grs.

The first recipe is a good filling solder and spreads but little—the linings can be thickened with it and still be securely soldered. The last solder flows quickly and spreads over the plate, and is not good for filling, but is good when but little solder is needed on the plate for neat work.

Small lots of gold and silver solder are very conveniently mixed and melted with the blow-pipe on a flat carbon crucible, taking but a few minutes' time and no danger from loss by accidentally spilling in the fire, as frequently happened with the old style three-cornered crucible, and coal fire.

The flat carbon crucible is easily made by any one, it consists of equal parts of clay, asbestos, plumbago and pumice, powdered together and mixed with sufficient water to make a putty-like mass, that can be pressed into a mould made of a piece of tin plate, three inches square, with the sides turned up straight to form a square box. The mould being filled, the middle is depressed by forcing the soft mass away with the flattened end of a round stick, an inch and a half in diameter, so as to make sufficient depression to hold the metals from running over the edge when melted—the crucible is dried before using.

In combining the metals for solder, the proper rotation in melting must be observed in gold solders, the gold and silver are placed in the crucible and melted first, the brass wire is then picked up with a pair of tweezers, held in the flame of the blow-pipe to heat it

enough to coat it with powdered borax, some of which ought to be in reach. It is then plunged into the melted gold and silver, and, when entirely melted, given a shake to mix it. The zinc is to be added last, in the same way, while still soft a small hammer is pressed on to flatten it. The adhering borax is dissolved off with diluted sulphuric acid, rolled or hammered thin enough to cut. If it cracks during the thinning, it should be annealed at a very low red heat.

The process for silver solder is the same, except the silver is melted alone at the beginning. The brass and zinc are added in the same way as in the making of gold solder, explained above.—*Dental Practition.*

HONEY-COMBED AND FURROWED TEETH.

W. E. EAMES, D.D.S. ST. LOUIS.

Many of the forms of honey-combed and furrowed teeth (incisors and sixth-year molars) closely resemble, in general appearance, surfaces of hard tissue which have been acted on by the absorbent organ; incisors, marked by horizontal ridges and furrows, are said to have their origin in some constitutional defect, causing an arrest of development in the epithelial structure—the furrows indicating a period of arrest, the ridges a period of development, thus forcing the conclusion that there has been a succession of disturbances equal in number to the markings on the teeth. This can hardly be accepted as true, especially in the cases where no constitutional disturbances have been observed. May not much of this marking on the incisors and third molars be due to the action of the absorbent cells? Is it not possible that, having performed their work of removing the temporary teeth and the alveoli, they continue to act and remove the enamel cuticle and dissolve out the lime from the freshly amelified (inner) enamel rods with which they come in immediate contact at the gingival border?

The succession of furrows observed, may be accounted for by assuming that there is a period of growth and a period of rest for the incoming tooth; the cells, acting upon the enamel when the tooth is at a period of rest, form a furrow or groove across the surface. When the period of growth sets in, the tooth shoots onward, and a portion of unaffected, perfect enamel passes beyond the reach of their influence, forming a ridge; again a period of rest sets in, and again the cells act upon the enamel brought in immediate contact, and another furrow is formed; thus any number of furrows and ridges are formed, dependent upon the continuance of the abnormal action of these cells. As this action is due to systemic conditions, all teeth in contact with the organ at the time are alike acted on; hence the relative position of the markings on the incisors and canine teeth.

The first permanent molar is acted on in a similar manner by the organ which lies directly over and in contact with the grinding surface. The surface presents a series of pits and cup-shaped excavations, reaching, at some points, the dentine beneath. Spines of perfect, unaffected enamel, the full depth of this tissue at this point, are frequently seen surrounded by these pits and excavations; the change noticeable in color, and the rounding up of the otherwise sharply outlined borders of these excavations, is due to subsequent action. The cases known as erosion, occurring at the gingival border are, in many instances, undoubtedly the result of this same action of the granulation cells. What the conditions are which contribute to this abnormal action are, as yet, a mystery, like many other afflictions to which flesh is heir.

Touching the action of these cells, I quote another paragraph from Dr. Black's lecture on "Ferments," which may, in somewise, tend to clear our minds on this subject: "We have reason to suspect, at least, that soluble ferments are often found in places where they are not wanted. Tissues are stimulated to false secretions by various irritants and in many ways.

"It is probable that many of the excoriating secretions, often met with in children, are soluble ferments given out through some mal-condition of the tissues. We have reason to suspect that, in some, decay of the teeth may come about in this way. We have already seen that tooth substance is digested and removed by a soluble ferment normally formed; the same is possible in an abnormal way. We have often noticed a peculiar irritated condition of the gums about the necks of the teeth, especially the inferior incisors, and that decay occurs in these portions exposed to the secretions thrown out. Twelve years ago, long before the conception of the ideas inculcated in this paper, we called attention to the connection between this irritation and decay, in a paper before this society. Irritation from a clasp-plate forms cavities for lodgment of colonies of bacteria.

"Drs. Underwood and Miles, of London, claim to have found a form of growth in the mouth which grew directly into the surface of the teeth, otherwise perfect. Dr. Miller, of Berlin, seems nonplussed by the fact that he finds the softening of dentine in caries always in advance of the organisms. This is exactly what we should expect to find; for if decay is produced by the organisms, it must be by the digestive fluid, soluble ferments thrown out by them, or by their waste of products. When Dr. Koch was examining the gangrene produced in mice by the coco-bacterium of hospital gangrene, he found uniformly that the tissues were destroyed in advance of the bacteria. The bacteria seemed not to touch the living tissues at any time after the work was fairly begun, the tissues being destroyed in advance by the soluble ferment."—*Ill. Den. Society.*

UNSUCCESSFUL DENTURES.—THEIR CAUSE AND THE REMEDY.

DR. L. P. HASKELL, CHICAGO.

The causes are various, and often arise from the dentist's failure to comprehend all the conditions necessary to success.

Among these conditions are the shape of the jaws, their condition, the relative position of jaws; the remaining teeth, if there are any, their position, etc., and last, though not least, the patients themselves.

There are some mouths we could almost throw a set of teeth into, and not fail of success. Then there are mouths that require all the skill and experience the dentist can bring to bear, and all the patience and perseverance the patient can exert, and even then Mrs. B's set will not prove as satisfactory as Mrs. A's set, simply because the conditions are so unlike—in other words Mrs. B has not Mrs. A's mouth.

Neither a very long jaw nor a very broad one is as favorable as a medium; a very deep mouth nor a very flat one is as favorable as a medium; a very hard one nor a very soft one is as favorable as a medium. When there is a combination of the medium in all these three conditions, there is a very easy success.

On the relative position of the jaws much depends. If the lower jaw closes under the upper, you have plain sailing. If it closes outside, the problem becomes difficult. If, together with the closing outside, the upper jaw has absorbed, until there is nothing left but a flexible ridge, the difficulty is greatly enhanced.

If the teeth are remaining in the lower jaw, especially only the six front, the difficulty becomes still greater, because the upper teeth must be set to accommodate the condition of things, whereas if the lower teeth were all out, the new could be arranged to allow of the upper teeth being set at a different angle. Of course, I do not advise the extraction of the lower teeth for this purpose.

If there are remaining in the lower jaw, the six anterior, and one or two bicuspids on one side, and none on the other, there will inevitably be trouble, because if you do not put in a partial lower set, the upper will be constantly displaced, and if you put in the partial lower, it soon settles from continued pressure, and the pressure upon the upper set is all on the side of the remaining bicuspids, which, no matter how sound they may be, are an intolerable nuisance, and worse than useless. The sooner they are removed the better for the patient's best interests. Of course, a single natural tooth on the opposite side would remedy the difficulty. In such cases, a crown put on a root, if one remains, would be worth a hundred times more than it would cost.

Faulty articulation is oftener the cause of trouble than the misfit

of plates, so that an otherwise faultless denture is rendered almost useless. Many a time has a patient come to me for a set of teeth, when, with a few moments' grinding, I have remedied what seemed to the patient a looseness or misfit of plate.

The front teeth should never be allowed to strike when the set is adjusted in the mouth, because if they do, within a few months, more or less, as the jaw presses forward, they will strike first back of the overlapping uppers, and before the back teeth come to a bearing the plate must be displaced.

Neither should the last molars come to a bearing, for as the plate settles they will crowd, and if there be a lower plate, will cause it to irritate; and the dentist, to relieve it, will often file away the plate, instead of shortening the tooth above it.

Let the bearing be on the bicuspids and first molars, and leave a space of a sixteenth to an eighth of an inch in front, according to circumstances; more if the jaws be very yielding than if they are hard.

If the lower jaw is prominent, set the teeth well in, but not back of the upper—in other words, do not let the cutting edges, overlap either way, neither let them come close together. And the force of the bite should come under the ridge as much as possible all around.

In order to secure the best possible results in articulation, or in other words in usefulness, plain teeth only should be used. While there are occasional cases in which the gum sections can be used, infinitely greater results can be secured artistically and practically with the plain teeth. If the pink rubber shows in some cases, it is better to sacrifice a little in the color of the gum rather than everything else for the sake of the porcelain gums.

Study well your case, and take every possible advantage of the conditions. It is well to see your patient, if possible, after a week, to see if the articulation is correct. Never fail to notify the patient, when the work is inserted, that if there is any irritation of the membrane, to come and have it relieved, and not attempt to endure it, as it is never necessary.—*Ohio State Journal.*

It does not take a mind of very high order to discover imperfections in the greatest work of art. Such men could stand beneath the sphynx and the pyramids, beneath the cathedrals of Cologne and St. Peter, in Rome, and, squinting at these great structures through their little microscopic eye-glasses, superciliously pass judgment, when, of themselves, they could not lay one brick straight above another, or erect the smallest minaret or spire.

DR. C. S. STOCKTON.

HOW CELLULOID IS MADE.

While about everybody has heard of, seen, or used celluloid, only a few know what it is composed of, or how made. The following is a description of the process carried out in a factory near Paris for the production of celluloid: A roll of paper is slowly unwound, and is at the same time saturated with a mixture of five parts of sulphuric acid and two of nitric, which falls upon the paper in a fine spray. This changes the cellulose of the paper into pyroxline (gun cotton). The excess of acid having been expelled by pressure, the paper is washed with plenty of water till all traces of acid have been removed; it is then reduced to pulp, and passed on to the bleaching trough. Most of the water having been got rid of by means of a strainer, the pulp is mixed with from 20 to 40 per cent. of its weight of camphor, and the mixture thoroughly triturated under millstones. The necessary coloring matter having been added in the form of powder, a second mixing and grinding follows. The finely divided pulp is then spread out in thin layers on slabs, and from twenty to twenty-five of these layers are placed in a hydraulic press, separated from one another by sheets of thick blotting paper, and are subjected to a pressure of 150 atmospheres till all traces of moisture have been got rid of. The plates thus obtained are broken and soaked for twenty-four hours in alcohol. The matter is then passed between rollers heated to between 140 and 150 degrees Fahrenheit, whence it issues in the form of elastic sheets. Celluloid is made to imitate amber, tortoise shell, coral, malachite, ebony, ivory, etc., and besides its employment in dentistry, is used to make mouth pieces for pipes and cigars, handles for table knives and umbrellas, combs, shirt fronts and collars and a number of fancy articles.

Florida Dental Society.—At a call, a large number of the dentists of Florida met in Jacksonville, Fla., October 15th, 1884, and organized the "Florida State Dental Association," by the adoption of a constitution, by-laws and code of ethics, and the election of the following officers:

President, Dr. James Chase, Cedar Keys; First Vice-President, Dr. W. W. Towsend, Orlando; Second-Vice President, Dr. McL. Dancy, Jacksonville; Recording and Corresponding Secretary, Dr. Duff Post, Tampa; Treasurer, Dr. H. M. Granirs, Orlando.

A committee was appointed to draft a bill to be submitted to the State legislature, and the Secretary was instructed to mail to each dentist in the State a copy of a resolution, passed by the association, requesting him to use his influence with the representative of his district in the legislature to vote for the bill to become a law.

Dr. W. McL. Dancy was unanimously elected a delegate to both the Southern and American Dental Associations.

DUFF POST, Secretary.

REFLECTIONS ON THE PRACTICAL BEARING OF THE GERM THEARIES OF DISEASES.

DR. HENRY LEFFMAN, PHILADELPHIA.

[Proceedings of the Pennsylvania Dental Society. Reported by Dr. Wm. H. Trueman, for the "Items of Interest." Continued from page 539.

The germ theory of disease has probably had advocates ever since the time that the microscope enabled investigators to detect the minute forms of life, long before the present methods of culture and attenuation, and staining, placed in our hands the power of differentiation much greater than mere enlargement; but it is only within the last few years that a series of demonstrations thoroughly logical in character have been presented.

A dental society would have little practical interest in these questions if it were not for the fact, that a strong disposition has been shown of late to ascribe to micro-organisms a causative relation to the dental caries. It is of course perfectly natural that such a theory should be advanced. An exceeding common and serious affection, occurring under all conditions, the exciting cause not known, it would naturally follow that a new and attractive theory of disease should be extended to such an affection; especially as the microscope reveals a variety of organs in and around the cavity of decay. There is no doubt but that the germ theory of disease is becoming more generally accepted, in relation to some diseases the doctrine has been accepted for years—but these were rare diseases—malignant postule for instance. No one who investigates this disease seems to doubt its bacillar origin. To discover the practical bearings of the theory we must turn to diseases more general and of greater importance, as for instance, the bacillar origin of phthisis. During the past three years the discoveries of Robert Koch, have been subjected to the closest scrutiny, dictated only by scientific spirit but undoubtedly biased by strong unbelief and personal opposition. Every demonstration, method, and inference, Koch has put forth has been attacked and effort made to give them other significance than that he has assigned—yet his position appears to be unshaken and his followers increase daily. However unwelcome the truth I think we may feel assured that the tendency of opinion is to the view that consumption is due to micro-organisms which are reproduced in the affected tissues.

Now let us see what are the practical bearings of this doctrine, and how far they are applicable to the microbe theory of caries. It is generally admitted that there must be a predisposition—this is essential. By this is meant a condition of the system, local or general, which fits it to receive and become the prey of micro-organisms. A paper has lately appeared by Arthur S. Underwood,—Lecture on Dental Anatomy and Physiology, at the Dental Hospital of the London

Medical School in which the microbe theory of dental caries is very strongly advocated. He remarks that the initial stage, the destruction of the enamel, is due to an acid secretion, the result of a vegetable growth. A number of experiments are detailed which go to show that decomposing animal or vegetable matter containing organic acids are incapable of producing marked change in tooth structure unless under certain conditions in which micro-organisms can be developed. We must remember the experiments were made upon teeth out of the mouth, and under conditions not found in the mouth; this detracts very much from their practical value. The point, however, to which I desire to call especial attention is this; even if we admit the agency of micro-organisms the practical bearing of such doctrine is slight.

In this disease, as in all others, the result is due largely to predisposition. It is well established that dental decay is not purely tramatic—but that susceptibility to it is governed by systemic conditions. Original predisposition may govern its greater or less extent and while we may agree that the real process is local and external yet this local and external action is preceded by a local reduction of the vital resisting power of the tooth structure. The Doctor referred to various diseases of fruit trees and of plants; such as mildew, the various blights etc., as examples of apparently localized pathological changes, purely tramatic in character, yet in all cases as shown by careful experiment there is first a depressed vitality which renders them susceptible to external agents.

In conclusion, he held that the demonstration of micro-organisms as a cause of dental caries does not add any thing practically to the means of prevention and treatment of the malady over and above that which clinical observation has taught. If it leads as similar views in general medicine are now leading—to exaggerated confidence in antiseptics and germicides, it will do more harm than good.

DISCUSSION.

Dr. Peirce referred to the three theories advanced to account for dental caries, known as the chemical, the pathological, and lastly the germ theory, and questioned if either could not be considered a full explanation of their cause. The destructive action seemed a complex one, and probably at some stage of the process each contributed to the result. The later investigations had been conducted so carefully, especially those of Dr. Miller, and seemed to confirm previous so markedly, that they deserve very careful consideration. It is too soon, perhaps, to estimate their practical value, or what effect they may have upon our practice. We cannot know too much of the sub-

ject; the more we know of the cause and progress of a disease it will naturally follow that we will be able to treat it more intelligently. He rather thought that in the future the effort will be directed more toward prevention than improvements in methods or material for filling. He gave a history of the theory that decay was due entirely or in part to minute forms of vegetable or animal life, from the time that a German writer first directed attention to it some twenty years ago. Then as now, the destruction was supposed to be caused by vegetable growths, a number of forms of which are always to be found in the oral cavity, and especially in the cavity of decay. He referred to a paper he had published some years ago in which these forms were illustrated and described. It has been a mooted question whether these are the cause of decay, or merely thrive in its presence; whether they are the real disintergrating agents, or whether their presence so changes the secretions that they become destructive. If the recently published statements of Miller, Underwood, and others are confirmed, the latter idea seems more probable.

Dr. C. S. Beck spoke of his observations in the winter cultivation of greenhouse plants, and the constant watchfulness necessary to guard them from the various diseases and pests Dr. Leffman had referred to. In the greenhouse, the plants were in an unnatural condition; it was a forced growth, out of season and what is really to them an unnatural atmosphere; in consequence their vitality is low—this is a predisposing cause. The exciting cause is always present. As long as the plants are kept in vigorous health there is no trouble; but if from any cause their vitality is still further reduced either from excessive dryness or excessive moisture, too much or too little heat, etc., even if this condition exists but for a few minutes, within a short time the disease attacks every part of the plant that has suffered. Growing naturally they may be subjected to far greater changes without this result following, So with our bodies—so with our teeth, the active causes of disease are always present, but are powerless for harm until either generally or locally a depressed vitality acts as a predisposing cause. He had been much interested in watching the gradual development of this theory, and hoped that as it becomes better understood we may be able to succeed as well in preventing decay, as we now succeed in filling the cavities it has made.

Dr. Gerhart suggested, that if the idea of Dr. Koch was correct he did not see the use of quarantine; if it was essential that there must be a reduced vitality, and the diseased germs are always present, what does quarantine regulations accomplish? Either he did not understand the germ idea, or could not accept it,

He noticed, when the potato rot was epidemic in this country some twenty-eight years ago, that it effected the finest and largest

potatoes first and most severely; their size seemed evidence of vigor and healthy growth, yet they suffered most.

Dr. Leffman replied, that they being more highly cultivated and farther removed from the original type were of lower vitality, and naturally offered less resistence to the disease.

Dr. Peirce remembered the potato rot epidemic referred to by Dr. Gerhart, and said he had no doubt it was due entirely to the peculiar and usual climate influence of that year. The spring and early summer had been dry and cold and very unfavorable to vegetation. This was followed by frequent rains, and a moist warm atmosphere, or as the farmers say, "good growing weather." Vegetation of all kinds began to grow with great rapidity and this condition naturally produced a low degree of vitality that was unable to resist the disease germs. The fact that the potato rot was so prevalent and destructive that year was no evidence that the disease germs were more numerous or more active; they are always present, and every year some potates rot, but not to so great and extent as to attract attention. The same with rust on wheat, if climatic conditions favor a low vitality in the plant they are predisposed to its attack, and we have general complaint of the loss it occasions, but ordinarily so few plants suffer that it is not noticed. That disease are more malignant and unmanagable during epidemics is due to the same cause. The climatic conditions may be unhealthy, people become excited, and from various causes are less able to resist the disease. The theory is not at all new, but the introduction of purely scientific methods of study and re-research is so recent, and has opened so wide a field to investigation that we can hardly see to what it may lead. The tendency at present in all branches of medicine is largely to prevention, and the result is seen in the fact that diseases that formerly as epidemics extended over large areas and almost depopulated cities, are now far less frequent and fatal, and are usually confined to the locality in which they are developed.

Dr. William H. Trueman considered the subject presented of great, and in the light of recent investigations, of increasing importance. The germ theory explains many pathological conditions that have long been mysterious, and in surgery especially, its adoption has been followed by remarkable results. Operations that formerly were considered extremely hazardous are now performed with comparative safety; and so generally is accepted, and the beneficial results of the precautions it suggests recognized, that few surgeons attempt even trifling operations without adopting them. It may be that harm has been done by depending upon antiseptic methods to the neglect of other equal important precautions, but that is no fault of the theory. The recognition of the baleful work of these infinitesimal omnipresent

germs, and the adoption of means to either destroy or exclude them, has been a wonderful advance in all departments of medicine. Now, if we can use in the mouth some safe and efficient germicide, may we not hope by that means to check the ravages of decay. If we can use in the cavity some agent that shall prevent them again entertaining it, that may assist very materially in making our present methods of filling more permanent and useful. In fact, the preservative properties some filling materials possess, is probably owing in a great measure to the salts formed by their oxydation producing this effect. The possibilities suggested by this theory are well worth a careful and earnest study.—Subject passed, and meeting adjourned.

WEDNESDAY, JULY 30.

The morning session was omitted to alllow those members who desired to participate in a visit to a coal mine arranged by Dr. C. S. Beck. About thirty, including a number of ladies decended Hollingbrock mine No. 2, in charge of Superintendent Smythe, who proved an interesting and instructive guide. This mine was selected on account of its freedom from gas permitting open lights, and also being remarkable dry could be explored with comfort; at the same time giving an excellent idea of the various operations of mining and preparing coal for the market. After all the gentlemen were provided with lights, we stepped upon the elevator and were gently lowered some six hundred and forty feet. The galleries we found high, wide, and well ventilated, and as we walked along listening to Mr. Smythes description of the various methods of mining, it was hard to realize that we were so far removed from the busy active world above; and the information that we had passed under a wide river, and were at that time some nine hundred feet beneath the town of Wilksbarre, was received with surprise. The dangers of mining was illustrated by one of the workmen to whom our attention was called—with five companions he had suffered from an explosion of gas, and he alone survived. The scars on his hands and face showed plainly how severely he had been burned, and how much he had suffered. Although the utmost care is used, such accidents occasionally occur, and are frequently the cause of severe loss of life and suffering. After a long tramp, we retraced our steps to the shaft, and were "elevated" without accident or mishap, having thoroughly enjoyed the visit.

SPEAK as little evil of a competitor as possible; but be quite ready to do him a good turn, or say some kind thing of him.

SOME men are great talkers but poor workmen, others are poor talkers but good workmen.

Selling His Practice.—A physician sold his practice, and agreed not to practice "in that city or its vicinity." He broke this agreement, and his successor brought suit for an injunction, which was granted to him, generally. The case was carried to the Supreme Court of Michigan, where the decree was confirmed. The court defined the term "city or its vicinity" to include the territory surrounding the city for a distance of ten miles from its corporate limits. "The extent of territory, in the matter of doing business, included in the term 'vicinity of the city,' must necessarily depend, in a great measure, upon the size of the city, its location and particular surroundings."—*Dental Register.*

LAUGHING GAS AND THE OHIO DENTAL JOURNAL.

(Report of the Ohio State Journal.)

It will be remembered that Drs. R. Gilbert Warner and Will L. Gares were charged, at last year's meeting, with unprofessional conduct in advertising "vitalized air," and the society decided to suspend them until this year, when they would be allowed to make acknowledgment. The time for making this acknowledgement was placed at the end of the meeting. This was evidently unjust, even had the two gentlemen been guilty of unprofessional conduct, which is a matter of great doubt in the minds of a number of prominent dentists, for it shut them out from all participation in the proceedings of this year. Dr. Taft therefore moved to rescind the action of the society and attend to the matter at once, and this was agreed to. There was a great deal of talk and several members would be on the floor at once. Dr. R. Gilbert Warner arose to say something, but he was shut off by another member, who was given the floor by the President. Dr. J. Warner and Dr. James were especially active in opposing anything looking toward the reinstatement of the two gentlemen. The constitution of the society provides but one punishment for unprofessional conduct or other misdemeanors and that is expulsion, and of course any failure upon the part of Drs. R. G. Warner and Gares to make acknowledgment would result in their severance from the society. Dr. Horton of Cleveland finally obtained the floor and spoke as follows:

MR. PRESIDENT—I move to refer this matter back to the committee on ethics for its further consideration.

My reason for making this motion is that I believe the proceedings on the part of the then acting committee on ethics, as well as the action of this society, to be null and therefore of no effect on the standing of Messrs. Warner and Gares, in their relations to this society as members, for the following reasons, viz:

1. Because the making of the report of the committee on ethics, at the time it did, was in violation of section 7 of the by-laws of this society.

2. Because the action of the society in voting on the report at the time it did, was in violation of the express provisions of section 4, article 2 of the constitution.

3. Because the society by its action inflicted a penalty on the accused not prescribed by the constitution.

4. It is the only course left the members of this society to pursue and be consistent, unless they intend to drop further proceedings and let the accused go free.

I will now offer some facts under these heads as reasons to justify the assumptions above made. 1—Article 7 of the by-laws reads, "All complaints against members for violating the constitution or by-laws, gross immorality or unprofessional conduct, shall be presented in writing to the committee on ethics who shall proceed to furnish the accused a copy of the complaint, call both him and the accusers before them, examine and decide on the case and report their decision to the next regular meeting of the society." It will be remembered that the committee on ethics at the morning session on the first day of the meeting in October, 1883, when called on to report under the order of business "Reports of standing committees," responded that they had nothing to report, as no business or complaints had been brought to the notice of that committee during the past year. In the afternoon of the same day (Wednesday) the same committee on ethics reported to the society in session that complaint had been made against Messrs. R. G. Warner and W. L. Gares of Columbus, O., and members of the society, in which they (W. and G.) were charged with violating the code of ethics of this society, and that the members of the committee were of the opinion that the accused were guilty as charged, but omitted to say anything about the punishment the society should inflict upon them. This commission, coupled with the fact that this committee had so recently reported no business before them, raised the suspicion in my mind that the committee had not fully complied with the requirements of section 7 of the by-laws as well as part of section 4, article 2, of the constitution. On my motion the matter was referred back to the committee to complete its report. At the evening session of the first day this same committee on ethics asked leave to make a statement, and under that leave reported by its chairman, Dr. Harrann, that the committee had in fact nothing before them; that no complaint had been made in writing, as section 7 of the by-laws required. Nothing more was heard of this case by the members assembled till the last session of the meeting, on Friday morning, and about two hours before the time fixed for adjournment,

when this same committee on ethics came in with the report which I think is so carefully and minutely recorded in the so-called "transactions" of this society. This report the president should have ruled out of order at that time, as the last clause of by-law, section 7, says, "report their decision at the next regular meeting of the society." There were two ways in which the report could have been legally made by the committee and received by the society at that time. The first was by the commitee asking unanimous consent of the members present to make the report, stating what the report was to be about, and if no one objected the report could have been legally made. The second was a motion to suspend the by-laws, as provided in by-law 13, which says, "Any of these by-laws may be suspended by a two-third vote at any regular meeting." Had the motion to suspend been made, and on calling the roll two-thirds of the members present had voted in the affirmative, then the report at that time would have been legal. But no such action was taken by either the committee or society, and therefore the report at that time was out of order, illegal and void.

2. Because the action of the society in voting upon the report of that committee on ethics, including the question of expulsion or the infliction of any penalty or punishment at that meeting, was a direct violation of the last clause of section 4, article 2, of the constitution. Section 4, article 2, of the constitution, reads as follows, viz.: "Members, both active and honorary, shall be liable to expulsion for violation of the constitution or by-laws, gross immorality or unprofessional conduct, by a majority vote at any regular meeting, providing the committee on ethics shall have reported in favor of such action at a previous meeting." All the power this society possesses to try and punish offenders against the constitution, by-laws and code of ethics is derived from this article and section of the constitution. And this section of the article, in all its provisions, must be obeyed by the members of this society assembled at any of its meetings, as well as by individual members outside of the meeting. And the entire section or any clause thereof is just as obligatory on the assembled members and no more to be violated by them than by any one member, otherwise there would be no protection guaranteed to the rights of membership. As there is no provision in the constitution for temporarily suspending any of its provisions or requirements, and as the last clause of section 4, article 2, expressly declares "providing the committee on ethics shall have reported in favor of such action at a previous meeting," and as the report was made at the last session of the meeting at and during which the complaint was made, it follows that voting on the report at that meeting was in violation of a direct and explicit provision of the constitution, and therefore void.

3. Because the society by its action inflicted a punishment on the accused, not prescribed by the constitution. As stated above all authority and power to try and punish violators of the constitution, by-laws or code of ethics is derived from the words of the constitution. For these offenses there is but one mode of punishment prescribed, viz.: that of "expulsion." The society having adopted specific laws on this subject it is by parliamentry law prohibited from having recourse to any other mode or penalty than such as it has specially adopted for the treatment of these cases. For the authority for this assertion see Cushing's Manual, paragraph 10.

In speaking of deliberative assemblies, it says: "It is perfectly competent, however, for every such body to adopt certain specific rules for the regulation of its proceedings. When this is the case these latter supersede the ordinary parliamentary rules in reference to all points to which they relate." These gentlemen were arraigned for violating the clause in the code of ethics which declares "it is unprofessional to circulate or recommend nostrums," the punishment for which, as prescribed in the constitution, is "expulsion," and nothing more or less; and as the society prescribed and by its vote inflicted the penalty of suspension, it therefore exceeded its authority, and its action was therefore null and void.

4. Because it is the only course the society can pursue and be consistent, unless it be to let the accused go free. According to the report of the committee on ethics, these gentlemen were arraigned and tried by the committee on ethics in compliance with a complaint made in writing and signed by ten gentlemen, members of the society, charging them (W. & G.) with having violated a portion of section 3, article 2, of the code of ethics, which says: "It is unprofessional to circulate or recommend nostrums, or to perform any similar acts."

The specific charges were that they recommended the use of an apparatus called "Hurd's vitalized air" apparatus, and the use in, and by means of this apparatus, of what is called "vitalized air," for producing anæsthesis for the painless extraction of teeth and for other surgical operations—all of which is deemed by this society unprofessional—as "vitalized air," so-called, is a nostrum, and circulating and recommending its use and the use of the apparatus is circulating and recommending a nostrum, and is, therefore, a violation of that portion of the code of ethics, and that the action of these gentlemen in thus recommending and circulating this nostrum rendered them liable to trial according to the forms prescribed in section 7 of the by-laws, and punished as crime in section 4, article 2 of the constitution. Now it is an old Roman maxim that in doing justice to others be not unjust yourselves," and later on the Master laid down the rule, "He that is without sin among you let him first cast a stone," and as this

society, through one of its officers, viz; the secretary and chairman of the committee on publication, and one of the prosecuting witnesses in this case has done the same thing, the least the members present can do is to refer this matter back to the committee on ethics, composed of entirely new members, for further consideration.

To make my assertion good I wish the members present who have copies of the so-called "transactions" would open to the last four pages of the advertisements. On the second of the four will find cuts representing "Nevins's improved vitalized air apparatus." These cuts show the different parts of the apparatus and their uses, such as the place for the chloroform, and where it mixes with the "nitrous oxide gas" to form the "vitalized air." And near the bottom of the third page, and under the cuts representing the patent automatic inhaler, and the universal cylinder stand a flaming testimonial signed by a D. D. S., and which reads very much like the one these gentlemen were on trial for publishing. (Let me read.) This, as you will see, is an advertisement of Messrs. Ransom & Randolph, of Toledo, Ohio, who paid the secretary of this society $14 for publishing and circulating.

Now, I ask how can this society proceed to execute judgment against these gentlemen? For while they are charged with violating a clause in the code of ethics, the society in its zeal to punish that offense, has violated the express provisions of the constitution and by-laws, and subsequently by the doings of one of its officers committed the same violation of the code of ethics. I therefore submit that the proper course for this society to pursue at this time is to recommit this matter as it stands to the new committee on ethics for its future consideration and determination.

But the society did not recommit the report, nor in any way modify its predetermined course. The two men with their laughing gas were "chawed up;" and so fearful was the effect, that, like the fight of the Kilcanny cats, they proceeded forthwith to chew themselves up. As we left the hall, not even the tails remained.

TREATING AND FILLING ROOTS.

DR. C. N. JOHNSON, CHICAGO.

In no department of dentistry does the intelligent practitioner find it always advisable to follow any one line of treatment.

So many modifications occur in daily practice that we are frequently called upon to deviate from our ordinary method to obtain the best results. In accordance with this fact, I submit the following method of preparing and filling pulp canals, freely admitting that in some special cases other treatment may be more successful. If intel-

ligently followed it will prove successful in the greatest number of cases we meet,

The first step is to carefully clean the pulp chambers, being cautious not to force any of the putrescent matter into the pulp canal. As soon as the chamber is opened, and free access obtained to the canal, flood the cavity with alcohol, and then with a fine nerve-broach carefully work out all the accessible particles of decay before drilling into the canal. The alcohol is a sweetener and will penetrate far up the canal beyond the limit of the broach, and being volatile in its nature, will float the small atoms of decomposed matter out of the canal. Now proceed to enlarge the canal with a proper sized nerve-drill. Advance carefully, always avoiding any pressure that would force the products of the drill up through the apex. This is the most important item in the preparation through the chamber. Where the canal is opened as far as practicable with the drill, then wash again with alcohol to remove any of the drillings which may have been left. Now dry with absorbent cotton, and the canal is ready for the injection of medicaments. If there is an abscess, with pus at the apex, use peroxide of hydrogen; it liquefies the pus and renders it easy of absorption. After injecting it freely up into the sac, invariably follow it with a solution of iodoform in ether to keep down inflammation. No matter what line of treatment I employ with pulpless roots, I never omit the use of iodoform, as I consider it the best preventive of inflammation. And all know that the most annoying feature in the treatment of these teeth, is the tendency to inflammatory action as soon as any attempt at treatment is made. This is usually more noticeable in dead teeth which have heretofore given no trouble. After a copious injection of iodoform I fill the cavity loosely with absorbent cotton, leaving the canal open, so as to admit of a free escape of gases. I dismiss the patient for a day or two, and in the next treatment I again wash with alcohol, inject iodoform, and partially close the canal with a dressing of bichloride of mercury. My preference for this remedy is, that it is perfectly tasteless and odorless, and is one of the best antiseptics. Where the canals are so small or tortuous as to prevent the possibility of access by a broach, I know of no remedy that will operate so successfully on remaining nerve tissue, to render it inert, as bi-chloride of mercury. It dries and hardens the nerve fibers and prevents subsequent irritation. I follow up this treatment at each subsequent sitting, never omitting the iodoform or bichloride of mercury till the canal is thoroughly disinfected, and all irritation at the end of the root has subsided. This result can generally be obtained in three or four sittings. It depends much, of course, on the condition of the tooth before treatment. Many teeth are over treated. My theory is that as soon as we remove the

causes of disease, and then stimulate the tissue to healthy action nature performs the cure. Prolonged treatment sometimes seems necessary. Such are chronic abscesses where the putrescence has permeated nearly the whole tooth. Here the cause has contiuued so long as to almost become an effect. Also in tortuous canals, where it is impossible to extract all the fibrous portion of the pulp.

In filling the root, after preparation, I use, for the extreme end, a solution of gutta percha in chloroform, held in a few fibers of cotton. This must be gently carried to the apex, but not pressed so hard as to force any of the solution through. If there is any indication of irritation, and time will not admit of further treatment, I saturate the cotton with iodoform, and let the ether nearly all evaporate, and then dip it in the gutta percha solution and carry it to the apex. I fill the remainder of the canal with whatever material recommends itself; preferably warmed gutta percha or oxyphosphate.

Have you infirmities?—suppress them; have you troubles?—hide them; have you losses?—bury them. But if you have the crimson glow of health, paint it on your cheeks; if you are thrilled with the ecstasy of joy, print it on your smiles; and if you are blessed with the overflowing measure of prosperity, shower its benefits, as golden sunbeams, on the needy about you. So shall dark shadows be driven from your sky, soft zephyrs shall sing siren songs, and bright angels shall be attracted to your pathway.

LOOSE INFERIOR INCISORS, AND THEIR TREATMENT.

J. HARDMAN, D.D.S., MUSCATINE, IOWA.

[Read before the Iowa Dental Society.]

Mr. A. or Madame B. has appealed to us for relief, where the attempt to masticate has become nearly intolerable. And with endurance exhausted, and a conviction that but an only alternative remains, requests the immediate removal of the unbearable tooth. In such cases, one or perhaps more of the lower incisors are quite loose, sore, and more or less elevated from the socket; and we observe, too, it can be oscillated to and fro in an arc, often exceeding one-fourth of an inch. It is at once apparent what a great source of agonizing torture the act of mastication must be. The uncertainty of the tooth's position; the liability to be struck by the tooth above it; the sensitiveness of adjoining tissue—all go to make the function of mastication a dread.

How generally in these cases the practitioner extracts; or, if mitigation is attempted, how often it is but temporary. How frequently they are compelled to quit the field while yet healthy and complete in form and structural strength, but merely wanting in support!

It is obvious that so long as use produces undue pressure upon the alveolar border, absorption of the osseous supports will result. Hence, the remedy that offers the most good is that which will secure the greatest amount of quietude and steady support under all attending conditions. Any support placed about the tooth and at the time leaving the extremities free, will, when the masticatory force comes upon the end, act upon the principle of the lever and fulcrum, and must irritate and excite an increase of the wasting process and thus keep up the mischief. We then conclude this support must be furnished by the neighboring teeth under a mutual compact; and that to be efficient, it must be placed at the upper end of the crown. And as the position of the teeth forms an arc of a circle, this can be most effectually done, even though some are quite loose; and one or more may even have become entirely detached.

The plan I wish to present has been most effectually tested. For illustration we will paraphrase a case with features to all of us quite familiar. Suppose a case:—age from 45 to 75, with most of the inferior teeth remaining, but all show considerable wearing down; the alveoli greatly reduced about the incisors, and the two centrals quite loose, and elevated at least one line above the rest.

Procedure:

1. Remove the deposits and get the teeth clean.

2. With a well waxed piece of linen twine, tie the eight front teeth together. Begin by one or two turns around the neck of the left first bicuspid, and tie a knot; next tie one lap over the left cuspid, bringing both threads between it and the adjoining incisor; continue in the same way with one lap and a knot between each tooth, drawing the thread tightly upon each until the right bicuspid is reached; then well knotting around the neck of this or some other appropriate tooth. Now return with the same process of tying back to the point of beginning. In many cases the tying can deviate from this, as the peculiarities may indicate. Other devices may take the place of this; and in some conditions no such support may be needed.

3. Cut the ends of the incisors so as to avoid antagonism with the upper teeth.

4. With a small circular saw in engine, cut a slot or groove in the ends of the loose incisors extending laterally in one continuous line, making a fissure about one line deep, and opposite each extremity of this groove make retaining holes in the cuspids; or, if they are loose, in the bicuspids, An impression may now be taken, and the patient released for a period.

5. Adjust a metal bar, or yoke (gold, silver or platinum), so formed that it will lie snugly in the previously made fissure, and with the ends resting in the retaining orifices.

6. Proceed to firmly anchor the yoke-bar into the fissures of the teeth; and its ends into the holes in the cuspids by gold, amalgam, or cements; each having qualities best suited to meet certain conditions and preferences, and hence also the provisions as undercuts, approaches, etc., should correspond to favor the plan of anchorage adopted. If gold is chosen then the bar should be gold. If amalgam, then gold or silver for the bar; and if oxy-phosphate of zinc, gold or platinum; and the approaches should be in harmony with the plan adopted.

In this description I have been general. You will readily supply the points that might be mentioned in detail, such as are indispensably needed, as retaining surfaces, under cuts in the fissures; on the bar; on its ends, or in the end orifices; and also the modes of forming the yoke-bar, etc.

Now if such a case as this is well done, the relief of the patient is so marked that early expressions of gratitude come spontaneously, and the mutual enjoyment of satisfaction and confidence in both patient and operator is full and cordial.

But deviations, complicating the case often attend; such as:

1. Irregularity in position of the teeth; some being within or outside of the line of the arch.

2. The points of the crowns of the teeth may be thin and forbid fissuring.

3. One or more teeth may already be entirely detached; or so near it that its removal is necessary.

We will briefly consider these embarrassing conditions:

1. Slight irregularity in loose teeth may often be corrected by tying them in, or out, as required, and in case of angular position, but otherwise in line, the fissure may cross somewhat diagonally. In cases where one tooth or more is in or out of line too far, the yoke-bar may pass on the lingual side of the tooth's end, and, as the case may demand, the fissure be made across the cutting edge of the tooth instead of extending in a line with the edge, and a branch bar to occupy it may be soldered to the main bar at right angles.

2. Where the points are too thin and delicate to fissure in a line with the cutting edge, the bar may be adjusted to the lingual surfaces, and the fissure of each made across the cutting edge, while a branch attached to the main bar drops snugly into each and is there anchored. Or, small holes, one through each tooth point, may be drilled to meet the bar, to which small pins can be soldered that will rest in these holes and there be secured.

3. Where a tooth is already detached, it must, previous to the tying of the row, be secured in place at the root end, or as near thereto as is possible or proper. This may be done by making a hole or slot

directly through the root of the fugitive tooth in a line with the arch; also upon each tooth contiguous to the vacant space, and at relative points to the hole; retaining orifices or slots are cut, but with due care where vital pulps are in danger. Thus, then, a suitably formed pin or bar is passed through the root of the fugitive tooth, so that its ends may enter the slots in the adjoining teeth, and be firmly anchored. Where a tooth is lost, a plain plate artificial tooth may be backed with lateral projections at the base to anchor into the roots of the neighboring teeth, and a fissure formed at the cutting edge by grinding a portion of the upper back face of the tooth away for one wall and extending the backing well up over this ground surface for the other.

An almost indispensable implement in performing this kind of work is a nicely running small circular saw, for forming the fissures or slots, and also to aid in cutting off the ends of the elevated teeth. They should vary in size from one-eighth to one-third of an inch in diameter. These are also useful for cutting out fissures in crown cavities, trimming edges, reducing stumps for crown work, and cutting out old fillings. They are probably not furnished in proper sizes by dealers. They are not, however, difficult to make from the handles of old separating files. Draw the temper by heating, then cool gradually. Drill a hole (which may be squared with the point of a small file) and cut as circular, with snips and file, as you can. Make a shaft out of iron wire to fit your engine, and dress the end to fit the hole in the disc, into which secure it by riveting. Now put it into the engine and true up by running it against a file or corundum slab. Next, place it in the vice and with a fine angle-edged file mark the teeth. Or, with a properly formed cold-chisel cut the teeth, by even taps of a small hammer, shifting the wheel in the vice as required, and continue the cutting until completed. Then put into the engine once more, and true the teeth, where needed; now temper by heating upon charcoal, and when quite red, drop into water. Several of different sizes can be soon made in this way, and may be resharpened by drawing the temper and again using the file, when the temper may be again restored as at first.—*Archives of Dentistry.*

TUMORS IN THE NASAL AND ANTRAL CAVITIES.

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In the present article we have associated the study of the neoplastic formations found in the antrum and the nasal passages, because of the close anatomical relationship of these parts, and also because in

the advanced stages of these growths it is often difficult to establish their real origin and attachment. A tumor, found in the nostril, may have started from the antrum, having in its progress absorbed and pressed aside the separating walls.

The study of the diseases of these cavities very properly belongs to the domain of oral surgery, yet we all know that in the ordinary practice of dentistry but little attention is paid to them. In the desire, therefore, of awaking greater interest, and encouraging a more extended study of these parts, we venture to lay before the dental profession some remarks upon the structure and symptoms, the complications and treatment of the more common forms of new growths belonging to these cavities.

The simplest, as well as the most common neoplasm found in the nasal passage, is the mucous or gelatinous polypus—an affection as common among one race as another; rather more frequent in the female than the male, and thought to indicate a strumous or scrofulous constitution. It is most apt to occur between the ages of 20 and 40, seldom commencing in the very young or the very old. The structure of the tumor is an out-growth or prolongation of the first and second layers of the mucous membrane—sometimes having a very slender pedicle and hanging pear-shaped from its attachment, at other times with a broader base and irregular in its outlines—showing a smooth and shining surface; of a darb or gray, and sometimes pinkish color; it has a jelly-like feel and the consistence of an oyster. These growths spring either from the middle or upper turbinated bones; from the upper meatus and roof of the nose, but never from the septum narium or the floor. There may be a single growth in one nostril, or there may be a number in each side.

The earliest symptom of nasal mucous polypi, is an uncomfortable fullness in the upper part of the nose, between the eyes; a "stuffed" feeling and one of the slightest obstruction in the passage. This sensation is always increased in damp, wet weather, for the reason that the structure of these tumors are absorptive and quickly affected by the hygrometric state of the air. The mucous polypus is not disposed to bleed readily, so that epistaxis is not a common symptom, nor is there much offensive discharge at any stage of their growth. As a general thing, they grow slowly, but steadily, taking many years to to fill up the cavities to complete occlusion; indeed, their growth is sometimes so slow as to uppear stationary. Their continued increase in bulk finally blocks the nostril and inspiration and expiration through that side becoming impossible, and when both nostrils are filled breathing has to be carried on through the open mouth. In this stage, too, we have the nasal duct so pressed on as to prevent the tears passing down into the nose, and a consequent epihora, annoying the patient.

Finally, the growth may present itself at the anterior nares, or at the posterior, or at both, giving an unsightly appearance in the first instance, and in the latter, affecting the act of deglution. But long before this stage is reached, we can satisfy ourselves of the nature and position of the trouble, by both throwing a strong light into the anterior nares, and inspecting; and also into the posterior nares, by means of the pharyngeal mirror; and then by moving the tumors with a probe, a correct notion of its size and the attachment may be gained. Besides the annoyance of an overflow of the tear duct, caused by pressure on the nasal duct, there are two other more serious complications that are apt to arise in connection with nasal growths, especally of this class. The first is an intense neuralgia of the terminal branches of the superior division of the fifth pair. This neuralgic pain under the orbits and along the side of the nose, is not dependent upon pressure and distention in the nostril. We have seen it when the growths were small and no occlusion of the passage existed. Even moving the tumors with the probe will excite great pain in the region mentioned. The other concomitant of nasal polypi, and not an infrequent one, is the existence of bronchial asthma. This was not recognized until in recent times, but there is undoubtedly a connection of cause and effect. I have seen quite a number of asthmasics with nasal obstruction, not always in the shape of polypi, for even hypretrophy of the posterior ends of the turbinated bones will become at times the exciting cause of this reflex trouble—as has been fully demonstrated by several specialists in the excision of this enlargement, and a consequent immunity to the attacks of asthma. As illustrative of these complications we give the history of a case which we have observed for many years.

Miss T., a young lady of this place, of rather a delicate constitution, but surrounded by the most favorable conditions for health, had been for eight or ten years a sufferer with asthmatic breathing. She had frequently resorted to Florida and the far Northwest, and generally with considerable relief, but on a return home the difficulty was apt to be renewed. During one of the sojourns in Minnesota, the physician being attracted by the neuralgia of the face, with which she suffered, made a close examination of the nasal passages, and found a number of growths in each side. These were at once removed, the facial neuralgia being fearful during the operations. After the immediate effects subsided, both complications disappeared for a time. The next year a reproduction of the growths was discovered, and she then applied to a prominent specialist in New York. The removal of the polypi was again followed by relief; but a year after they had returned, and the neuralgia and a tendency to asthma with them. I operated on this patient very many times in six months, using the wire-

snare—the forceps and the curette until I was satisfied I had destroyed the last vestige. Up to the present, fully five months, I see no return.

The next variety of new-growths in the nostrils is the more solid or fibrous polypus, differing entirely from the first and much rarer in its occurrence. It is firm, but friable in its structure; very vascular and liable to profuse hæmorrhage. Its progress is slow but will continue to increase until it attains a great size. While it grows mostly in the direction of least resistance, by its pressure, it also produces absorption of the septum, the lateral walls or the floor, and pushes itself into the adjacent cavities. These growths in their advanced stages produce great disfigurement of the face; separating the nasal bones, making the space between the eyes appear unnaturally wide, and distending one or other antrum, create an unsightly tumor in the cheek. Their favorite points of origin also differ from the mucous polypi. Having a broad and sessile base they usually spring from the lateral walls or the floor of the passage and not so high up as the gelatinous. In themselves they are painless, but when by their mechanical size they produce pressure, they entail very great pain and sufferings. In fact the annoyance of having to breathe only through the open mouth, the foul discharges that flow from the blocked up nostrils, the destruction of the sense of smell, the overflow of the tears by closure of the nasal duct, the irritation of the eyes, etc., make this affection one of the utmost gravity, and strange it is how many will suffer for years and have nothing done for their relief, because of their dread of surgical operation.

Some years ago I was called to a remote part of the county to see a farmer who had nearly bled to death on several occasions, and whose visage was fearfully distorted by such a growth in the left nasal cavity. He had often been advised to have his case attended to, but always, until the present, postponed. I at once made an effort to tear away the tumor with the polypus forceps, but found it so friable and bleeding so profuse that I had to dissect before I had destroyed much. I arrested the hæmorrhage by plugging the anterior nares and waited until I got him to the city. In a week after he arrived, and I proceeded to remove the polypus radically. In order to reach the attachment prevent hemorrhage, I first made a free incision through the top of the nose into the left cavity as far back as the nasal bones. Another through the soft structures at the floor of the orifice. By stretching this flap back, I was enabled to pass a whip cord ligature around the broad base of the tumor, and after tightening, to cut away the bulk of it with scissors. I then applied strong nitric acid to the stump and closed the incision with sutures. This patient made a good recovery and has not had a return of the growth up to the present, now about ten years.

The third-class of neoplasms which we shall only briefly sketch, has received the designation of naso-pharyngeal polypi, and although comparatively rare, are of far more serious character than either of the preceding. The histological structure of these are the same as that of the second, fibrous. They spring from the thick and very vascular periosteum on the under surface of the basilar process of the occipital bone—body of the sphenoid and adjacent parts and take their name from the locality of their origin. The extreme vascularity of this periostum doubtless accounts for the rapidity and great size of their development. Ordinary mucous and fibrous nasal growths may extend backwards and come down behind the velum, and may thus simulate the naso-pharyngeal—yet the latter are specially distinguished by their point of origin—by the rapidity of their progress, the remarkable manner in which they invade adjoining cavities, and the very serious results to which they may give rise.

The only noticeable symptom present during the early stages is epistaxis; this is apt to be frequent and persistent, the blood being spit out from the mouth, or flowing from the nostrils. As the tumor expands, stuffiness about the posterior naves is complained of. First one nostril becomes blocked and then the other, the septumnarium being either pushed aside or absorbed. In its extension behind the soft palate, deglution is interfered with, and an inclination to gag or vomit is frequently felt. Before this period of its growth, however, we may satisfy ourselves of the nature of the trouble, by a digital examination, the index finger being passed around and behind the soft plate, and its origin plainly felt. Still more information may be gained by a rhinoscopic examination with the aid of the pharyngeal mirror held in the back part of the pharynx, and a strong light being thrown upon it from a forehead reflector, in this way, the observer may get an exact image of the contour, the size and attachment of the tumor, and a diagnosis may be fully established.

In the more advanced stages of the malady the nasal and the upper maxillary bones may become in great part destroyed, or so expanded and pushed up that the face is sadly deformed. At other times prolongations are sent off through the spheno-palatine and spheno-maxillary fissures and even the eye has been destroyed by the extension of the growth, into the orbit.

The orifice of the eustachian tubes often become occluded and deafness sooner or later supervenes, so that it is quite possible in extensive growths of this character to see a living being suffering the total loss of smell, sight and hearing. A remarkable illustration of enormous size and the destructive progress of these bodies is given by the eminent surgeon Mr. Samuel Coope. "The patient suffered from an enormous polypus, which occupied both nasal fossæ. The eyes

were four inches apart, and the left eye was absolutely blind. Paralysis supervened fifteen days before death, which followed a period of coma. On post-mortem examination, it was found that a portion of the growth, almost as large as an orange, was within the skull. The anterior lobe of the left hemisphere was almost entirely destroyed."

These naso-pharangeal new growths are more frequently found in the male than in the female, and often begins to grow at an early age, in childhood, though in some the tumor seemed only to appear after the age of fifty.—*Dental Headlight.*

SAVING PULPLESS ROOTS.

J. Taft, Ed. Dental Register, says: I can remember, and it is not very far back, that if ever there was a pulpless root or an inflamed one in a mouth, the best method was thought to be to take it away, for fear it might do mischief at some future time; and often teeth were removed with the pulps alive. Have seen many cases where some crowns were gone; some decayed and some good, and they were all removed to make way for artificial dentures. Such would not be the treatment now. All teeth and roots that can be made useful, in any way, should be retained. They preserve the form of the features, and the expression for a great length of time. In a quarter of a century the practice has so changed that the removal of what was formerly regarded a nuisance would now be severely censured. The subject is receiving as much attention as any now before the profession. Some are practicing commendably in this respect, like the skillful surgeon who endeavour to save any part that can be restored to usefulness. I believe that the time will come when roots, such as are destroyed now by some of the most skilful, will be saved. If roots are allowed to remain they must, of course, be restored to health, or the teeth in their vicinity, being unused, will become foul and diseased. When roots are removed the change from loss of tissue extends to the exterior aspect of the face, and involves the voice also.

There are many methods of crowning, and none of them are good for all cases. Only by wide study and conscientious efforts will you succeed. If you fail do not give up, but try again. We cannot expect to succeed at once with a new method, although it may have great merit. Some take a liking to a particular method, persevere with it, and of course succeed. Sometimes a root will be rebellious, and we fail, but that should not discourage us. Physicians lose cases, so shall we be unsuccessful; we should go on in the expectation of success until we fail, and be exceedingly careful how we sacrifice teeth or roots that might be saved.

Robinson's Carbolized Potash for Sensitive Dentine exposed Pulps and Rigg's disease.—"Mix equal parts of caustic potash with carbolic acid in a mortar and you will have a salifiable base that will coagulate the serum in the tubuli and of course cut of all communication by *coagulation;* and it will not injure bone tissue." This remedy will insure a painless operation while preparing a cavity, and in cases of necessity may be applied twice. If the nerve is exposed the operation may be slightly painful at first, but an eschar will form so quickly and strongly that the capping with any of the oxyphosphates may proceed right along with more certainty of success than with any other preparation now in use or known.

The same preparation is the speediest and best cure for Pyorrhœa Alveolaris.

I have thoroughly tried the "Harlan Plan," viz: Peroxide of hydrogen and iodide of zinc, and I am certain that the *Robinson Remedy* is far better, more easily adapted, and does not take half the time, Try it!

Take some fibres of cotton and twist into a cord the size of fine yarn and long enough to envelope the tooth; wet the cord in the salifiable base solution, and carry it under the free margin of the gum, with a fine covered instrument about the size of a 70 needle at the point. The Harlan mode of preliminarily removing the calcarious deposit by pushing the chisel towards the apex of the teeth is excellent, for it scarifies the alveolar edge, allows the medicine to more readily take hold, and assists in destroying bacteria. I am now so old that I want this anodyne given as the "*Robinson Remedy,*" so I can stay with the profession when I am gone. The pus under the free margin of the gum is annihilated on application of the medicament as the astringent qualities of the preparation closes the pockets in a talismanic manner. But in preparing successive teeth, let the cotton remain round the necks of those first prepared, and do not prepare more than three at one sitting.

You know I am somewhat enthusiastic, but I have tried this remedy in a good many cases with splendid results; in fact, it is *an absolute cure*—a miracle, so to speak. Of course *loose teeth* need to be wired in place till the pockets close.—*J. A. Robinson, Jackson, Mich. in Dental Register.*

Gold Leaf.—It has been stated by gold beaters that films of gold can be made so thin by the means of the galvanic battery, that one grain of gold could be made to cover four square feet. This would be but one ten thousandth of the thickness of ordinary writing paper, and 2,799,000 such films would only make an inch in thickness. The human mind is unable to comprehend or appreciate full meaning of the foregoing figures. It is said that these film of gold are transparent and emit a green color to transmit light.—*Dental Student.*

Editorial.

REGULATING TEETH.

This is a delicate and skilful operation. Perhaps there are fewer dentists successful in this than in any other important dental manipulation. Few comprehend the principles that should govern the process, and still fewer are able to carry them out when theoretically understood.

No doubt much depends on thoroughly studying the individual case, and this can hardly be mastered without a good model and articulation of the entire mouth. Trouble attempted to be saved here, is trouble during the entire operation. First, know well your case—the relative position of the teeth—which shall be the good, old standbys to serve as standards of measurement and fulcrums of force—the general direction of strain to bring about the desired arch, and the special movement of individual teeth to accomplish this—the obstructions to proper occlusion, and how to overcome them, and how, finally, normal articulation shall preserve the advantages gained. Then again, it is not only the moving of teeth we are to consider, but so placing them that they will maintain one another in their new places; and it is not only their proper harmony of position we are to look for, but their proper length with reference to each other, and such a champing of the back teeth and adjustment of the front teeth that they will be, as it were, dovetailed into position by their very occlusion, and advantageously serve their master. This may mean as much the grinding of a cusp or shortening of a whole tooth as change of position.

To accomplish all this nothing can take the place of native skill and ingenuity, and, perhaps not less, the employment of good, common sense These must be developed to determine the proper appliances and manipulations, and to comprehend the case from its incipiency to its completness. Every act and every apparatus brought into use must be guided by good judgment.

Yet, however ingenious we may think ourselves, it will not do to to rely only on our own resources. The struggles and perplexities and dire extremities of others, which have developed principles and skill, and perfected unique appliances, and thus brought them to final success, should be studied with the greatest care. Our standard works can be consulted with profit, and our current literature abounds with instructions. Some in our profession have been so eminently successful that their mode of procedure has been sought by others not so fortunate. This has resulted in descriptions in our monthly journals that are, perhaps, superior to the instructions of our books. Dr. Coffin'

method will well repay careful study; so will the Patrick process. To give details here would make our article too long. The experiences of many others, given in our journals, are worth the most diligent perusal.

When once the principles involved, and the appliances to be used, are well mastered, the road to success is not so difficult. In Washington, the othur day, I was shown, in the laboratory of a leading dentist, the models of a young lady's mouth, so peaked and contracted that speach must have been difficult and unnatural, and so unsightly that the features must have been repulsive. I was then taken into the reception room and introduced to the young lady. Though the work was not complete, the change was marvelous. "Do you know yourself?" said I. "Some of my friends say they do not know me, I look so differently. I begin to think I am pretty good-looking now," she replied. And this was a fact; her features had assumed a symmetry and harmony of expression that were charming; and her voice had changed from a squeaking key to a sweet tone that was musical. The Patrick method had chiefly been used in this case.

It is still a question whether the constant force of the elastic springs and rubber bands, or the successive steps produced by screws, etc., are better; whether the "heroic method" of quickly changing the position of teeth, or the slower course requiring months to accomplish the final change, is more desirable; whether the added room sought for to bring teeth into proper position should be partly by extraction, or wholly by the expansion of the alveolus arch.

But it was not our design at this time to combat or champion any special plan, but, if possible, to draw attention 1st to the neglect of this branch of our calling; 2d, to its importance; 3d, to the necessity of thorough study to be able to act wisely in managing cases; and 4th, to show that if the principles involved are well understood and the appliances prepared are judiciously employed, the work of regulating teeth is not difficult.

GAS TIGHT INDIA RUBBER TUBING.

An elastic rubber tubing perfectly gas tight and free from smell has been urgently needed for many years; In fact, the impossibility of making satisfactory gas connection for gas apparatus which requires to be movable has rendered the use of gas as a fuel in many case a most objectionable nuisance. A tubing by Mr. Fletcher, of Warrington, Eng., is made of two layers of rubber, with pure soft tin foil vulcanized between. It is said to be perfectly and permanently gas tight under any pressure, and free from smell after long continued use, while it retains the flexibility and elasticity of an ordinary rubber tube.

SPEAK NOT HIS NAME.

Mid silence and tears, we laid him low. As the cold earth covered him, the hollowness of the sound echoes of blasted hopes.

His was a bright intellect; a moral nature, fine and delicate, was his. And what a heart of love! It made every feature glow with its pure, tender passion; its overflow changed a spot in the desert to an oasis, where sprung up luscious fruit and beautiful flowers. A paradise was his home; while beside many a path to poverty and pain, there peeped out dainty and blushing blossoms to kiss his feet.

A demon came to that quiet retreat. Delicious as nectar was the tempting potion he offered; biting and poisonous were the living germs that lurked within it. In the cup they were too insignificant to attract attention; warmed and fed and nourished in the vital blood, they grew and multiplied and matured into hideous vipers, knawing and consuming the very vitals. The poor man died—dying, he died; for those murderous creatures did their work slowly, at brain and heart and soul.

Look! Why does yonder tree prematurely drop its precious fruit? "An enemy hath done this."—A tiny egg was buried at its root; now a worm is there eating. So within this great intellect devilish serpents crawl their slimy lengths along. Once they were germs in the enticing draught, now they are hideous creatures that feed on all which made that brain vigorous, till it sends forth only sickly vamperings and wild ravings. Why, in yonder tree, do the leaves grow sear, and the branches wither? that worm is knawing at the heart? So, at the center of the life of our loved one, venomous serpents are drinking the rich juices of a noble nature. The hand falls palsid. Look again at the tree; once so noble and strong, so vigorous and fruitful, now dead. Hark! the woodsman calls, "Cut it down; why cumbers it the ground?" So, in that frame, "fearfully and wonderfully made, though long struggling against the inevitable, the fatal draft has done its work. The very soul, insulted and degraded by whiskey, and finally pawned for it, has been given over to the destroyer. The remains, we bury. "How has the mighty fallen!" Speak not his name.

Would you escape his doom? Would you prevent that shame which premits not the lips to name the dead? Would you keep from the heart which mourns the weight that breaks? "Look not thou upon the wine, when it is red, when it giveth his color in the cup, when it moveth itself aright. At last it biteth like a serpent and stingeth like an adder."

In the same county where sits the lonely widow and the dependent children of this fallen dentist,—so destitute, so comfortless, so

heart-broken,—there lives the stricken families of four others who were of our profession, all gone the same road, to the same doom, from the same cause, within the same year, with the same warning.

And yet the living will not take it to heart. With so many, who but yesterday, were the peers of the best of our profession—and though they knew its degrading, its cruel, its deadly effect, the poisonous potion is drank as a sweet draught. Then, ever and anon, the whirling brain ediotically cries for more. The corrupted blood thirsts to be fed by the same liquid fire that burns it dry, and the fountains of the heart,—Oh ! the dreadful desolation !

Fellows there is death in the bowl ! Drink it not. Come to the sweet waters of life.

The Quiet Heroism of Doctors.—In an address delivered to the class of the Iowa College of Physicians and Surgeons, Dr. Williamson cited, for the admiration of his young audience, the noble conduct of the medical profession at Norfolk, Va., on the occasion of a deadly invasion of cholera in 1848 (paralleled, indeed, in the great yellow-fever epidemic of 1878), in which resident physicians became exhausted by overwork, or were carried off by the disease. A cry was raised for help; and this was forthcoming from town and country, practitioners leaving their homes and friends, heedless of personal danger. "It was a time of deepest gloom. Silently they walked deserted streets, engaged in a combat wherein no martial music or battle's din was heard, to support their courage. The pestilence came to an end; and so, too, did the lives of *forty* of those brave ones who had come forward at duty's call. They died, and were hastily buried; and there their story ends. No stately shaft marks their resting-place. Few, indeed, ever heard, that any such precious offering was then made on humanities altar. And why? Because it is expected that practitioners be always ready to do just as they did. Nothing remarkable, therefore, it is so soon forgotten. Religion may count her martyrs, patriotism may point to blood-stained fields, and science may boast of votaries whose lives went out in Arctic snows; but I know of no instances that transcend in moral heroism the self-sacrifice of these forty forgotten worthies, and of none whose names more deservedly belong to the roll of the immortals."

The East and West have kissed each other; friendship has ripened into love, and love has made twain one. Miss M. E. Journal has sank into the embrace of the great Archives.

A GERMAN dentist practising in Southern Germany once remarked: "Yes ! yes ! the Germans have it *here* (pointing to his forehead), and the Americans have it *here* (working his fingers in the air.)

Miscellaneous.

THE BIBLE RECORD OF MAN'S ORIGIN.

BY JAMES R. NICHOLS.

Science does not concern itself with the statements regarding the genesis of man, as found in the sacred books of ancient tribes and nations, only so far as to subject them to the most rigid rules of historical, archæological, and biological criticism, with the view of ascertaining what plausible grounds they have to rest upon. The ancient Hebrews have preserved records in which is found a circumstantial account or history of man's advent, and the world has for nearly twenty centuries been largely influenced by a belief in this remarkable narrative. Whether it be regarded as a legend of very early times, a story characteristic of the East, or as a supernatural revelation of man's genesis, the student or investigator cannot but view it as extraordinary. If we are required to accept it after ecclesiastic or scholastic interpretations, which place the occurrences about six thousand years ago, and which insist on a literal rendering of the text, the way is beset with difficulties. If on the other hand, the narrative be regarded as a dim shadowing forth of the outlines of a creative act, instituted by divine interference in some early epoch of the world's history, it at once commands the respect of those who recognize the existance of a Supreme Creator in the universe.

There is in the narrative certain internal evidence, which, independent of all other considerations, lends to it a startling significancy. The prominent incidents of the transaction so briefly presented are wonderfully in accord with possibilities: there is evidence of a wise adaptation of means to ends. We are told without any show of hesitancy that man was made out of the "dust of the earth;" that is, he came from the same general mother or source as all organic life. If the statement were that he was formed out of the rocks or out of the trees of the garden, it would be far less significant of his true chemical constitution as made known through modern research. Rocks and trees are not so constituted as to meet fully the necessities of his material organization, and the same may be said of quite all the substances or prominent objects which were open to observation in early times. In the "dust of the earth" we have an expression which may fairly be interpreted to mean the *soil* of the earth, which includes both the organic and inorganic constituents found in the physical organization of man. In this material we have the lime, potash, soda, magnesia, iron, phosphorus, indeed quite all the chemical bodies essential to man's organism. In the humus of the soil we have the materials

needed for the formation of living tissues, the carbon, hydrogen, and nitrogen. The source from which man is stated to have been derived is seen to have been fully capable of supplying every needed element without the interposition of a miracle to summon the rarer molecules from afar. A human narrator of such a stupendous transaction would hardly have allowed his excited imagination to go no further than common dust for his man-material; he would have selected the clear air about him; the chemical nature of which was to him a mystery, or he would have interwoven the rainbow or the gorgeous hues of the setting sun into the noble form of man.

After the completion of the physical structure, a still more important act remained to be accomplished,—the endowment of life. The narrator proceeds to say that "God breathed" into the figure of man "the breath of life." This language and statement is even more remarkable than that relating to the formation of the body. From what we know of the mind or soul of man, we cannot give it a lower place than is assigned in the narative; it must be the "breath," or an emanation from the Creator; it must be the closest, most distinctive representation of the Supreme Intelligence of all principles in the universe. It is infinitely higher than matter; it is a part of a Divine originator.

If this were only an Eastern tale, told by an ancient story-teller, he would have given life to his figure by agencies far different; the statement would be much too tame to meet his own inclination or the wishes of his listeners. He probably would have conferred life by placing the inanimate form in a running brook, in a position so that the clear morning light might afford supplementary aid in wooing the mysterious principle sought. He might have covered it with flowers, and pressed into the open mouth the rarest juices of plants, and fanned the nostrils with air charged with the rich aroma of flowers. Whoever wrote the first chapters of the book of Genesis, it is certain he was no ordinary chronicler; he was destitute of the gorgeous imagination so common to the authors of the legends and tales of the East, and was clairvoyant in a high degree. He must have had whisperings from unseen sources, and been directed by a wisdom not common to the men of the times in which he lived.

The story of the genesis of woman is held to be even more fanciful than that of man, but it is not difficult to detect in it those points of difference which separate the tale from the wild imaginings of the wisest of the early Hebrew chroniclers. The relations of the sexes are, by the proceeding of forming the woman out of man, declared to be more direct and intimate than that of any other; and whatever was desirable and wonderful in man, woman must by her origin be possessed of. The narrator did not regard it as necessary to go again

back to the earth for materials from which to form the woman, nor was it necessary for Jehovah to inflate the lungs by his breath; like is assumed to be competent to produce like, and from the physical man woman was formed.

What is called the Mosaic account of the genesis of man, taken as a whole, must be regarded even by evolutionists as remarkable. Whether it is designed to prevent the details of actual occurrences, or whether the story has a typical significancy, a figurative meaning, is not clear. If its whole scope and intent is to reveal to races of men in all ages the fact of the supernatural origin of man, considering the circumstances under which the narrative was presented, and its influence upon those who were to people the earth thousands of years after the ignorant Hebrews had been resolved back to dust, it is not easy to see what statement could better serve its purpose.

IS THERE A GOD?

Go to Newton, whose imperishable name looms gigantic in the annals of science and philosophy, and ask him. We see him—this Columbus of the skies—as he spreads his sails to navigate the broad ether, moor his bark now to the moon and then steering boldly for far distant planets and satellites, touching even the fixed stars and the outermost rim of space in his sublime course. As he returns we imagine him surrounded by an eager and curious throng, in whose hearts there throbs only one emotion—on whose lips there trembles only one all important question; "O thou that hast discovered the secrets of hoary space, thou who hast rounded great heaven's mighty cape, thou who hast passed the pillars of Hercules, thou who hast safely buffeted with the billows of immensity—tell us—tell us—what tidings hast thou! In all thy voyage hast thou found a God? What answer falls from his lips? Not the dismal language of the atheist, or of the agnostic. He builds no altar to some foolish goddess of chance. Entering into the temple of the true Jehovah, he lays down the treasures of his celestial expedition, and rising he proclaims: All the universe has one voice—sun and moon, planets and comets, mightiest stars and nebulæ,

> "Forever singing as they shine,
> The hand that made them is Divine."—

all join in one magnificent anthem; Halleujah; the Lord God omnipotant reigneth. DR. C. S. STOCKTON.

Sharpening Dull Files.—After thoroughly cleaning with soap, alkali and a stiff brush, immerse them in 1 part nitric acid, 3 parts sulphuric acid, 7 parts water. They should remain from quarter of a minute to a half hour according to the fineness of the cut. Now wash them in hot water, dip them in the milk of lime (water which has been saturated with quick lime) and then dry and oil.

PLATINUM.

Platinum is one of the rarest of the metals that have any applications in the arts, but it is one of the most valuable. The whole quantity produced annually throughout the world averages but little more than a couple of tons. As the specific gravity of the metal is over twenty-one times that of water, the bulk of this yearly product scarcely exceeds that of three-quarters of a ton of iron. The amount is comparatively insignificant, but its importance to the chemist is almost incalculable. If any metal may be specially designated as the chemist's metal, platinum is entitled to the distinction. It bears a very high temperature without melting, and is proof against the action of so many acids and other chemical agents that it is invaluable as a material for a great variety of vessels and implements required in the laboratory. The first cost of this apparatus is high, but since with proper care it is almost imperishable, it proves more economical in the long run than much cheaper materials, even in some processes for which the latter could be substituted. For instance, glass retorts can be employed for the concentration of sulphuric acid, but the loss from breakage is so great, that in many manufactories platinum boilers are used, notwithstanding their enormous cost. A boiler capable of concentrating daily five tons of sulphuric acid, costs in England about $8,000, and one for eight tons daily $12,500.

Though platinum is a rare metal, it is, like gold, very widely diffused. According to Pettenkofer, silver invariably contains a small quantity of it. The chief sources of the metal are the Ural Mountains, whence about four-fifths of the whole annual product is obtained, and Brazil and Columbia, which supply nearly all the remainder. Small quantities are obtained in California, Australia, Borneo and elsewhere. The metal was first discovered in South America by the Spaniards, who gave it the name of *platina* (a diminutive of *plata*, silver,) because they supposed it to be an inferior kind of silver. The name was changed to platinum to make it conform to the modern nomenclature, according to which the names of all metallic elements end in *um*.

In nature platinum is found associated with a number of yet rarer metals—palladium, rhodium, iridium, osmium and ruthenium—which are found nowhere else. It is extremely difficult to separate it from these, and our limits forbid any description of the methods that have been adopted for the purpose. It is a curious fact that the method originally devised by Dr. Wollaston in English is one employed by the French manufacturers, while the more recent method introduced by two Frenchmen, MM. Deville and Debray, is the one adopted by the great London workers in platinum, who now lead the world in this branch of metallurgy. At the International Exhibition

of 1862, this English firm displayed an ingot of pure platinum weighing 280 pounds, and valued at about $20,000. Last year an ingot weighing 550 pounds, containing a small percentage of iridium, was made in Paris, which is to be used for standard meter bars.

As already stated, platinum is chiefly applied to the manufacture of chemical apparatus; but it is employed to a limited extent in other scientific instruments, and also in jewelry in connection with gold, and as a setting for diamonds. The fact that it expands with heat less than any other metal, has led to its use in dentistry for pins to hold artificial teeth in place. In 1828 the Russian government began to use it for coinage, but in 1845 all the platinum money in circulation, amounting to some 30,000 pounds' weight, was called in, and none has since been issued.

Though platinum resists the action of the most powerful acids (the mixture of muriatic and nitric acids known as *aqua regia* excepted), and is not affected at ordinary temperatures by other chemical agents, it is readily attacked at high temperatures by phosphorus, arsenic, carbon, borom, silicon, many of the metals, the caustic alkalies, and the alkaline earths; so that much care is required in the laboratory in using vessels made of it. An inexperienced manipulator would be likely to find platinum as perishable as many of the cheaper metals.—*Miscellany.*

A New Treatment of Tape Worm.—Dr. Howard Pinkey, writing from Sharon Springs, describes his experience with the oil of the pine needle, made from the *pinus punilio.* A hall-boy of the hotel had suffered for five years from tape-worm. He had been treated for four years in New York, but never had succeeded in getting rid of over four feet of links at a time. Dr. Pinkey not being able to get any male fern, pelletierine, or pumpkin seeds, therefore tried the following experiment: "The patient fasted from breakfast; and at 9 A. M. he was given one teaspoonful of oil of the pine-needle in half a glass of milk. The following morning, as there was no perceptible action of the medicine, the dose was doubled. This, the boy said, had a most agreeable taste. One hour later he took a dose of castor-oil; and in the course of two hours after this he passed an entire *taenia solium* measuring fifteen feet six inches in length, and one-half inch at its broadest part, gradually tapering down to almost a thread. To be positive that none remained behind, he was given two teaspoonsfuls more; but no sign of any worm or part thereof passed. This oil," writes Dr. Pinkey, "contains no turpentine, is fragrant in its odor, and, when mixed with milk, very agreeable to the taste. It produces no strangury tenesmus, or other unpleasant or distressing symptoms. The patient can generally pursue his ordinary advocation."