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# DOMINION DENTAL JOURNAL.

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## Original Communications.

### Pulp Canal Filling.

By MARK G. MCEELIMNEY, D.D.S., Ottawa.

Almost every dental journal contains an article, and every dental association has a section, pertaining to the filling of root canals.

It is through this interchange of ideas that we arrive at the best methods for accomplishing our objects.

While my way of doing this is by no means new, I think that a description may be interesting.

After destroying the nerve, the first and most important thing is cleanliness. Every possible particle and fibre of dead tissue must be removed, and the canals made thoroughly antiseptic.

I say every possible particle, because it is impossible for the most skilful operator to remove everything, except in very accessible cases. The difficulty increases with the remoteness and tortuousness of the canal.

There is a tendency amongst dental writers to forget the practical limitations, and construct a very fine theory of perfect work on paper.

While I recognize fully the absolute necessity of a high standard of excellence, toward which we should constantly struggle, there is also present to me the fact, that the very best work in the treatment of canals depends upon the forms of the canals themselves.

I have split open many extracted teeth, and in a comparatively large proportion have found, that the canals were so constricted that theoretically, perfect treatment would be a very difficult matter.

In cases where nerve broaches cannot be used with full satisfaction, it is necessary to depend for success upon thorough medication of the remaining debris.

For removing debris from canals, the prepared nerve bristles are very unsatisfactory. They are either too soft or too brittle, or the barbs rub off very easily.

It is a wonder that so many firms keep on making, and so many dentists buying, articles that are of no earthly value to anyone who wishes to do thorough work.

A broach must be stiff, springy, and of even taper. It must also be cheap and adaptable to various circumstances. Broaches for lower molar roots should be somewhat flattened to suit the canals. The points must be very sharp to avoid pushing debris ahead; while the butt must be of sufficient thickness to give strength.

To make nerve broaches that will do reasonably satisfactory work, take No. 18 piano wire, and draw the temper a little.

A little experience will enable one to draw to any desired temper for any particular case. A Bunsen flame will do very well. The wire should be left sufficiently stiff to come back straight when the point is deflected thirty or forty degrees. Place a piece of hard wood end up in the vise, and with the corner of a file cut a light groove parallel with the jaws. This groove is to keep the wire from slipping while it is being filed.

Place the piano wire in a pin vise and file it taper with a square section, or slightly flattened for some cases. Care must be taken to make the taper even from butt to point, or the broach will be liable to break.

With a sharp graver nick the square corners of the broach, and the result is a series of barbs that will stand a great deal of use. The barbs may be placed on one, any, or all corners, according to requirement. The butt must be adapted to the particular kind of broach-holder used. For a screw chuck-holder the butt should be made square. For a sliding ring-chuck the butt will stay better if slightly flattened.

A foot of piano wire will make nine broaches, and costs less than a cent. One of these broaches will do more work than three ordinary ones at fifty cents a dozen.

Having now a serviceable broach, it is necessary to use it rightly. It should not be sent to the apex at first, but the debris must be carefully removed as one goes up, care being taken to avoid wadding the narrower portion with debris, as it is very difficult to remove and may get solid enough to be taken for the apex. To properly cleanse a root requires time and patience, for it is a really tedious operation.

Having removed all dead matter that will come out, the next step is the thorough medication of the root. A few fibres of

cotton twisted around a fine broach makes a most efficient pump. Each dentist has a favorite preparation for roots—suffice it to say that whatever is used must be used thoroughly.

Having the canals clean and ready to fill, I do not dry them; but rather leave them full of root preparation, which is forced into every crevice by the filling.

The most important question is, What material for filling? When a tooth is healthy and the indications favorable, I use silver.

Even where there has been periosteal trouble, now cured, or even an abscess that has yielded to treatment, I recommend silver as the most impervious and safest material. Silver can be got into more difficult situations, and is surer to stay, than any other material. Silver is less likely to be affected by adverse circumstances in the canal; moisture and constriction do not prevent it from reaching its place.

In the case of cement, moisture is fatal to the proper pumping up of the material, and I doubt if one dentist in a hundred can get one canal in a hundred fit to hold cement.

Another objection to cement is that subsequent leakage through the apex must eventually disintegrate it in the immediate vicinity, and, once disintegration is set up, there is an end to all confidence.

The silver can be put into position by means of pluggers of various sizes made of piano wire and used in the broach-holder.

Filling a canal with silver is at first somewhat difficult, and never becomes really easy. The best way is to put a pellet in the pulp-chamber, and with a burnisher press it gently against the canal openings, then send it up the canal with the probe-like plugger, the end of which should be cut off square. This cuts a cylinder out of the pellet and carries it ahead right up the canal. Whatever small space is beyond is forced full of root preparation, which should be crystallizable, astringent and antiseptic.

In cases where there has existed chronic abscess, and a recurrence is feared, where it may some day be necessary to reopen the canal, I insert a gutta-percha point dipped in chloroform. These points I make by rolling gutta-percha pellets on a glass slab with a warm spatula. They can be rolled to any required length, thickness or angle. While I do not regard gutta-percha as equal to silver, yet it is the next best material where a non-removable filling is distinctly contra-indicated.<sup>3</sup>

It has been suggested to saturate the dead pulp with some powerful agent, and leave it in the tooth. This is little less than criminal.

The use of cotton saturated with preservatives as a canal-filling I regard as unscientific, careless, and the invention of a lazy man, whoever he may be. If there is such a thing as leakage through the apical opening, the preservative must in time wash out; then

the canal is left filled with unprotected organic matter. Disintegration, irritation and abscess are only a matter of time. At college I learned that cotton-filling was good for roots. For the first few months all went well with the few teeth that a cold and unsympathetic public allowed me to fill. Then the chickens "came home to roost." Those chickens are all disposed of some time ago, and I have learned a valuable lesson, and that is, that a nice, easy way of doing a difficult operation is generally no good. There is no royal road to successful root-filling; it is a test of ability.

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## Selections.

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### A New Era in Dental Practice.

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By PROF. FLAGG, Philadelphia.

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Through your courtesy\* I am with you again, to reveal the silence of years which has culminated in what I am pleased to call "A New Era in Dentistry." Forty-five minutes is but a moment, which you accord me to condense forty years of active labor and practice. I cannot blame you for the restriction, as I have always written exhaustively and hours have been consumed by me, leaving no chance for discussion at the same meeting. I will hold to your order, and leave for the future other chances for details and the consummation of the work, that my efforts may not have been in vain.

The great Master once said, "Neither will they be persuaded, though one rose from the dead." The profession of dentistry, as that of medicine, is demanding, "What shall we do to be saved?" We are in the light of the waning days of the nineteenth century, asking each other for some system by which we can be saved the humiliation of failure in dental practice to save the human teeth, one upon which each and all can rely.

Before we can attain to any true system that shall work universally, as in the laws of interchangeable mechanics, we must accord to someone the right from a life of precedents to be umpire in his line of work.

The title of this paper is an assumption, and all I ask is to follow, and for once get out of the old ruts and walk upon the broad plane of liberality and common sense, and with unselfish eye and charity

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\*New York Odontological Society.

calmly act and show that something good can come out of Nazareth.

Every journal bears upon its pages the desire of men to flee to a practice that will bring universal good results. Let us ask, where are our failures? Are they in men or things or materials? Are they in false education? Is it that new difficulties arise to baffle every past partially-successful effort? Have we really been successful in anything we have done to insure us in following the same old cause? The cry is for new light and new methods. If the world knew how few teeth are saved by us for any number of years they would not spend time, health and money, but give up to the juggernaut of destruction, and extraction would be the rule, even with the wealthier classes. The poor and medium classes have had to give up their teeth in early life because of failure upon failure of even the best men. Then it is a fact, dentistry of the present hour is not near the goal of perfection in practice we long for. Why is it? Is there any relief? When shall we commence in our declaration of failure?

#### THE PRIME NECESSITY.

First. Men. With all the vaunted advantages of colleges everywhere, how few who enter their sacred precincts are fitted by nature, general education, special talent, surroundings, or by long family precedents! Could we but be as true to principles and bold to assert as was Plato when he had inscribed over the garden-gate to his studio, "Let none enter here who know not geometry," we would then have some hope for the future.

Anyone can be taught to fill a cavity with the instruments and material at our disposal, but when to do it and how it should be shaped to insure its future usefulness is quite another consideration. We must not teach men that our art is solely to allow teeth to decay and fill our coffers from Nature's weakness. Are you prepared to-night to lay down your life as the missionary, and for the good of humanity attempt to save a tooth in its purity whether fortune in gold favor you or not?

Are you ready to ignore self and be the benefactors of your race, and adopt a system that promises to save more teeth, more pulps, give greater beauty, and more usefulness? If not, then step aside.

Medical men can well ask for "preventive medicine," for every honest M.D. soon learns to give less and less medicine, and rely not only on Nature, but in knowing the laws of hygiene, even if he be dethroned for his empiricism.

We, as dentists, have an entirely different field, for we have millions coming to us where no law of prevention can be applied. We can only save and restore the lost structure by our cunning and art.

With the rising generation, we can do, if we have a system to

prevent the ravages so universally found in the human race, that which will preserve a much greater number in their purity and also check decay without filling with gold and other materials, and drive from our practice artificial substitutes in the majority of cases.

This leads us to a most important matter—ignoring the “greed for gold.” If we are ever so perfect in our manipulation and able to preserve, yet if we do not have that charity to purge ourselves from the “lust for gain,” and do for others as we would do for our own families, it will not bring us success at the end of our journey.

#### GENERAL CAUSES OF FAILURE.

Let us take up the general causes of failure. We cannot ignore the almost utter worthlessness of tooth-structure. This we will call the “predisposition.” My experience is that we are more degenerate every year, and the fight is harder to save teeth. It requires wisdom, foresight and skill to dare attempt the anticipation of caries. I have attempted to make the effort. *True, anticipation, as a general rule, cannot be relied on by the average dentist.* But there is much that can be done to check caries in its very incipiency and that without filling.

The materials as substitutes for lost structure we will now take up. Gold is acknowledged by the profession generally to be pre-eminently the best, and we want no better testimony than to look into any and every mouth and behold gold, gold, gold. Fillings no larger than pin-points and heads dotting every valley. Men talk and write gold, and yet they deplore it does not save. They ask for the reason, why? The “New Departure” said “*never use it.*” Here are two extremes, and neither has shown why either should be practised. You ask for testimony. I refer you to the many kinds of gold and preparations or forms of gold, each manufacturer claiming special features for success; the immense quantity of it used; the cases that have been filled and refilled. I filled a superior central incisor last week with Abbey’s gold that had been filled fifteen times before. There was left for me a tooth with living pulp with the palatal surface one-half gone and both mesial and distal surfaces involved to the cervix. Think of it! None of you can deny that gold is the idol of the profession, and a man who talks against it is risking his reputation.

Gold, *per se*, is good for preserving tooth-structure. Compatibility has nothing to do with it. Adaptability is all of it! If tooth-structure is worthy as a base and a man knows how to line the walls of the cavity, it will preserve, provided the cavity is rightly shaped and the contour is given such form as to preclude any possibility of the active causes of caries. There is no greater error made than to suppose it is necessary to have various qualities and forms of this metal.

## IDOLIZE IT.

Make to yourself an idol in this metal, and, in spite of the manufacturers, follow it; learn to manipulate one kind, and you have all you can ask, and there will be less failures. But the sin is not only in seeking for some better form of gold, but in learning how to use but one or two, and have the conscience and honor to confess that the fault is in yourself, and discriminate when and where it should be used. They tell us it quite always fails at the cervix, and, to attest this, they reproach the gold and use amalgam or gutta-percha at this point. It is not the gold, but it lies in you and your judgment and conscience. Franklin showed he was a philosopher when he said he "would not give much for a mechanic who could not bore with a saw and saw with a gimlet."

Some dentists have piled up around them every new instrument that comes out,—every new plugger-point with serrations of greater or less depth and extreme fineness and all sizes,—every form of mallet from the thud blow to the most approved power mallet. And withal, they fail, but few recognizing the fact that perfectly smooth points will do the whole business perfectly in adapting one fold of gold to another though perfectly burnished.

Tin and gold and hand-pressure is another proof of gold's failure when used alone. I could multiply proofs of failure, but enough,—gold is a failure!

## THE PLASTIC CRUTCH.

Take amalgam. Look at the tons of it used; yet, so many men say they do not have it in their office.

Do you ask for proof of failure?

Take the craze for "copper amalgam." What a curse it has been to the profession and their patients! I never used it once! I saw what it was when I looked into patients' mouths when I was abroad. Had they known what proper contouring was they would never have used it so universally in all cavities.

It has been a stench in the nostrils of nearly every American dentist.

Has amalgam any good qualities in itself? Have we any good alloys?

How many men know how to use it and get the best results? What curses have been heaped upon its hallowed head? Where is the man who dares say he uses it? Anathemas come thick and fast from the M.D.'s of both old and new school as if they were the Supreme Court to sit upon its merits.

Several years ago, at one of the first meetings of our Odontological Society of Pennsylvania, one of its oldest and most prominent members went so far as to place on record in the Proceedings,—



"All men, falling away from manipulative ability, lean on plastics." To-day he is experimenting to find an ideal alloy to help him out in his failures with gold. How sad such a record! Who among you so mean as to deny using it and without "apologizing"?

I say it is one of the grandest filling materials we have,—and while I have spent nearly thirty years in inventing power mallets and special smooth oval points for gold work, I confess I throw all aside very quickly, and while I delight to wield the electric or mechanical mallet in distancing time and space with gold, yet I use more amalgam to-day than ever before in my life.

I am thankful I had the courage and principle to stand by it, and recommend and show how much could be done when condensed under Japanese bibulous paper. To me it is a sheet-anchor for the class of cases every day coming to me from others. If you use amalgam and wish to make your practice a success with it, learn how to manipulate it and prepare your cases for its adaptation.

#### ANOTHER.

Oxyphosphate,—what of it?

Is it good as a permanent filling alongside of gold or amalgam?  
Is it a failure also?

What does the profession say of it?

Everywhere you hear the cry, it gives way at the cervix in all cases and soon wears away, and is not fit for contour or permanent work. It is not to be relied upon!

If this be true, then it is useless to place it in carious teeth.

That it will preserve tooth-structure from further decay admits of no doubt whatever.

That it will preserve the contour of the tooth is certain in the bulk of cases.

That it will not destroy the pulp in near contact with it is equally sure.

That it will preserve tooth-structure with nearly all the decay left in the cavity and without much or really any shaping is incontestable, which, further on, I will show for a fact that I am willing to stand by and from a part of the new era of which I am here to speak. It is beyond value when you know how to mix it, how to manipulate it, how to shape it; how to treat it before you remove the dam or allow it to get wet; how to treat the phosphoric acid, to keep it from crystallizing, insuring you thereby a better result in every way; and when proper precautions are taken with these fillings, how inestimable are the results, and beyond cavil and doubt!

I cannot say too much for it,—a good article. But, just here let me say that, when you can get a good article, use no other kind in the mouth; as I forgot to tell you of amalgam, as with gold, use

one kind only, that will work as well under water as above the surface. The oxyphosphate, of course, will have to be kept absolutely dry to be a perfect success.

#### AN IDEAL MATERIAL.

In nearly every sense I know of nothing so important as pink base-plate gutta-percha.

To teach you how I use it for the preservation of the human teeth, both temporary and permanent, will be the foundation of a system that, if I have had any success at all, I can attribute to this one article as much as or more than any other filling-material.

In conjunction with this I cannot overestimate the value of the discovery of the laws of articulation and the articulator that bears my name, and of which I am more proud than of all my other productions. Without knowing what I do of articulation, the gutta-percha might never have been seen in the same light by me.

Let us review, now, before I enter upon this simple revelation of truth, what and wherein are our failures.

#### LIST OF FAILURES.

I told you, poor elements in tooth-structure as the grand predisposing cause of failure.

Worthlessness of tooth-structure as a very great cause of failure, let us be ever so competent and with the best of materials for restoration.

The materials as substitutes for lost structure,—gold, amalgam, oxyphosphate, gutta-percha and tin,—and how failure comes from each and all.

The failure that comes from not understanding the laws of articulation, and which shows how the loss of one tooth affects all the teeth of both jaws.

The failures that result from the indiscriminate cutting of approximal surfaces in filling, and the great change of relationship between the upper and lower dentures.

And the failures that ensue from the want of a definite system in knowing what to do in the keeping of the original articulation, and, when lost from bad dentistry, restoring it again to its proper relations that each tooth will bear its exact burden and no undue pressure be brought to bear upon any one.

The importance, finally, of those laws and this system in the prevention of recurrent caries and the blotting out of the greatest cause for pyorrhœa alveolaris,—which comes largely from undue pressure and use of the teeth thrown out of arrangement by non-restoration of contour.

I cannot enumerate all the causes as now acknowledged by the profession. Look into every journal, go into every depot, talk with

every dentist you meet, scan the proceedings of every society, go where you will, and we can infer from it all.

Dentistry is a failure, because it can neither anticipate nor prevent decay superficially or arrest it when substitutes are made to take the place of lost tooth-structure.

We have labored in vain, and I am invited here to tell you whether I am satisfied with the practice I have instituted after forty years of servitude.

To say that I am really satisfied is not true. But I am conscious that my practice shows that I not only anticipate successfully, but preserve teeth superficially decayed without filling, and, when too far gone for this practice, then the conscientious use of the materials we have at hand enables me to snatch from the ravages of the "tooth of time."

Yes, I am happy to tell you how much can be done to rescue our profession from its perilous practice. But, I know you will not adopt what I tell you! Or at least the bulk of dentists will not, for they will fear starvation.

#### BRAINS A BIG ITEM.

If you can have the courage to charge a patient as much for tin, amalgam, oxyphosphate, gutta-percha or beeswax,—which is a valuable material to save trouble,—then you have accepted the highest creed I offer you in my "New Era." Unless you can dare to face the public and say to them brains must be paid for, and all our operations are upon brain work as the standard of price, then do not accept my creed,—go on as aforesaid. Hobbs, the celebrated locksmith and maker of the first complicated bank-locks, which were marvels of ingenuity, was brought before a bank committee to have him show cause why he asked such high prices for his inventions. They had him take the lock to pieces, and inquired what each piece would cost to duplicate it. When the sum total was made they found it did not foot up the price Hobbs asked for the completed lock. How is this, Mr. Hobbs? He then looked over all the items and said to them, "Gentlemen, there is one item you have left out." They could not tell what it was,—when, to their chagrin, he said, "Brains."

But with this blot upon my career, "high charges," I am proud; and, if any one thing has added to my success above all else, it has been in daring and boldness to make people pay what I believed my brain, as a machine, was worth.

I often say to my patients now, when speaking of prices and they want an estimate made, I cannot do it, for "I have no more right to cheat myself than to cheat you."

Then, I am sure you will agree with me that this first article of my creed is worthy of following. If not, then do no listen to my simple system of practice.

It is not as manual laborers we can show our highest skill! No: one piece of timely advice—the extraction of one tooth; the teaching how to use a brush and what kind to use; and in many ways, where no labor at all is performed—is worth hundreds of dollars, and besides, a deep gratitude for the salvation from vandalism and sacrifice of Nature's most beautiful pearls and God's grandest piece of architecture.

Let us all dare to do right, even if we get no immediate compensation further than our own approving conscience.

Let us all dare to stop when we are in doubt, and the kindly consultation with another brother practitioner may be of the greatest value to us and our patient.

If we must link ourselves at all to the medical men, let us emulate their example in one thing at least,—anticipative medicine, or, as they have it, “preventive medicine.”

As I have previously told you in this article, I have held opinions for many years that with every disadvantage impeding our course we can anticipate and cheat the “tooth of time” of its ravages. Yet it is a dangerous remedy in the hands of ignorance.

#### MUST HAVE SOLE CHARGE.

Unless we can have sole charge of patients from the second year on, and no one else to interfere, we cannot hope to do our fullest duty and found a practice for all men to follow.

Ignorance, stupidity and downright dishonesty give us more trouble than we like to admit.

I have told you only of a few of the causes of our failures. One, above all the rest, faces us, and a wail is sent up everywhere. “Recurrence of decay at the cervical border;” no man yet has dared to say he was conqueror.

The next most treacherous is what is known as pyorrhœa.

I never use gold in the temporary teeth, seldom amalgam or tin, save on grinding surfaces, where cavities are very small or very large and no pulp involved in the part, and oxyphosphate very seldom, and only where I can keep it perfectly dry. Not that any of these articles are not valuable, but the preparation of cavities and the situation of decay, the near approach to the pulp of nearly every proximal decay and the age of the subject preclude their use. Never demoralize any youthful client by much excavation or formidable show of instruments, or by slow, sluggish movements. My aim is expedition; as few minutes in the chair as possible; inflicting but little pain and inconvenience,—gentleness, kindness, and yet positiveness.

My greatest ally as the filling-material is pink gutta-percha, such as is used for base-plate, and further on you will see how far I use it in the treatment of the permanent teeth. Aside from its use for a stopping on all approximal surfaces, there is one grand

object in view to be ever held in mind, the importance of the position of the first permanent molar when it emerges. Unless this base column, or abutment if you please, is not kept well back towards the ramus, then *irregularity will come to the incisors*. It is not enough to merely stop decay and stuff in amalgam or oxy-phosphate; we must keep the temporary molars from approaching each other more than normal, and prevent the alveolar processes from encroachment and absorption from direct pressure of the roots of the temporary molars, which is invariably the case when the approximating surfaces are cut by caries and allowed to trespass on each other. We cannot use a separator here to gain space; we dare not cut or shape the cavities for a metal filling for fear of the pulp. What is to be done?

If possible, as soon as the least decay is noticed on the approximal surfaces and you can get in from the crown or on the buccal sides with the least excavating, by hand or machine, if it must be used, whether you can keep the cavity dry or allow it to remain moist, stuff in the gutta-percha forcibly between the teeth, smooth, and let alone to watch every three or six months. Where the cavities are large when you first see them, remove no decay over the pulp. Break down all superfluous walls, saturate with carbolic acid or creosote, force in a lump of the gutta-percha by filling all space as one filling, and let it go until the teeth have become so far separated by the act of mastication—not by expansion of the material—as to have replaced with another or a patch on the surface. Now, here is the point I wish to make that you have never recognized as a factor, because you have ignored the laws of articulation.

By this means I save from future decay and the risk of pulp exposure; but, above all else, I give a condition that enables the child to use with impunity every part of the jaws with hard or soft food, and no pain or fear of it, which no other plan could offer. And, above all this, I drive the first permanent molar so much farther back upon the ramus that, the nearer it is to the condyle or point of motion, the wider it keeps the jaws apart at the incisors, and prevents absolutely the too great encroachment of the lower upon the palatal surfaces of the superior incisors, which, if allowed, would destroy normal articulation,—make too deep an overbite and underbite, and, withal, cause an overlapping of the inferior incisors and the full use of the jaw teeth, because, in the lateral movements of the lower jaw, the incisors would strike first too long before the molars could come in contact, and really only the up-and-down movement would be attained.

#### MUST GRASP ARTICULATION.

This you could never know, nor can you appreciate now, unless you fully grasp the laws of articulation. This has never been

taught, and, save a few followers of my special friends, is not practised.

This was a revelation to me when, in 1858, the articulator was born. And, as soon as the pink gutta-percha made its appearance, with rubber plates for trial or base plates, before they were brought forth, I struck upon this treatment and have followed it ever since; and the results have proved I have but few cases of irregularity in my own immediate practice, and those but simple ones, and seldom a pulp exposed for treatment, and but few demoralized subjects, and a brighter future for the permanent set, with plenty of room and to spare for them to come in. Should decay occur on the anterior approximal surface of the first permanent molar, I prevent its spread and in many cases anticipate or treat it superficially; and, if to fill, do so when I have all the room I want,—but seldom with gold even then, as I do not know the exact position the second bicuspid will take; besides, most of the cavities are very small and not susceptible of contouring over all the approximal surface, which has to be done if we contour at all on any surface. From the temporary incisors of children I generally remove caries when small, and do not scruple to fill with amalgam if they need filling. I have never used the dam for any child except when the permanent molars required filling.

Lastly, to detect the incoming permanent tooth when the temporary one shows no sign of its approach, I, at the proper time, use an exploring needle under, or in some cases directly through, the gum to feel for it. It is the precursor of events, and saves much irregularity and fear. Without this precaution many temporary molars that become fastened between the permanent molars and first permanent bicuspids would remain in for years too long. So much for the treatment to the twelfth year. Gutta-percha is my sheet-anchor.

In the permanent incisors anticipation is generally adopted; if decayed, oxyphosphate or pink gutta-percha is used, never gold. I seldom have any fillings at all in these teeth. The sixth-year molars on buccal surfaces are generally smoothed and decay arrested, or, if to be filled, pink gutta-percha. It is impossible to save every tooth without filling; yet, even with the worst of these cases, *superficial* decay can be arrested and thousands of fillings saved, and our art made a comfort and a blessing.

#### RECURRENCE OF DECAY AT THE CERVIX.

You all admit that recurrence of decay at the cervical border gives you the greatest difficulty to surmount, and as yet you have not reached the cause nor the remedy. It must be admitted that, if this one thing alone can be mastered, we have overcome our most powerful foe.

It is a fact not to be denied that every dentist cries out for some

method to prevent recurrence at the cervix. This is positive proof that everyone has hands full of proximal cavities from the cuspid back. Everyone must admit that contour fillings alone have been the only help or partial cure, although it has to be repeated or requires oft patching.

A case presents where caries have run wild. Not an approximal surface scarcely but is involved. No pulps quite exposed, but threatening. Every tooth has been filled and refilled, and by more than one dentist. Contour has been attempted. Where the fillings of gold remain they are so undermined there is nothing but utter annihilation unless all are removed. The teeth from their loss of proximate surfaces are all out of articulation, which can be best seen by taking an impression and putting the casts in my articulator. Look closely at the cervix, and you will find the root of each so close that no thread can be forced through, and the decay is far up under the cervix. Look further and probe for the alveolar process, and not a vestige of it remains for a quarter of an inch up. Look also to the second molar where the first has been extracted, and on that side the process is gone far down and nothing but loose gum tissue remains, and is constantly receding, and whenever a tooth has been lost the process about the cervix absorbs as the body of the jaw absorbs.

In this state of affairs you put on your dam and separator, and you obtain a slight widening and at once fill permanently the excavated tooth. No attention is paid to the articulation of the teeth. You have no desire to wait, and you rush on headlong to fill and get your pay. The rest of the teeth are left without anything in them until one by one you have had your patient at least twice a week for months, two hours or more at a sitting, until they are exhausted and condemn dentistry, and while you are rushing through to complete every cavity with a filling you have done nothing to prevent further rapid decay, and pulps become exposed and the patient has to suffer.

Now, I know this is the case with nearly every man's practice. I see it every week, and I know from personal contact in conversations with patients of others who have not come to me for treatment.

Now, you can do better than this and not only retain your patients, but bridge over time as well as space and fill and treat at your leisure.

I will take the same mouth just illustrated, and without placing in one single permanent filling of any kind of metal treat it with pink gutta-percha alone, with a little of the white as a facing, where necessary. I cut out only partially the cavities on one side of the jaw or jaws, always exposing every grinding surface where the approximal is gone and make compound by running all of the cavities into one, seldom leaving any approximal cavity to stand

alone, but opening it into the grinding surfaces. This is a cardinal principle with me. There is one surface or border I complete at once, and that is the cervical, so that I never have to touch it again, and this I cut so far up as to not only remove all caries, but where I know the gum and process will grow up and over it. This is finished, and to enable me to do so I forgot to say I never put on the rubber dam in any case until I fill permanently, when the cervix is firm and will admit of its adjustment. It is easy to stop the blood with perchloride of iron, creosote, or any styptic.

#### TREATMENT.

And now for the further treatment. Into all the spaces I have made on one or more sides in one or more teeth I place great pieces of pink gutta-percha, and, with no separation between them in any case, stuff the whole intervening space, trim, and let alone. This I do until every place is filled in. I dismiss the patient, and have him call in three or six months or a year, as I may please ; and, as I find the teeth wide enough apart for a plus-contour filling, and the alveolar gum border and process is in perfect health, and the process has grown up to the gutta-percha, then I fill only those that show that they are far enough apart at the cervix to permit a healthy, full process to grow in order that the gum will have proper substance, and cleave to the root and cover up and over the margin of the filling at the cervix. In this, I tell you, is your future security at the alveolar border.

No one has ever called attention to the difference in width of the approximal spaces at the cervix for the bicuspid and molars. The gutta-percha should remain in until double the width or space is gained between the molars than the bicuspid, on account of the greater size of the molars, where more proximal surface is in contact and no room left for cleansing, unless the spaces are very much greater than normal, and the contour made to suit this issue. Here is where you will say, "You will destroy the articulation and cause greater strain on the fillings and also the teeth." No, you are mistaken. When the whole of these proximal surfaces are filled with the semi-elastic stopping, and the act of mastication set up, the teeth that at first are out of the normal position and only touch on part of their crown surfaces are now allowed to readjust themselves ; as the gutta-percha will give where the greatest pressure is brought to bear, and where least resistance is offered, no change occurs. I am not mistaken in this. Try it, and watch a few cases if you cannot believe me.

#### COMPENSATION.

This method is a test for any further treatment, which, if needed, can so easily be done. It permits of weeks, months and years before the permanent filling need be introduced. No danger of



decay, none of loss of structure from fracture. And, in fact, you can dismiss the patients thus treated with the greatest indifference as to the issue. Do you ask whether I charge for all this work, and when I send in my bill? I charge for even my thoughts as well as my work. My patients never object, but often beg me to leave in the gutta-percha.

Thus I practice with all; and I am happy in this, knowing that I do far more good, am not troubled about immediate root filling, —fillings falling out,—“conservative treatment of dental pulp.” Nor does pyorrhœa ever invade upon my domain of original work, because I know the value of articulation, and how to make every tooth perform its individual and collective function, and no undue pressure given it to press or work its life out of it and give rise to the denudation of the peridental membrane; nor is the food ever found pressing up into the cervical border and remaining, nor the cervix so weakened by want of contact with firm alveolar processes, and the gum is left to hug the root at this vital portion so tightly that nothing ever creeps in to cause recurrence at the cervix.

#### SHOULD BE SUED.

Any dentist who allows his original patient who follows orders to have pyorrhœa should be sued for damages. See that no food presses on the gum border; see that no tooth is unduly pressed and contorted by false articulation, caused by improper width and contouring; allow no biting of threads, cracking of nuts, biting of ice upon one tooth only; or, when a tooth, or teeth, has been lost, see that the articulation is restored, and my word for it gout or no gout, syphilis or disease, pyorrhœa will not come, except filth and malaise of one or more teeth.

Gutta-percha used as matrices for gold, amalgam, or oxyphosphate fillings I will not dwell upon; you need nothing better. For holding teeth in position after correction where there are cavities in both, I need only mention it. As for assistance on the temporary and permanent teeth, to keep the ligature from slipping down on the cervix by carrying the ligature through it; for fastening pins into roots for crowns; as a medium between crowns and roots to prevent further caries; as a protection to all roots when a gold crown is used; and, in fact, as a factor in our practice, there is nothing to fill its place.

In only one instance it will not do. Never place it in contact with an amalgam filling, especially when it is covered up over a nearly exposed pulp, for it will oxidize the amalgam and discolor it and make it valueless at the margins. White gutta-percha is not so. The sulphur in the pink will do the work; hence, I say, this contact with amalgam is a failure. I am in love with it, and without it I would be lost.—*International*.

**Alveolar Abscess.\***

By E. HERBERT ADAMS, M.D., D.D.S., Toronto.

Alveolar abscess is a term applied to any abscess having its origin in the alveolar process of either of the maxillæ. It is generally due to a pericementitis occurring at the apex of the root of the tooth, and caused by the death of the dental pulp. The first pus is pent up in the apical space by bony walls, and the pressure being very great results in the rapid destruction of the surrounding osseous tissue. The pus burrows where there is least resistance, and on account of the cancellous nature of the bone surrounding the root, and the denser nature of the bone nearer the surface, a larger pus cavity is formed.

The pericemental membrane surrounding the apex of the tooth is even yet not perhaps destroyed ; but its fibres become elongated and their meshes filled with pus ; the swollen tissue forming the shreddy bag-like mass so often seen attached to the end of a root of an abscessed tooth after extraction.

Should the outer lamina of bone be perforated, the pus has then ready exit through the soft tissues. The pain now lessens, and the symptoms abate somewhat. This may, however, be only a temporary cessation. The whole side of the face may swell up, the eye be distorted, or the jaws be so stiffened or swollen that they cannot be separated sufficiently for feeding purposes.

An examination will show a large swelling over the affected root. The swelling will usually show signs of fluctuation, and if left to itself will generally open just above the root. It is better, however, to anticipate nature by opening with a bistoury. After the discharge of pus, the swelling and pain usually subside.

Unless the affected tooth is removed, or the diseased pulp removed from the interior of the tooth by a dentist and the pulp cavity rendered aseptic, a chronic source of irritation is kept up, and the abscess assumes the chronic type.

In acute alveolar abscess there may be seen, occasionally, a considerable elevation of temperature, even as high as 103° or 104°. During abscess formation, and before the pus has found exit, a peculiar dull, throbbing pain is often present, and the lymphatics at the angle of the jaw are sometimes sore and swollen.

An abscess, if left to itself, usually assumes the chronic form, the pus continuing to be discharged, but in lessened volume. In the chronic form of alveolar abscess the burrowing of pus may cause a fistulous opening in the cheek, chin or neck, though the most usual

\*Read before the Toronto Medical Society.

place for the abscess to discharge is on the gum over the roof of the affected tooth.

Abscesses associated with the wisdom teeth, or third molars, sometimes pass in the direction of the parotid region. In these cases it is not uncommon to find the orifice of the fistula as low down as the clavicle. This is due to the unyielding character of the parotid fascia, which is a continuation of the deep cervical.

On account of the close relation of the roots of the teeth of the upper jaw to the antrum abscesses may open in the maxillary sinus, and thence be discharged through the nares. These cases are frequently mistaken for a diseased condition of the nasal passages, and treated accordingly, and, of course, invariably without success. The relation of the roots of teeth to the antrum is variable. In some cases the floor of the antrum is perforated by the first and second molars, so you can readily see how an abscess can open in this way.

The habit of applying hot fomentations, poultices and counter-irritants to the cheek and face is often to blame for abscesses pointing on the face and neck.

One of the most common places for abscessed teeth of the upper jaw to open on the face is just beneath the malar bone, and just in front of the anterior border of the masseter muscle. A disfiguring scar often results, if the abscess is allowed to open in this or any other facial region. Such abscesses may discharge anywhere below the region of the eye.

Occasionally, abscesses of the superior incisors discharge directly into the nasal cavity, and an abscess of an anterior tooth has been known to pass back beneath the mucous membrane of the hard palate, and discharge at the junction of the hard and soft palate.

The greater number of abscesses discharging on the face are in the lower jaw. This is probably due to gravitation. Frequently these abscesses open first on the gum, but during the healing process this opening becomes closed. Little pus perhaps remains as the abscess becomes chronic, but the slow burrowing of this, according to the law of gravitation, causes it finally to find exit through the lower jaw. There may be no pain nor other symptoms until this opening has occurred, much to the surprise and annoyance of the patient; the pus in some cases passing directly downward through the bone, but more frequently passing outward into the soft tissues, and then following these downward to point at the lower margin of the jaw.

Blind abscesses may occur, the pus being small in quantity, and being apparently absorbed without any external opening being formed for its exit.

Occasionally, alveolar abscesses have been known to cause extensive necrosis of the bones of the face. This is more especially the case in strumous or syphilitic patients.

Abscesses may also form osseous cysts on the side of the jaw. The pus, instead of being absorbed, is provided for by the expansion of the outer plate of the bone. These cysts form somewhat rapidly, and are sometimes half the size of a hazelnut. The rapid growth of these cysts is an important point in diagnosis.

In persons with an abnormally small jaw, the eruption of the wisdom teeth often cause severe inflammation and abscess, the jaw being too small to accommodate the new tooth. These abscesses generally discharge at the margin of the gum, but the swelling is often so severe as to cause almost complete immobility of the jaw. In a recent case where it was impossible to open the jaw sufficiently to extract the offending wisdom tooth, the second molar was removed, and of course the third molar had now a chance to come forward and the inflammation soon subsided.

Imprisoned teeth may be a cause of alveolar abscess. The diagnosis of these forms is rather obscure. A probe passed into the sinus, if one has been formed—if not, a bistoury passed through the softer parts and bone—will often assist in the diagnosis of such cases. Abscesses of temporary teeth require especial care, and if they are not readily amenable to treatment the diseased tooth should be extracted.

The *diagnosis* in most cases is comparatively simple; but from what has been said it will be seen that the diagnosis, of some forms at least, of alveolar abscess is not an easy matter for the general practitioner. And it is these unusual and anomalous cases that most frequently come under the observation of the physician and surgeon, and the ignorance displayed in treatment renders matters often uncomfortable for the patient, and not infrequently so for the surgeon.

A simple means of testing whether a tooth is abscessed is by rapping the tooth with an instrument. If it should prove tender on pressure, the apical pericemental membrane is inflamed, and the root of the tooth probably abscessed.

Abscesses most frequently occur on teeth with dead pulps. In such teeth the natural translucence of the tooth is gone, the dentinal tubuli being filled up with dead matter, due to the disintegration of the pulp. The dark color and opacity is often very marked, but is occasionally so slight as to escape notice. If, however, the patient is placed in the sunlight and the rays of light reflected on the teeth by means of a mirror, a slight opacity will be noticed.

The patient's notice is often directed to a painful tooth as a possible cause of the trouble, but it must be remembered that neither a decayed tooth nor pain need necessarily be present. The pulp may have died from some other cause, and the diagnosis can be made by the opacity of a tooth and its tenderness on pressure.

The following are some of the cases which have been recorded in dental and medical literature as cases of mistaken diagnosis:

Dr. Otto Arnold (*Dental Review*) mentions a case where a patient was confined to her bed by what her physician supposed to be diphtheria. After being treated for about a week, she began to suspect that her teeth were in some way implicated. The pharynx and tonsils were severely inflamed, but after some difficulty the diagnosis of an impacted wisdom tooth was made, and on its extraction she got well.

Dr. C. R. Butler (*Items of Interest, 1891*) mentions a case diagnosed by the patient's physicians as carbuncles, but which proved to be due to alveolar abscesses from three dead teeth. On their extraction a cure was effected.

J. P. Wilson (*Items of Interest, 1888*) mentions a case of alveolar abscess of eight years' standing, where there was a fistulous opening over the clavicle, near the place of origin of the platysma myoides muscle. The disease had been pronounced by a council of physicians to be of a strumous character. He removed the roots of a diseased first molar and the discharge soon ceased, and the abscess healed without further treatment.

Dr. Tees (*Items of Interest, 1886*) mentions a case where death occurred from a surgeon performing a surgical operation on a case of alveolar abscess with much facial swelling, the patient sinking gradually after the operation. He states that the abscess differed in no way from an ordinary alveolar abscess, the three roots of the first left superior molar being diseased, and the swelling of a sudden and recent nature.

A case recently occurred which had the following history: A boy had a swelling of the face. His family physician applied poultices and hot fomentations to the side of the face, and afterwards opened into the pus cavity with a lancet. A running ulcer formed, which lasted for about a year and three months. The school authorities refused to admit the boy to school during this time on account of the disease. The boy was examined by a couple of physicians from the civic health department, who also recommended his detention from school. He would probably be absent from school still and the abscess still discharging had not another physician made the diagnosis of an abscessed tooth. On the extraction of the tooth, the abscess healed readily, and the sinus closed of its own accord.

The *treatment* is comparatively simple in most cases, and consists in the evacuation of the contents of the pus cavity, and in injections of antiseptics until it is rendered thoroughly aseptic.

In the more simple cases this is readily accomplished by a dentist drilling through the root canal and thus allowing an exit for the pus, and an opening through which antiseptics can be injected. It is rare, indeed, that a skilled dentist cannot success-

fully treat even the worst cases by this means. Of course, if the offending tooth is for any reason considered of no value, the simplest method of cure is its removal; when the abscess will, as a rule, heal without any medication.

In some cases a simple way is to drill through the alveolus, just above the root of the tooth, and thus give an exit for the pus, and an opening for antiseptic medication. If it is desirable to keep the sinus open, a simple method is to place a pledget of cotton, soaked in a strong solution of carbolic acid, in the sinus.

In acute alveolar abscess where there is much swelling of the face, it is often well to endeavor to cause the abscess to point on the buccal surface of the gum over the root of the abscessed tooth. This can often be accomplished by the application of a counter-irritant, such as capsicum or cantharidine, to the gum overlying the root of the affected tooth. A roasted fig or raisin is said also to accomplish the same result.

All applications of hot tomentations, or poultices or counter-irritants to the external surface of the face should be religiously avoided, and if the abscess seems to have a tendency to point externally a free incision for the pus should be made *in* the mouth, and the counter-irritants or other medicaments applied *in* the mouth. This will prevent many an opening on the face, and its consequent scar.

Constitutional treatment should not be neglected where indicated. A saline cathartic will often assist in hastening the removal of an acute abscess.

In those cases where there is a fistulous opening on the face, it is always well to direct, if possible, the discharge into the mouth. If this is done the sinus will heal of its own accord, and the abscess can then be treated in the usual manner. As a rule, the sinus needs little attention after the abscess has healed.

Often considerable disfigurement results from the scar due to a fistulous opening on the face. If under the chin, the scar does not show much, and in a male can be covered by a beard. If on the neck it may be hidden by the clothing; but on the cheek, especially in a female, little can be done to hide the disfigurement.

And here let me give a note of warning. A great many cases have come under my observation where surgeons have made external facial incisions simply because the abscess showed a tendency to point on the face. In one case where the simple extraction of the tooth would have been all that was required to heal the abscess (though even that was not necessary), a prominent surgeon made a crucial incision in the cheek, thrust in a couple of his fingers as an exploratory procedure, and then ordered a lotion of ac. carbol., 1 in 20, to be applied externally.

It is needless to state that such treatment is very reprehensible. There are cases where an external incision is indicated, but these are the exception and not the rule. In such cases, if the knife is used in a conservative manner, the healing process is speedy on account of the vascularity of the facial tissues, and often no perceptible scar remains.

From an æsthetic point of view, the surgeon should always endeavor to give vent to the pus by an incision inside the mouth, and not by an incision on the surface of the face.

One of the hardest tests to which my powers of argument were ever put was in persuading a fellow-practitioner from making a great gash in the cheek of a lady who had an alveolar abscess, which any good dentist could successfully treat by drilling through the root canal, and giving vent to the pus in that manner.

In regard to antiseptic medication any reliable antiseptic will do. Carbolic acid, peroxide of hydrogen, listerine and campho-phenique are perhaps the favorites with dentists. Thymol, creasote, oil of cloves, oil of cinnamon, sanitas, salicylic acid, iodine, and various other antiseptics, all have their advocates.

In this paper I have purposely omitted going into the detail of treatment of the simpler forms of alveolar abscesses, as they belong to the domain of the dentist and not of the surgeon. I would also strongly recommend that in all cases of doubtful diagnosis a competent dentist or oral specialist be called into consultation. These abscesses respond speedily to proper treatment, and the diagnosis, too, is, as a rule, simple to the dentist or oral specialist; and yet there are innumerable cases where the patient has been disfigured or inconvenienced for years by this disease simply through the ignorance of their family physician, who has failed to make a correct diagnosis. Later on, perhaps, a correct diagnosis is made by a dentist, or someone who is familiar with the disease, and the patient is cured in a few days or a week. Naturally, the patient is much embittered against the medical man whose ignorance allowed such a foul ulcer to remain on their face for such a long time.

Prophylaxis is of importance in the prevention of alveolar abscesses, but this belongs largely to the domain of the dentist. It should, however, be the duty of every physician, whenever he finds decayed or offensive teeth present in any patient, to impress on them the importance of visiting their dentist and having their teeth attended to.

## Editorial.

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### Wanted, more Original Communications.

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We have seven provinces in Canada, and seven dental organizations, and there is no reason but that of absolute laziness why we should not have a steady stream of original communications flowing in two directions, from Halifax and Vancouver. This journal has no fault to find on the score of subscribers in Canada and the border States, as well as elsewhere; but it is a shame that we have so many able pens that are so indifferent to the duty they owe to our own dental literature. With many it is a sensitiveness to personal criticism. They can avoid that if they wish by writing impersonally. Our college graduates seem to have largely subsided into silence. We should be glad to hear more from them. Then we have a large number of first-rate men whose experience of twenty years' or more practice is better than all the books. If we could afford it, we would like nothing better in the interest of the journal than visiting every dentist from Halifax to Vancouver, taking notes of new ideas. It would be a feast of reason.

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### Questions and Answers.

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In the January number Dr. R. E. Sparks, of Kingston, Ont., will kindly begin the editorship of a department of "Questions and Answers." All correspondence in this department should be sent directly to him. It is desirable to use brevity both in asking and answering questions, and the busy man—we have none other in dentistry—who cannot make time to write a longer article ought to be able to find time to write a post card.

The following queries have been received, to which we hope answers will be sent before the 25th of the present month:

*Ques. 1.*—How would you take an impression of lower maxillary, very flat ridge; muscles risen almost to surface; hypersecretion of saliva?

*Ques. 2.*—Explain difference of cohesiveness and discoloration as occurring in one or two sheets, or in pellets, of same book or bottle?

*Ques. 3.*—When, where and how would you trim models for full upper dentures?



### Public Perversity.

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There are people whose philanthropy is never excited but by the crime of some hardened scoundrel. They have never a sympathetic affection aroused for a fellow-being struggling manfully against temptation to do wrong ; but let the same man murder his mother, and they turn up the whites of their eyes in morbid pity, and become tutelary saints to the brute who has been sentenced to hang. They not only decorate his cell with the white flowers symbolical of purity, but their sickening sentimentality runs to such excess that, had they the power the day before the execution, they would incarcerate the jury and let the criminal go free.

It is no surprise, then, that dental quacks should find friends to deny or extenuate their quackery. In every community there are men who instinctively ally themselves with whatever is morally and legally wrong. They fly to it as the steel to the magnet. They are not only communistic but iconoclastic, and are never so happy as when they throw mud at organized society. It is a wonder to many how these frauds sometimes manage to woo the sympathy of respectable people. There is no mystery about it. We know how it is with the practice of medicine. We know that the Canadian cities are frequently infested with a perambulating syndicate of inferior medical men, headed by an ostentatious humbug, and that even in such University centres as Toronto and Montreal, they repeatedly gull and defraud the public, and leave with a rich harvest. Even the pulpit is not free. Smooth hypocrisy and sleek intrigue sometimes impose for a long time upon a godly people. The dental quack draws sympathy—First, by lying about himself and his “superior abilities ;” second, by lying about the conduct of his confreres. He pretends to mistake their contempt for malice, and would be in the seventh heaven of satisfaction if some confrere would notice him—or kick him. The class who expend their pity upon a condemned criminal, are instinctively led to sympathize with the dental outlaw. The people who swallow the falsehoods and prescriptions of the medical humbug, are as likely to believe the dental liar who declares he can perform miracles upon dead bones. The public must suffer because respectable practitioners dislike to show any appearance of opposition, which gullible people think to be jealousy. A quack has no “reputation” to lose, but everything to gain in a conflict with respectable men. It is by lying that he “prosperes,” and no respectable dentist would enter into a competition in that line. However, in spite of the flowers of a mistaken sympathy, the murderer hangs. He may die in the odor of roses, but not of sanctity. A quack’s “reputation,” too, is remembered by his contemporaries, and passed on to posterity.