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**Journal of Dental Science.**

ISSUED MONTHLY.

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### THIRD VOLUME.

THE CANADA

# JOURNAL OF DENTAL SCIENCE.

MONTHLY—\$2 A YEAR, STRICTLY IN ADVANCE: AN INDEPENDENT  
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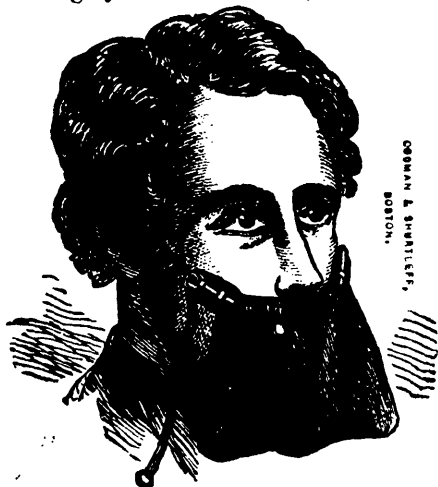
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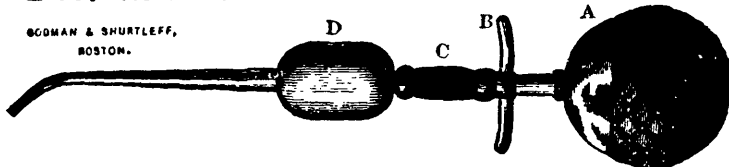
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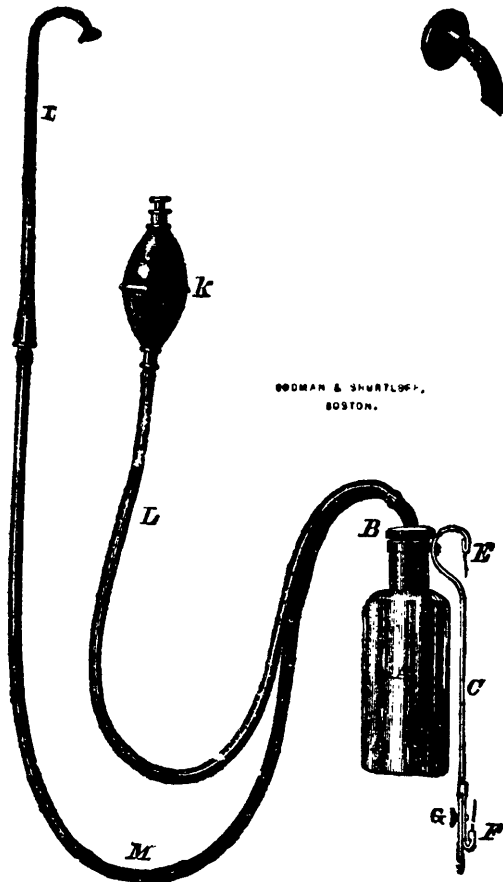
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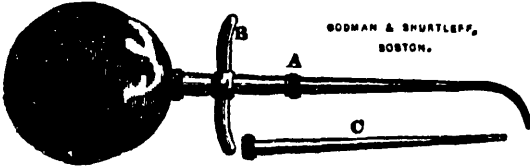
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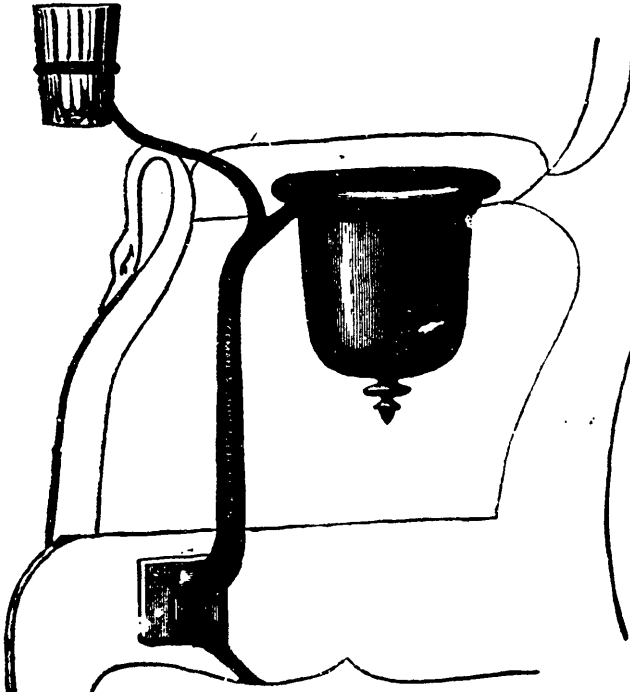


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*ORIGINAL COMMUNICATIONS.*

THE MANUFACTURE OF ARTIFICIAL TEETH.

*Read before the Montreal Dental Society.*

BY C. BREWSTER, L. D. S., MONTREAL.

In the manufacture of artificial teeth on this continent, there are so many firms competing, that the article manufactured, instead of improving, has rather deteriorated in the last few years. Whether it is the manufacturer's or the dentist's fault, I do not know, but there is one thing certain, viz: that cheapness! is the cry.

When the vendor of artificial teeth enters the dentist's office, praise though we may, ever so much, his wares, there is one thing above all others he keeps forcing on your attention, and that is how cheap these particular teeth are;—"Why I can sell you those teeth (gum teeth) for two dollars a full set." Such teeth! Save us and preserve us! I expect some day to have some teeth offered me made of borax. I believe there are some teeth that have got down to one dollar a set. I do not think they will go any lower, and sincerely hope not.

I had an old Scotch gentleman with me some time ago who smashed his set as fast as it was put into his mouth, and one day, with a doleful countenance, he asked me if I "could na fit sum'at into his mou' as'ud staun him." He had pulled off block after block, and what was I to do? I could make the pins hold in the rubber, but alas! I could not make them hold in the teeth. One day, searching amongst odds and ends, I came across a box of "ye ancient teeth," made, I think, gentlemen, before either you or I were born! "Old Alport." Few perhaps have ever heard the name, but here was a visible testimony of the old gentleman having once existed, and a goodly man he must have been in his day, for stout old teeth were these. To be sure the colours were rather peculiar, varying from a dark blue to a bright yellow, but perhaps our ancestors



did not brush their teeth much in those days, and decided colours were the fashion. I came to the conclusion to try "Old Alport," for the colour did not matter a straw, as my friend smoked all day long, and for all I know, perhaps half the night, and his teeth consequently as nearly approached a beautiful (?) coal black as could be. I put in a set of them and sent him off assuring him that he was all right now, but as I had told him that several times before, he shook his head doubtfully. A year or so after, I met the old gentleman in the street, when he exclaimed without preface, "Eh, mon, but they's the teeth. I can chaw anything wi' 'em, why did ye no' gi me these 'afore?" He is wearing them yet and will continue to do so for the rest of his natural life, and I believe he will never succeed in breaking one of them. So much for the manufacturer of the past generation! What have we to say for those of the present day? One day in looking over some old papers, I came across a pamphlet which bore the title "Catalogue of Dental Goods," sold by Messrs. Ash & Son, London, England. How it had come there I did not know, but upon looking through it I saw amongst other things, artificial teeth of all sorts and descriptions, certainly a little higher in price than we had been in the habit of paying on this side of the water. Suddenly an assertion on the part of the advertisers caught my attention, and the more I thought of it the more I was inclined to think there was something in it. "Artificial teeth that are not porous" was the sentence that attracted my notice. I exclaimed, "this thing must be looked into directly." Therefore, straight to London went a note, with the cash, to purchase a sample of these curiosities. I mention "with the cash" because it seems these Messrs. Ash & Son are pretty "uppish" about the sale of their goods and chattels, not even being satisfied with cash, on delivery, but must have it before. A comfortable way of doing business no doubt. On the arrival of these teeth, I proceeded to put them to the test, and a few of the results I will now give.

In order to test the quality of the porcelain of which these foreign teeth were made, I took one of them and ground a deep groove, right in the face of it; then I subjected this ground surface to a good polishing on the "buff" wheel on which was a mixture of emery and oil. The result was a beautiful bright polished surface, fully equal in every respect to the surface that had been ground off. In fact it was proved by experiment that these teeth of "Ash & Sons" could be ground all over the face of them, cutting them into any shape you wanted. Then all you had to do was to sand-paper them, put them on your polishing wheel, and lo, and behold! they were re-enameled as bright and beautiful as if they had just been taken from the furnace. The advertisers words were

proved true,—they were not porous! The porcelain of which they were composed was dense, solid and strong. I took one of the teeth manufactured on this continent, choosing from the best makers of these articles and subjected it to the same test, but I knew beforehand what would be the result, for on other occasions when I had been cornered for want of a certain shaped tooth I had been tempted to grind it into shape, the result was as you all know; the tooth was ruined. It was all very well as long as I kept the stone wet with nice clean water, but put it into the emery brush and suddenly your beautiful white tooth became covered with black spots, showing conclusively that the body you held in your hand was not a solid substance (as you might have imagined it to be) but only a piece of sponge capable even of absorbing water. I next took one of the best American teeth and fastened it firmly in a vice, putting some soft substance between it and the iron to prevent the vice from cracking it; then taking a pair of strong pliers I seized hold of one of the pins, gave a “tug,” the result was a tooth split into two or three pieces, and the pin I held in my hand whole and perfect. I may remark that there was a scientific twist on the end of this pin which had been inserted into the tooth, but as the material of the tooth was not strong enough to hold it, the said “twist” was of no use. I then put “Ash & Son’s” on trial, screwed it tight in the vice, seized the pin, gave a tug and—no result;—pulled again and continued pulling till at last I went staggering across the room. Something had given, was it Ash & Sons? No. There it was, smiling at me from the vice. It was the pin, gentlemen. I do not know whether there was a scientific twist or not at the end of it, as the tooth would not give me the chance to find out. Some day, perhaps, I will investigate it more thoroughly with the aid of a steel hammer.

I hope no one will accuse me of advertising the above named gentlemen, for I can assure them that I have not received anything either in the shape of fat bank notes or otherwise. I should suppose from never having seen their teeth before, that they do not care about this side of the water as a market; in fact from what I have seen of their teeth they would have to alter their shapes, etc., for this country. The teeth made in Europe are too large for this continent, and all I have seen have a peculiar curve inwards, which, though it does not matter materially when inserting them singly, (for as I previously remarked, you can grind them to any shape you like without damage) yet upon putting up a set they have an appearance that with the dentists of America condemns them at once.

In colours, shapes and general artistic appearance I do not think any part of the world can compete with our own manufacturers. Nothing

can excel their imitation of the natural gums, for instance; and in all other respects I would give them the palm excepting on two points; strength and that peculiar resemblance to bone, that in our manufactures is altogether wanting, but which I find even in some old teeth made in Paris a century ago.

Our teeth look what they are,—stone! but the others I speak of, look as though you could take and cut them with a knife, so perfect is their imitation of bone. In point of strength we are even behind the plate teeth made twelve years ago.

---

### CLEAN HANDS.

BY C. S. CHITTENDEN, L.D.S., HAMILTON.

In no other calling in life is it as requisite that a person should have clean hands as it is on the part of the dentist. His operations being mostly in the mouth, it is of the utmost importance that his hands should be spotlessly clean, if he would secure the respect of his patients.

There are many persons who are notoriously filthy in every respect, except about that which enters their mouths, who look with the greatest disgust at the dirty hands of the dentist, and although they may not like to say anything at the time, they are pretty sure to avoid him the next time they require to have their teeth operated upon. In these degenerate times, when most of us are obliged to spend a large part of our time in the Laboratory, it is of importance that we should have at hand something that will remove the dirt and discolourations from the handling of flasks, lead, and moulding sand.

This subject was brought very forcibly home to us the other day while on a visit to a professional brother. We found him at work in the Laboratory with his hands, of course, very dirty. After a few minutes a lady called to consult him, when he went to the basin and attempted to clean his hands with soap and water, but as might be expected, the stains from the flask still remained. He attended to his patient, and after she was gone we remonstrated with him for going to the operating chair with his hands in such a state. He said he regretted very much being obliged to do so, but really he knew of no way by which he could avoid it. He had tried many things for removing the stains but could never find anything that would do it effectually. We told him what we have been in the habit of using for several years with perfect success, and as there may be many others troubled as our friend was, we will tell it to them. We first put as much soap on our hands as we usually do when washing them, and then take about a teaspoon-

ful of carbonate of soda (common baking soda) and rub the hands thoroughly *out* of the water till we think the stains and dirt have all been removed, when we wash them in water. A little perseverance will always accomplish its object. In cold weather, when there is danger of the hands chapping from the use of the soda, we mix enough glycerine with it to make it into a paste and use it in that way. Try it.

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### A CASE OF HÆMORRHAGE.

BY J. H. WEBSTER, L. D. S., MONTREAL.

A number of years ago, a patient of mine called in to see me, bleeding from the gums, having been treated without avail for three days by his physician, who could not stop the hæmorrhage. The blood oozed out slowly from around the neck of a *perfectly sound tooth*, which was neither decayed nor diseased. This was peculiar, and to me, a novel case. The gentleman was so weak that he could hardly stand. He came to me as a last resort, thinking as it was from the gums that it might be within my scope to stop the bleeding. I suggested as the only possible remedy, the *extraction of the tooth*, and afterwards plugging the socket; but I refused to do it unless his physician was present, as the condition he was then in did not seem to justify me in assuming any extra risk, without the presence of his medical attendant.

The next day he returned alone, not being able to get his physician. He had made every arrangement to die; the bleeding had continued all night. The physician advised him to submit to my proposal and he decided to do so. I concluded to take the risk rather than let him perish, and I must say that never in my practice did I feel so great a dread of consequences as on that occasion.

I extracted the tooth—a molar—and the blood spurted out in jets ominously. I immediately plugged tannin and gold foil into the socket—the best things I had at hand,—in ten minutes a clot was formed, and the bleeding had ceased. The blood evidently was arterial. I hardly know how to account for the spontaneous hæmorrhage. I question if any other means than those I adopted would have saved this gentleman's life.

---

### TEETH AT BIRTH.

*Read before the Montreal Dental Society.*

BY W. GEO. BEERS, L.D.S.

A few months ago a child was born in Montreal with lower central incisors, and, having read of the anomaly in the city items of an evening

paper, I posted off to the "scene of the occurrence," as reporters say, and "interviewed" the happy parents, and the interesting addition to our population, and had the satisfaction of examining the case for myself. The mother, instead of thinking me rude, was quite proud of the interest evinced in her child, though not until I had assured her of my peaceable intentions, and my innocence of any desire to experiment on her bairn for the sake of science.

The teeth were to all appearances as perfect in shape as temporary incisors ever are, and abundantly supplied with good enamel. As might be expected, they were slightly loose, but had the feeling under the finger, and, from what could be determined by observing the gum opposite them, of having some attachment to the socket; and I felt assured that the fangs were formed, though not fully, and that the original fibrous septa had ossified and become sufficiently firm and high, to give comparative solidity to the teeth. I hardly supposed that the fangs were as *fully* formed as they would be at the normal period of eruption;—that they had shared in the premature calcification and development of the crowns; because the cementum is the last tissue of the tooth formed. On the other hand, the question arose as to whether or not the calcification and growth of the whole tooth had not been facilitated by the early emergence of the crown through the gum; and again, if it might not be possible that the premature eruption of the crown was actually caused by a premature calcification of the fang, as the eruption at the regular period is generally believed to be the consequence of the increasing size of the fang pressing the tooth upwards, and absorbing the gums. As a rule, the cellular tissue or gums of the child are firm, and of a cartilaginous consistence at time of birth, and the eruption of the teeth at the seventh month is attended with various slight and critical derangements, either a direct consequence of this normal physiological development, or connected with the irritation common about the time of protrusion. Now, of course, there must be considerably greater resistance in the gums at the seventh month, than in embryo, and the counter pressure exerted upon the incompletely ossified pulp would excite a degree of irritation, which would be altogether absent and avoided in premature eruption; and the sympathetic excitement of the emergence of the lower incisors, at the tenderest age, would be escaped by the child, to its advantage, I believe. Here, in the case I describe, the sacular stage had terminated and the eruptive had occurred when the child was in embryo, whereas, according to the normal period, the teeth should at this time have been in the sacular stage, and the eruptive should not have taken place until about the seventh month.

The mother was advised to have the two teeth extracted, as her breasts had suffered severely the first few days of suckling by the biting of the child, but I was allowed to contrive a simple cap of gutta-percha, underneath which was tied a bit of rubber tubing, and which was placed over the teeth, and held in the mother's hand while nursing. The sides of the cap rested on the vacant gum at the side of the teeth, and prevented any extra hard pressure on the teeth; while the rubber tubing, being elastic and hollow, bore easy on them, and perfectly protected the nipples from excoriation. There was no small difficulty at first in coaxing the child to suck with this contrivance on his teeth; but, by perseverance, and mild doses of starvation while the tempting breast was held within an inch of his nose, he was completely subdued. I sent the mother half-a-dozen of the caps, as the youngster had bent up the sides of the gutta-percha, which rested on the gum, and had nearly bitten clear through the tubing of the original—an indication of the probable suffering which would have been entailed upon the mother, had it not been for the protection provided.

The teeth are now perfectly firm in the sockets, have become as long as they ever will be, and the two upper centrals have emerged through the gum. The mother continues to use the cap, and intends doing so until the child is weaned.

This is the second case of teeth at birth I have met with in Montreal; the first being one left lower incisor; the child died in convulsions the fifth day, and was told that the early dental development originated the convulsions. This, however, seems very unsound, as they did not commence until the end of the fourth day, and there was no inflammation or symptoms present to indicate sufficient irritation to have caused such a result.

Some very interesting references to teeth at birth may be found in the pages of history, ancient and modern, for which I am indebted more to the researches of others than my own; though it is to be regretted that comparatively no physiological investigation at all, or high authoritative opinion on this subject can be found, beyond a few paragraphs in old authors.

Pliny cites the case of Marcus Curius, consul of the Roman Republic, who is reported to have had a full set of teeth at birth, and was therefore called Dentatus; the cases of Papyrius and Valeria, born with full sets, are also mentioned by Pliny. Zoroaster, the Persian legislator, is said to have had all his teeth at birth. These extraordinary cases may be received with liberal grains of allowance, as, while we can understand the possibility of the early protrusion of one or two teeth, which ought

to come at the seventh month, it seems very difficult to understand the development of the "complete set," which ought, normally, not to appear in full until after the second year.

Instances of birth with one or two teeth are more frequent and reliable: Louis XVI. had two, and so had his secretary, Cardinal Mazain; also Richard III. and Mirabeau. Many German—excuse me, Prussian—and French writers have reported cases of one or more teeth at birth—several being the two and four canines. Polydorus Virgilius reports of a child born with six teeth; Jones reports a case in the lower jaw, of two teeth which he removed, and the fangs of which were not more than one-third developed. In several instances the teeth were very imperfect; in others, they dropped out; the children were emaciated, and suffering from hereditary syphilis. In many cases, however, the congenital teeth were good, and were retained in place. Several cases are reported where, after extraction of these teeth, new ones replaced them shortly after or at the regular period. This is another suspicious assertion, and it is highly probable that the eruption of the laterals were supposed to be the reproduced centrals. One child, a Spanish dwarf, is said to have had all his teeth at birth—none of which he ever lost—got a beard in his seventh year, and had a son in his tenth.

One eminent European professor maintains that congenital teeth are not genuine teeth, and will be reproduced if drawn. His statements, however, are in the main merely hypothetical, and do not agree with present experience of these anomalies. It would seem reasonable to suppose that the same arguments in favour of retaining temporary teeth of normal eruption, would hold good in the case of these early developments; the alveolar processes and jaw are even easier injured at this active stage of their growth, than later in childhood; irregularity of the teeth would more likely ensue, and all the natural processes of development more likely be disturbed. I should be disposed to try every means to retain these teeth.

The conditions on which their early development depend, have not as yet been ascertained: one early writer associated it with protracted pregnancy, but gave no reason whatever for his conclusions. It is, however, easy to understand, that it is purely an abnormal physiological process, hastened, possibly, by hyper-excitement of development of the dental tissues and adjacent structures, at a time when the gums are soft and offer little resistance to the eruption of the teeth.

## THE PYROXYLINE BASE.

BY W. C. ADAMS, L.D.S. TORONTO.

I find the pyroxyline base to be a success, and so have others. By working the plate up to what is required, and securing as much as is needed on each tooth, according to directions, and then while the last coat is yet soft, cut pieces of the plate with the edges filed thin and softened by the liquid, and put them on and press them for a little while with a warm spatula, and they will adhere, and thus give a ready polish and beauty to the plate, finishing up around the teeth (if there is enough) as though they grew there. If need be for strength line the inside with a light plate or additional thickness.

## AMALGAM FOR FILLING TEETH.

[The *Canada Medical Journal* having refused me the privilege of replying through its columns to the last article of Mr. Bowker on amalgam, I am compelled to insert it here.

It will be remembered that Mr. B. commenced the discussion; that he published in the *C. M. J.* false statements, defaming to the reputation of our Canadian Dental Societies, and those of his confrères who used amalgam ever so discriminately. My refutation of his charges was inserted in the *C. M. J.* Mr. Bowker was permitted to publish another tissue of false statements and personalities, which the accompanying reply was written to refute. This reply was refused insertion, although the editor never saw its contents. The reason given me personally for this remarkable rejection was that "some of the subscribers of the *C. M. J.* had complained of their medical journal giving so much space to a dental question, and that the publisher and he had determined to stop the correspondence."

I should like the *Canada Medical Journal* to explain how it can venture to evade the common law of controversy, which invariably gives the negative the privilege of reply, and which law is an accepted one with all liberal periodicals.

I do not suppose that the *C. M. J.* intends the venture of inaugurating a new law of controversy. If so, it should condescend to announce its intention before putting it into practice.

I leave the justice of the matter to my readers. It is a satisfaction, however, to know that every medical journal and every reliable authority whose opinion has been consulted on this particular point, agree with me, that the editor of *C. M. J.* ventured to stop the correspondence at the wrong end; and that by common courtesy, if nothing more binding, I was entitled to the privilege of a reply.—W. J. BEERS.]



## AMALGAM FOR FILLING TEETH.

BY W. GEO. BEERS, L.D.S., MONTREAL.

The revival of the venerable views on amalgam, and the specious but fallacious arguments adduced against it, which any one can read almost *verbatim* in old numbers of the *American Journal of Dental Science*, is to me like turning over the leaves of a dusty folio, which has been laid aside for half a century, and finding between two of the pages a dead, dry fly—a veritable blue-bottle. Mr. BOWKER “rings out the same old changes,” and harps on the same effete strain as did his dogmatic masters of thirty years ago. To the dental profession the question is a trite and worn-out theme. Common sense and superior intelligence have almost unanimously ignored the prejudiced tirade against amalgam *per se*; dispassionate investigation and discussion have removed the unreasonable opposition to its discriminate use, except from the minds of one solitary individual in Canada, and a “corporal’s guard” in the United States: and it must be remembered that there are always a few men in every profession, who assume a superior intelligence to the rest of their colleagues, but whose professional history, with rare exceptions, does not generally present any proofs of their great superiority, other than what they themselves assume. Thirty years ago there were probably two hundred dead opponents of amalgam, when there were not over 1,000 dentists on the continent, and they poorly educated; to-day, though there are probably 30,000 dentists—hundreds of them having had the benefit of collegiate education—yet there is only one in Canada, and a few in the States, who hold the extreme views expressed in Mr. B’s article. Mr. B., would therefore, have us infer that the dental profession has actually retrograded; that the intelligence of those who recanted their old views is not so great to-day as it was thirty years ago; that thirty years’ college and associative reform has done nothing for its intelligence! It would occupy an entire number of the *Journal* to give even a bare epitome of the bitter “Amalgam Controversy” of 1842-45, the vulgar personalities it engendered, the defamation it produced—which Mr. B. seems to have imitated in regard to our Canadian Dental Societies—and the injurious tendency of the affair on the progress of the dental profession. To re-discuss the whole subject of amalgam would, I am sure, be an unnecessary concession to an opponent who cannot offer one original argument, and who has to resort to arguments which have long ago been refuted, and which the enlightenment of the profession utterly ignores. However, I have no objections to lay bare a few of Mr. B’s misstatements, and I beg a careful reading from even the most prejudiced.

I was prepared for the array of quotations from the minutes of distinct

societies, old dental periodicals, *et cetera*, to which my opponent is at last reduced, and which he now submits as *fresh testimony* (!) against the use of amalgam. I will take it for granted that Mr. B. has never used amalgam, as it will more conveniently allow me to dispose of his arguments. His *demier resort* is precisely what I wanted, to show that not only has he made rash statements in reference to the views still held by some of the strong anti-amalgamites of 1845, but that *his* views of amalgam have not kept pace with the dispassionate investigation and intelligence of the times, which has led almost all of the old opponents who are living to so modify their practice as to use the filling.

I freely confess to a great want of respect for old authorities in dentistry, and should be as much disposed to regulate my practice by what was gospel in 1845, as to follow the vagaries of Celsus, or pin faith to the chemical speculations of the 16th century. My opponent appeals with deference to old writers, who enunciated principles and practices when the science of dentistry was at its dawn, and much of whose assertions are mere theory, easily disproved by first year students, and who are more cherished for what they did in smoothening the way to progress than for any positive authority they now possess.

And yet we do find dentists in practice who continue to destroy all exposed pulps; to extract all teeth affected with chronic periodontitis; to treat hyper-sensitiveness of dentine with arsenic; to cram arsenic around the neck of roots of teeth, in order to cause absorption of the alveolus, previous to attempting their extraction; to use the old key of Garengot almost exclusively; and to follow many other antediluvian principles, simply because Harris or Mrs. Grundy so advised, and because they have not the independance to think for themselves, or the liberality to concede to others who differ with them the barest possibility of being in the right. They make dentistry a science of speculations rather than a science of facts, and are as tenacious, not only of their views on amalgam, but on every other dental question, as if there was concentrated in their brains an incarnation of sagacity, equal to that of the seven sages of Greece stewed down together in Æson's chaldron. The one distilled drop of otto of roses from a million blossoms is not a circumstance to them.

As I showed in my first article, Dr. PARMLY used precisely the same arguments thirty years ago as Mr. B. endeavoured to startle the readers of the C. M. J. with as original, and neither Mr. B. nor any one else has ever been able to add one whit; excepting the proportions of amalgam as given by my opponent—64 parts of mercury to 36 of silver—which are, I will admit, "purely original: his figures, however, remind me of the story of the weaver, who added the year of our Lord at the top of

his page to the amount of his profits, and who got astray in the small item of of \$1860. On the 19th July, 1842, Dr. PARMLY wrote: "I once prepared some amalgam, and filled a *dead tooth* with it for Mr. N., of New York, and he is the only person in the world that can exhibit a tooth ever touched by me with it; *having proved* its deleterious effects I uniformly condemn it, and have condemned it for many years." Now here the great anti-amalgamite exposes a specimen of the scientific reasoning indulged in on amalgam. He admits he only used it once, and in a *dead tooth*, (and yet saved that tooth,) and then, with characteristic logic, concludes that he proved its deleterious effects from mere theory and this one case. Mr. BOWKER, however, does not need even to test the material for himself. He has the opinions of authors, such as HARRIS and PIGGOTT, who participated in the amalgam war of 1842, and who cannot conveniently recant, because they are dead; the opinions of Dr. PARMLY, who has not been in the practice of dentistry for over twelve years, and who does not now presume to offer himself as an authority; he has old volumes of the *American Journal of Dental Science*, which are as dear to him as the Koran to the Mahometan; he has resolutions against amalgam of *old societies* passed during the Amalgam war, which certainly cannot repeal them, because the constant bickering ruined their usefulness, and they have been defunct for two decades; he has *old opinions* of eminent dentists; but the peculiarity about it is that the *American Journal of Dental Science* of to-day rejects the dictum of the *American Journal of Dental Science* of 1842, and the eminent dentists whom Mr. B. quotes as having said such hard things against amalgam in 1842, have recanted those hard words, and now use "the poison!"—"So much for" Mr. H. M. BOWKER.

I must reiterate the regret expressed in my first article, that my opponent found it necessary in relieving his mind of his opinions on a scientific question, to impute "ignorance, want of skill, and dishonesty," pointedly to our Canadian Dental Associations, and to all who were not exactly of his opinion; and to assert, with that innate modesty which characterizes all great men, that as all the dentists in Canada, except himself, used amalgam, therefore he was the only skilful and honest one left in the Dominion! With such contributions to the polite literature of the dental profession I shall not attempt to compete. But this assertion compels me again to remove the impression his articles were intended to convey, viz.: that amalgam is *par excellence* used indiscriminately by those who use it at all, and that those who use it with discrimination are equivalent to those who use nothing else. He also endeavours, in true 1842 fashion, to make his readers believe, that because I defend the

use of amalgam at all, I defend its exclusive use by quacks. Very gentlemanly, indeed.

Every honest dentist accepts the very simple proposition, which is not at all original with Mr. B., but was made and accepted before he was born, or dentistry was a regular profession—that gold is decidedly the best material for the teeth in every case where it can be used. I mean used so as to preserve the tooth and not so as to fall out in a few weeks or even years; used so that the fact of gold being in the tooth is unmistakable, while the fact that the decay has not been half removed or the filling not properly condensed against the parieties of the cavity, is unmistakable too. It is rather trite to present the fact that the principle of every honest dentist—assuming that the public really believe there are other honest dentists in Canada besides my modest opponent—is to use gold for filling teeth as much as possible; and also that the principle of those who use amalgam, is to use it mostly in teeth which my opponent admits he would extract.

Mr. B. extols tin-foil in lieu of gold, and does not seem to think that galvanic action can be excited in the mouth with gold and tin as well as with gold and silver! I never yet saw a tooth that could be well filled with tin, but that could be better filled with gold. I have seen fillings of tin quite as discoloured as bad uncleansed amalgams. Circumstances occur where a soft filling is an absolute necessity, unless the tooth is extracted. The principal consideration in favor of tin over gold is the one Mr. B. seems to despise in amalgam, viz., cheapness. There is no medicinal virtue in gold-foil. To be of use at all it must be thoroughly consolidated, and classes and conditions of decayed teeth exist which are too frail to bear this requisite consolidation, and yet which with a filling easily introduced can be made useful for mastication for life. Now, no honest dentist would use amalgam in a front tooth, for the simple reason that a front tooth is more exposed; and the most precious, most orthodox filling is demanded. Amalgam in some mouths will discolour on the surface but in the large majority of cases where a good amalgam is properly inserted, it does not discolour. It is more liable to discolour in approximal cavities, because the tooth-brush cannot reach these points. However, several of the preparations of gold, such as sponge gold, &c., much used by some dentists, will become as black as ink on the surface. Under no circumstances would I prefer to insert tin-foil in a front tooth; gold can be just as easily inserted in every case.

The opponents of amalgam meet with frail cavities which they cannot fill with either gold or tin-foil, and they either extract the tooth or fill it with a preparation of gutta percha and silex; or another compound called

oxy-chloride of zinc,—a preparation of refined borax, quartz, French white zinc, which is calcined; and to the frit formed, calcined zinc is added, and the mixture made by forming a paste with a solution of dry salt, chloride zinc and water. Neither of these can make permanent fillings, and I have seen many cases where teeth were plastered up with these destructible articles, and deluded the patient into the belief that they were securely filled, when the edges were breaking away, decay creeping in, and destruction ensued, where good amalgam would have saved them. Take very large cavities in the molars; the labial and posterior sides broken away. To fill these properly with gold would necessitate an expenditure of time and material which few people in Canada, at present, appreciate sufficiently to pay for. And here I would say that in one family of four children, in Montreal, well known to Mr. B., I inserted 56 fillings—none amalgam,—all of which, with the exception of 8, had been filled with gold, and oxy-chloride of zinc, by an anti-amalgamite who considers himself something superior, about two years before they came into my hands. In the teeth of one young man, well known to Mr. B., I replaced 10 gold fillings which had been inserted by the same dentist as the above case, about eighteen months before. Now, if a dentist inserts such gold fillings, and charges the highest price, surely he had better have let them alone, and surely amalgam would be better for *him*, at least, to use.

There are a class of dentists who have a class of custom among the poor. If they fill the teeth of the poor with any other soft filling than amalgam, they deceive the patient as to the permanency of the filling; if they use gold or tin exclusively, neither the cost of the former nor the labor of either can be remunerated. And what then? Either the dentist must starve, or the teeth of the poor must be consigned to Mr. B.'s scientific way of escaping an impediment, viz., extraction.

I wish emphatically to remark, that I do not and did not defend amalgam *in toto*. There is not an honest dentist in the land but denounces its indiscriminate use, and will rejoice when some non-metallic soft filling as good can be discovered to replace it. I perfectly agree that there is too much used, just as most of physicians agree that there is too much medicine used. But there are poorly qualified dentists as well as physicians, and you cannot regulate the practice of either in the respective particulars. The *abuse* of a medicine is no argument at all for its abolition, or what would be left of the pharmacopœia? Our Canadian dental societies were organized for the express purpose of elevating poorly qualified dentists to the highest standard they are capable of attaining, but Mr. B. consistently ignores their usefulness and defames their reputation in the Canada Medical Journal. Can he divine

a better way to change any malpractice or mistaken practice than by giving them gratuitous instruction and clinical education? Any dentist can show from the work of "cheap dentists" and some who esteem themselves superior, such abominable specimens of gold fillings as to lead many to condemn gold for filling. Mr. B. is satisfied to look at the bad operations or failures of others with amalgam. Has he no perception for the like in gold? and do all gold fillings preserve the teeth? This dodge of classing those who use amalgam occasionally, with those who use it exclusively is worn out.

A question arises here which it may be as well to dispose of. Can Mr. B., be so ignorant of the proportions of amalgam as to believe what he absurdly asserted in his first article—"When the mixture is subjected to the highest pressure in order to remove the free mercury, the amalgam then contains a preparation of 64 parts of mercury to 36 parts of silver?" What physician believing such to be the case, but would condemn amalgam, as it would never harden in the tooth, and would certainly be swallowed. If Mr. B. is not ignorant of the absurdity of these figures, what were his motives in publishing such a statement, associated as it was with the other assertion that nearly all the dentists in the Dominion *except himself*, used it?

I consider it my business as a dentist to regard the preservation of even a single tooth, in the most of cases, as highly as a physician would a human life. The very end and essence, the *summum bonum* of the honest dentist is to save the human teeth, and conservative dentistry is far above the mere mechanical. Any quack may extract a tooth; every one cannot fill it, even with amalgam, so as to preserve it. Mr. B. admits with bucolic innocence, that there are teeth which cannot be filled permanently with anything *he* now uses in his practice,—for it is a fact that other *sof* fillings than amalgam are not permanent—and that rather than fill a tooth with amalgam he would extract it! There is dental science for you with a vengeance! And from "the expositor of the abuses of dentistry" too! Now according to this scientific admission, my opponent must have extracted hundreds of teeth, because he would not use amalgam, when thousands of proofs exist everywhere in this very city and many proofs in the teeth of physicians and their families of Montreal, that amalgam has healthily preserved teeth from further decay, which would have been consigned to Mr. B's. forceps.

Like nearly all opponents of amalgam, he presumes to speak *ex cathedra* on a point of practice which he "conscientiously affirms" he has never tried! He offers his theoretical knowledge against the practical experienc<sup>e</sup>

of the thousands of other dentists who are teachers in colleges, eminent operators, leading writers of the present day, not of 1842; many of whom are also medical graduates, and who are the acknowledged head of the profession in America and Europe. I should like my opponent to explain the qualifications he possesses to justify him in this assumption. Is he not like the critics who judge a book from the title page, and who, be it marked, are invariably the most dogmatic and intolerant critics of all? Which testimony in the use of a medicine would be most worthy of confidence,—that of the comparatively obscure man who avows his opinions to be due to second-hand text books, back numbers of old periodicals, old opinions of writers, which they recanted, and resolutions of defunct societies, or that of the men who have the lead in every progressive dental movement, who are the acknowledged leaders in this most progressive period of dentistry, who, with one or two exceptions, repudiate the assertions of the former? Mr. B. would positively have the world believe that mere opinions formed thirty years ago are more reliable than as many years practical observation and experience!

There are points and paragraphs in Mr. B.'s last article which I cannot quietly pass over—they are too tempting to omit. He labors hard for arguments, and gives as his reason for accusing the "Royal College of Dental Surgeons of Ontario" of encouraging the use of amalgam, that "in the *Canada Journal of Dental Science*," vol. 1. page 210, are to be found questions put to the students on amalgam, in the said College. The wrong use of the plural instead of the singular number does not seem to rub against the grain of his conscience whenever it can make an argument appear stronger. There were not "questions" asked. There was only the one question asked. "What is an amalgam," and this not by the examiner on Operative Dentistry whose office is to "encourage" the proper materials for filling teeth, but by the examiner on Chemistry, whose office is to treat his questions from a purely chemical point of view. But what has he to say about his false charge against the Dental Association of this province? Nothing more than that as I was Secretary of the Association at the time, and because I edited the *Dental Journal*, therefore the Society of which I was Secretary "advocated and vindicated the use of amalgam!" Very logical, indeed. Very original logic! Peculiar to Mr. H. M. B. And yet, Mr. B. conveniently overlooks the important fact that the only reason I wrote on amalgam was to disprove his false accusations, and that *he had published* the false accusations in the *Canada Medical Journal* before I wrote a line on the subject. "So much for" Mr. H. M. B. How monotonous it is for some men to tell the truth!

He also says "the *American Journal of Dental Science*" has always in

its articles on the subject taken a most decided and *uncompromising* stand against the use of amalgam," and yet in the second paragraph of his article, he says that the present editor of the *Journal* "thinks I have taken an extreme view, and believes that amalgam *can be safely used* in teeth which are mere shells." He mentions HARRIS, WESTCOTT, DWINELLE, S. BROWN, PIGGOTT and PARMLY, all of whom he says, "repudiated the use of amalgam, and *those of them now living remain unchanged* in their opinions on this question." Well, HARRIS, BROWN and PIGGOTT are dead; DWINELLE refuses to discuss the subject; PARMLY is no longer in practice, and WESTCOTT, who is still a leading man in dentistry and who was actually the brightest man of them all, has recanted his old opinions. The "*American Journal of Dental Science*" in reviewing Mr. B's. first article said as follows:

"This article is somewhat severe upon the "Royal College of Dental Surgeons," and the Dental Societies of Canada. *Who Mr. Bowker is we do not know*; perhaps the "*Canada Journal of Dental Science*" can enlighten us; but whether Mr. B. is qualified by professional *experience* and *investigation* to make a report upon this subject or not, much that he says is true, but at the same time we think that he has taken an extreme view of the case.

"Although no advocate for the indiscriminate use of amalgam and believing that tin-foil is much superior as a *cheap* material for filling teeth, yet we think this compound may be used in teeth which are mere shells, so far gone that no other metal can be safely introduced, and that it will preserve such teeth for a time at least, especially where their extraction is contra-indicated for some good reason.

"On the other hand such fillings should never be used in teeth which it is possible to fill with either gold or tin-foil; and in no case should amalgam be used in front teeth, or in the pulp cavities of teeth, or in the proximity of a living pulp.

"When properly prepared and properly introduced, instead of amalgam. fillings containing 64 parts of mercury to 36 of silver, as Mr. B. asserts, the proportion of mercury need not and should not be half so great.

The objections urged against this compound in Mr. B's. article would certainly hold good, *if the amalgam used at the present time was as impure as that employed ten or twelve years ago*. But a great improvement has been made not alone as regards the purity of the ingredients composing amalgam, but also as to the manner of preparing and introducing it into the teeth.

"The following is the best method for using this material in cases where its use is indicated." Then follows the detailed description of the



"method of use. Now I ask any one of common sense if that is the uncompromising condemnation" of amalgam Mr. B. would make his readers believe the American Journal of Dental Science still maintains. This extract is from the pen of *the present editor* of the A. J. D. S.,—Prof. GORGAS, who is also Professor of Dental Surgery and Dean of the oldest Dental College in the world, that of Baltimore. Knowing Mr. BOWKER's high appreciation of the A. J. D. S., and all connected with it, I wrote to Prof. GORGAS and received the following answers to questions, Dec. 2, 1870.

*Question*—Do you not believe that amalgam will preserve a healthy tooth?"

*Answer* (by Professor GORGAS.)—"I do, if it is properly inserted into a properly prepared cavity."

*Question*.—"Do you think it better to extract a tooth, as Mr. BOWKER says he would do, rather than fill it with amalgam."

*Answer* (by Professor GORGAS.)—"I should prefer having a tooth filled with amalgam, to having it extracted, and would so advise my patients."—"So much for" Mr. H. M. BOWKER.

Dr. WESTCOTT's writings and sayings seem to have great weight with Mr. B., who says, "Dr. WESTCOTT, *an authority*—he having filled the Professorial Chairs of Operative and Mechanical Dentistry, in the Dental Colleges of Baltimore and New York—is one of *the original and most indefatigable writers against* all preparations of mercury for filling teeth. What does he say? His utterances are not uncertain; what language can be more decisive? He, in the most emphatic manner, says, "No man who has so little self-respect as to use this amalgam *to any considerable extent* will refuse to stoop to any species of quackery which will contribute to his pockets," &c. Precisely so say I; and every honest dentist joins in condemnation of the men who use amalgam to such a considerable extent as to seldom use anything else. Dr. WESTCOTT was once an editor of the A. J. D. S. He is a great authority on amalgam, Mr. B. tells us, and the latter quotes what he said twenty-five years ago; a quarter of a century does not enlighten one according to Mr. B.'s theory. I trust, however, his weak nerves will survive the following little shock, and that Dr. WESTCOTT will continue to hold a place in his memory. Mr. B.'s "authority," like all sensible and unprejudiced men, has the manliness to acknowledge his erroneous views on amalgam, and is now using "the poison." He was the Secretary of the "American Society of Dental Surgeons," which passed the resolution against amalgam, and his name is appended to that resolution with Dr.

PARMLY'S; and so zealous a seconder was he of the bitterness of the latter that he was named his "*fidus Achates*."

"Syracuse, Jan. 16, 1871.

MR. W. GEO. BEERS—

Dear Sir,

I am in receipt of your letter upon the subject of the use of amalgam. I would have replied more promptly could I have found time to write you as fully as the subject demanded; for having somewhat *modified my views and practice* within the last fifteen or twenty years upon the subject, I hardly liked to give you the views I now entertain without giving you fully my reasons for such modification, and the restraints and limits I still hold in reference to their employment. Should I get time to do so, I will at some future time write out my views fully upon this subject, stating when, and only when, how, and only how, I use amalgam for filling a tooth.

Very truly yours,

A. WESTCOTT.

May I not return the salutation of my opponent, and say "So much for"—Mr. H. M. BOWKER.

In another place my opponent says, two leading Ontario dentists—one the co-editor of the *C. J. D. S.*—"agree in the main with me as to the use of A." Well, it seems necessary to reiterate that every honest dentist agrees that the indiscriminate use of amalgam is wrong, and that the use of *Mr. Bowker's amalgam proportions* is not only wrong, but worse. But how hard up my opponent must be for arguments, when he has to quote such a statement of dentists *who actually use amalgam*.

He courteously says, I do not tell the truth in saying that the "American Society of Dental Surgeons" did not *unanimously* carry the resolution of 1845 condemning amalgam. The facts are these (my readers can interpret them as they please): sixty-one members voted dead against the resolution when it was first brought up, and after these sixty-one had either resigned, or were expelled for non-compliance with the rash and silly movement, the remainder then "unanimously" (!) carried their own resolution. Mr. B. also denies that this resolution was finally rescinded: here is my authority for saying that it was. At a special meeting of the Society, held in Baltimore, 25th March, 1850, Drs. WESTCOTT, TOWNSEND, and I. H. FOSTER were appointed a Committee to report on the propriety of rescinding the amalgam pledge. At Saratoga, in August, 1850 (the following appears in the *New York Dental Recorder*, vol. 5, page 69): "The Committee appointed at the called meeting in Baltimore to consider the propriety of rescinding the amalgam

pledge, reported through their chairman, Dr. E. TOWNSEND, which report, after considerable discussion and recomittal for the purpose of amendment, was finally adopted, and the following resolution along with it:—

“*Resolved*—That the several resolutions adopted by the “Society of Dental Surgeons,” at the annual meetings held 1845-46, having the effect of enforcing subscription to the protest and pledge against the use of amalgams and mineral paste fillings for teeth, be, and the same are, hereby rescinded and repealed.”

Common sense has also repealed it: science peremptorily repeals such rubbish in her onward march.

Mr. B. cites resolutions passed in the dark ages of dentistry by the “Virginian Society of Surgeon Dentists” and the “Mississippi Valley Association of Dental Surgeons.” Pray, who were they? and where are they now? “Down among the dead men.”

My over-anxious opponent asks, “Is the Canadian Dental College prepared to say that the members of their kindred colleges in the United States are ignorant empirics?” That will not do, Mr. B. The Dental Colleges of the United States, as their reports show, do use amalgam, though discriminately; the Canadian College has not used it as it has happened; therefore Mr. BOWKER alone is the one who charges “the members of their kindred colleges in the United States with being ignorant empirics.”

During a recent trip through the United States I met most of the very leading men in the dental colleges, as societies, the journals, &c., and had especial opportunity of finding out the facts as to the use of amalgam. I found one bitter old gentleman who vented forth the ancient refrain against its use; but I also discovered that he never tried to save exposed pulps of teeth, and that in the great improvements in practice he had no faith or share. All unanimously advocate discrimination in its use; use of gold in preference wherever it can be used; but the old theories I found entirely exploded, and yet the very proper precaution prevailed not to extol it, lest it should lead to over-estimation. Professor ATKINSON, of New York—a very giant among giants in dentistry, whose excellence in operating, keen diagnostic and general scientific attainments none can fairly dispute, and who frequently receives \$50 and \$100 for a single gold filling, and who, therefore, has every reason, were he selfish, to denounce amalgam—writes to me lately the following replies to questions:—

1. “Will not a properly prepared amalgam, properly inserted, preserve a healthy tooth?” *Answer, by Professor A.*—“Yes, as well as any other filling.”

2. "Do you believe there is any possibility of ptyalism from amalgam in the teeth?" *Answer, by Professor A.*—"Nay, verily."

3. "Is amalgam not used by very eminent dentists for patients who cannot pay for gold, and for certain classes and conditions of decayed teeth which cannot be well filled with gold?" *Answer, by Professor A.*—"Yes, and by those of deserved eminence."

I can produce any quantity of such testimony from mostly all the leading dentists: *one more will suffice for the present: it is from one of the keenest observers and rising men of the profession, Dr. S. P. CUTLER, Professor of Chemistry, Metallurgy, Microscopy, and Histology in the New Orleans Dental College. He says, "Undoubtedly I do think amalgam may not only be used, but with most decided benefit in a great many instances; where gold cannot be used I would use amalgam for permanent use. I have had several discussions with Dr. GEO. WATT on the subject of amalgam, and I always differed with him; his conclusions were not at all satisfactory to me. I have used amalgam for 25 years quite extensively, and never in any instance have I seen a single well-marked case of disease, either local or general, from its use in my own hands, or in any others. I have seen cases that have been attributed to its use, but without satisfactory evidence. I believe that good amalgam fillings in badly decayed teeth, thoroughly introduced and well finished after hardening, to be superior to any other filling, and will preserve such teeth much longer than gold or anything else, especially in back teeth. There are various reasons for the conclusions well-founded."*

A dealer in dental materials in Ontario tells me that he has sold amalgam to nearly every dentist in Canada, though there are some dentists who deal elsewhere; he "sells to the best as well as the poorest. My sales in Canada amount to about 500 ounces per year." The largest dental depot in the world writes to me, Dec. 2, 1870: "We do sell amalgam to many of the leading practitioners in the United States; it is very extensively used by some of the profession, who, as contributors or editors of dental journals, professors in dental colleges, &c., are regarded as eminent dentists. Our sales amount to between 5,000 and 10,000 ounces per year." And it must be remembered that there are perhaps a score of dental depots in the United States.

Some of the leading dentists in the United States have recently introduced amalgams of their own composition to the profession.

The Dental Journals contain advertisements of amalgam recommended by leading dentists; and if the *Canada Dental Journal* does advertise amalgam, it is only what is what done by every other similar journal in the world, and Mr. B. must be very simple if he thinks a

publisher would refuse any proper advertisement. He has raked up all the petty little things he can think of to strengthen his case, but they have only served to weaken it. He twists a quotation around and endeavours to make it appear that the words of another whom I quoted, are original with me, and says "As long as I have been a member of the profession, I was not aware that pure gold would become highly oxydized when used as plugs in the teeth, or would have any medicinal effects on the constitution," Who said it would? Neither I nor the writer whom I quoted. My quotation said, "With equal propriety it *might be urged* against gold, that, *because when highly oxydized* it becomes a powerful medicinal agent, therefore it should not be used as a filling for teeth." This was in connection with a refutation of the assumption that because there is mercury in amalgam, it must necessarily have a mercurializing influence. Mr. B. has something now to learn about gold as well as silver, if he is not aware that gold can become oxydized; and that it can produce medicinal effects on the constitution. Is not the ter-chloride of gold a powerful irritant poison? And Mr. B. is not aware that there can be produced an oxide of gold! Did he never know that a preparation of gold muriate or chloride of gold has been used as an antisyphilitic, in obstinate scrofulous and cancerous glandular enlargements, exostoses, &c., and that it is rubbed on the tongue or gums?

In my last article I referred to JOHN TOMES, F.R.S., author of "Tomes Dental Surgery," &c., NASMYTH, well-known for his physiological investigations; SAUNDERS, dentist to Her Majesty; and other eminent English, German, French and American authors and practitioners; Professors PIERCE, BUCKINGHAM, MCQUILLEN, FITCH, FLAGG, ALLEN, &c., all of them the very leading talent, and admittedly so. Mr. B. amuses me by asking the pompous question: "Are they practitioners of any high repute?" Perhaps the "American Journal of Dental Science," who does not know "who Mr. B. is" will answer his question. I should like to know who are practitioners of high repute, when we exclude such men as the above, and the host of eminent dentists, who hold the same views of amalgam.

I am sure that Mr. B.'s query will be a source of amusement to the dental profession in general. Possibly he believes that as he—according to his own assertion—is the only skilful and honest Dentist in Canada, so the few extreme opponents of amalgam in the United States are the only intelligent ones left since the days of 1842.

Mr. B. says "I ask Mr. BEERS, "Are the physical conditions of the human frame different in 1870 from what they were in 1847?"

If the malpractice of amalgam was determined in 1847, what circumstances can possibly make its use sound and good practice in 1870?" Very easily answered. 1st. I am prepared to debate the former question in the affirmative, at any time. But allowing that they have not undergone any change, I would answer that the common sense and intelligence of 1870, such as shown by Dr. WESTCOTT, is infinitely in advance of 1847, and I pity him if he doubts it. But may I ask him to point out the divine law which made the dictum of 1847 binding on the generation of 1871; and if it was "determined in 1847" that there was no real hope of preserving an abscessed tooth, why we make efforts and succeed in saving them in 1871. Pshaw? such a question is only fit for a *habitant* to ask, who clings to his wooden plough, and his poor agricultural ideas, because his fathers taught him to do so.

How does the matter stand to-day? In favor of the discriminate use of amalgam, we have the very leading men in every country in the world; while on the other hand, they freely admit that gold is the best filling when it can be used to save the tooth. The opinion of John TOMES alone is worth ten times more than that of any prejudiced investigator in America or elsewhere.

I have one serious question to ask Mr. B., which, with the other points, I beg him not to evade. If, as he asserts, he has *always* considered the use of amalgam injurious, and has known in his thirty years practice that it was used, and even very much more used formerly than now, why he waited until the present organization and progressive movement of the dental profession in Canada—in which he shirked a share—to unburden his mind of his opinions? He had such a superabundance of conscientiousness all of a sudden, that he felt "it would be a violation both of duty and conscience to remain silent,"—*yet he remained so a quarter of a century*, and was impelled to come out as an "expositor of the abuses of dentistry," at the very nick of time when dental associations, a college, and a journal were vigorously working for education and reform.

One question more, and I have done with Mr. B.

The early writers against amalgam held the view that because there was mercury in it it was poisonous. Mr. B. quotes Dr. GEO. WATT and Dr. TAFT, of Cincinnati extensively. Drs. WATT and TAFT say that because there is mercury in amalgam it is poisonous. Mr. B. also says that the mercury in the compound is the reason it is poisonous.

Well, Dr. WATT says of red vulcanite, which is used as a base for artificial teeth, that because there is mercury in it, it is poisonous. Dr. Taft says it is poisonous. Now what about Mr. BOWKER? Oh! he has been using this very red vulcanite since its introduction, and though Drs.

WATT and TAFT, who are so great authorities with him against amalgam say it is poisonous, and Prof. SILLIMAN says that one-third of the whole is sulphide of mercury, and though a host of dentists, chemists and physicians are running the rubber question in the United States just as amalgam was run in 1845, and though Drs. WATT, TAFT, &c., say it causes salivation, produces injurious constitutional effects, &c., yet Mr. BOWKER places it, not in the *bony* substance of a tooth, but covering the mucous membrane of the hard palate! And this tirade against red vulcanite "because there is mercury in it" is of 1870 and 71, not of 1845. Will Mr. BOWKER explain this remarkable inconsistency? Personally I do not believe that if the rubber is properly vulcanized, kept clean, and removed occasionally—as nature never intended the roof of the mouth to be covered with a foreign base—that it is injurious or poisonous; because before the mercury or sulphur can be set free the base must undergo decomposition. The opposition to its use in the States originated when the Goodyear Rubber Co. compelled dentists to pay an annual tax, and its principal opponents are those who have prepared substitutes to take its place, and which they are anxious to sell. But still there is sulphide of mercury in red vulcanite, and how does my opponent reconcile his opposition to amalgam, which keeps hard and perfect for years, with his use of a material which wears away in the mouth; and we know the sulphide of mercury used in the rubber is frequently adulterated with red lead, and bisulphide of arsenic—poisons which are soluble in the mouth.

In conclusion, I hold that if any dentist extracts every tooth he cannot fill with gold, and which can be filled with amalgam, he is guilty of gross injustice to his patients, and gross malpractice. This is the opinion of the leading dentists of the day, and while determining to use gold in every possible case, they are well aware of the risk incurred in extolling a filling so easily introduced as amalgam. There are "cheap dentists" who cannot use gold, and to whose souls a defence of any soft filling is a sweet consolation. I do not defend amalgam, or anything else in the hands of the "cheap dentists." But I know that they *may* make a permanent filling of amalgam, while I know that they cannot make one of gold. Not to mince the matter, the majority of the present extreme opponents of amalgam, are all old-fogy practitioners, who esteem their age and past reputation sufficient reason to dignify the most absurd assertions. The progress of dentistry never was much aided by their efforts, and never will be. They have fallen behind, and have failed to keep pace with that intelligence and freedom from prejudice, which characterizes the men who *now* rank highest in the dental profession of every country in the world.

## CORRESPONDENCE.

[Among the scores of opinions on Amalgam sent me by the leading men in the profession, we value the following from the pen of one of widely recognized ability. Though written very hastily and not exactly for publication, it evinces something deeper than second-hand assumption.]

MY DEAR SIR,—Your favour of 22 prox. came to hand day before yesterday.

I have been experimenting since yesterday morning on amalgams. First, I put into nitric acid one part to four of water, a lump of hard amalgam; second, hydrochloric acid one part to two of water; third, sulphuric acid one part to two; fourth, strong vinegar. A lump of dry amalgam has remained in each since yesterday, the only effect noticeable in either is a slight action of the nitric acid, darkening slightly the surface, without any perceptible change; none of the others have underwent any perceptible change, but remain clear and white.

Now any of these preparations are sufficiently strong to act with energy on teeth in the same length of time, and any of these acids would if retained in the mouth any length of time, excoriate the entire mucous surfaces. Good amalgams are composed of pure tin and silver, and amalgamated with pure mercury. Water does not decompose mercury, silver or tin to any perceptible extent. Nitric acid dilute acts on silver, also mercury separately and less so on tin. Heat facilitating the action when the three are combined, as in amalgam, the acid action is greatly lessened. I do not believe that any action of the fluids of the mouth is sufficient to produce any mercurial salt capable of acting injuriously to the slightest extent, even in cases that have been repeatedly salivated by taking mercurials; if so, I have never witnessed a case during thirty-two years professional observation.

I have seen a filling but a short time since, made of silver filings and mercury, that had been in a lower bicuspid twenty-five years, the filling being perfectly sound and the tooth all round except near the gum where a cavity below had nearly reached the filling. This filling was very dark on the surface, but on running a file over it slightly it gave a pure sound white surface, in consequence I left the filling in and filed below it. This dark surface was the result of the silver oxidizing slightly.

Remove any amalgam filling from any tooth and file the surface, and the filed portion will become white and metallic. In order to get protoxide of mercury, which is the only one of consequence, mercury must be heated up to 600 degrees with free access of air, then red pre-



precipitate is formed, which is the protoxide, and on raising the heat higher, this oxide is again decomposed into the simple elements.

To form calomel, which is a sub-chloride, subnitrate of mercury is precipitated by common salt; it is also formed by other processes. Protochloride of mercury, or corrosive sublimate, may be made in several ways. When metallic mercury is heated in chlorine gas it takes fire and burns, producing this salt.

From the above formulas it will be seen that mercury is not readily acted upon by any fluids that may exist in the mouth, as these fluids always contain at least from 800 to 900 parts of water in 1000 parts, so that any acid or any other agent combined in this fluid could absolutely have no action of any moment; neither in tin or silver; the latter turns dark from an oxide being formed in some mouths much more readily than in others; some mouths scarcely acting on a silver plate at all. Youman says that mercury slowly vaporises at all temperatures above 40 degrees; some say all temperatures above 66. The vaporisation goes on more rapidly as the temperature is raised up to the point of ebullition 662.

All the apprehension that need give us any concern in connection with amalgam fillings is the vaporisation during the process of hardening, some of which undoubtedly will be inhaled into the lungs, as this vapor must be lighter than air or it could not be a vapor at all. The amount that might be inhaled would be so insignificant that it would not do any mischief, as it would be carried out of the lungs again even if it passed the entire rounds of the circulation.

Workers in-quick silver are short-lived, owing to the fact that they are constantly in an atmosphere charged with these vapors, which no doubt keep their systems saturated during their working hours, which in a few causes a total lesion of nutrition, the hair and nails fall off, the hard tissues become saturated; the periostium fails to nourish the bones, and the poor wretches die from exhaustion.

The insignificant amount of this vapor escaping from a fine amalgam filling could produce no injurious effect. The vapor will salivate when sufficient has been inhaled, which is the first effect of almost all forms of mercury, however introduced into the system. Mercury in its action is an irritating stimulant, to the glands more especially, the liver primarily, the oral secondarily.

March 31.—All the specimens have now been in the acids 48 hours; none of them are in the least affected, except that in the nitric acid, which is nearly all decomposed, with some precipitate of tin I suppose, at the bottom. It will be seen that in 24 hours there was scarcely any

action at all by the nitric acid, and now none at all by any action of the other acids.

I think these conclusions are sustained by demonstrable facts as given above.

S. P. CUTLER, M.D., D.D.S.

Professor of Chemistry, Metallurgy, Microscopy and  
Histology in New Orleans Dental College.

New Orleans.

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## PROCEEDINGS OF DENTAL SOCIETIES.

### MONTREAL DENTAL SOCIETY.

BY L. J. LEBLANC, L.D.S., SECY.

The second monthly meeting was held at the office of Mr. Leblanc on Monday evening, the 3rd of April. Mr. Leblanc read an essay on "Dental Hygiene," which will appear in the Journal. The President read a synopsis of a document being prepared to be sanctioned by the Dental Societies of Canada, relative to the imposition practiced by quack dentists, and which it is proposed to publish in every English and French paper in the Dominion. The only effectual way to repress quackery seems to be by thorough exposure. It is hoped that this document will induce some of the latter to reply, when an array of facts from their private practice will be published.

Experiments with nitrous oxide on animals under a glass bell was tried.

A number of very rare and interesting cases of necrosis, fibrous and osseous tumors, &c., in connection with the teeth, were exhibited. Dr. Alloway was appointed to prepare an essay for the next meeting.

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### MASSACHUSETTS DENTAL SOCIETY, BOSTON, APRIL 11.

[We had the very great pleasure of attending the last monthly meeting of the above Society—the leading one of the kind in Massachusetts—in Boston, and will endeavor to give a brief *outline* of the proceedings. The M. D. S. is no old-fogy association, but a live active body, whose younger members have old heads on young shoulders, and whose elders have all the vim and energy of youth.]—W. G. B.

Dr. CHANDLER, President, in the Chair.

The topic for discussion was the continuation of the subject of last month: "The time for Filling Teeth."

DR. WATERS.—Various circumstances should guide the intelligent dentist in deciding *when* as well as how to fill a *child's* tooth. Very

frequently teeth have large foramens at the apex of the root, and there is danger then of lacerating the periosteal tissue in introducing a gold filling. He would temporize with oxy-chloride of zinc, amalgam, or gutta percha, leaving it in for a year or so, and then replacing with gold. He did not suppose there was any definite rule as to the time to fill a tooth. The age of the patient, the development of the tooth, and other circumstances were to be considered. Some idea, too, may be gained from the development of the parents' teeth. When the central incisors are developed at six years of age, and the first permanent molars at the same time, or perhaps sometime in advance, there is a tendency to approximal decay, because the teeth have been developed with a strong pressure on their approximal surface. The law of crystallization is the same in the mouth as out of it. When a tooth has equal pressure on all sides, crystallization will be symmetrical. When the first permanent molars are decayed he fills temporarily. Where he can control the presence of the patient, he waits, in the case of decaying incisors, until the cavity has commenced forming.

Dr. LEACH.—There are still other circumstances to be weighed before proceeding to fill any tooth. He had often seen in the mouths of adults many fillings well inserted, but the surrounding condition unhealthy and unclean, calcareous deposits, turgid and swollen gums, foulness of breath therefrom, and utter disregard of hygienic rules. There is a time to fill and a time to clean. One of the times not to fill is until a healthy condition of the integuments of the jaw and the membranous coverings of the mouth is obtained. When a patient presents for filling teeth, the question should be mentally asked, "Are these teeth as firm and healthy as they might be? Will it be safe to delay any and all filling until a healthy condition of the surroundings can be produced?"

He would first secure the entire removal of all foreign matter before filling. He would see that the secretions are as healthy as we can make them.

He would fill small cavities and not leave them until adjacent fissures have become cavities. When fissures begin to extend, he would cut them out and fill. The time to fill is when we cannot honestly leave decay alone.

[Mr. BEERS was then introduced to the meeting, and, by request, gave an account of the position occupied by dentistry in Canada.]

Dr. WETHERBEE.—While no one doubts the propriety of cleaning the teeth as the first act to be performed, we should also conclude to do it thoroughly. He objected to two sittings for a tooth. If he had "to carry the war into Africa," he would do it at one sitting. Why? To

prevent unnecessary inflammation of the periosteum and gums ; both of which are more or less touched in the operation of probing. He would not advise all the upper and lower teeth to be cleaned at one sitting; but he would finish cleaning one tooth before filling.

Supposing a case of exposed pulp. Shall I cover it, and try to preserve it. Who values success will not wait in such a case to clean. He will cap the pulp and fill the cavity. If a cavity is not deep, he would remove the tartar to sweeten the breath.

In some cases, when there is decay, it is visible through the enamel, dentine discolored, crystallization not having been perfect. Shall we leave that interstice as it is, or open it? He would take a cone-shaped drill, open the cavity and save the tooth. In some cases the corners of the fissure can be taken off, opened saucer-shaped, and by being kept clean, preserved without filling. He would not postpone filling if the tooth required it at all. In the twelve-year old molar, a tiny excavator may be frequently passed through the enamel; and the result of postponing opening and filling in such a case is disastrous. The crown breaks down; the patient may neglect to return in time, and the tooth is ruined. The time to fill is as soon as the enamel becomes disintegrated, on the buccal or lingual, and approximal surfaces; often before the enamel is actually destroyed.

He held that often the teeth should be *filed* between the six-year old molar and second deciduous molar, a V shape, and that decay would be less likely to affect the former. He uses oxy-chloride of zinc or amalgam for temporary fillings.

Dr. J. T. CODMAN.—Old observers state that the teeth of Europeans, especially the Germans, have flat crowns; while those of the Americans are sharper. (Dr. CODMAN drew diagrams on the blackboard, illustrating this difference in the cusps of the teeth.) This consideration would lead us to the bottom of the primary cause of caries. He considered the European a more normal development of tooth than the American. He showed the cruciform cavity in the centre of the molar, and the cavity dividing the cusps of the bicuspid, both of which he considered arose from imperfect development. Nine cases in ten of such cavities arise from imperfectly developed enamel. In the formation of the tooth, the enamel membrane joins at the centre of the cusps of bicuspid, and an open space is sometimes left down to the dentine below. Dr. C. illustrated the development of the enamel at his point, and said he did not know why European and American teeth differed so much in development. Some attribute it to the former's use of hard bread during the growth of the teeth. They never use new bread in Europe. When we see the

flat crown and cusp tooth we can trust the tooth; when we see the cusps sharp pointed and high, let our investigations be minute, for we will have to fill.

Dr. MOFFATT.—If we could order teeth we would have them flat cusped; but he questioned if we ever saw the extreme development of the cusps described by Dr. CODMAN. The molars and bicuspid develop from the point of the cusps. As they increase in size and development they join. Frequently there is imperfect joint of development between the cusps, food is forced into it, the depression cannot be cleansed properly, the food ferments and decay commences. American diet has a great deal to answer for in relation to the decay of teeth. The Europeans generally use the hulls of the wheat, black bread; thus saving the phosphates and silicates, which are retained in the hulls and easily assimilated by the stomach, &c. We frequently see cusps worn flat by use, in old age, which once were normally prominent. In filling a cavity between the cusps we would build up between, to give a flatter grinding surface than nature had bestowed.

Dr. HITCHCOCK.—The theory of the article of diet has something to do with decay. Families who eat meat principally, have cusps more fully developed, approaching the carnivorous. He thought the theory of regulating the development of the teeth by diet would take several generations. Dr. HITCHCOCK criticised on the blackboard the diagrams drawn by Dr. CODMAN. He referred to microscopical cavities through the surface of enamel and dentine, which are often filled with cementum when first developed, this wearing off in the course of time. The use of animal food tends to act mechanically upon the cusps and there is less danger of decay than if soft articles of diet are alone used. He referred to an article written in Germany, showing the different effects of the atmospheres of Europe and America, in points of food, building, drying, clothes, &c. Bread would keep in Europe longer than in America. The relative liability of the teeth to decay in Europe and America is greater here. In 1862, twenty out of one thousand recruits were rejected in the American army for loss of teeth; eight out of one thousand in the English army; and only one out of four thousand in Belgium.

Dr. MOFFATT.—We should study the comparative anatomy of the teeth in mankind and the lower animals, carnivorous, herbivorous and omnivorous; and trusted the society would devote more attention to the point.

Dr. WATERS, would also exhibit his art in chalk, on the blackboard. His ideas were derived from observation: he illustrated a case of a young man seven years old, who came to him, to consult about a

tooth which without any apparent decay, had turned a dark blue. At the highest point of the cusp a small speck was seen, the point was tapped, and a small instrument was pushed down into a cavity. Suddenly the whole lingual surface of the tooth fell over. At one point under the gums crystallization had not taken place. Whether the decay had started from the speck in the cusp, or the imperfection at the neck, was a mystery. He capped with oxy-chloride of zinc, and built out with amalgam, intending to keep the tooth in the mouth until the development of the bicuspids, and then extract it.

Dr. SHEPARD:—Would recall the subject proper for discussion. Many err in trying to do too thorough work, and in cutting out normal lines which may develop into fissures, but which have not formed. He prefers to fill all small cavities in a tooth as early as the decay is developed, and wait for the development of the fissures. He had seen lamentable results from too "thorough" cutting and chiselling. Filling a twelve-year old molar at thirteen years of age is different from filling it at twenty-five. The theory of introducing a soft filling in early age is good. He preferred tin to gold for young teeth. Amalgam may be used, and we find the teeth saved and ready for gold ten years after. He thought caution was necessary in cutting the enamel tissue in its early development. As to microscopic fissures, he would leave to nature the hardening of the tissues, and in a certain class of teeth fissures will never develop into decay. Frequent visits from the patient should be obtained, and the fissures watched. Give the tooth and nature the benefit of delay, guiding everything, of course, by knowledge of the habits and constitution of the patient.

After the presentation of specimens of abnormal development, the subject of *Pyroxyline* was opened and elicited a growing disposition to favor the new base. In the next number of the Journal we will publish the Report of the Society, with reference to this base.

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## EDITORIAL.

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### THE PYROXYLINE BASE.

When one finds he has made a mistake in judgment, and awarded hasty condemnation, the sooner he recants the better. In a former number of the Journal we referred to the Pyroxyline Base and questioned its chances of success. Its merits were somewhat depreciated, and the only consolation we possess for speaking so hastily, lies in the fact that a

large number of the profession in Canada and the United States did likewise.

We lately spent nearly a week in Boston at the office of Brockway, Mayo & Howes, 94 Tremont st., the only reliable instructors, and sole patentees, and had all our prejudices and doubts removed; and we take pleasure in frankly avowing our confidence in the new Base and its great superiority over every other material in the market. The attention and care required in manipulation, is just the very thing to commend it with those dentists who are disgusted with the puttying and pasting of rubber, &c. It must certainly tend to elevate mechanical dentistry, as well as the profession in general. We saw cases in the mouth worn with comfort; we saw the shrinkage completely overcome, and the speed with which a set can be made; the simple way in which blocks can be removed and replaced, and the beautiful finish capable of being given to it.

The instructions given to us in Canada by at least one agent in the course of an hour, led to failures. Messrs. Brockway, Mayo & Howes will probably publish in the next number of this Journal the arrangements they have made for instructing the Canadian profession.

They are perfectly agreeable to the instructions for manipulation being published. They have invested a large amount in machinery to make the Base, and it seems that a patent was an absolute necessity to secure themselves from loss and imposition. We shall have more to say about it in the next number.

B.

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R. TROTTER, Esq.

We are sure our readers will be pleased to learn that our old colaborer, R. Trotter, formerly of Guelph, Ont., is alive and doing well. He left Canada about two years ago for the States, and settled in Missouri, where in consequence of a partial loss of sight he accepted a lucrative situation on the staff of the National Life Insurance Co., of St. Louis. We wish him, as he is deserving, every success.

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OBITUARY.

We regret to learn of the death, on February 14th, of Dr. HENRY E. PEEBLES, one of the committee of publication of our excellent Exchange, the *Missouri Dental Journal*.

CROWDED OUT.

A large amount of interesting matter received late, is crowded out. The next member promises to be one of the best of the volume.

# GUILLOIS' CEMENT.

In response to frequent inquiries, we are now prepared to furnish this Cement.

There are four shades, Nos. 1, 2, 3, and 4, indicated by a sample attached to each package. No. 1, bluish; No. 3, bluer; No. 2, yellowish; No. 4, yellower.

From a communication to the *British Journal of Dental Science*, by Charles James Fox, M.R.C.S., L.D.S., we give the following extract:

"I have been for some time expecting to see some communication respecting this cement, recently introduced, as every one who tries it expresses privately extreme satisfaction with it. When this is the case, I think it is only fair to say so publicly. It is of the same nature as that commonly called osteoplastic, but it differs from it in this particular, that it can be mixed to a consistence much resembling putty, and in that state can be manipulated for some minutes without setting irretrievably. If you mix the other osteoplastics as thick as this, they set rapidly or crumble: if you use them in a thinner condition, they run about on the gums and teeth. When once set it is so hard, if it has been properly manipulated, as to turn the edge of the instrument, should it be deemed requisite to remove it. As to its durability, it is of course impossible to say much, seeing that it has only been introduced into England for a few months; but this much may be said, that, taking four months' experience with other cements, and four months' with this, I have found it so superior that I have entirely discarded all other osteoplastics, amalgams, etc. In small cavities in the incisors, or in shallow cavities where osteoplastic would wash out in a short time and dissolve away, Guillois' Cement remains at the end of four months as good as when it was put in. I cannot tell what further experience may prove, but so far—and only for four months' experience do I speak—I have not had one failure, which is more than I can say of any other."

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The process of combining and purifying the metals is such as to guarantee comparative freedom from the tarnish of fillings, or discoloration of teeth, so often observed from the use of ordinary Amalgam. Ten years' experience with it in the hands of some of the most skillful members of the profession has proved its excellence. The increasing demand for a reliable Amalgam has prompted the introduction of this article, with the confidence that it will give entire satisfaction to those who use it rightly.

To manufacture a superior Amalgam, always uniform in quality and texture, at a moderate cost, it is necessary to make it in large lots, and by the aid of machinery. It is also necessary that each lot be thoroughly tested by a competent Dentist before offering it for sale. The inventor has made such arrangements for its manufacture as to enable him to guarantee the reliability of every package.

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DEPOT, 816 BROADWAY, N. Y.

*Vulcanizer, Rubber, Plaster, and all Laboratory Stains are more speedily and easily Removed from the hands by this preparation than by any other. It contains nothing corrosive, but will keep the hands soft, white, and free from chapping.*

PRICE, FIFTY CENTS.

FOR SALE AT ALL DENTAL DEPOTS.

1,000 FINE ADHESIVE AND SOFT GOLD FOILS.

UNITED STATES ASSAY OFFICE, NEW YORK, May 9, 1869.

This is to certify that I have assayed some scraps of "Dentists' Gold Foil," submitted to me by M. M. JOHNSTON & Co., of this City, and I find the same to be absolutely pure gold 1,000 fine.

JOHN TORREY, *U. S. Assayer.*



BROWN Envelopes indicate ADHESIVE Foil.

CARMINE Envelopes indicate SOFT Foil.

M. M. JOHNSTON & CO.,

*Dental Depots,*

816 Broadway, N. Y., and 20 Fulton Ave., Brooklyn, N. Y.

# LAWRENCE'S AMALGAM.

THE BEST IN THE MARKET.

Tried and found Reliable.

**T**HIS Amalgam was invented by DR. AMBROSE LAWRENCE, of Lowell, Mass., in 1847, and has been used by him and many others since, with entire satisfaction. The metals of which it is composed are combined in such proportions as, after many experiments, have been found to afford the best results; and the fact that for many years it has received the favor of almost the entire Dental profession in this country, and, to a large extent, in foreign countries, also, renders any labored praise of its qualities unnecessary.

Its reputation is already established; a result of its working qualities, apparent in the fact that it makes a very uniform paste,—so tenacious that it can be readily adapted to the most difficult or irregular cavities—that from its great density it is not permeable to the fluids of the mouth, and will neither crumble nor wear away in mastication.

If used according to directions in cavities *properly prepared*, it will tarnish very little, if any.

**N. B.**—Dealers, as well as Dentists, should bear in mind that our Amalgam is never sold in bulk, nor in any other than our **LITHOGRAPHED ENVELOPES**, with our **MONOGRAM TRADE MARK**, on the lap.

This caution becomes necessary in consequence of some unprincipled parties offering worthless amalgams, of their own make, using our name to insure a sale. No one has our recipe nor the right to use our name in the manufacture of amalgams. "A word to the wise is sufficient."

Directions for using Lawrence's Amalgam accompany each Package.

**RETAIL PRICE, \$3.00 PER OUNCE (TROY).**

FOR SALE AT THE DENTAL DEPOTS.

And by the Proprietors (and only **MANUFACTURERS**.)

**DRS. A. & G. W. LAWRENCE,**

**No. 9 John Street, Lowell Mass.**

# BIXBY & STEVENS,

COOPERSTOWN, N.Y.

MANUFACTURERS OF

## ARTIFICIAL TEETH,

AND DEALERS IN ALL KINDS OF

## DENTAL GOODS.

~~~~~

**Cash orders will receive prompt attention.**

From recent improvements in the preparation and manipulation of our materials we claim (on the testimony of those in the Dental Profession qualified to judge) the strongest combination of Porcelain in Artificial Teeth ever attained and by comparison with other manufactures (on our own authority) a satisfactory appearance, with a variety, that the demands for our goods is compelling us rapidly to increase: which we are offering at the following.

**RETAIL RATES:**

**GUM TEETH, 14 CENTS. PLAIN TEETH, 10 CENTS**

Large discount on bills of \$50 & \$100.

**FOR SALE**

AT ALL

**DENTAL DEPOTS.**

Other goods at lowest cash prices.

# C. H. HUBBARD'S TORONTO DENTAL DEPOT,

ESTABLISHED 1860.

THE MOST EXTENSIVE FURNISHING ESTABLISHMENT  
IN CANADA, AND

## GOLD FOIL MANUFACTORY.

Having greatly increased my stock of Dental Materials, I am now prepared to furnish Dentists with everything needed in the practice of their profession, including Operating Chairs, Instrument Cases, Lathes, Vulcanizers, Nitrous Oxide Gas Apparatus, Cabinets, Works on Dentistry, Anatomical Preparations, etc., etc.

A full and complete Stock of S. S. White's Celebrated, and all other makers of  
**PORCELAIN TEETH,**

At Manufacturers' prices. Would also invite the attention of the Profession to my

## IMPROVED GOLD FOIL.

Present price \$3.50 per  $\frac{1}{4}$  oz.

### SPONGE AND SHRED GOLD

AND IN PARTICULAR TO MY

## DOUBLY REFINED ADHESIVE GOLD FOIL,

To which I would respectfully invite comparison with the best in the market.

Also, other makers' Foil at their prices.

Agent for Canada Journal of Dental Science, also, Agent for S. S. White's Dental Cosmos. Gasometers, and other Nitrous Oxide Apparatus, and Nitrate of Ammonia.

All the Dental Text Books, recommended by the Boards of Ontario and Quebec supplied.

**C. H. HUBBARD.**

Toronto Dental Depot, 26 Adelaide St. West,  
BETWEEN YONGE & BAY STREETS.

☞ The Highest Price paid for Old Gold and Silver Plates, Scraps, &c.

All orders addressed to C. H. HUBBARD, Toronto, Ont., will receive careful and prompt attention.

# OXYCHLORIDE OF ZINC.

This article has been in use for the last eight years; the call for the same increasing as its availability as a Medico-Mechanical agent has become known. Similar articles have been brought to the notice of the profession under the names of Os-Artificiel, Osteoplastic, Bone Filling, &c.

We quote from the *Materia Medica* compiled by James W. White, and published by Samuel S. White, of Philadelphia :

" This preparation has been extensively tested as a capping or temporary filling over freshly exposed pulps, and with results which are represented as highly gratifying. For this purpose the solution should be diluted with water so as to be only just strong enough to cause the mixture to set. On its removal, months after, the subjacent-pulp has been found healthy, and even protected by a deposit of secondary dentine. The success which has attended its use gives hope of relief from the necessity of extirpating exposed pulps, when they have not taken on a highly inflamed condition. The cavity having been cleaned, creosote should be applied to the exposed pulp, and the oxychloride introduced in a semi-fluid state. The pain experienced varies in intensity. It is generally of short duration, but may in exceptional cases continue for an hour or even longer. The permanence of this material greatly depends on its being perfectly protected from the fluids of the mouth till it becomes quite hard (requiring about half an hour), which may be assured by any of the methods deemed most advantageous for preventing the ingress of saliva ; the rubber-dam, in this connection, as in the insertion of gold, proving a most valuable appliance. It is best to introduce a surplus of material, to admit of trimming to proper shape, which may be done at once, although it is advisable to cover it with a layer of gutta-percha in chloroform, and allow several days to intervene, for the more thorough solidification of the cap prior to the removal of the excess of material and final insertion of the metal stop-  
ing.

" There is another direction in which oxychloride of zinc proves a most valuable adjunct in efforts for the preservation of teeth, viz., in filling the bulk of cavities in treated teeth. By this method many advantages accrue, among which may be mentioned the saving of time and expense, with an equally durable result ; the diminution of the risk of periodontitis, so liable to supervene upon prolonged violence ; the avoidance of risk of fracture in frail teeth, and the equal support insured ; the obviation of the yellow color when the enamel is thin ; and, in the event of subsequent trouble, the comparative ease with which its removal may be effected. The gold must of course leave no portion of the oxychloride exposed.

" This material is likewise employed for securing the effects of chloride of zinc in the hypersensitiveness of dentine,—used as a temporary filling, and allowed to remain until, in the judgment of the operator, its effects are induced. Should tenderness recur in excavating, a second and even a third application may be found advantageous."

It has the entire confidence of many of the best men in the profession as a thoroughly reliable article. It is manufactured with great care and with uniformity, and is believed to be the best preparation of its kind in the market.

It is now put up in larger sized, glass-stoppered bottles, giving double the quantity that it formerly had.

For sale by all the principal dealers in dental materials throughout the United States and Europe.

Price, per box, \$1.00.

Prepared by

**J. H. SMITH,**  
New Haven, Conn.

**SEND FOR**  
**RUBENGAME & BARKER'S**  
**ILLUSTRATED CATALOGUE,**

CONTAINING A FULL LIST AND DESCRIPTION OF ALL

**DENTAL GOODS,**

BESIDES SEVERAL HUNDRED RECIPES FOR  
 MAKING

**Solders,**

**Gold Plates,**

**Mouth Washes,**

**Tooth Powders,**

**Perfumes,**

**Soaps,**

**Colognes,**

**Cements, &c.,**

And Invaluable Information on Hundreds of Subjects  
 Relating to Treatment of Morbid Conditions,  
 of Vital Interest to the Dentist.

---

COMPILED BY GEO. T. BARKER, D. D. S.

**JUST OUT.**



Sent gratuitously to all Dentists and Dealers.

**RUBENGAME & BARKER,**

*825 Arch St., Phila.*



# CHANDLER'S

## Canadian Dental Depot,

### NEWCASTLE, ONTARIO,

The oldest and most extensive Establishment of the kind  
in the Dominion.

I AVAIL myself of the opportunity afforded by the *Canada Dental Journal* to express my thanks for the liberal patronage I have heretofore enjoyed from the Dental Profession, and trust by promptness and attention on my part to merit increased favor in future.

Being a Practical Dentist of over twenty years' experience, gives me facilities for purchasing and selecting goods to thoroughly meet the requirements of my customers.

My Stock consists of a Large Assortment of all

## Instruments, Furniture & Material

used by the Dental Profession.

The Catalogue of any Manufacturer or Dealer in Dental Goods may be used in ordering from me, and all goods will be sold as low as can be obtained elsewhere.

### DENTAL GOODS

AT WHOLESALE AND RETAIL.

A large Stock of White's, Corfield's Justi's, Johnson and Lund's and other makers' Teeth always on hand.

Constantly on hand a good Stock of all the most popular makers,

## GOLD FOILS,

AND OTHER

Gold Preparations for filling, and at Manufacturer's prices.

I wish the Profession to distinctly understand that I intend always to be up to the times, in all the new inventions and improvements in all things pertaining to Dentistry.

Every article sold by me is warranted as represented, and in all cases, if not in accordance with the order, will be exchanged or the money refunded.

Dentists about commencing business, as well as those replenishing, are requested to call and examine my Stock.

☞ All orders addressed to S. B. CHANDLER, Newcastle, Ontario, will receive prompt attention.

(Patented May, 1870.)

TRY THE  
**EUREKA GOLD FILLING.**  
 SOFT, TOUGH AND ADHESIVE.

The superiority of this form of gold for filling is universally endorsed by the Profession as a better article than foil, it being tougher, softer, and at the same time adhesive. It is softer than the softest foil, and its adhesive qualities are perfect. The gold is chemically pure, and these essential qualities are produced solely by my principle of manufacture, whereby I preserve its crystalline structure unbroken and uniform. By its homogeneous condition I can guarantee its being uniform for

**THE QUALITY CANNOT VARY.**

It is sold in a very convenient form for manipulation, and each box contains a description of the gold and how to use it. For sale at all the Dental Depots.

**PRICE, \$5 PER 1-8 OZ., \$38 PER OZ.**

Agents and travellers will receive a liberal discount.

IT CANNOT BE MADE HARSH BY ANNEALING.

**GEORGE J. PACK & CO.,**

*Manufacturers,*

506 Broome Street, New York.

N. B.—Also manufacturers of adhesive and non-adhesive gold foils.

**EUGENE DOHERTY,**

PROPRIETOR OF

**WILLIAMSBURG INDIA RUBBER WORKS,**

364 FIRST STREET, BROOKLYN, E. D.

MANUFACTURER OF

DENTAL RUBBER, GUTTA PERCHA, STEAMPACKING, BELTING, &c.  
 The superiority of Doherty's Rubber is so well known that commendation is unnecessary.  
 To be had in all the Dental Depots throughout the States.

**RETAIL PRICES,**

|                        |                   |                      |                   |
|------------------------|-------------------|----------------------|-------------------|
| Dental Rubber, No. 1.. | \$2 50 per pound. | Flexible Rubber..... | \$2 75 per pound. |
| “ “ No. 2....          | 2 50 “            | Gutta, Percha.....   | 2 00 “            |
| Black Rubber.....      | 2 50 “            |                      |                   |

## TO THE MEMBERS OF THE DENTAL PROFESSION!

### BEAUTIFUL COMBINATION

OF

Elegance, Strength, Naturalness, and Adaptation.

**Dr. J. R. TANTUM & Co.,**

MANUFACTURERS OF

**EXCELSIOR**

# PORCELAIN TEETH,

Address, 909 Market Street,

**WILMINGTON, DELAWARE.**

We are now manufacturing teeth EQUAL TO THE BEST OF WHITE'S OR JUSTI'S. WE SINCERELY BELIEVE THEM MORE BEAUTIFUL THAN THE FORMER AND STRONGER THAN THE LATTER. THEY ARE FAR SUPERIOR TO ANY EVER SOLD AT THE SAME RATES, IN THIS OR ANY COUNTRY.

As an inducement to Dentists to try our teeth, we will sell them at the following EXTRAORDINARY LOW PRICES, FOR FIRST CLASS TEETH.

#### GUM TEETH.

|        |              |                                       |
|--------|--------------|---------------------------------------|
| 1 to   | 20 sets,     | \$1 96 per set, or 14 cts. per tooth. |
| 20 to  | 50 sets,     | \$1 68 per set, or 12 cts. per tooth. |
| 50 to  | 100 sets,    | \$1 40 per set, or 10 cts. per tooth. |
| 100 to | 500 sets,    | \$1 12 per set, or 8 cts. per tooth.  |
| 500 to | 10,000 sets, | \$0 98 per set, or 7 cts. per tooth.  |

#### PLAIN TEETH.

|        |             |                                      |
|--------|-------------|--------------------------------------|
| 1 to   | 100 sets,   | \$1 25 per set, or 9 cts. per tooth. |
| 100 to | 5,000 sets, | \$0 84 per set, or 6 cts. per tooth. |

**Gum Plain Teeth** and **Plain Plate Teeth** at the same rates as Gum and Plain Teeth above.

#### REASONS FOR THE ABOVE STATEMENT.

During the last year we have spent large sums of money in experiments, and in the study of chemical affinities, until the eye and tests demonstrate our teeth to be as beautiful and strong as any now manufactured.

**PINS.**—Our pins enter the teeth well, having a good head inside. They are longer than those used by most manufacturers. The FIRST COMPLAINT is yet to be made of their pulling out of the teeth. The heads of the pins outside of the teeth are put on by a revolving stamp, an invention of our own, which spreads the head equally in every direction from the centre.

**MOULDS.**—We have constantly employed a mould cutter, who ranks only second in the country in his line, who cuts the finest moulds from patterns as well as originates new designs.

**BURNING.**—Our burner has had an experience of sixteen years, and is unsurpassed in his department.

For these reasons, as well as many others we could give, we are well satisfied that our teeth are equal in mould, style, finish, adaptation, &c., &c., to any made by the leading establishments in America or elsewhere. We speak unto wise men in their profession, judge ye what we say, by using the teeth.

Dentists will see by ordinary large quantities at one time the teeth are much lower in price. Sent by express B. C. D. to any address.

J. R. TANTUM,  
B. F. WOOLSTON.

**J. R. TANTUM & CO**

# JOHN BIDDLE,

MANUFACTURER OF

## DENTAL INSTRUMENTS

OF EVERY DESCRIPTION,

WHOLESALE AND RETAIL,  
207 CENTRE STREET,

Between Howard and Grand,

NEW YORK.

☞ Orders filled for all kinds of Dental Goods.

☞ Instruments repaired in the best manner and at the shortest notice.

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## THE GOLD FOIL,

MANUFACTURED BY

# J. M. NEY & CO.,

HARTFORD, CONN.

### SOFT, TOUGH AND MALLEABLE,

Can be made as ADHESIVE as desired by re-annealing. Receives our personal attention in refining.

For Sale at Dental Depots Generally.

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## BARNUM'S RUBBER DAM.

As much difficulty has been experienced by the profession in obtaining an excellent quality of RUBBER DAM, and having been applied to often for such as I am using in my own practice, and also that I might be able to supply the demand, I have had it manufactured in sufficient quantity of three grades of thickness, and will send it by Express C. O. D. to all ordering direct from me, at \$4 per yard.

I can recommend it as being very elastic and tough, and will not deteriorate with time.

N. B.—If preferred to send money by mail *do not fail to register the letter.*

S. C. BARNUM, D. D. S.

597, Fifth Avenue, New York

# H. C. CORFIELD,

## Manufacturer of Porcelain Teeth.

---

Having removed to the commodious building, No. 37 North Tenth Street, one door above Filbert, we are now prepared to furnish the Profession **TEETH** of superior quality, and in great diversity of form and shade. They are fully equal to any manufactured, and at

### Much Lower Prices than asked by other Manufacturers.

Our Vulcanite Teeth, Gum Sections and Plain, are all fitted with Double-Headed Pins, or Pins with a head on each end.

Our Upper Central Blocks have each Five (5) Double-headed Pins, and the Lower Central Blocks each Four (4).

We have a full and varied assortment of all kinds and styles of Teeth in use, embracing

|                                         |              |   |   |   |         |
|-----------------------------------------|--------------|---|---|---|---------|
| Gum Blocks or Sections for Rubber Base. |              |   |   |   |         |
| "                                       | Single Teeth | " | " | " | "       |
| Plain                                   | "            | " | " | " | Plate.  |
| "                                       | "            | " | " | " | Rubber. |

And being willing to share some portion of the profits with the profession, have concluded to offer them at the following prices, for cash only:

**Plain Teeth \$1 12 per set of 14 Teeth.**

**Gum Teeth \$1 40 per set of 14 Teeth.**

And by the quantity at such prices as may be agreed upon. We solicit trial of our teeth. Satisfaction guaranteed or the money refunded.

H. C. CORFIELD,  
 No. 37 North 10th St., above Filbert,  
 PHILADELPHIA.

## DR. I. W. LYON'S

# TOOTH TABLETS.

### An Improved form of Tooth-Powder.

Unlike the Tooth-Powders commonly in use, this article is made into neat, portable cakes, divided into little tablets each of the right size for use, not liable to scatter or be wasted, and therefore very convenient, especially for Travelers. There is no occasion for dipping the brush into the box, thereby soiling what is not used, but a single tablet, enough for one brushing, may be broken off and put into the mouth; thus, several persons can use from the same box with perfect neatness and propriety.

It is made of the materials that were most approved of in the discussions of the American Dental Association at their Annual Convention, and is believed to be the best preparation yet produced for the teeth and gums. It has received the hearty approval of many leading dentists, to whom the formula has been submitted. The following certificates are submitted to those of the profession who have not had an opportunity of testing it.

### CERTIFICATE OF THE DENTISTS.

This is to certify, that, being personally acquainted with I. W. Lyon, D.D.S., of New York City, and having been informed by him of the precise ingredients composing the Dentifrice known as "DR. I. W. LYON'S TOOTH TABLETS," and having ourselves used the same, we do unhesitatingly commend it to the public as the best and most convenient Dentifrice now extant:

|                       |                |                      |                |
|-----------------------|----------------|----------------------|----------------|
| W. H. Atkinson.....   | New York City. | Chauncey P. Fitch..  | New York City. |
| John Allen.....       | " "            | Alfred N. Allen..... | " "            |
| Norman W. Kingsley... | " "            | Wm. A. Bronson....   | " "            |
| Frank Abbott.....     | " "            | R. M. Streeter.....  | " "            |
| Chas. E. Francis..... | " "            | B. W. Franklin.....  | " "            |
| D. H. Goodwillie..... | " "            | J. Taft.....         | Cincinnati.    |
| G. A. Mills.....      | Brooklyn.      | W. W. Allport.....   | Chicago.       |
| L. J. Wetherbee.....  | Boston.        | J. Ward Ellis.....   | " "            |
| Ball & Fitch.....     | " "            | A. Lawrence.....     | Lowell.        |
| I. A. Salmon.....     | " "            |                      |                |

Price, per dozen boxes..... \$3.50

A larger discount by the Gross. A liberal discount to the trade.

Each box contains 120 Tablets. Retail at 50 cents per box.

Or sent by mail for 65 cents.

Sold at all the Dental Depots, and by the Proprietor,

**I. W. LYON, D. D. S.,**

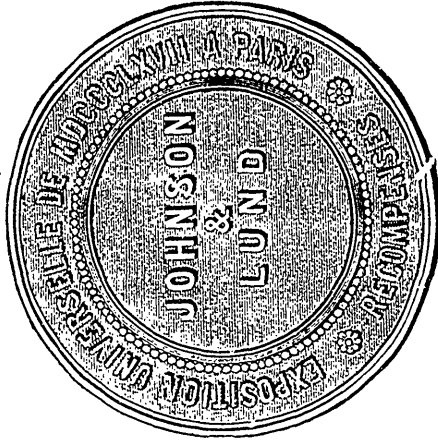
No. 36 Vesey Street, New York.

# PRIZE MEDALS.

WORLD'S FAIR,  
PRUSSIA, 1865.



AMERICAN INSTITUTE,  
NEW YORK, 1867.



WORLD'S FAIR,  
PARIS, 1867.

AWARDED

FOR

ARTIFICIAL TEETH,

TO

## JOHNSON & LUND,

MANUFACTURERS AND IMPORTERS OF

# DENTISTS' MATERIALS.

DEPOTS, 27 North, 7th Street Philadelphia,  
74 and 76 Madison Street, Chicago.

# Weston's Metal for Dental Purposes.

## THOROUGHLY TESTED FOR THREE YEARS.

Warranted superior to anything of the kind ever offered to the profession. Produces as sharp and perfect casting as any copying or type metal known. With care and experience plates may be cast so light and smooth as entirely to dispense with the use of burs and scrapers. For accuracy of adaptation, it is equal if not superior to any material in use.

It is tasteless and cleanly, and will positively keep its color in the mouth equal to the finest Gold or Platinum.

It is particularly adapted for full lower plates. For upper and lower parts of sets it has many decided advantages over the different cheap materials so much in use. In contact with aluminium there is no perceptible galvanic action or change of color. It receives a brilliant polish with very little labor.

Parties using this metal are not required to purchase a license. No additional apparatus required.

In 1 lb. packages..... \$6.00

In  $\frac{1}{2}$  lb. packages..... 3.00

In  $\frac{1}{4}$  lb. packages..... 2.00

Each package accompanied with full instructions. Manufactured and sold by

**H. WESTON, Dentist,**

*Towanda, Pa.,*

AND AT ALL THE PRINCIPAL DEPOTS.

## Opinions of the Profession.

The following resolution was unanimously adopted at a regular meeting of the Bradford and Susquehanna Dental Association :

"That the members of this Society express themselves as more than pleased with the use of 'Weston's Metal,' in place of rubber, and feel themselves under lasting obligation to Dr. WESTON for enabling them to throw off the oppressive yoke of the Rubber Company."

216 North Sixth Street, St. Louis.

Dr. Weston :—Your metal is used and recommended by the Missouri Dental College to its students.

Respectfully yours,

HENRY S. CHASE,

Professor Operative and Surgical Dentistry.

OFFICE OF PERRINE & FRANKLIN, No. 115 W. 31st St.,

New York, March 1st, 1870.

Dr. H. Weston :

DEAR SIR :—We have given your metal a trial, and are pleased with it and the results. We believe for partial under cases it is superior to any other substance known to the profession. We can get a more perfect adaptation with it than with rubber, and all delicate points acting as supports, are stronger and more reliable than rubber. We have seen cases that have been in daily use since September last (now seven months ago), that show no evidences of oxidation—an important quality, and one that at first we had fears your metal did not possess.

The great facility with which your metal is manipulated into plates renders it an important adjunct to our list of materials out of which to construct dental plates, and other dental apparatus.

We shall take pleasure in recommending its use to our professional friends. You will please accept our thanks, and we doubt not you will receive the thanks of the profession for your successful efforts in bringing out so valuable a com-



pound, and the liberality with which you offer it to the profession is in striking contrast with past experience.

Yours truly.

GEO. H. FERRINE, D.D.S.  
B. W. FRANKLIN.

*(From American Journal Dental Science.)*

We have tested this metal in the case of entire lower sets, and are inclined to the belief that it is superior to anything of the kind which has yet been brought to the notice of the profession. We advise a trial of it by those who object to rubber. There is no doubt but that it is stronger, and will keep its color better in the mouth than any of the cast plates in use.

*(From Missouri Dental Journal, May number.)*

We have been using this metal for the past six months or more, with much satisfaction. It is undoubtedly one of the best substitutes for Rubber, of which we have any knowledge. It is tasteless—does not discolor, or has not in any of the cases which have come under our observation; is more lasting than Rubber, and a plate of this metal will be found to fit the mouth as nicely as a Rubber plate can be made to do.

*(From Missouri Dental Journal, Nov., 1869.)*

This metal has been considerably used in this city for making both upper and under dentures, and has given very great satisfaction.

*(From the same Dec. number.)*

The cry, "What shall I do?" still comes to us, as some poor victim of the Rubber Co., who has been overlooked, is hunted up, and the strong arm of the law is raised to annihilate him. In reply, we say, try Aluminium—and Weston's Metal for partial or lower sets. We are induced to recommend Weston's Metal in preference to that known as Adamantine, (Moffit's Metal,) or the Walker's Excelsior Base, because, from the tests we have made of these bases, this seems to us to promise the best results.

Compared with Rubber, this is superior in point of strength and durability. The Weston Metal has thus far proved as tasteless as Rubber. Patients who have tried Rubber, and been obliged to give it up on account of its effect upon the mucous membranes, causing inflammation and even sloughing of the soft parts, are now wearing plates of Weston's Metal with perfect satisfaction. So far as we have been able to judge, Weston's Metal is not affected by the secretions found in the oral cavity. It does not materially change color. It may, with care, be cast almost as thin as an ordinary gold plate.

**WESTON'S FLASKS—ESPECIALLY ADAPTED TO CASTING PLATES.**

Being longer than the ordinary Flask, it gives more room for the reservoir posterior to the plate, which is the whole secret of casting perfect plates. The Flask is closed with a spring steel clamp, and stands on feet to facilitate pouring the metal.

**PRICE. . . . . \$1.00**

**ENCOURAGE HOME ENTERPRISE,**

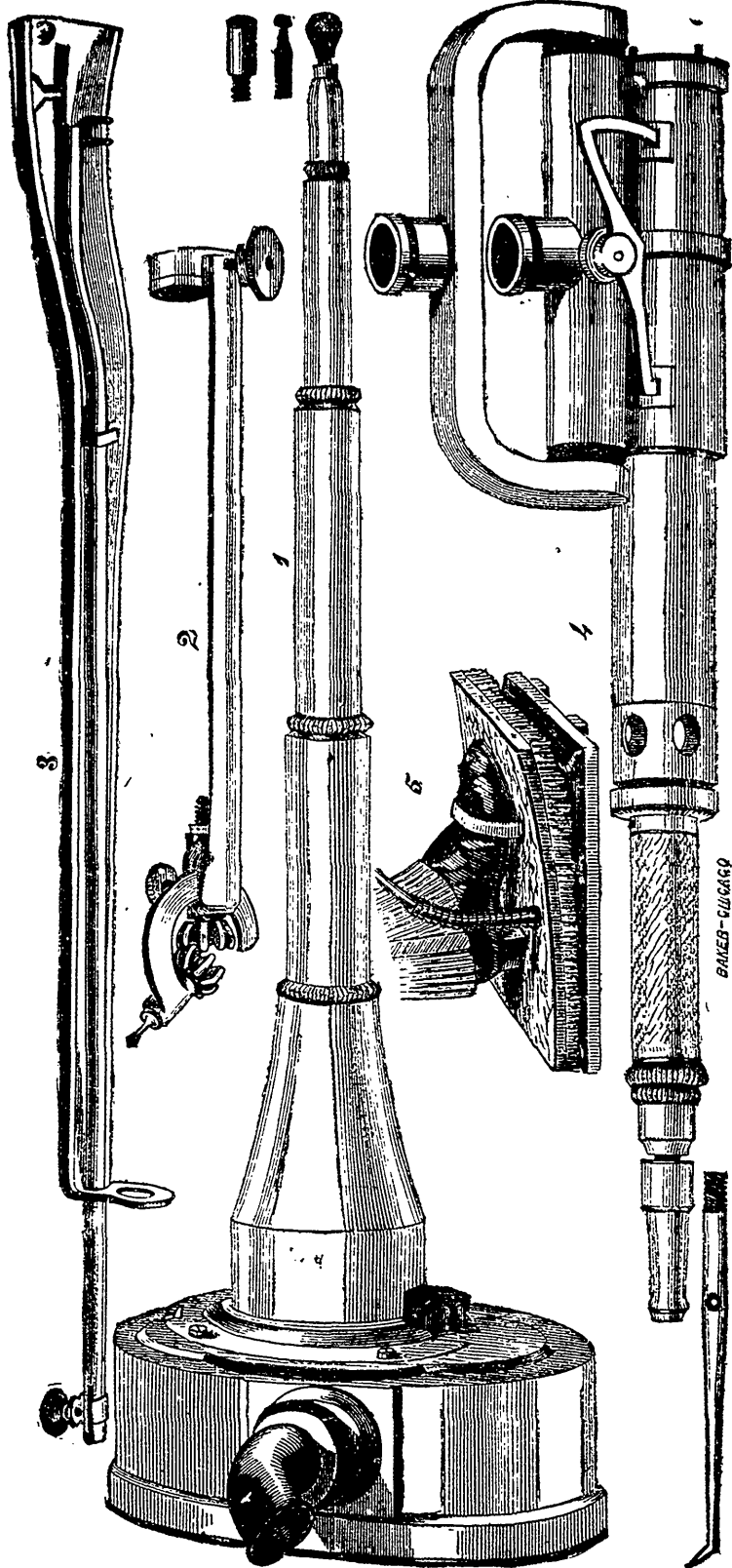
BY PURCHASING FROM

**S. B. CHANDLER,**

**DENTAL DEPOT,**

**NEWCASTLE, ONT.**

**GREEN'S PNEUMATIC BURR, DRILL, FILE CARRIER, POLISHER AND UNIVERSAL JOINT.**  
 ALSO  
**GREEN'S AUTOMATIC MALLET.**



BAKER - CHICAGO

A careful examination of the accompanying diagrams will satisfy every practical dentist, that in the production of these instruments, the inventor has fully succeeded in supplying a want long felt by the profession. By their use tedious and laborious operations, such as usually require hours of arduous toil on the part of the operator, and entail like hours of painful positions, taxing to the uttermost the endurance of the patient, are now performed in a few moments. Multitudinous as have been the inventors of agencies for saving labor and alleviating pain in the practice of *Operative Dentistry*, but few, if any, have succeeded in perfecting a piece of mechanism that would, in its operations, even approximate the excellence of the usual hand process, and none have reached the acme of success as has the inventor of these instruments; for with these the work is not only well and quickly done, but more perfectly executed than can possibly be done by any instruments formerly in use. This fact is fully corroborated by the following named Dentists, who, among other have used these instruments with admirable success for the past three months, and to whom I will take the liberty to refer you for any information in regard to their usefulness and efficiency:

|                                       |                                      |
|---------------------------------------|--------------------------------------|
| Dr. W. H. Atkinson, New York.         | Drs. Rambo & Reese, Montgomery, Ala. |
| Drs. Dwinelle & Hodson, "             | Dr. P. L. Ulmer, Selma, Ala.         |
| Dr. A. C. Hawes, "                    | Dr. W. H. Burr, Madison, Ga.         |
| Dr. J. H. Race, Brooklyn.             | Dr. W. H. Morgan, Nashville, Tenn.   |
| Dr. F. N. Scabercy, Providence, R. I. | Dr. W. M. Butler, Louisville, Ky.    |
| Prof. H. Judd, St. Louis.             | Dr. A. T. Metcalf, Kalamazoo, Mich.  |
| Dr. H. J. McKellops, "                | Dr. E. S. Holmes, Grand Rapids, "    |
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### DESCRIPTION OF INSTRUMENTS.

Fig. 1 represents the Pneumatic Engine, with the Burr attached. These Burrs are various in size and shape, and are made to revolve with a velocity of from twelve to fifteen hundred revolutions per minute, but can be so controlled by the operator as to move as slowly as may be desired. By use of the "Universal Gear joint," (Fig. 2) which is readily adjusted to the apex of the Shaft of the Engine, the Burr or Drill may be placed in any position upon the tooth, and the most difficult posterior cavities may be worked with the same ease and certainty as those of more easy access, upon the grinding surface.

Fig. 3 is an attachment to which a reciprocating movement is given by the Engine. To this can be attached a file for separating the teeth or cutting approximate plugs, and also a piece of wood in place of the file, for polishing approximate surfaces. This file or polisher has a motion of twelve hundred strokes per minute.

Fig. 4 shows the Pneuma-automatic Engine and Mallet combined. The Mallet is worked by the same motor, and will give either a hard or soft blow, and as fast or slow as may be desired.

Fig. 5 is a diminished representation of the Pneumatic Motor with rubber air-conductor attached. This apparatus is twelve inches long, seven inches wide, and two and one-half inches deep. It is placed on the floor and worked by the feet of the operator, and affords ample power for the propulsion of either of the instruments.

With the exception of the Motor, the accompanying cuts represent the full size of the instruments and their attachments. Accompanying each case is a full set of six finishing and two undercutting burrs, two drills and two polishing sleeves, with full directions for use. Accompanying the Mallet are twelve points, assorted. These instruments are all constructed under the personal supervision of the inventor, are neat in appearance and of the most perfect mechanism; each integral part fitting to its appropriate place perfectly.

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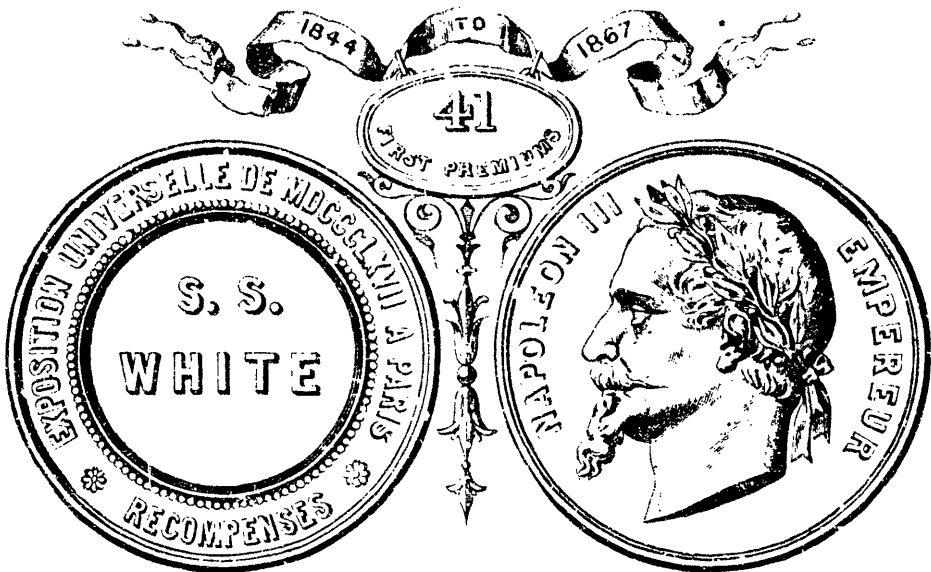
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