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THE CANADA
Journal of Dental Science.

ISSUED MONTHLY.

EDITED BY

W. GEO. BEERS, L.D.S., *Montreal.*

C. S. CHITTENDEN, L.D.S., *Hamilton.*

CORRESPONDING EDITORS,

W. H. WAITE, D.D.S.,
LIVERPOOL, ENG.

} AND }

G. C. DABOLL, M.D.S.,
BUFFALO, N.Y.



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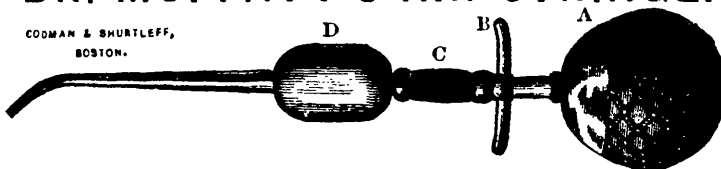
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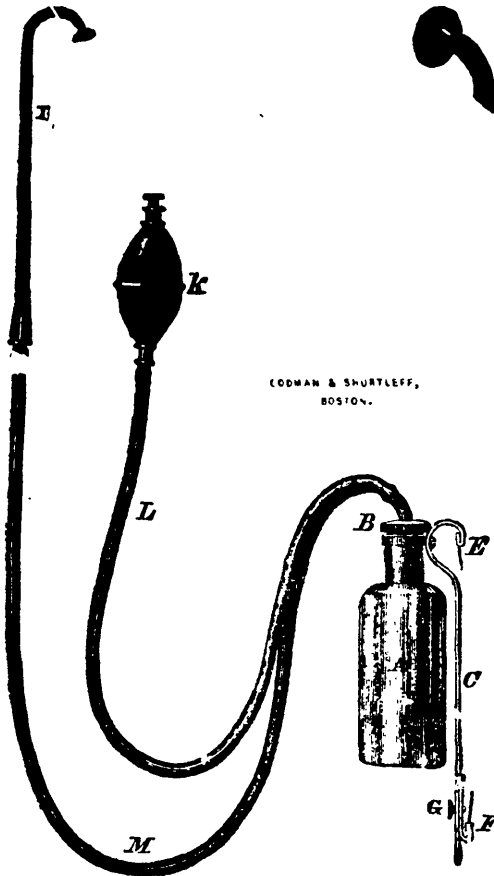
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*A. Bernard
President.*

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ORIGINAL COMMUNICATIONS.

—
ALDIS BERNARD, L.D.S.,

President of the Dental Board of Examiners, Province of Quebec.

We have much pleasure this month in presenting our Canadian subscribers with a fac-simile of Dr. A. Bernard, who is, we think, the oldest living dental practitioner in the Dominion.

Dr. Bernard is a native of Canada, having been born on the banks of the beautiful Memphremagog. When a child he was taken to the United States, and when very young acquired all the knowledge of dentistry then attainable. He practiced about ten years in the Southern States, itinerating, as was then the fashion with Dentists. Mineral Teeth were altogether unknown at that time, and human, calves and sheeps teeth, also Hippopotamus, were then used, and the general position of dentistry was at a low ebb. In the summer of 1839-40, he came to the north in consequence of ill health; spent his time at Niagara, Lake Huron, and other parts of Ontario. In the Autumn of 1841 (thirty years ago) he came to Montreal, where he has ever since been in constant practise. There were only three dentists in the city at that time, viz., Spooner, Logan and Scripture. The latter died shortly after, Logan went to Europe, and Spooner transferred his practice to Dickinson, and removed to the States. Scores of dentists have since come and gone. In 1844, when Montreal was the seat of Government, Dr. Bernard made an effort to improve the condition of the dental profession by legislation, which was very nearly successful, when the Parliament Buildings were burned, and the medical act in which were included the clauses regulating dental practice was destroyed. In the recent successful incorporation of the Profession of the Province of Quebec, and in every associative movement designed to educate and elevate, Dr. Bernard has taken an active and prominent part. His

knowledge of politics and the natural energy of his character have been of very material aid.

He has always taken an active interest in public matters and institutions; was President of the Mechanics' Institute, and for more than sixteen consecutive years connected with its management. He is a member of the Natural History Society, and one of the founders and managers of the Society for the Prevention of Cruelty to Animals, and Honorary Dental Licentiate of Ontario, Honorary Member of the Ontario Dental Society, &c.

For a long series of years he has been an active and earnest Free Mason; was one of the principal founders of the Grand Lodge of Canada in 1855, and its first Deputy Grand Master. He now holds the rank of Past Grand Master.

Dr. Bernard was elected a member of the City Council of Montreal in 1858, and still represents the Centre Ward, for which he was first elected, having been several times elected by acclamation. He is the second senior Alderman of the City; a member of the Finance Committee; Chairman of the Police Committee, and also of the Committee for building the new City Hall (which is to be a splendid edifice, and costing \$300,000). He is also a magistrate of the District, and one of the License Commissioners for Montreal, appointed by Act of the Legislature last session. He has been asked to stand for the Legislature several times, but declined. An able and eloquent speaker, an energetic worker, and possessed of a remarkably vigorous constitution, he makes his mark in whatever sphere he acts. As a citizen he has served the public faithfully. As a dentist, he holds the firm confidence of his patients and the high respect of his *confrères*.

A CASE OF EXPOSED PULP.

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

Read before the New Orleans Dental Association.

I filled an upper anterior molar on the left side some 12 months since, for a young man, with amalgam, there being a slight exposure of the nerve in the bottom of the cavity, the decay being a large one, and in the grinding surface. The tooth had never ached, only slightly, when chewing on it. After filling there was some sensibility, and occasionally some slight pain a few months afterwards. On one occasion, about 7 or 8 months afterwards, he came to me with the tooth aching; on the application of chloroform to the tooth and gums the tooth got easy, and

remained so for several months, only occasional slight trouble. The other day, now February 6, 1871, he called, with difficulty in the tooth that had prevented him from sleeping. I at once decided to drill the filling out, which was a difficult task. I also tried mercury and the warm instrument but with slow progress. On removal I found slight exposure of pulp in the bottom; no discoloration; no change in the amalgam, as it was an excellent article, and entire relief followed removal; by a slight touch with a sharp excavator hæmorrhage ensued. I treated the case with creosote at bottom and styptic calloid over for one week or more, the tooth remaining all the while perfectly quiet. One interesting feature in this case is that the pulsations of the pulp could be distinctly seen with a magnifier at the point of exposure—every *systole* of the heart, the pulp at that point filling the slight vacancy caused at every diastole.

The pulp seemed to expand and contract according to the heart's action. Every time it expanded up into the slight opening there was a small bubble of liquid as I dried the cavity, that apparently came from the pulp chamber falling back into the chamber at each diastole. On application of the tongue over the cavity a distinct pulsation would be felt for a few minutes, at which time the throbbing seemed to be much more energetic, which lasted for a few minutes only.

I decided on refilling with some temporary filling, as he had to leave the city and would be absent for 5 or 6 months. I cut a round piece of soft spunk of good texture and thickness, moistened one side with creosote, then laid this in the bottom of the cavity, creosote side to the nerve, pressed it in all round gently and filled over with os artificial without the slightest pain or trouble. This spunk is very soft and elastic, and would readily yield to the pulsatory motions of pulp—more readily than any thing I knew of. I saw him this morning, there was not the slightest trouble whatever, the filling now having been in 24 hours. This case in itself is not of much moment as an isolated case, only it serves for a text for further remarks, and is a practical case in point.

It is well known that the pulp does not exactly fill the chamber full, but has a small space all round it, which is recognisable by a magnifier of $\frac{1}{2}$ inch focus or more. This minute space serves as a reservoir to hold the reserve nutriment liquor sanguinis for the use of the dentinal fibrils, as nutrition—I might call it by some other name—and also to return waste matters to the circulation. There seems to be, then, another, and not less important function connected with this small outside space, that is, that it allows room for the pulp to expand and contract, in accordance

with distention and contraction caused by the action of heart and arteries, so as not to cause pain at every pulsation by the pressure, as must necessarily be the case if the pulp completely filled the cavity full. The same state of things exists in the cranium, and no doubt for the same purpose. As a matter of course, the outer membrane of the pulp is perforated by millions of openings where the nerve fibrils pass out from the pulp and into the tubuli, or, vice versa. These openings, no doubt, allow the liquor sanguinis to pass out into the space in question. It is well known that fluids, such as water, cannot be readily condensed to any great extent, but to a slight extent. Now there must be yielding somewhere, as the pulp pulsates even in normal conditions. This fluid may suffer a slight condensation, also be forced to some extent in among the nerve fibrils in the tubuli. Another useful purpose might be that of anti-friction, preventing the pulp membrane from coming in contact with dry, harsh, solid walls which must necessarily be the case in the absence of a fluid which serves as a cushion to prevent irritation to the pulp at every beat of the heart. This fluid lubricates the pulp. Now, if these openings through the pulp membrane are in free communication with this chamber as the pulp swells out at each pulsation, the membrane must slip backwards and forwards on the nerve fibrils that pass through them, and, at the same time, allow this fluid to pass into the pulp around those fibrils for a short distance, and, as the pulp contracts, is forced out again so as to keep the cavity uniformly full under all circumstances in a state of health.

This continued bathing of the fibrils with this liquor in the manner above suggested may be essential to the healthy condition of the entire tooth. In a state of high vascular action or inflammation of the pulp the pulsatory phenomenon is much augmented. The vessels in the delicate pulp tissue distended, the circulation retarded, not readily passing through the capillaries in consequence. The force of the heart's action drives the flowing tide violently against the obstructed vessels which gives or imparts a strong pulsatory impression at the arterial extremity of the artery, which is felt throughout the capillaries of the inflamed point, which in the pulp are more circumscribed than almost anywhere else. The white appearance of the pulp when removed in a healthy condition, would lead to the inference that white blood only or liquor sanguinis circulated in the pulp substance. This question is easily decided, as the slightest wound of the exposed pulp causes hæmorrhage of red blood, even when not inflamed in the slightest degree. When inflammation or congestion exists on removal, the pulp presents a red or injected appearance, with more or less lesion of vessels, and red corpuscles may be found outside of the capillary as in other instances of inflammation.

The reason why the pulp does not present a reddish instead of a white appearance, is owing to the fact that all the vessels in a normal condition are extremely small, with a very limited circulation, as the whole pulp is but an insignificant structure in the fully developed tooth.

The skin and scharotic coat of the eye are in many cases almost perfectly white, not showing red blood unless distention of vessels exists, or abrasion and ecchymosis. When a pulp is removed from a healthy tooth and subjected to the microscope very little blood is discovered. In fact, the proportion of red corpuscles to the white corpuscles may be in the pulp much less than in other tissues, and the proportion of liquor sanguinis much larger than other tissue.

When the pure alabaster skin is pricked with a delicate needle, red blood oozes out, also the scharotic of the eye; not so when the corneal coat is wounded, as no red blood in the healthy state circulates there, only lymph.

In fact, very little red blood is needed in the dental pulp, as the red corpuscles are the chief factors for carrying oxygen to the tissues and carbonic acid gas from them. The needed supply of oxygen in the pulp must needs be very insignificant, owing to the smallness of the pulp, still a given amount is necessary. The liquor sanguinis found outside of the pulp is there for a twofold purpose, both important to health of the entire tooth. This is called protoplasma by William Huxley, germinal matter by Mr. Beale, blastima by Reirchowe. Mr. Beale has also given it the name of bioplasm, all having about the same significance. It is the true element of reproductive metamorphosis or nutrition, which counteracts waste or dysintegration.

The other function performed by this fluid has already been alluded to, that is lubrication and anti-friction, to the pulsatory motions of the pulp.

Another reason why the pulp in a healthy state is white, is that the vessels are so small that the corpuscles pass along single file, and in this manner do not reflect red rays, only very faintly; even under the microscope isolated red corpuscles scarcely appear red, and an inexperienced observer would not be likely to notice it at first.

Another reason why the blood from the healthy pulp always has the appearance of arteroid blood is the very small amount of carbonic acid found in the pulp, owing to the limited amount of oxidation going on in the tooth, hence the blood is, when the tooth is healthy, always arterial in appearance, none of the vessels being much larger than capillary in general, it being very difficult to distinguish any difference in the vessels of the pulp.

The pulp in a state of congestion or stasis in the circulation, and inflammation presents a red engorged appearance, similar to all other tissues in a similar condition.

It is believed by many authors that the red corpuscles leave the circulation, or pass bodily through the weakened walls of the capillary vessels in inflammation.

At all events, they aggregate in those vessels by retarded motion and distention, in consequence presenting an injected appearance, as in ecchymosis. I heard from this tooth several weeks afterwards not the slightest difficulty. I have since filled a great many similar teeth in the same way, with gold, amalgam and os artificial; all successful so far, not the slightest trouble in any case.

DENTAL PERIOSTITIS.

BY C. A. MONDELET, L.D.S., OTTAWA.

Periostitis is frequently induced by the disintegration of a pulp; in which case the nerve cavity should be opened and thoroughly cleansed to the apex of the fang, after which a treatment of creasote, or a solution of creasote and iodine, may be used effectively, or local depletion may be resorted to. When periostitis is induced in a sound tooth by pressure, or the presence of a foreign body, the irritating substance should first be removed, then the gums contiguous to the affected tooth freely scarified; or counter irritation may be induced by making an incision through the gum near the apex of the fang, and inserting a pledget of cotton and allowing it to remain. In periostitis caused by pressure in inserting a fang filling, either of the previous methods may be employed, or the application of one or two Spanish leeches to the gum will prove effective, the hemorrhage from the least bite being very profuse, owing, it is said, to a peculiar secretion left in the wound by the leech, which prevents the coagulation of the blood. Local depletion is the most effective remedy, the efficacy of the leech being due to the quantity of blood abstracted. If the inflammatory action be allowed to progress, alveolar abscess, or termination by suppuration will ensue, when the periosteum will separate from the end of the fang, forming a sac; coagulable lymph will be thrown out, the sac will enlarge, and the bony walls of the alveolus be removed by absorption for its accommodation.

Pus is first developed in the centre of the mass of lymph by the disintegration of exudation corpuscles. As inflammation progresses, lymph continues to be thrown out and degenerated until an opening for the discharge of the pus is effected, which may be either through the canal

of the tooth or the gum, or a fistula may be established through the substance of the cheek. In the superior molar, the plate of bone between the ends of the fangs over the antrum, being in some cases very thin, the discharge may effect its escape into the antrum, or the sac itself may protrude into and lay upon the floor of this cavity. In such a case, the tooth should be extracted, and the antrum thoroughly cleansed by injecting tepid water through the alveolar opening, and this, in a majority of cases dependent upon the teeth, will be all the treatment necessary to insure a speedy return to health.

A patient, at present under my charge, of a marked serofulous diathesis, has suffered from diseased antrum for one year. In this case I extracted the tooth, and on entrance to the antrum, through the alveolar, easily affected through this opening, the antrum is treated with a solution of nitrate of silver, grs. iij. to ℥j. water. The case is daily improving, the offensive odor having nearly disappeared, and the discharge diminishing and becoming of a healthy character.

The formation of pus is indicated by the subsidence of acute pain, a dull throbbing ache being experienced instead. The gum also becomes red and tumefied, and upon pressing it with the finger, it will impart a peculiar fluctuating sensation. The abscess should now be freely opened and all the pus evacuated: upon the discharge of pus the swelling generally subsides, and though the patient may experience no inconvenience for a time, he is liable to a recurrence of the inflammatory action, when lymph will again be poured out and disintegrated, until the sac is refilled and discharged as before; or there may be a slight but continued discharge for years, unless some means for its prevention be employed. Strict attention is required from the commencement of inflammation; for when it terminates by suppuration, the formation of pus is sometimes very profuse, tunneling the bone from tooth to tooth, until an abscess of large extent is formed, resulting in death and exfoliation of more or less of the bone, according to the degree to which it is involved. The pus in such a case is generally of a dark color, and almost insupportable odor. Another result of suppuration is a fistula through the cheek, producing a troublesome sore, and when healed a deforming scar remains. The course of a fistula when healed will frequently feel hard like a cord when pressed by the finger. This should be divided by passing a lancet beneath the hardened portion, and cutting from below, upwards, completely severing it; and when the adhesion is considerable, a tent of cotton should be placed between the edges of the wound, thus preventing their approximation and partially relieving the deformity.

TIN FOIL.

BY L. D. WALTER, D.D.S., ROCHESTER, N. Y.

It is very seldom, indeed, that anything is said in the *Dental Journals* concerning the history and properties of this (to the dentists) almost indispensable article. Its history, as a metal, is given in detail in all works on metallurgy, and, as a filling, in the two or three works now extant on operative dentistry. Its properties are mentioned and dilated upon more or less completely in the above works, but the one to which this article would call attention—the property of cohesiveness—is set aside and numbered with those deserving of little, if any, consideration. That tin foil is cohesive to quite a marked degree is not generally known; a fact attributable partly to faulty manipulations, and partly to the scarcity of a pure article properly prepared. This cohesive property is seldom recognized (for the reasons above stated), though it is often ignorantly made use of by old and young operators.

In tin foil, as well as in gold, it is found best developed in the pure article. It is not found necessarily in pure tin any more than it is necessarily found in gold foil; for it is well known that gold foil may be pure and yet not cohesive; and, if the property of cohesiveness does not depend upon the purity entirely, of the material, it must depend, more or less, upon the treatment to which the material is subjected during its manufacture.

Heretofore gold foil has absorbed almost the entire attention of foil manufacturers, while tin foil has been made and thrown into the market merely, it would seem, to make truthful the statement common to all circulars, that "So and So manufactures dentists' foil of all kinds." In manufacturing a superior article of tin foil, manufacturers would be advancing greatly their own interests, and also the interest of their patrons, for the latter would willingly give much more for a good article than they are now paying for an impure, improperly prepared and almost worthless stuff, commonly sold at the dental depots. But, to return: a good article at hand, it should not be handled more than is absolutely needful; in fact, should be treated as carefully as gold foil. The common method of rolling into a rope and cutting off in short pieces, is convenient, but has a tendency to destroy the integrity of the foil and render it less cohesive. I prefer to fold the coil carefully in strips of from two to three or more layers in thickness, and pack as with gold foil, folded in the same manner. It is often convenient to cut these strips into little blocks. An annealing pan, kept at a comparatively low temperature, is a valuable accessory while packing the tin. A water bath (the temperature of

which cannot possibly exceed 212° F.) is, perhaps, preferable to the pan. The most desirable instruments are those having broad working ends, with well defined and sharp serrations—Butler's condensers, for example.

DENTAL HYGIENE.

BY L. J. B. LEBLANC, I.D.S.

Translated from the French.

Read before the Montreal Dental Society.

In writing these few lines, a natural desire, and the deep interest I have for the Society, have induced me to submit to you the result of my observations, my labor, and my short experience in all which can promote the embellishment and preservation of one of our principal organs; chiefly because this organ is called to perform an important part in animal economy, and in our professional relations with society.

Much has been said and written on this interesting part of our art. A few months ago in Quebec, one of our amiable and learned colleagues delivered before you a lecture on the same subject. His essay, admirably composed, delighted you to the utmost extent, by its style and the novelty of its ideas. Without the pretension of giving you a lecture equal to it, and still less of surpassing it, I shall endeavor to fill a few blanks which were left in it.

Within the last century, great writers have displayed a noble ardor for the advancement of dental science. They make every exertion to write as many books as possible and invent the best instruments. France and England have had the honor of giving birth to those eminent men, but to-day, that worthy zeal for science seems to have cooled down; one would think that those two nations begin to feel tired, that they give up their work to rest themselves under the shade of their laurels. The names of the most distinguished dentists of France, who immortalized themselves by the importance of their discoveries, are those of Messrs. Duval, Maury, de la Barre, Regnard, &c., (in the office of the latter my predecessor, Dr. Jourdain, learned his art). In England we boast of the names of Messrs. Hunter, Fox, Bell and Tomes. Now, to-day, that those two nations are nearly inactive, another young and intelligent country appears to us—it is the American. That nation, endowed with an extraordinary genius, have the benefit of those different discoveries, and have improved our art to such an extent in its mechanical and surgical part, that at present our labor is performed very quickly.

I have not the intention of writing a work of considerable length, but a mere essay on dental hygiene, and I shall abstain from those long technical words, more or less irregular; some would seem like India-rubber, on account of the facility with which they are lengthened at pleasure. My object is, therefore, to awaken the attention of the public on one of their most precious advantages, while, in order to preserve them, they display the most incomprehensible indifference. Nevertheless, this subject concerns, at the same time, the cleanliness, health and rest which are obtained only by the absence of pain and the most constant care. We do not agree, I believe, on what really constitutes beauty. Our different ways of seeing and judging render its definition an object of great difficulty. All the parts which compose the human figure vary in their form to the utmost extent. That is why we are prevented from clearly defining it, and describing how their harmony produces what we agree to call a handsome or ugly face. So we are induced to say that beauty is only and properly regarded as such by a general and implied convention; but that convention is unspecified according to different climates—for instance, a narrow forehead, thick lips, a broad flat nose, wool instead of hair, are the marks of beauty among Africans, and among us, signs of ugliness. But teeth are said to be handsome, when they are white and well arranged. When Nature made them handsome, it took everywhere the same care of setting them in rosy gums; and the carmine of the lips set off their whiteness still more. They are not only ornamental but also very useful to health. Many, however, seem to be ignorant of that important truth. Nevertheless the slightest attention is needed to convince one's self that teeth are absolutely necessary to the preservation of the animal economy, since they are designed for one of our principal functions. How many teeth were broken by imprudence and vain show, especially among those set for the trituration of food, and consequently for the easy digestion of the stomach, which is only the secondary agent and above all the protector of health; hence if it is deprived of the preparatory work of the jaw, and receiving but food half trituated, its various functions are laborious—wasting slowly its elasticity, it grows weak, and loses that vigor which, when once lost, cannot be restored by the most powerful tonics, and the richest of victuals. "You are a foe to your life if you do not masticate well" says the Latin proverb. Those who have good teeth and do not masticate well can profit by this lesson. But what can we say to those who have bad ones? They must guard against that difficulty by dint of care, since a good mastication is so necessary to health. Yes, when the uneasiness, the bad digestion and the weakness of the stomach set in, one says: "If I had

my teeth, I would give a great deal ;" but when you had them, you should have preserved them—it was perhaps troublesome, but it is far more troublesome at present. A physician said very wittily : " Formerly the fable of the stomach and its parts was composed, but if at present we wrote that of the stomach and the teeth—oh ! how numerous would be the wrongs of the latter towards the former." The same writer attributes rightly a great number of diseases of which the cause is unknown, to the impurities that the saliva of slovenly mouths carry in the blood, bringing them along by mastication. This causes at length a bad chyle always injurious to health.

You can see, gentlemen, that the teeth are as necessary to health as to beauty ; it is for that reason that we always seek the means of keeping them sound. The process for that aim is ordinarily slow. It is submitted to general rules which I will explain as briefly as possible.

Generally teeth of the first dentition are not susceptible of any care for cleanliness, unless they be affected by decay, in which case they must be plugged, and brushed often in order to check the progress of that affection. It is at the age of seven or eight that children should be taught the habit of brushing their teeth twice or three times a week, with a soft brush, so as to provide against caries, and the pains, more or less smarting, resulting from it. By these means the teeth and the mouth are kept in a state of cleanliness and freshness which is so agreeable. In case the teeth should be covered with tartar, it would be necessary to remove it to avoid caries or inflammation of the gums. Another inconvenience of tartar is that it causes an offensive breath.

From the age of 15 the teeth must be brushed every day, and with a powder well prepared, two or three times a week. The remainder of the time with a liquid, acting like a tonic, which will dissolve in the same time the mucus deposited on our teeth while sleeping. Experience teaches us, gentlemen, that their daily cleaning is their best preservative. It would be more suitable to clean them after meals in order to remove the alimentary substances ; and if particles of food are deeply placed in them, a tooth-pick should be used, a custom generally known at present. There are parties who satisfy themselves with a piece of linen to rub their teeth, without taking the precaution of rinsing the mouth. This is far from being the clean and proper way ; on the contrary, it is very injurious, because a certain pressure is made on the gums, and that habit has no other advantage but that of gathering and hardening tartar in places where it is liable to accumulate itself, that is to say, between the teeth and their necks.

Now, persons wearing false teeth are not absolved from cleanliness,

more than others; they should take a great care of the mouth; if otherwise, the sets cover themselves with food and tartar, which remaining habitually in moist and warm places, become infected and cause a great deal of inflammation to the mucous parts, and then the mouth becomes the seat of an intolerable smell. Unfortunately, gentlemen, we have often the evidence of what I have just said. A man must despise himself to a great extent to keep so much dirtiness, and we, poor dentists, are often compelled to stand a good distance from these persons, and in spite of us, their breath, which is able to kill flies while flying, reaches us; we would not be so unlucky if nature had given them, as to the alligators of San Domingo, under their lower jaw, the advantage of having a gland holding musk.

Though the rubbing of the teeth with a mere brush dipped in aromatized water is nearly always sufficient for maintaining the cleanliness of these organs, there are nevertheless persons either by the nature of their constitution or by previous negligence, who are compelled to seek more energetic means, that is to say, making a great use of powders.

I will say a few words on those which are still employed at present. Coal well ground, is a popular dentifrice; it is an antiseptic; its use almost given up, still they prepare it in our drug stores; its action is nearly useless on the enamel—its constant use ends by causing the teeth to appear black and the gums as afflicted with scurvy. This applies also to burnt crusts of bread which are used by several persons. Soot has been used for some time because it was believed that the chimney sweep's teeth were always white—that belief is erroneous. Their teeth appear white because their faces are black—as for instance, with negroes it is the mere contrast of the colour of their skin. Notwithstanding, the latter possess good, handsome and strong teeth. Its use is utterly unclean. Cinchona is a torpid powder, but its taste and color on the one hand, and on the other its tanning principle, which at length makes the enamel yellow, cannot recommend it as a dentifrice. It has, however, the property of hardening the gums. What I have said of cinchona can also be applied to tobacco.

Salt is by no means injurious, but it determines a considerable secretion of saliva.

Cigar ashes are also in use, that powder is very unwholesome—it is too strong an alkali. Alum, that substance which we can rank with tartaric and oxalic acid, are too strong powders, unless in order to use them we mix them with an absorbing substance having the property of neutralizing their acidity. We must mistrust those patented liquids and powders, the pompous names of which fill the columns of our newspapers,

ornament the corners of our streets, and are used as mile-posts on country roads. Remember well, the action of those patented drugs is magic—it is exactly there where lies the evil, because the only dentifrices which can give quickly a shining white ivory-looking appearance to the teeth are acid. One could not be too cautious in using them, since they determine on those organs the same effect produced on marble by a few drops of diluted acid. The calcareous phosphate, which is the base of the enamel, is dissolved, causing its polish to be removed, and the teeth thereafter are more liable to retain that kind of mucus which previously had a tendency to accumulate on them. They assume an indelible yellow tint, and if you continue to use those compounds, if the acids constituting their bases are too concentrated, they will soon uncover the gelatinous substance of the teeth, which will cause aching, caries, and their extraction will become unavoidable.

Yes, gentlemen, the first quality of a dentifrice is to clean the teeth thoroughly and without injury.

1st. "Whatever may be the mode of preparation of those tooth powders," says Dr. Maury, "we must exclude from their composition all substances liable to alter the enamel of the teeth, since those sorts of preparations are to be used only to maintain their whiteness by removing the tartar which gathers on them.

2d. "You must note their action on the gums." Are those conditions observed in the patent dentifrices offered to the public with the most pompous names? I entertain great doubts about that. It is a mere speculation now-a-days, and the voice of interest stifles very often that of humanity.

This induces me to say a few words on an article which each of you, I am sure, possess—tooth brushes. Each hair of them may be considered as a tooth-pick, the daily use of the brush cleans the teeth and the gums, and saves them from many diseases. Brushes vary a great deal in their form, that is why you must choose them. For children they must be straight and very soft, for adults they must be so much the less hard as the gums are softer. For instance, if you select a hard brush you erase thus the enamel in some ways, you lacerate and bleed the gums, you uncover the non-enameled substance of the teeth, they will totter, sensibility will ensue, and afterwards the toothache.

An article everybody should possess is a tooth-pick. It must be used only when a few particles of food are driven between the teeth, which they annoy when they cannot be taken off in spite of the efforts of the tongue. That is the only circumstance when we can rationally recommend the use of a tooth-pick. The teeth and gums should be tormented the least possible with that instrument or any similar object.

There is still another error which I must note. It is the use of the end of a penknife as a tooth-pick. By that process a few blades of the enamel are exposed to be cut off, and unfortunately those occurrences take place and caries acts in that place. Next, are you always sure that the blade of your knife is clean? This is again a very delicate matter, because while cleaning your teeth with that instrument you can wound the gums and bring on an inflammation. The best tooth-picks are not made from gold, silver or steel, but those which are manufactured from quills.

Formerly sponge and cotton plugs were used for cleaning the teeth—this habit was far from being suitable for keeping the mouth clean—they had the same disadvantages as the linen of which I have already said a few words. Independently of the hygienic care required by the teeth, there some other precautions to be taken in order to preserve the beauty and soundness of those organs, and those precautions consist in avoiding carefully all that is injurious or may become so. As there are many I shall select the most remarkable, and I will be as short as possible.

1st. You must avoid washing your head in water too cold or too warm, using those astringent and caustic remedies to remove freckles, or dyeing the hair.

2d. Not to break with your teeth too hard objects, or cutting threads or any other thing with the *incisive teeth*, for they become notched and decayed.

3d. Never leave particles of food in these organs, nor use too hard dentifrice powders, or elixirs, tinctures too much acidulated.

4th. While eating, avoid taking food or beverages too warm or too cold, because the sudden transition between those two extremes is always injurious to the teeth. *Frigidus inimicum dentibus*, said Hippocrates with reason. When we smoke a pipe or cigar, the mouth is warmed, the larynx becomes dry, and then you drink—and even sometimes very cold water that may cause a slight inflammation of the dental pulp.

5th. Be very careful when drinking mineral waters, for they can irritate them, render them painful, make them turn yellow, and give them a dark covering.

Abstain from sweet things: a proof that they are injurious is that I have met in my practice confectioners, still young, whose teeth were nearly all *carious*. Druggists come under the same heading, because frequently they are obliged to taste their preparations, acid or sweet.

A thing that is very often done and about which we are careless, is drinking in the same glass as another, or smoking from the same pipe—

that is far from being clean. It occurs often that an impure saliva left on the edge of a glass, poisoned those who drank from it afterwards. Sailors are less particular, when their officer calls them while they are enjoying the comforts of a *chew*, they don't care about handing it to a comrade who masticates deliciously before returning it to its proprietor.

6th. Do not be great lovers of crackers and biscuits, they always contain acid powders. Americans have generally very bad teeth—we may say that they are the greatest biscuit eaters of the world.

7th. Abstain as much as possible from the use of gaseous waters, such as soda, which is relished so much in the hot season—it is acid, since it is composed from tartaric acid and bi-carbonate of soda. Ice-cream is also very injurious. As to myself I must confess that I am a great lover of it; do what I tell you and not what I do, as a proverb says. Salads are unwholesome: notwithstanding, taken seldom and in small quantities, they can stimulate appetite and facilitate digestion.

8th. Feats of strength performed with the teeth are absurd; those who indulge in them ought to be punished like that youth, who, says Dr. Lemartie, broke all his front teeth, who bet that he would throw over his head a chair which he held with his teeth by the upper part of the back board to achieve that noble feat. Another fellow, more imprudent, caused himself to be hoisted up from the ground to an elevated window by means of a rope which he held in his teeth. When he had reached a certain height he lost his four insisors and broke one of his legs in the fall. Some others, says the same Doctor, find pleasure in grinding drinking glasses between their teeth and wounding their mouths grievously in the attempt—one would suppose that the life of these maniacs is a perpetual challenge to the Almighty who gave it to them. The loss of a tooth is a real misfortune since it cannot be repaired. A tooth is worth a diamond says one of our authors. Remember these few words, gentlemen, and try to put them in practice, and when old age will come, your teeth will still be handsome. If you do the contrary your cheeks will sink in, your lips will loose their firmness and embossment, your chin will be lengthened, wrinkles will cover your face as so many furrows, pronunciation will be difficult and unpleasant, the saliva, having no more dikes to contain it, will escape, and produce that unpleasantness which we hardly endure in old persons.

Before concluding, I must tender you my best thanks for your kind attention. I have endeavored as much as possible to be brief and varied, to avoid the aridity and monotony which are usually found in medical works, where one's health is treated in a grave and doctoral style; I am satisfied after saying only what could be useful. I will be doubly

rewarded if I succeed in giving some credit to this essay, and in deserving a smile of approbation from those for whom I undertook especially to compose it.

OSSEOUS TUMOR UNITED TO A MOLAR.

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



The accompanying illustration, though poorly engraved, represents an hypertrophy of the cementum, united to the first inferior molar, left side, and which was removed from the mouth of a young nun, aged 17, at one of the Convents in Montreal.

The tumor had been gradually increasing in size for some years, without causing any pain until a few weeks before its extraction, when a dull ache was felt, similar to that connected with periodontitis. There was no perceptible discharge, or tenderness, to speak of. The tumor distended both the inner and outer sides of the alveolus, and disfigured the cheek. The crown of the tooth was perfectly sound and well developed. A section of the tumor showed it to be cementum. Weight, seven and a half pennyweights. Evidently the entire external surface had been covered by healthy periosteum, which, doubtless, secreted the osseous element during the period of the development of the cementum.

DISCOLORED TEETH FROM OXY-CHLORIDE OF ZINC.

BY N. Y. Z.

I had one bottle of oxy-chloride of zinc some time ago, which gave me considerable trouble. In every case in which I used it, it turned the tooth from a light brown to a black. In three instances, in which it discolored a part of the teeth, I removed it, where it was placed over exposed pulps as a temporary filling, and found the pulps alive and healthy. The question in my mind is, "What was the cause?" Possibly it may be traced to some admixture of other metals than zinc, or some impurity in the latter.

En passant, I hold it as necessary to keep oxy-chloride of zinc tightly corked as chloroform. It deteriorates from exposure in the dry state to the air. I prefer very much the oxy-chloride of zinc prepared by Dr. J. H. Smith, of New Haven, Conn.

PROCEEDINGS OF DENTAL SOCIETIES.

BOARD OF EXAMINERS: DENTAL ASSOCIATION OF PROVINCE OF QUEBEC.

A regular meeting of the above Corporation was held at Dr. Bernard's office, Montreal, on the 1st and 2nd of May. Present, A. Bernard, J. McKee, C. Brewster, P. Baillargeon, J. H. Webster, J. A. Bazin, M. Poutier, E. Lefavre, W. G. Beers. After the usual routine business, the notice of motion given at last meeting to reduce the price of Licenses to Dental Graduates was brought forward, and after considerable discussion withdrawn.

An application from London, England, for the License, on payment of the fee of \$50, was unanimously rejected on the following resolution: "Resolved, That the License for this Province is not for sale: this Board considering it contrary to the interpretation of the Act of Incorporation, to grant its License to non-residents of the Province of Quebec without personal Examination."

On motion, Mr. C. S. Strickland, who intended removing to Montreal, to be associated with Dr. Bernard, was granted a permit to practice until he could present himself for examination at the next meeting of the Board.

The Secretary reported that only one Dentist practising in the Province had so far failed to take out his License, but had promised to comply during the month. Several "raiders" in the country had disappeared, and efforts were being made to supply some vacant frontier districts with reliable practitioners.

Two candidates applied for examination. Mr. J. T. Macpherson, late of Lancaster, Ontario, passed a very thorough examination on both days in Dental Anatomy, Physiology, Chemistry, Pathology and Therapeutics, Filling Teeth, Surgery, Mechanical Dentistry, Irregularities and Anomalies, Anæsthetics and Hygiene, filling a cavity with gold in presence of the Board, &c., and was granted a License to practice Dentistry in this Province. We understand he intends settling in Huntingdon. One candidate after an impartial examination, was rejected.

QUEBEC (PROVINCE) DENTAL SOCIETY.

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

A regular meeting of the above Society was held at the office of Mr. Beers, on the evening of the 2nd May, Dr. McKee in the chair.

Through some informality at the last meeting, the election of officers

which then took place was declared illegal, and therefore null and void; several having been elected officers who were not constitutionally members.

H. D. Ross was re-elected President, L. J. B. Leblanc, Secretary, and J. H. Webster, Treasurer.

Most of the time was occupied in examining and discussing new instruments, specimens of Pyroxyline Base, &c. A handsome rosewood Butler chair, costing nearly \$300, delivered, was on view, and attracted much attention, though it was considered that several of the movements were rather expensive luxuries. A magnificent lot of Dental Instruments for the inspection of the Society from S. S. White, Esq., Philadelphia, was exhibited, and elicited a great deal of satisfaction. Among the lot there were Jack's double end chisels, Head's excavators, Abbott's chisels, Atkinson's Omega mallet pluggers, Abbott's mallet pluggers, Wetherbee's chisels and spoon excavators, Palmer's nerve cavity instruments, Butler's mallet pluggers, Abbott's scalers, &c. A vote of thanks was passed to Mr. White for the opportunity afforded of viewing the instruments. Messrs. Codman and Shurtleff, of Boston, exhibited their indispensable saliva pump, and Dr. Moffatt's hot air syringe, and mouth syringe. A new inhaler for nitrus oxide, from M. M. Johnston and Co., was also shown.

Some discussion arose on the question of dental slow cases, and professional fees and advertising, and the following resolution was unanimously passed, "Resolved, That this Society, representing the Dental Profession of the Province of Quebec, regard all dental advertisements as unprofessional, which draw attention in any way to special methods or modes of practice."

CORRESPONDENCE

MR. EDITOR.—In my article on extracting teeth, in the March number, I cited a case of replantation, and promised, if successful, to give some further account of it. It is now three months since the operation, and my patient reports the tooth *sound*, and thinks it would require the same effort and cause as much pain in having it extracted as at first. My opinion is, that the mode adopted by Mr. Coleman, and which you say you adopted, is quite too scientific; there is too much doctoring. I attribute my success, in a measure, to the fact that, in the absence of carbolic acid (being at my residence at the time) I used warm soap suds freely. I am an advocate for the use of carbolic acid, and use it incessantly, but *spar-*

ingly, and very much question its *free* use in cases under consideration. I will not, however, condemn the practice, but wait to learn more. I am anxious to test replantation further, but no favorable cases have come to hand except one, and, being a cuspid, the crown was fractured in extracting, and I did not deem the attempt advisable.

G. V. N. RELYEA.

Belleville, April 10, 1871.

ST. PAUL, Minnesota, April, 1871.

MR. EDITOR,—Being acquainted with the greater number of Ontario dentists, and occasionally receiving and highly enjoying the able productions of their indomitable effort in dental research (through your valuable journal,) I would crave a small space (for their amusement at least) to state a few facts respecting dentistry out *West*. On coming to this Western country I was agreeably mistaken, for I supposed that the people in their eagerness to acquire a home—make money—and endure the hardships and privations of a new country, would forget or neglect the services of a dentist, and that nothing but an aching tooth could possibly remind them of such a personage; however, I found that every town and some villages had their dental practitioners, and that the cities were (seemingly) over-supplied. I looked over the state, and found no place holding out better inducements than *Saint Paul*. With a mixed population of 20,000 our specialty was represented by seven practical workmen, four of whom had been located here upwards of twelve years, and had grown with the place and in the affections of the people. I plainly saw that no easy task was before me to gain a position among so many able *confrères*. I located, hung out my shingle, and am endeavoring by good work and perseverance to be as one among them. We have first-class men among us—four D.D.S'.,—who do their work well and are remunerated accordingly. The minimum price for gold fillings is \$2.50 up to \$30; very little of other and baser fillings is used, for filling with such is \$1.50 to \$4. For extraction \$1; for artificial indentures \$25 upwards for upper or lower set. There is not so much extraction and mechanical or manufacturing work done as with you, but more attention is directed to the saving of the natural organs; almost every tooth is saved; people are alive to the constant care and proper attention to their teeth. The intelligent American feels it to be as imperative a duty to present himself to the dentist for an examination of his teeth, polishing and filling, if need be done from time to time, as he is to employ a physician to subdue a fever, when premonitory symptoms appear. In this way the standard of

our noble profession is being elevated, and the people are appreciating and educating themselves in their special wants in respect to dentistry. Here is a noble opportunity to us, as dentists, to perform mission work, in not looking so much to the dollars and cents, but to the best interests of society, by correctly informing the minds of our patrons and, if need be, writing essays on the cause and effects of carious teeth, the remedy, &c., &c. Yet, among all these favorable aspects to our specialty, there does exist some deplorable things; there is not that warm fraternal feeling existing among dentists as with you in Ontario and Quebec and some of the Eastern States; no laws regulating the practice and stopping charlatans and quacks from deceiving the public and bringing the honored profession into disrepute. The great cause lies in the fact of an unwillingness to confer with each other. We do need organized societies and associations, a fraternal feeling, a willingness to impart information, to counsel and advise with each other over our failures and successes. None of these things exist here. There are practitioners here who never call upon their brethren. I felt it my duty to call upon each one, and with happy results, for my call has been reciprocated by all but one, and that one a promise. It requires but a little time on our part, and if a right spirit is manifested by us, how perceptible is the effect upon our brethren. Then why not break the barrier and let a cordial, reciprocal feeling be shown one toward the other? And now, Mr. Editor, I have taken up much of your valuable time and paper, and, in closing, permit me to say that the *Canada Journal of Dental Science* comes to me as a highly prized book of information, and I presume every dentist in Canada is a subscriber; if not, he ought to be, to it, or some other dental journal, so as to keep pace with the profession.

J. H. BRYANT, L.D.S.

EPITOME OF THE PROCEEDINGS OF FOREIGN SOCIETIES.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.—FEB. 6TH, 1871.

[We cannot, properly speaking, place the O. S. G. B. in the list of *foreign* societies, belonging, as it does, to the Empire, of which we in Canada are proud to form a part, but we will include it in the "Epitome" for convenience sake.]

The following is an extract from an interesting paper, read by Mr. Thos. C. White, "On some Points in the Minute Anatomy of the Pulpæ of the Teeth:"—

"Twelve years ago he commenced an investigation into the minute

anatomy of the pulp of a tooth and its connection with the dentine, with a view of ascertaining the agency by which those painful sensations were conveyed to the sensorium, which were sometimes excited by cutting sensitive dentine.

Of the structures of the teeth the dentine constitutes the really vital, as well as the main body of the tooth, with its myriads of tubuli, whose mouths open on to, and help to make up the walls of the pulp cavity; the tubuli radiate outwards, diminishing in size as they proceed, and at last inosculate with adjoining tubes to form an irregular system of loops. This is the element in the tooth to which we wished especially to call their attention, because it is in this tissue that the sensitiveness alluded to manifests itself, and particularly in that part where the tubes form loops with each other, the elements of temporary teeth being exactly the same as the permanent teeth, and the former being more readily obtained in a sound condition.

The teeth chiefly used in these investigations have been the temporary canines, the pulps of the incisors generally presenting a semi gelatinous state not favorable to their removal from the cavity of the tooth. The course of procedure adopted, is as follows:—A longitudinal groove being made round the tooth with a file, and the *débris* thoroughly washed away, the application of the cutting nippers to one end will split the tooth cleanly in two, and the pulp may then be withdrawn by firmly seizing it with dissecting forceps at that part where it enters the apex of the fang, and then, peeling it out of the pulp cavity, so as to draw it away with all its attachments, it may be laid on a glass slide under the microscope, and examined with a half-inch. objective.

A pulp under the microscope often appears full of bubbles; how this occurs is a problem he would be glad to have solved, as it prevents the examination of many otherwise eligible pulps. He had tried to obviate the difficulty by throwing the teeth immediately after extraction into water or glycerine, but still the air, by its presence, causes all the histological elements of the pulp to become lost in the froth that fills the tissue.

Another difficulty arises from the presence of myriads of nodules of osseous deposit—the Calcification Islands of Salter. They are structureless masses of matter resembling gum arabic, of varying size and shape, the prevailing form being spindle-shaped, with the long axis corresponding to that of the tooth. They are most abundantly supplied to the lowest portions of the pulp, but, nevertheless, by their thickness, they prevent that compression of the pulp necessary to make it thin enough for examination with the higher powers of the microscope.

If a pulp free from these drawbacks be examined, we shall notice an appearance differing only in colour from that presented by a section of dentine taken transversely to the course of the dentinal tubuli; we shall see a number of round bodies, whose diameters would correspond to the conjoined diameters of the dentinal tubes and the walls immediately surrounding them. This is the view taken from looking at the ends of these bodies; this is an important point in understanding the relation of these bodies to the dentine covering them.

In investigating the minute anatomy of the pulp, we have to apply certain staining fluids and reagents; and he had derived great assistance from the use of the ammoniacal solution of carmine, used so successfully by Professor L. S. Beale in his researches. The formula for the preparation of this fluid may be found in his valuable book 'How to Work with the Microscope,' p. 201. This fluid has the property of staining all *living* and *growing* parts of a tissue, while those that are *formed* are not affected by it: thus, in staining a tissue with this fluid, by allowing it to soak in it for a few hours, and, after washing it in glycerine, examining it with a microscope, the nuclei of that tissue will be found stained a deep crimson, the nucleoli will be a dark red, while the surrounding structures will be almost colourless; thus making the *active* and *living* parts distinctly manifest from those which are *already formed* and *passive*.

In a pulp left twenty four hours in this solution, then washed and placed in glycerine under compression, we shall observe that the round bodies, described as covering the external surface of the pulp, are stained of a deep crimson, and the side aspect presented, in consequence of the pressure, will reveal that their form is oval; that they are stained so deeply is an evidence that they are not *formed* material, but that they have an office of a *growing* and *active* character. Upon seeing these he named them "the germinal corpuscles," from the belief he entertained that they were the dentine-forming organs. They are the odontoblasts of the German histologists.

Further compression will cause some of these odontoblasts to start out from the ranks of the rest, and they will be seen to have a connection with the pulp by means of a very pale, slightly granular fibre, running into and losing itself in the fibrous substance of the pulp. Upon carefully examining the distal extremity of the corpuscle, the remains of a similar fibre may be detected running in the direction of the dentinal tubuli; the compression renders the course of the dental nerve slightly perceptible through the separate bodies of the corpuscles. If the pulp be placed in a very diluted solution of liquor sodæ and glycerine, the germinal corpuscles will be dissolved away, and a clear unobstructed view of the

course of the dental nerve will be afforded. Entering at the apex of the fang with the vessels is a tolerably large bundle of fibres, after passing a short distance into the pulp, it becomes divided and subdivided, till a single pair of fibres may be traced to all parts of the pulp. Their course is at right angles to the longitudinal axis of the germinal corpuscles, and to the course of the dentinal tubes; this is further evidence that the pain of sensitive dentine cannot be conveyed by direct contact with the ultimate fibres of the dental nerve, but through some intermediary agent.

He had had few opportunities of confirming the supposition that the nerves and their terminations end in loops, though there are sometimes faint indications of such loops having been ruptured by the compression necessary for investigation. The artery at first runs parallel with the nerve, branching off into a network of capillaries, and becomes distributed throughout the pulp, where, at the periphery, its branches run in close proximity to the bases of the germinal corpuscles.

Three kinds of nuclei, besides corpuscles, are found in the stained pulp—the fusiform nuclei of the areolar tissue, the nuclei of the nerves, and of the artery, all differing in form and dispositions.

The germinal corpuscles clothe the external surface of the pulp, and stand closely side by side in a dense phalanx, with their long axes at right angles to the surface on which they stand. The fusiform nuclei of the connective tissue are spindle-shaped, and occupy the substance of the tissue. The nuclei of the artery are arranged transversely to the course of the vessel, somewhat spirally, occupying the muscular coat of the artery, and are of an oval shape. The nuclei of the nerve-fibre are of an irregular longitudinal character, and occupy the substance of the nerve.

Coming now to the dentinal fibrillæ of Mr. Tomes, we find them very transparent, and of a semi-gelatinous character. They are so minute as to be visible only with a moderately high power and careful adjustment of light, but are easily demonstrated by decalcifying the section of a recent tooth, and tearing it transversely to the course of the dentinal tubes, when the fibres may be seen as a fringe along the fractured edge of the section projecting from the tubes. By a careful examination of the microscopical characters of these fibrillæ, we shall be brought to recognise in them a relation to the fibres attached to the germinal corpuscles at the orifices of the dentinal tubes. These fibres are the organs around which they deposited the dentine; they retain a low kind of vitality, and are capable of inducing change in the structure they were the agents in forming, although in a slower manner than would take place in the other bony structures of the animal frame.

We see now, in the dentine, an agency by which the vibrations of con-

tact, whether of irritant fluid or of an instrument, can be transmitted to the pulp, but have yet to learn how these dentinal fibrillæ communicate with the dental nerve and its branches. He had endeavoured, but hitherto unsuccessfully, distinctly to demonstrate the union of the dentinal fibres with the nerve. He could only conjecture that these fibres, after leaving the bases of the germinal corpuscles, enter the fibrous tissue of the pulp, and become fused in the outer coat of the nerve. From the above glance at these elements in the dentine and pulp, it will be seen how desirable it is that the treatment of exposed pulp by escharotics should be limited to exceptional cases, and every endeavour made to save the pulp in its integrity. When, in the foetal life of the dentine, this tissue is represented by only a thin covering, crowning the summit of the pulp, the germinal corpuscles are at their more active stage of vitality, and continued so till the cavity was reduced to its usual calibre, when the osteogenetic powers of the pulp became dormant. The formation of secondary dentine against advancing caries shows that these powers only remain in abeyance, and do not become defunct. Examination of secondary dentine will show that an agent governing the formation of the primary dentine has been in active, but more irregular, operation in the new structure, as the dentinal tubuli in the secondary dentine are continuous with those of the original tissue.

He conceived that the formation of the secondary dentine takes place upon this plan—the pulp cavity, having arrived at the usual size, the corpuscles remain in close contact with its walls, and are dormant, but when any source of irritation wakes them up, they recede from the old dentine, take up an active existence, and deposit the secondary dentine, drawing it after them as they recede into the centre of the cavity. This view warrants us in coming to the conclusion, that in the pulp there exists an internal prolongation of the caudal appendages of the germinal corpuscles dipping down into the tissue of the pulp, while the external appendages, constituting the dentinal fibrils of Tomes, occupy and govern the dentinal tubuli.

If, then, this internal caudal appendage passes into and becomes fused with the dental nerve, we have an explanation of the method by which the pain arising from contact with the excavator is transmitted to the nerve; and if the view he had endeavoured to give them that evening, of the nature of the various elements in the tooth pulp, commended itself to their intelligence, he was hopeful enough to believe more would yet be done to advance the interests of conservative Dentistry than ever yet has been tried."

Mr. Coleman thanked Mr. White for his paper, and said he had worked

on the same subject; his preparations had been made chiefly from the teeth of the calf or adult human teeth removed before the development of the fangs had been completed. Immersing them directly on removal in Dr. Beale's staining fluid, he had not had trouble from the access of air through the dental foramina. In some of these sections, especially of the calf, he believed, but could not feel certain, that he could trace distinct communications between the nerve-fibres of the pulp with odontoblasts on their cell-walls.

Although communication between the nerve-fibres of the pulp and the dentinal cells would explain the cause of sensitiveness in dentine, he did not consider it absolutely necessary to have in all cases a direct communication between fibre and sensitive part before assuming that impressions could be conducted from that part to a nervous centre. This is not insisted upon for the transmission of forces analogous to that denominated nerve-force. Impressions received by the long process of the odontoblast might be conducted from these bodies through the numerous cells intervening between them and the nerve-fibres, or possibly the connective tissue of the pulp performed this office.

He was inclined to look upon odontoblasts, not only as concerned in the development of the dentine, but as comparable to the tactile corpuscles, Paccinian bodies, &c. Many physiologists insist that all special sensations are received first through special organs, and he considered that teeth were not intended merely to comminute food, but, by their sensitive nature, to determine whether the substance so comminuted, as, for instance, a piece of cinder in a biscuit, would be injurious, or at least irritating or not.

A consideration of the source whence the parts concerned in mastication receive their power of sensation and stimuli to action would give us more insight into the truly reflex process of mastication, and enable us to understand how individuals, having only two teeth in the head meeting each other, can fairly comminute their food, though taking longer to do it. He thought the teeth were endued with sensitiveness to enable them to fulfil such functions, but how the sensations they received were conveyed to the nerve-centres was another question, and he only conjectured that the odontoblasts were the organs for receiving those sensations.

The subject was surrounded with difficulties, for even if we could trace communications between nerve-fibres of pulp and the odontoblasts, and thus explain the sensitiveness of dentine, we have to account for those paradoxical cases described by Mr. Salter, in the "Archives of Dentistry," where sensitiveness was observed in dentine cut off from all communication

with the dental pulp, except through the lateral branches of the dentinal canals, into which as yet no prolongations from the long processes of the odontoblasts have been discovered. Also, in cases, where the fang of a tooth, which had been cleared for grafting, was sensitive on being scraped, though this might be explained by supposing the sensations to be conveyed along the processes of the odontoblasts to the nerves of the periosteum.

Mr. White thought Mr. Coleman overlooked the fact, that the periosteum being largely supplied by nerves derived from the same source as those which supply the pulp, and the periosteal surface of the fang being perforated by numberless channels, nerve filaments may enter from the external nerve supply, and so transmit the sensation as easily through the more direct agency of the nerve-fibres of the pulp.—*British Journal of Dental Science.*

SELECTED ARTICLE.

PULP TREATMENT.

BY HENRY S. CHASE, M.D., D.D.S.

To Students and Young Practitioners.

An inexperienced young dentist asks my advice on the above subject, and as there may be others seeking the same information, I write what I have to say for the Journal.

EXPOSED PULPS.

If a pulp is exposed in the process of excavating, it should not be destroyed, but efforts made to preserve it alive. To this end, touch it with a pellet of cotton, wet in creosote. Then remove all the decay within the cavity that is possible to do without further wounding the pulp. It is better to leave a little softened dentine over the pulp, rather than to run much risk of wounding that organ again.

A broad and very sharp excavator should be used when working over the pulp, as it is not so likely to cut through and wound it as a smaller blade. Prepare the cavity very nearly or exactly as you wish it to remain when the tooth is permanently plugged. This must be determined by circumstances.

The cavity should now be plugged with *Oxychloride of Zinc* or *Osteo Plastic*.

To do this, turn out on a piece of glass or porcelain enough of the liquid to fill the cavity, then drop into it enough of the powder to absorb

the liquid. While it is in this soft batter state, and before it begins to harden, put a portion into the cavity, pressing it home gently with a bit of spunk; the spunk will absorb the surplus liquid. The operation may be repeated until the cavity is full. The tooth should be perfectly protected from saliva during the insertion of the filling, and also during its hardening. After it is filled, and before getting wet, the surface of the plug should be smoothed and then coated with sandarach varnish. After allowing the latter to dry a moment, the mouth may be shut, and the varnish on the plug will protect the latter from moisture, and the oxychloride will harden nicely. If it is convenient to do so, this plug should remain in the tooth a year. If it is on an approximal surface it will probably wear that length of time, but if on a grinding surface it will need to be mended, by adding more material to it, after a few months. In some cases the pulp will die, thus treated, but in a great majority of cases it will live in a healthy condition. Sometimes it will live for months in a *dying* condition. The object of deferring plugging the tooth with gold, is obvious enough—we wish to be pretty sure of its continued health before putting in a permanent plug.

Very likely there will be considerable pain when the osteo is first inserted for a half-hour, or even for a half-day.

The less pain, the more favorable the prognosis. If the pain should continue several days growing less and less, you must not suppose the tooth is out of danger, for really it may be in a more dangerous condition than at any time previous—the *pulp may have died*.

You must find out whether this is so or not. Throw a small stream of cold water on the tooth from a syringe, and, if it is alive, pain will be felt; if the pulp is dead there will be no response. If the pulp is dead it must be removed from the crown and roots of the tooth, otherwise periostitis and suppuration will probably follow, resulting in alveolar abscess.

If the pulp continues healthy for several months, there will probably be new dentos* formed between the plastic plug and the pulp.

When it is decided to plug the tooth with gold, it is better to leave some of this oxychloride of zinc over the pulp, and in such other parts of the cavity as may be deemed desirable, never, however, allowing this material to come to the edge of the cavity. This plastic filling, when well put in, is often found to be as hard as the tooth *within* the cavity, and I occasionally leave a considerable portion of it in the tooth, and sometimes make retaining points in its substance.

* Dentos—Tooth-bone.

When we have

A CASE OF EXPOSED AND INFLAMED PULP.

the treatment must be different.

If there has been repeated inflammation of the organ for months, there will have to be considerable treatment for its restoration to health, before it should be plugged with *anything*. The inflammation must be reduced by using aconite tincture and creosote. If portions of the pulp have sloughed, it will be better to destroy the remainder with arsenic, and remove it entirely, when the roots should be plugged.

TO DESTROY THE PULP,

lay upon it, or as near to it as possible, within the cavity, a little arsenic which has been ground in creosote. The arsenic should not exceed a sixteenth of a grain in weight. Secure it in place by filling the cavity of decay with a pellet of cotton wet in sandarach varnish. Let this remain twenty-four hours. Remove the cotton and ascertain if the pulp be dead. If it is not dead you may wait a day or two, and if it is not then dead, apply the arsenic again. When dead, fill the cavity with tannin paste, that is tannin that has been dissolved in alcohol until the alcohol will dissolve no more. Seal the cavity with sandarach varnish as before, and let it remain ten or twelve days. By this time a slough of the pulp will have taken place at the end of the roots, and the whole of the pulp and its ramification may often be drawn away at once. The tannin keeps the pulp from putrefying while it remains in the tooth. If attempts are made to extract the portions of the pulp which occupy the root canals, *immediately* after devitalization, there will be a good deal of pain experienced by the patient and a good deal of difficulty by the operator. My experience is altogether in favour of the *waiting for nature* process; in the latter there is generally *no* pain. The root canals are now to be syringed out, and the cavity of decay thoroughly prepared for filling. I should have said that the dentos separating the pulp chamber from the cavity of decay should be removed, so as to have the best possible access to the root canals. The latter, at their entrance into the main pulp chamber, may be somewhat enlarged with any instrument that will not leave a *square* shoulder at the distal extremity.

A good deal of skill and experience is sometimes required to properly expose the orifices of the root canals, so as to remove their contents, and I cannot stop now to describe the manipulations sometimes necessary, as it would require several pages. Suffice it to say, however, that it is sometimes necessary to *make another cavity* in the crown, or cut away considerable portions of the latter, in order to give proper access to a root canal.

The condition of an empty root canal and pulp chamber is better than when those cavities have dead pulps in them. But an *empty* chamber and canals will cause a tooth to become diseased after a time, probably by receiving more or less of blood-plasmas through the dentinal tubes, which become putrid, and act in the same way as a dead pulp in causing pericementitis.

Exceeding care, then, should be used in

PLUGGING THE ROOTS.

This may be done with gold, or with osteo plastic.

When done with gold we must ascertain whether the plugger will reach as far as we wish to carry the gold. If it will enter the roots only a portion of the distance we need not hope to send gold beyond that point. Small portions of gold only should be used at a time, and that should be *un*-adhesive gold. Sometimes a plugger may be made of whalebone that will, by adapting itself to curvatures, carry the gold farther than a steel instrument. One can be made for each occasion.

These whalebone pluggers should always be used when the roots are plugged with osteo plastic. As to this latter substance, I have had better success with it than with gold.

I do not know of periostitis or alveolar abscess ever having occurred when I have plugged the roots with oxychloride of zinc.

Make a whalebone plugger by cutting and scraping down until it will pass as near the end of the root canal as possible, and mark on the plugger the distance at which it entered the cavity. Fill the canal with the oxychloride as well as possible. Cut off the plugger, and force it into the canal, and leave it there. When forced home it should not quite reach the pulp chamber.

The whalebone presses the osteo against the walls of the canal, and makes a filling in the majority of cases more perfect than gold; it also acts as an escharotic and deodorizer, and I think is much better adapted to the purpose than gold foil. The whalebone is as safe as gold within the tooth.

In all cases where we suspect pulp death, after a tooth has been plugged having a *living* pulp, we must ascertain the fact, and, if our suspicions are confirmed, we must remove the pulp, thoroughly cleanse the cavity with warm water, and fill it with tannin as before described. This should be removed at the end of a week, syringed again, and plugged as tightly as possible with cotton and sandarach. When the cavity is found to be free from unpleasant odor, the crown may be plugged with oxychloride for a month or two as a *test*. If there are no symptoms of

periostitis at the end of that time, the roots and crown may be *permanently* plugged.

Teeth, whose dead pulps have a long time been connected with an open cavity of decay, are very prone to take on pericentitis when shut up by a plug; for this reason the foregoing precautions are highly necessary.—*Missouri Dental Journal*.

BIBLIOGRAPHICAL NOTICE.

Scribner's Monthly.—After the professional man has subscribed and paid for a journal relating to his own business, he is in duty bound to take one for his patients, or his family; and we know no better than *Scribner's Monthly*, conducted by Dr. HOLLAND, the popular author of "Timothy Titecomb," &c. It is issued monthly; each number is finely illustrated, and contains graphic pictures of life and character. It is evidently destined to take *the* leading position among American periodicals of its kind.

Uterine Catarrh frequently the cause of Sterility. New Treatment. By H. E. Gaultillon, M.D. Boston, Jas. Campbell, Publisher, 18 Tremont Street. 54 pages. Price 50 cents.

The above is an English translation of a pamphlet on the diseases of the womb, and the treatment of uterine catarrh, by intra-uterine injections. As we have now a large number of physicians on our subscription list, we notice the publication of the above *brochure* for their benefit.

EDITORIAL.

THE LAST RESORT. AN EFFECTUAL ONE.

In spite of everything done to elevate a certain class of dentists in Canada who got into the profession before legislative action could prevent them, and who have been offered every advantage to be obtained by becoming members of the Associations, and witnessing clinics, a number still hold back from communion, and are positively greater quacks than ever. So long as they could get any personal advantage from the Societies without being asked to abolish their show-cases and other semblances of charlatanism, they continued regular in attendance. They were willing to share in any advantages and protection offered by the acts of corporation, and the connection with the societies, but they would not assume any responsibility, or give way in the least point from the orthodox track in which they had been moving. Their gratitude for the friendly conciliation shown them by respectable members of the profession, who zealously aimed to educate and elevate them out of the mire—and which succeeded with one or two so as to console the movers

for the experiment—was shown in utter contempt for improvement. They have the candor to admit to their compeers their poor abilities, while they extol them to their patients. They are as meek as a six-weeks lamb when they are face to face in the societies, but bold as lions to their simple patients. They trust to the conciliatory good will of the former for their safety from exposure, and to the ignorance of the latter for their success in practice.

The question arises. "What is to be done in the interest of the public and the profession?"

We disclaim from this time all further attempts to conciliate and urge these parties to abstain from quackery, and disgraceful means of attracting attention to themselves; and we urge a zealous and prompt demand by the societies to which they belong, either for compliance with their rules, or to suffer expulsion. We will go on conciliating for half a century, until dentistry in Canada will be so degraded that the quacks will be its only practitioners. Those who have come out from the disgrace, deserve credit; those who will not do so now, will not at all.

What is the "perfect cure?" *Educate the public* to know the difference between good and bad dentistry and the dearness in the long run of the "cheap dentists." It is very easy to say "educate the public" but how is it to be done? By means of the Press! The plan we would suggest is this. Let a plain practical letter be written stating facts illustrative of the imposition practised by incompetent dentists, and the injury done to the teeth and the general health. Point to the indiscriminate extraction of teeth, indiscriminate and ignorant use of a dirty amalgam, and slovenly use of gold; neglect of regulating teeth, and the various particulars in connection with artificial teeth. Avoid personalities, but give authentic facts and cases from the practice of quack dentists without mentioning their names. Let this letter be sanctioned by the various dental societies in Canada; then published in this Journal, and also sent on slips to every English and French paper in the Dominion, to be inserted as correspondence. The matter being one of public interest and the letter sanctioned by official authority, can scarcely be denied insertion. At the same time request each editor to draw attention to the matter, as fully as possible. As soon as this official letter appears, let one or two respectable dentists in each locality follow it up by judicious statements in the press of further facts to the point, avoiding personalities and names. In this way a public interest will be awakened. Further, let the dentists wherever this letter appears, apply immediately on its insertion to have a number struck off on neat sheets of paper to distribute gratis to their patients.

Since writing the above a confrere suggests that we undertake to draw up the proposed letter, and that the several dental societies in Canada be asked to contribute sufficient funds to meet the expense of postage, &c., which will be incurred in distributing the letters throughout Canada. We will endeavour to do it as early as possible, and ask our readers to forward us at once any facts and cases which may help to illustrate the imposition practised by the quack dentists of Canada. Their *dies irae* must come, and the sooner the better. Let the purging be effectual!

The best way to make bad dentists better is to *educate* them. But if they scorn that, then the best way to protect the public from their imposition is to *educate the public*.
B.

The Eighth District Dental Society will hold its next meeting at Buffalo, on the 9th of May. The meetings of this Society are of the most interesting character, and as we are requested to invite all our friends to attend it, we hope a large delegation from Canada will be present.

PHILADELPHIA DENTAL COLLEGE.

We acknowledge the receipt of a copy of the *Philadelphia Press* of 25th February, containing an account of the eighth Annual Commencement of the Philadelphia Dental College. Thirty-eight degrees were conferred, and we notice with pleasure the names of three graduates from Canada, viz., JOHN L. MACKAY, of Halifax, ROBERT H. STANSFIELD, Quebec, and JAMES B. WILMOTT, Secretary Royal College Dental Surgeons, Ont. The valedictory was delivered by the latter.

PENNSYLVANIA DENTAL COLLEGE.

This college also closed its fifteenth year in February. We notice the names of S. ZIMMERMAN and M. C. STEEVES as Canadian graduates of this year.

DENTAL SCHOOL OF HARVARD UNIVERSITY.

While in Boston, recently, we visited the above institution, and took much interest in the perfectness of its arrangements, the beauty of its locality, and the various auxiliaries convenient for the student.

THE OTHER COLLEGES.

The glorious old Baltimore, the New Orleans, Missouri, Chicago and Ohio Colleges have also wound up another season and all seem prosperous.

We call attention to the notice of "Ontario Dental Society," Page 23, advertisements.

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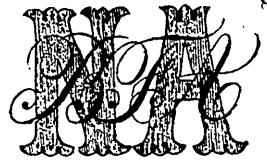
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FOR SALE AT THE DENTAL DEPOTS.

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 ME

## 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 stopping.

" 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  
RUBENCAME & 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.

**RUBENCAME & 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, &amp;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.

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☞ 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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## ENCOURAGE HOME ENTERPRISE,

BY PURCHASING FROM

## S. B. CHANDLER,

DENTAL DEPOT,

NEWCASTLE, ONT.

# 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.

# PRITZEL METALS.

WORLD'S FAIR,  
PRUSSIA, 1865.

AMERICAN INSTITUTE,  
NEW YORK, 1867.



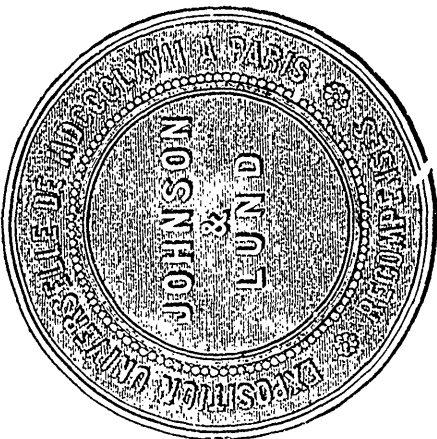
WORLD'S FAIR,  
PARIS, 1867.

AWARDED

FIG.

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-

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

Yours truly.

GEO. H. PERRINE, 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

# M. M. JOHNSON & Co.,

HAVE REMOVED

TO

No. 812 BROADWAY,  
NEW-YORK.

PRICE OF FOIL Reduced to \$4.75 per Book, \$36 per oz

# ONTARIO DENTAL SOCIETY.

---

THE ANNUAL MEETING

OF THE

# ONTARIO DENTAL SOCIETY,

WILL BE HELD IN THE

CITY HALL, TORONTO,

ON THURSDAY THE 20<sup>TH</sup> OF JULY, AT TWO O'CLOCK, P.M.

---

Circulars will, in due time, be sent to all the licentiates in Ontario, and it is to be hoped there will be a full attendance: as matters of vital importance will be brought before the Association, affecting the interest of the profession at large. Members are requested to bring specimens of irregularities, deformities and peculiarities—indeed anything that will tend to interest the meeting.

Essays will be read by some of the leading men of the Profession.

G. V. N. RELYEA,

*President Ontario Dental Society.*

BELLEVILLE, (Ont.) May, 1871.

**SPECIAL ATTENTION**

IS REQUESTED

TO

**THE EXCELLENCE**

AND

**SUPERIORITY**

OF OUR

**DENTAL INSTRUMENTS.**

— ALSO —

OUR FINE STOCK OF

**DENTAL CHAIRS.**

**SAMUEL S. WHITE,**

**Chesnut St., Corner of 12th,**

**PHILADELPHIA.**

**NEW-YORK, BOSTON & CHICAGO.**

# CHARLES ABBEY & SONS,

MANUFACTURERS OF

**DENTISTS'**

# FINE GOLD FOIL,

No. 230 PEAR STREET,

PHILADELPHIA, PENNSYLVANIA.

---

**OLD FASHIONED, (SOFT OR NON-ADHESIVE,)**

FINE GOLD FOIL,

**ADHESIVE FINE GOLD FOIL.**

For nearly fifty years our OLD-FASHIONED GOLD FOIL has been before the Profession, and has received the unqualified approbation of most of the best Dentists. Our

## ADHESIVE GOLD FOIL

While possessing all the properties peculiar to that particular article, is free from the objectionable harshness or stiffness that characterizes so much of the Gold Foil that is offered as Adhesive. All our Gold Foil (Old-Fashioned and Adhesive,)

## Is Made From Absolutely Pure Gold,

Prepared with great care by ourselves, and warranted to be as represented,

**Free from Alloy or Impurities of any Kind.**

---

**FOR SALE**

**AT THE PRINCIPAL DENTAL DEPOTS.**

OR ORDERS MAY BE SENT DIRECT TO US.



# ARTIFICIAL TEETH.

A GOLD MEDAL,  
THE FIRST PREMIUM, AWARDED at the PARIS EXPOSITION.

MORE PREMIUMS!

AT THE FAIR of the AMERICAN INSTITUTE, NEW YORK, OCTOBER, 1869,  
THE FIRST PREMIUM,

## A MEDAL & DIPLOMA,

Was Awarded to us for Improvement in Artificial Teeth.

## A GOLD MEDAL

Was Awarded to us by the FAIR of the MARYLAND INSTITUTE, BALTIMORE,  
Exhibition of November, 1869,

## FOR THE BEST ARTIFICIAL TEETH.

These Premiums were awarded for Improvements over all Teeth previously made, either by ourselves or others, and not merely for superiority over those with which they were in competition at the fairs.

The especial attention of the profession is requested to these Improvements, which were recognized by very able Committees as obviating the greatest remaining defects in Artificial Teeth for Rubbér Work.

Of this Improvement the Committee of the American Institute say:

"In regard to the shape and insertion of the pin in the body of the teeth now manufactured by S. S. White, the improvement is manifestly great over those of any other manufacturer known to us."

### SAMUEL S. WHITE,

PHILADELPHIA, NEW YORK, BOSTON, and CHICAGO.