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DOMINION

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Original Communications.

The Dental Congress.*

By FRED. J. CAPON, D.D.S., Toronto.

On boarding the Steamer *City of Collingwood, en route* to Chicago, I was glad to find so many of the fraternity from Ontario on board, bent on the same mission as myself, and willing to trust the staunch vessel to carry them over the treacherous waters of the upper lake, giving them the benefit of the fresh and bracing winds, a decided change from the ever-persistent odor of dental drugs, a perfume some dentists seem fond of.

The run to Mackinaw, and then to Chicago, was very pleasant and uneventful. On making port the customs officers took charge of the boat, who were evidently on a new job, for they left nothing unturned. Dentists, as a rule, are worth watching in more ways than one, and he must have known there were several on board. The examination was severe but felt that I had taken honors, but hoped we would not be so unfortunate to have such a fresh officer on our return.

On arriving at Chicago, my first business was to find the Columbia Dental Club, which to a stranger in a huge city without an address was no easy task. I spoke the Queen's English (I can hardly say the prevailing language in Chicago), and resolved to enquire. In passing along one of the most busy streets, I was attracted into the entrance of a theatre, when I saw that a dentist occupied an office on the sixteenth floor. Partially out of novelty I took the elevator and ascended into the heavens, a peculiar place for a dentist; nevertheless I found two of them and both Canadians, occupying a room

*Read before the Toronto Dental Society.

10 x 12, with two chairs, screened off, leaving a reception room so large that the average Chicago lady would be compelled to retire to the corridor to turn around, especially if the large feet theory is correct.

The rental for this capacious room is $1,000 per year, a secret why city dentists require larger fees or work twice as hard.

I was informed that 300 Michigan Avenue was the rendezvous for all visiting dentists. Upon arriving there I was taken in, as all strangers are in that wonderful town, and given a hearty welcome. I was introduced to a dozen or more, but one felt that was not necessary among so many genial, good-hearted fellows, which is quite characteristic of the American dentist, and I can especially say it of the reception committee on this occasion. They exercised every possible means to make the foreigners enjoy themselves, and no stone was left unturned that would add to the success and further the interests of the Congress. On Tuesday evening an informal reception was tendered to the visiting members, which was a very pleasant event, being a place for renewing old ties of friendship; college classmates greeted each other after a lapse of years. A musical programme was provided which added to the evening's enjoyment, scoring a success which was a credit to the reception committee.

On Tuesday morning at nine o'clock, the clinics began in the operating room of the Chicago Dental College, which was not capacious enough to accommodate the large numbers who crowded about the various chairs and operators, standing on tip-toe and straining their necks to get a glimpse of what was going on in the midst. As you perceive I am not a large man, and therefore found it impossible to hold my own against such a crowd of anxious sightseers, nor was it possible to be in more than one section, or observing more than one clinic at the same time.

I will recall what I can remember of the clinic room, at the same time express opinions on the practical points. The first operator I got sight of was Dr. Bonwill, of Philadelphia, a renowned man with a very fertile brain; he always has something to demonstrate which is well worth watching. His operation was a large gold filling involving almost the whole crown of a first superior molar, the pulp being intact. He said he did not care what gold they produced, he would use any kind. No. 20 cohesive foil was used alternatively with a No. 5 non-cohesive, condensing with Bonwill electric or mechanical plugger, with smooth pointed pluggers only. He is a man of highly nervous temperament and operates very quickly; the cavity required a book and a half of foil, and was finished in less than half an hour.

I then moved along to where Dr. Wooley, of Chicago, was operating. He was preparing and filling root canals. The case

was a superior first molar, which had been previously treated and made in an antiseptic condition. After applying the rubber dam, the temporary filling removed, and the canals dried with absorbent cotton, they were pumped full of alcohol, which was volatilized. The root canals were then thoroughly dried with Wooley's Root Canal Drier (similar to Evan's Root Drier), which was heated to a red heat, the copper plate being well carried up to the apex of the root. This operation was repeated several times until there was no steaming, which indicates the absence of moisture.

The root canals were next pumped full of eucalyptol, the excess was wiped out, the remainder volatilized by the use of a hot-air instrument. The roots were then filled with chlora-percha and gutta-percha cones.

The operator used glycerine as a lubricator in the search of difficult root canals, claiming it enables one to enter a canal quite easily that was to all intent and purposes closed. He also claimed by this root treatment that any substance remaining in the tubuli is rendered antiseptic and inert, but care must be taken not to anæsthetize the membrane beyond the apical foramen, for by so doing will have lost the indication by which the canals are known to be filled, and may force enough through the apex to cause further trouble.

I hold that if the root is in a healthy condition when you fill, that it is possible to have the chlora-percha go through and still be tolerated by the tissue. I saw a case where the sack had been pumped full and never given trouble.

Dr. Russel, of Keener, N.H., gave a very interesting clinic on porcelain inlay. He had a labial cavity in the right superior incisor. The cavity was prepared as nearly cylindrical as possible, then one of Russel's porcelain cylinders was chosen of the proper shade and slightly larger than the cavity. It was then cut off at a handy length for a mandrel and ground to almost the size of the cavity, by having the mandrel revolving in the engine, at the same time being ground on the lathe, rendering the inlay perfectly round. It was then placed to the cavity and revolved at a speed in the engine, grinding itself perfectly into the cavity. It was then cut off slightly flush, set in the cavity with cement, allowed to harden thoroughly and then polished down even with the tooth. The result was a beautiful inlay scarcely perceptible.

This operation was of special interest to me as a porcelain worker. I could not recommend any system more accurate, but it is so very limited in its uses, as few labial cavities conform in the cylindrical shape, or could be made to without sacrificing a large amount of solid tooth structure, as nine-tenths of the labial cavities are of a kidney shape, at the junction of the cementum and enamel and mostly of receded gums, in which case the "Land"

system of burnishing platinum foil into the cavity (no matter what shape), and baking porcelain, not glass into it, is better and has a result just as good as Dr. Russel obtained.

While speaking of porcelain inlays, I will give an example of a case that came into my hands, sent by a dentist from a neighboring city, a few weeks ago.

The case of a lady, aged twenty-six, with excellent teeth, with exception of two large misial cavities in both centrals, running to the cutting edge, the edge was shortened by abrasion until the dentine was disclosed. She had them contoured with gold on four different occasions and each time breaking away; of course the gold should have showed the biting surface, which would have stopped the trouble. Being a lady of refined nature, she did not want the conspicuous gold, and asked if something to imitate the tooth could possibly be done. I resolved to try a combination of gold and porcelain. The cavities had decided undercuts at the gingival margin, and after preparing the cutting edge for gold, bevelling it back so as not to show gold, I took impression of cavity with platinum foil, burnishing it well into the undercut before mentioned. I then drew out a piece of platinum wire very fine and made a loop to lay in the bottom of the cavity on cutting edge, the free ends of the wire extending through the impression. I then removed the impression and wire together and backed my contour, cemented it into position and built gold over the loop of platinum wire in the cutting edge with the electric mallet, finishing with iridio-platinum and gold No. 60, having as a result an almost invisible operation which was gratifying to both.

The next to draw my attention was Dr. Emil Schrier, Vienna, Austria, who was excavating a right superior central with a putrescent pulp on which he demonstrated the use of his preparation of Kalium natrium (potassium of sodium) for cleansing and rendering such canals antiseptic. The theory upon which the uses of this preparation is based is that the potash coming in contact with the water in the root canals is turned into hydrate of potassium, and this mixing with the fats of putrescence forms soap which is antiseptic.

Now he removed this substance from the canal and dried it in the usual way, and filled it in immediately.

The whole operation occupied but a few minutes, and aside from a slight pain from heat, the result of chemical action in the root canals, it was devoid of feeling. I examined the canal and it was very clean. This same gentleman read a paper on this subject which I did not hear, and therefore cannot report further on the subject.

Dr. Bryan, of Basle, Switzerland, entertained a crowd about him in giving a clinic on immediately regulating a right superior lateral

incisor in a patient about fifteen years of age. The tooth stood inside the arch and articulated on the lingual side of the lower arch.

His method was on a surgical basis, and to me might be called a very heroic one. Irregularly erupted incisors and cuspids erupting inside of the arch are the special class adopted to his mode of treatment.

The notorious resistance of the long-rooted partially erupted cuspids to almost all of the usual appliances for their regulation, and the persistent efforts necessary to move them, often requires such a force to move them which not only puts serious strain on other teeth used as fulcrums or abutments, but produces displacement of them of a serious and annoying nature.

The operator after injecting a few drops of fou· per cent. solution of cocaine deeply on the lingual and labial aspect of the gum, then made two incisions in the gum on either side of the root, extending from the gingivis up to the apex. He next cut through the alveolar plate beneath these incisions by means of a circular saw in the engine, or when the alveolus is thin, bodily wedge the outer alveolar wall away with a half-round wedge-shaped chisel, by inserting the point of the instrument between the tooth and the bone, and forcing it up along the root until enough space is secured for the tooth to be brought into place outside the lower tooth. He then adjusted a soft rubber-lined metallic guard on the outer side of the arch, and the long-curved round serrated jaw of the forceps rests on this fulcrum, and the short beak pushed against the palatine aspect of the tooth to be brought out into line. In conversation with him he said it was absolutely necessary to lift the outer alveolar place before attempting regulation, on account of the great danger of accident to the pulp. If the alveolar margin, including the solid septa between the teeth, is not broken up as far as the apex, the apex will not move in its position, otherwise the nerve will be cut off by any considerable lateral movement of the point of the root.

In bringing teeth into the arch by any system of regulating, or in moving them in any direction in which the heavy alveolus is to be encountered, great assistance is afforded to nature in her efforts to absorb the alveolar bone through which the root must pass, if a part of the bone is drilled away, and the inflammation which accompanies absorption, by almost all the usual methods of moving teeth, is greatly lessened.

I was very much interested in an electrical cabinet invented by Dr. Custer, of Dayton, Ohio. It is the most complete affair of the kind I have ever seen, and surely Dr. Custer has brought electricity into dental service in the most unique manner it is possible to imagine. It is the Mecca of perfection, and surely it is a true case

of "I'll push the button and you'll do the rest." It contains any conceivable electric appliance that a dentist may need. The cabinet is beautifully finished in mahogany with the requisite number of drawers, etc. In the lower portion is situated a miniature dynamo which governed the street power of 500 volts before it ran into the motor. He had a mechanical reverse and stop-action which was governed by two magnets of different poles, which threw to the right or left a small rubber covered pully from the centre or stop to either sides of a large disk-like pulley, which was made to revolve by the motor, therefore driving, reversing and stopping without any action on the motor, which as a rule is very detrimental to a motor and will soon wear it out. From the dynamo he had wires directed in an acid bath to make copper amalgam. The hot air syringe was arranged so that the hot air can be saturated with either alcohol or essential oils. It also contains an automatic plugger, electric mouth lamp, cautery, and last but not least, an annealing tray with heated mica, which he said was the gem of them all. The most striking feature of the apparatus is the fact that any instrument about to be used is placed automatically in operation, by the mere fact of taking it up; then one toe switch controls them all.

I then faithfully watched Dr. Still, of New York, demonstrate his method of capping pulps and protecting sensitive dentine by the use of an ointment composed of oxide of zinc, 15 parts, vaseline, 1 part. The cavity was prepared for filling, the ointment allowed to flow over the pulp, the excess removed and covered over with oxide of phosphate and filled to suit the case. The operator claims for his capping a toleration of the pulp, and an entire absence of sensitiveness after filling.

Dr. Geo. Cunningham, of Cambridge, England, became quite prominent both in the clinic room and in the Congress hall. He is free and affable, a fluent and forcible speaker, and a very energetic man. On this morning he exhibited and made practical demonstrations with "Vibrumite," a low fusing continuous gum.

By a long series of experiments with mixtures or ordinary glass and vitreous enamels, and a goodly amount of technical literature on the subject (as I said before, he was a fluent speaker), together with assistance from experts in the manufacture of Mosaic work, he succeeded in obtaining a body which low point of fusibility extends its usefulness in a variety of ways; to those who, satisfied with the results obtained by this glass, instead of making themselves familiar with the proper fusing body, which gave results which are,pleasing, artistic, natural and strong.

There is no excuse for one fiddling away time on making yourself familiar with glass because of its low fusibility, for the difference of time in baking is not sufficient guarantee for making a botch

instead of perfection. He also used it to tint artificial teeth to different shades by coating vitrified body over them (having a number of different shades), but to me they were not nearly as good as can be obtained by the mineral paints for staining. If a man has half an eye for tinting or shading, he can stain them in a few minutes, which can be burned in a miniature muffle held over a bunsen burner, such as Evans suggests. By these samples you will see the difference between glass and body, also the result of staining with mineral paint.

Dr. Steadman, Laporte, Ind., demonstrated his method of retaining full and partial dentures. The case was a man eighty-seven years old, had worn several sets of artificial teeth, but was unable to use them in mastication. With the use of the latter device he claims to eat corn off the cob.

The device is a perpendicular spring attached to the lower plate, but not to the upper, causing a slight pressure between the upper and lower plates, in which position it has been demonstrated that the springs do not in a manner interfere with the movement of the jaws, or otherwise inconvenience the wearer.

As regards the partial dentures, there is nothing new except the accuracy in which they are constructed. The bands or clasps used to retain the plates are fitted upon the teeth as they stand in the mouth, by means of pliers. The clasps are best made from gold plate (No. 24 standard gauge 18k. fine without platinum alloy), and should be as wide as the tooth is long and heavy, so they will not change position by use. It is seldom necessary to swage a clasp or have it fit to tooth accurately, except at its greatest diameter. There is no difficulty in adjusting a clasp of a bicuspid in the mouth, but for a molar it can be made of an impression, say, of Millott's metal, and afterwards fitted to the tooth in mouth. The bands are then furnished with a stay plate, soldered, bent and punched, then replaced on the tooth. The stay plates are next coated on both sides with cohesive wax, or if teeth stand at an angle or undercup, and where the plaster would be liable to break in removing, such places should be dried and built up with cohesive wax. In removing the impression from the mouth, bring away in the plaster the clasps and wax with it, as an integral part thereof. Should the plaster break in removing, and clasps remain on teeth, they can be removed and restored to their place in the impression, care being taken not to remove the clasps, and also bending out of position in the slightest degree in polishing them.

Dr. Bonwill, of Philadelphia, was again giving a series of clinics. He filled a large mesial-occlusal distal cavity in the left inferior molar; he made use of a matrix made of pink gutta percha base plate held in position by an ordinary clamp, used in filling gold

as well as amalgam. The amalgam was packed in small places Japanese bibulous paper being used to absorb the mercury from each piece as packed. He also showed the use of paraffine in hermetically sealing any space between gold and tooth substance that might occur; its use in soaking oxyphosphate fillings before the rubber dam is removed to make them impervious to fluids of the mouth and more durable in contouring. This method is especially adapted to porcelain inlays. He explained his practice of using pink gutta percha base plate for temporary filling all cavities at first excavation for obtaining greater width of separation between the bicuspid and all molars. He explained his new dental engine and mallet combination, and the engine as a surgical.

Dr. Cryer read a paper on "The Surgical Engine and Its Use," in which he said: "The use of the surgical engine as now adapted for operations on bone structure, has taken a place second to no other means. The first requirement of the machine is a motive power that will give to its drills, lever, saws, trephines, etc., a velocity of at least 3,000 revolutions per minute; such velocity is to be maintained under varying pressure." He gave several other clinics which I did not witness.

Dr. C. H. Jackson, of New York, exhibited a number of models showing his clever devices for correcting irregularities. As I had heard his paper on the subject the previous day, I spent considerable time with him, and was well entertained, carrying away ideas which I resolved to put into practice. He gave his method of constructing spring appliances for correcting irregularities of the teeth, which included the expansion of the arch, rotation, traction and extension of cuspids, bicuspids and incisors, by means of a "crib" fitting one or more of the teeth. It is constructed of German silver, etc., and piano wire, in a manner to protect the gums from injury. It is the opinion of Dr. Jackson that each tooth should be encouraged to take a correct position in the circle of the arch while erupting (or as soon after as possible and practicable), in order to promote the proper development of the jaw, for the teeth next to be erupted are thus likely to be so in proper position and order. Only a portion of the alveolar process that forms the sockets for the roots of the teeth is developed until the teeth are fully erupted. For this reason a slight pressure will change their position. The "crib" device seems to be most satisfactory to patients of any age. His description of taking impressions for regulating case is well worth noting. In taking an impression of a model to make a duplicate, dry heat is preferred for softening the compound. The model and compound should be well covered with soapstone or French chalk. The models are to be prepared by carving the plaster well away from the gum

portion at the necks of teeth that are selected for anchorage, choosing usually the temporary molars, bicuspids, or permanent molars. A piece of any metal suited for the purpose, and shaped like a partial clasp, is formed to either or both the lingual and labial surfaces of the teeth to be used as anchors, usually arranging the metal on the lingual side only, and choosing either very thin gold, block tin, rolled copper tin, German silver or tagger's tin. The latter works more easily but is apt to corrode and should be often polished. After the metal is cut to proper form, it is contoured, by S. S. White contouring pliers, with which the metal can be hollowed to fit the contour of the tooth ; it should be well pressed up about the neck, and at the same time made to curve over the grinding surface between the teeth to prevent pressing on the gum. If adjoining teeth are to be used as anchors, the metals are arranged on each, and united at the junction of the teeth. A spring wire, about twenty (20) or a little larger, as the case may require, is formed so that it will fit the labial side of the tooth, with both ends passing over the arch at the junction of the adjoining teeth, and curved about the lingual side near the gum line, to rest on the metal described, but should be made to fit loosely so as not to injure the plaster model when removing it. The wire is most easily formed by binding it at right angles, leaving the width between the parallel sides equal to the antero-posterior width of the tooth to be clasped. The part that is to clasp the neck of the tooth is then so curved with clasp-benders that it will be perfectly adapted to the curve of the labial side of the tooth. Both wires are then placed in the clasp-benders at a proper distance from the curved position, and bent nearly to a right angle to cause them to pass over the grinding surface, and again bent in the same manner to extend towards the neck of the tooth on the lingual side. The ends are then bent towards each other near the gum line over the metal previously described. The appliance can be constructed on the opposite side of the arch in the same manner. A base wire which is usually of a larger size, is then formed to the lingual side of the intermediate teeth, with its ends passing over the metal described, on either side of the arch. The wire is held in position on the model and soldered with the clasp-spring to the metal described, by laying on them a piece of soft solder or tin sufficiently large to finish the soldering at once. The parts are then fluxed with chloride of zinc, and fused with a hot soldering iron. When using steel spring wire, the chloride of zinc should not be used until the soldering iron is ready for soldering, as it corrodes the steel in a few moments sufficiently to interfere with the union.

If there is sufficient room for the free eruption of the permanent teeth, it is best to begin to expand the arch if necessary, when the incisions are erupting, an operation easily accomplished by means of the "crib" appliances.

By attaching the appliance to a single tooth on each side of the arch as an anchor, all of the other teeth tend to support it, and thus in ordinary cases, the same object is accomplished as when more teeth are used as anchorages. Respecting this entire crib and spring wire system, special stress is laid on the following facts :

1. The materials, piano wire, tagger's tin, sheet copper, copper wire, tin and soft solder are inexpensive, and within the reach of all.

2. The crib and spring construction is simple and quickly done.

3. The clinging grip of the crib on its anchorages is sufficient to hold the fixture firmly, yet it is easily sprung off for cleansing or change.

4. Changes or additions are easily and quickly made.

5. The structure is light and clean, and occupies the least possible space in the mouth.

6. The action is controllable and free from risk or overaction.

7. It forms a perfect retainer.

Dr. Thos. Fillebrown, of Boston, gave a clinic on hypnotism, whereby a lady of middle age had a tooth extracted. She appeared at first very nervous, but after the operator made some suggestions to the patient, she became very quiet and endured the operation without expression, appearing not to have been hurt in the slightest degree.

The operator gave a paper on the subject, and it appeared by the number that took part in the discussion, and the way it was handled that a great many had experimented with it and declared wonderful results.

I would like to report to you more fully of the Hollingworth crown and bridge system, but any time I had at that part of the room it was impossible to get near enough to find out any definite method, generally finding him in the centre of an explanation, and time was too short to spend it all in fighting for a position. However, I will explain the parts I did see, and possibly in the near future will be able to demonstrate the method to better satisfaction.

He exhibited a number of buttons (224) of various shapes and sizes of the occluding surfaces, of all the grinding teeth, also the labial and palatine surfaces of the incisors.

He chose from the number the button to suit the case, and placed its cusp side upon a flat surface, and placed a rubber (such as Millott uses) over it, and ran upon this Millott's fusible alloy (which has been improved lately by the addition of cadimum which renders it less liable to mar). Now he removed the button from the matrix which left a concave die, upon which he pushed in with a piece of wood his gold, and finally with a buckshot after being driven into the die. He then proceeded in the usual method to finish his crown.

His idea of getting the biting surface in the irregular occlusion with one piece of metal was as follows: He filled the portion between the teeth, to be bridged with Millott's mouldine, and placed upon this the "buttons" suitable for the case. He then heated some fusible metal, and when in a cream-like consistency, ran it over these buttons, and from this he struck up a continuous piece of metal into the several biting surfaces. He had several other methods which I did not see. He claims a great deal for his system, and those who are using it speak highly of it.

I saw a bridge exhibited, constructed in rather a peculiar manner, from English diatoric teeth. It was in the following manner: After grinding one of these teeth into position, he burnished gold or platina foil around the lower portion of the tooth and into the cavity (made for the vulcanite to run in), and then packed gold foil scrapes into the cavity or hole, then lifting it off and flowing solder over it, or can make a tube of metal and burnish to the sides of hole and flow solder into this. You now have made a matrix for the tooth. He makes one of these for each tooth of the bridge, and places the teeth back into them temporarily and obtains the proper occlusion, fastening them together with hard wax, taking away the porcelain teeth and invests them for soldering together, and to the butments. After it is soldered, trimmed up and polished, it is ready to have the porcelain cemented into the matrices. After drying thoroughly with a heated spatula flow paraffine about the joints. He claims a bridge of great strength without having the porcelain submitted to the fire. And in case of breakage it can be easily repaired as one can always get a fac simile of the tooth broken. It also has a more natural appearance than the majority of gold bridges.

In drawing to a close I must not omit a clinic of great importance given by Dr. Bradbent, of Chicago. Although I was ignorant at the time of the medicine he was advocating for the treatment of pyorrhœa alveolaris, and the bleaching of the same case, I have since gotten hold of it and used it with marked success.

The operator had a case of a left sup-nicisor badly discolored and markedly affected by pyorrhœa. The treatment consisted in applying pyrogam twenty-five per cent. outside by means of a spray and on cotton within the canal.

The "pyrozone" was applied and rapidly volatilized by means of an air spray as rapidly as possible, and when closed was very much improved.

Dr. Ottolengui, of New York, cites a case which I will quote:

"In my opinion, pyrozone twenty-five per cent. solution will very shortly be considered one of the most valuable topical drugs in the medicine cabinet of the dentist.

"Case I. Chronic pyorrhœa alveolaris. Patient, a man ætat. 35.

In good general health. Using tobacco freely to chew and to smoke. Calcareous deposits upon the inferior teeth, mainly upon lingual surfaces. Some deposits upon the superior teeth. Pus oozing around necks of all teeth save the six anterior superior. Gums of both jaws much inflamed, bleeding upon the slightest touch. Disease in its most advanced form around the wisdom teeth, about which the processes had been almost entirely lost. Patient suffering almost constant pain, though with the exception of the wisdom teeth none were loose, the pockets all being quite shallow.

Treatment.—Calcareous deposits removed as far as possible, resulting in copious hæmorrhage. Because of the severe bleeding, I decided to treat with pyrozone 25 per cent. solution at the first sitting only the six anterior superior teeth, which were least affected, no tartar being about them. This latter fact rendered scraping with instruments avoidable, and these teeth were therefore the only ones about which no hæmorrhage had been occasioned. A small pledget of cotton, rope-shaped, was moistened with the pyrozone 25 per cent. solution, and with a probe introduced between the cuspid and lateral, being pressed up under the gum margin as far as possible. There it was left until the appearance of foam indicated that pus had been found. This was, perhaps, from five to eight seconds. It was then withdrawn, and immediately there was a considerable discharge of boiling pus, tinged with blood, freely escaping. The same treatment repeated about the others of the six teeth selected, brought forth a foaming mass, which covered the adjacent parts as with a thick lather. The mouth was then rinsed with warm water, and the patient dismissed for four days. At second visit, so great a change had occurred that an application of the agent about the same teeth produced scarcely a perceptible escape of pus, save in one pocket. The gums were remarkably improved in tone, inflammation having almost entirely disappeared. The patient reported that the night after treatment was the most comfortable passed in months. At this visit the six anterior inferior teeth were treated similarly, and the treatment repeated four days later, by which time they had so far advanced towards recovery, that I proceeded to take up the posterior teeth. I would call attention to the fact that I deem it wiser not to treat too many teeth in one mouth at the same sitting. It will be better to take those first which cause the most suffering, and make an application to them only. In this case, by the fifth visit the caustic treatment was abandoned, all pus having disappeared. The mouth is recovering rapidly under occasional dressings of an astringent nature, pyrozone 3 per cent. solution being used as a mouth wash. All pain has been controlled, and the teeth can be brushed without bleeding of the gums. I do not

consider that this is a permanent cure, but it is the most rapid recovery to a condition of good health that I have ever seen.

Dr. Rhein, of New York, writes as follows: "After a few months' use of pyrozone 3 per cent. solution, there seems to be little doubt but that it is destined to supplant the ordinary forms of 'Hydrogen Peroxid,' that have been sold for some time as chemically pure."

The trouble with all these preparations has been the great amount of acid used to form a staple compound, and even then the gradual loss of the extra atom of oxygen after having been kept for some time.

The pyrozone 3 per cent. solution has such an infinitesimal amount of acidity as not to respond to litmus paper test. It does not seem to lose its strength after any length of time. For dental purposes this lack of acidity makes its usefulness for the exterior of teeth of great value, as with the ordinary solutions of H_2O_2, there was always a certain impairment of the enamel surface.

In pyorrhœa alveolaris a great step forward has been reached in the therapeuses by use of the ethereal preparations of pyrozone, especially the pyrozone 5 per cent. solution. The best form of using this is by means of a fine spray, the rapid evaporation of the ether leaving the parts exposed to the pure pyrozone (H_2O_2 absolute). The spray apparatus must be entirely of glass, so that it will not be acted upon by the medicament; to the excellent one manufactured by McKesson & Robbins, called the "Pyrozone Atomizer," I have suggested adding two other forms, one with an upward curve to reach the palatal surfaces of the superior teeth; another with a downward curve to more readily reach the pockets on the lingual surfaces of the inferior teeth.

Amalgam.

By W. A. LEGGO, D.D.S., L.D.S., Ottawa.

In a rather discursive manner, I wish to place before this society quotations from different authorities, rather than lay any claim to originality. My object is to call attention to a peculiar opposition to amalgam fillings, chiefly among certain advanced Homœopathists, to see how much truth is involved, how much it affects *us*, and the best course to follow to give the greatest good to the majority of patients.

When amalgam was first introduced to the profession, it was received with the greatest enthusiam by the public, as in it they hailed their deliverance from the tedious and expensive operations

necessitated by the almost exclusive use of gold, but just so soon as it was known to contain mercury, a reaction set in headed by the Dental Societies, who excluded any member who used amalgam, "as it was urged every case of excessive flow of saliva (now recognized as a very frequent concomitant of periodontitis and particularly alveolar abscess), was pronounced mercurial ptyalism, and direful tales of wholesale loss of teeth, and large portions of jaw, were freely circulated" (Flagg).

In 1841, a committee reported to the Dental Society, "the use of all such materials was injurious to both teeth and mouths, and that there was no tooth that could not be serviceably filled with gold," which report was adopted unanimously.

In 1843, the Medical Society of Onondaga, N.Y., from information and facts gathered, "decided that although mineral paste had undoubtedly produced mercurial effects both severe and alarming, yet nevertheless the proportion of such cases was small when compared with the great number of instances in which it had been employed, but that no care in the combination or use of the paste will prevent its occasional bad effects." This opinion slightly modified seems to me the proper conclusion that, in those persons peculiarly susceptible to mercury, no care will alter the result; but in the great majority of cases, by care, proper materials properly manipulated, one might practise a lifetime and meet only one or two cases. In 1850, after a trial of 20 years, Flagg writes, "that the wretchedly compounded, wretchedly manipulated, wretchedly abused amalgam was gradually increasing in favor," and to-day it is doing such noble work that we know it has come to stay. Lately the old spirit of opposition has been reviving under a new form, with various degrees of emphasis chiefly by the Homœopathists, some of whom make the most extravagant assertions but which are not shared in by the great body of thinking Homœopathists.

It is our duty to be informed and prepared to meet this attack on such a material as amalgam, when we read such statements as the following contained in a paper read by Charles H. Taft, Professor of Dental Surgery and Therapeutics in Hering Medical College, Chicago, before the Massachusetts Dental Society at Boston, June 8th, 1893:

"The opposition to amalgam fillings, gentlemen, has come to stay. Let no one deceive himself on this point, or try to laugh it away, for it is by no manner of means confined to a few physicians practising in Boston. A little investigation will show that it covers a territory extending from Maine to California, and from Texas to the extreme North of Canada, while a visit to the shores across the Atlantic will show the same unyielding opposition."

In Ottawa we have a Homœopathic physician who totally condemns amalgam, while an older and more experienced practitioner

of the same school, one of the best read men in the Dominion, believes amalgam does occasionally have injurious effects, but thinks in the majority of cases it is harmless, and in his opinion it is soon enough to remove fillings when injury is detected, and so save amalgam to the great mass of patients. The origin and reason for this new departure are briefly these. Dr. Rufus L. Thurston, an eminent Homœopathist, of Boston, a few years ago had a patient with whom the proper remedies had not the desired curative effect, and after considerable thought he advised the patient to have all amalgam fillings removed. After removal the patient steadily improved. The same was done with several patients and with the same result; but I believe Dr. Thurston makes no sweeping condemnation of amalgam, but only advises removal in those patients he finds peculiarly susceptible to the influence of mercury, although he claims the action of mercury is always in force, either positively or negatively.

Taft says, "it is generally admitted that the source of offence which has given rise to so much antagonism between physicians and dentists, lies in the mercury which is employed solely to effect an amalgamation of one or more metals in a finely divided state.

"It is claimed by many physicians of both the leading schools, but more particularly of the Homœopathic school, that the indicated remedy given for any diseased condition of the vital force very often fails in its curative effect when there is apparently no good reason in view for its so doing. An examination of the mouth reveals the presence of one or more amalgam fillings in the teeth; the physician at once instructs the patient to go to the dentist and have the fillings removed. The patient obeys in spite of the dentist's assurance that it is all bosh, humbug or nonsense to rely on such advice. What is the result of their removal? Chronic diseases which have hitherto failed to yield to treatment begin at once to respond more quickly and permanently to the medicines; the patient is quick to perceive the improvement in the general health; the action of each new drug which is prescribed as the character of the symptoms change, advances the patient steadily on to renewed health." Taft also adds, "the fact that I have many patients sent to me with instructions from the physician to remove all amalgam fillings found in the mouth, and the rapid improvement which I have noticed has taken place in the condition of every patient who has had such fillings removed at my hands, has made me reflect very seriously, not only upon the injurious effects of amalgam fillings, and the almost untold number which I have been guilty of inserting during the first six years of my practice, but has led to the almost total abandonment of amalgams of every kind in my practice."

It is surprising to find how easily one can get along without

them, when once you have educated yourself and your patients to do so.

Now, gentlemen, does not this savor of 1841 when it was considered malpractice to use amalgam? Dr. Taft must have very docile patients and great persuasive powers, for I believe most patients would very properly give up Homœopathy rather than amalgam unless they were among those susceptible to its influence. Now, *what is* this influence, and *why* is it exerted in some persons and not in others which questions I answer in Taft's words: "All persons are not susceptible to the same drug at all times, nor in the same degree, that is to say, one person may have only to smell of a bottle containing phosphorus, for instance, in the one-hundred-thousandth, or a much higher potency even, to get well-marked phosphorous symptoms, or provings so called, when another person might smell of the bottle all day long without perceiving the slightest effect." Again, "one person sleeps a night in a room, the wall paper of which contains arsenic and gets well-marked symptoms of arsenical poisoning, while another person might sleep in such a room for an indefinite period without perceiving the slightest effect.

"In neither case is there any of the crude material of the drug taken into the system, and yet there is an altered or converted condition of the vital force with symptoms produced by each which could not possibly be mistaken for, nor confounded with those of any other drug.

"If it is clear then, that in neither case, is there any of the crude substance to produce the given symptoms, but that the symptoms, nevertheless exist, we must face the question, What is it that produces them in either case? What is the vital force, that unseen and untangible something that constitutes the difference between a live man and a dead man? Is it a material substance that can be seen with the eye or felt with the hand? If not, what else can it be but a spirit-like substance, or force, and which, when becoming deranged by disease, must be treated with a similar dynamic force rather than with a material force? This, then," he adds, "is just the kind of force we get when any drug or material substance is dynamized or potentized, and which, despite the ridicule that many delight to make of high potencies, becomes more powerful the higher the trituration or polarization is carried. Dr. Thurston, in writing me, says, 'the dynamics of mercury is often the cause of various symptoms as well as a hindrance in the cure of diseases. The influence of the mercury is dynamic, not chemical, and will effect the system sooner or later, either positively or negatively. The dynamis of a drug is described as the immaterial force embodied in material substance and corresponds to the spirit in the animal organism. The dentist is not expected to see any ill effects arising

from the amalgams, as his attention is not directed to constitutional disturbances. If he does not see them, or denies from sophistical reasoning, that there is any harmful influence from the amalgams, that does not in the least affect the result. Sophistry, or denial, never yet annulled the working of a natural law."

Taft would not be understood, however, as claiming that amalgam fillings are injurious in all cases and under all circumstances, for he holds that "it is only when a person whose teeth are filled with amalgam is peculiarly susceptible to mercury that medicines will not have their curative effect when given in diseased conditions, but the fact that a person may be susceptible to mercury to-morrow if not to-day, should compel us to abandon the use of amalgam absolutely, so far as it is practicable to do so." But, gentlemen, supposing all this true, why not say we will use amalgam wherever it is most suitable, and follow the custom of British law which holds a prisoner innocent until proven guilty? In this way we give the greatest good to the greatest number, and in the few affected, removal and substitution are easy.

And now as to the chemical effects, our dental literature says very little, and puts before us very few cases, only enough to remind us that they do exist.

Flagg divides them into Local and Systemic. Local: "1. Discoloration. 2. Introduction of galvanic electricity by contact with other metal. 3. A species of metallic salivation due to action through the gustatory, reflected through the nutrient of the salivary glands. Is of very rare occurrence, and classed as physiological rather than pathological action, being similar to effects produced through the optic and auditory nerves at the sight or mention of foods; is sometimes of short duration, a few days, and as the faces of the fillings lose their brightness, passes away. 4. Giving rise to bad taste, very rare, but when it does occur must remove and substitute other material. 5. Irritation of fauces, throat and larynx, which, while not primarily dependent upon the presence of amalgam, is, nevertheless, much less amenable to treatment while large numbers of amalgam fillings remain in mouth. Serious bronchial trouble persistent, but much worse when amalgam present; when removed and other filling material inserted, relief is obtained." In his (Flagg's) practice of twenty-five years, and experience of over five thousand mouths, he has met only two cases, and adds that probably the vast majority of practitioners may never meet a case but must remember such idiosyncrasies do exist. Systemic effects: Flagg never saw any, Garretson never met a case, so that chemically there is a Homœopathic grain of truth in the bad effects, but so very rare that we have only to remember its possibility. Let me add a few words on the nature of the combination of amalgam. Dr. Johnson, June *Cosmos*, 1893, Newbury, S.C., reasons that if there

is excess of mercury not in combination, it would naturally volatilize, and as the percentage in amalgam ranges from seventeen to thirty-three, we follow his paper. Plaster casts harden even if excess of water be present, but they crystallize imperfectly, and with impaired strength, so with amalgam the presence of too much mercury causes imperfect filling.

Crystalline salts contain water of crystallization and water of constitution, so also amalgam would have mercury of crystallization and mercury of constitution, and, moreover, as mercury is sensibly volatile at sixty-seven, while mouth is ninety-eight, and in fevers higher, could we not expect the volatilization of any mercury present in excess? The Encyc. Brit. says, amalgams are weak compounds, many of them being decomposed by pressure and all of them at a white heat; and as amalgam alloys become porous when mercury is evaporated, while copper amalgam does not, because the latter gives up all its mercury while silver alloys do not, we see the great affinity mercury has for silver and by contrast how small the attraction to leave the silver. Supposing one swallows a small piece of amalgam it would crystallize, and could not we expect mercury still to combine to form the amalgam, and so be innocuous?

To secure the best results two methods are in vogue, each having its firm advocates. 1. By mixing to a thick paste and, upon inserting, removing any excess of mercury or adding more filings of the alloy to absorb it. 2. By mixing to a thin paste and removing excess of mercury by squeezing through chamois by thick pliers.

Dr. Kirk, in American System, gives results of each way. 1. By thick paste, became dark in a month; the thin paste squeezed, kept bright in the same mouth and same condition at end of two years. He adds, repeated experiments tend to confirm the belief that discoloration in this class (that is, tin silver, one-half per cent. gold and half of one per cent. platinum) can be controlled by the manner of mixing.

By such a procedure, he says, there can be little doubt that the atomic proportions of the ingredients are more nearly secured, as the metals of the alloy take up all the mercury necessary for their saturation, yielding a compound of the metals from which the excess of mercury holding in solution, that proportion of the other metals not needed in the chemical compound. Theoretically he says that would be the best way. But let me ask, is it purely a chemical compound?

Do the metals combine in anything like their atomic proportions?

If so there would be no necessity for such care in weighing the metals of the alloy needed to make fillings for different purposes, as submarine, usual, contour, facing or white alloy. Nor could we

be able to control edge strength by adding a larger percentage of gold and silver. If simply a chemical compound, could we so readily drive off the mercury by heat and leave the silver in its natural state?

We know from experience by changing the proportions we can change the character of the fillings and that a fresh alloy absorbs much more mercury than it will after ageing.

It is also bad policy to attempt too much with a single mixing, and yielding to the temptation to make too thin and insert after it has commenced to harden.

And now in conclusion, having placed this subject as nearly as possible in an unprejudiced manner, I leave it in your hands for discussion, but feel it my duty to continue the use of amalgam until it proved hurtful in the majority of cases, instead of in the very small minority as at present.

Dr. Campbell, President of the Council, says if the proper Homœopathic remedy is chosen, it will do its work, amalgam or no amalgam, excepting, of course, the very few cases peculiarly susceptible to the action of mercury.

Editorial.

The Congress.

It is perhaps premature to say to what extent the Congress was the success that its promoters anticipated. It is certain that, no matter how magnificently they succeeded in organization, there would be a measure of disappointment at the absence of many who fully expected to be present. So far, it seems to us from what we have learned that the delay in issuing the general programme was due entirely to the essayists themselves, several of whom failed to furnish the committee with their subjects in time. It is unlikely that the executive officers will exchange uncomplimentary expletives with some of their critics; but it is rather presumptious, to say the least, to pretend that if A or B, instead of C or D, had been consulted, the profession would have flocked to Chicago by thousands from all parts of creation, and the contributions would have dazzled the world by their originality. The daily reports, so splendidly issued by the proprietors of the *Cosmos* and the *Review*, prove that the professional advantages of the Congress were creditable. There was every expectation that Canada would jump at the chance of sending a large representation from the Atlantic to the Pacific. Somehow or other, it seemed to get very generally abroad that the thermometer was always

at the boiling point there in August, and visions of sunstroke, malaria and cholera, combined with the exceptionally severe financial strain through which the continent was passing, and of which we felt the outside edge in the Dominion, contributed more than anything else to diminish the number of delegates. Of the officers chosen, only Dr. Capon filed an appearance, Dr. Cogswell being ill, and Dr. Willmott absolutely forced by the pressure of college matters to stay in Toronto. We are sure that the executive officers must have nigh exhausted their energies by the strain upon body and brain. They deserve the heartiest thanks of those who were fortunate enough to be present, as well as the greater congress of non-attendants, who will have food for thought for a long time to come from the results of their unselfish labors. We have personally to express our great disappointment at missing the event. Serious illness alone was the cause.

A Word to Students.

The Canadian, like the English dental student, has to go through an apprenticeship in the laboratory and office; the first year exclusively in the laboratory, as well as the interval between the opening and closing of college. Moreover, when in college he has under his care property not his own. It may not be amiss to remind the boys that they are morally responsible for the care of laboratory tools and implements; that it is mean, to say the least of it, consciously to abuse and destroy these properties; that it is, in fact, criminal to use a valuable pivot-punch to turn a bolt, rather than cross the room to get the ten-cent wrench made for that purpose, or to leave files, scrapers, etc., to rust in puddles of water, and letter-pads literally covered with the debris of polishing powders. He would be a fool were he to ill-use goods belonging to himself. He is that, and a bit of a knave perhaps, if he consciously ill-uses those of his tutor. Selfishness may make him careful of his own; honor and duty should make him careful of what does not belong to him. We have known students work all day, even in plaster, on a velvet carpet, and leave not a speck on the floor, while others are up to their own ears in dirt, and seem to like it. The student in the laboratory can educate himself as a gentleman and as a man of honor, as well as in dental mechanism. It will pay him to educate himself in cleanliness and the care of instruments, lathes, vulcanizers, etc. When he becomes a dentist, cleanliness and care will have become a part of his nature.

If we were asked, "What in a word is the leading characteristic of the ideal student?" we should reply, "Doing as a student what he would like to have done to him when he has students of his

own under him as a dentist." Perhaps, too, one of the most important points of the moral code in the laboratory might be summarized as follows: "Doing the very best one can in every detail of duty, and ambitious to do more and better than even duty expects one to do."

Wake Up!

Our Canadian Dominion is a magnificent country, and the dentists in it, as a rule, are a very worthy and honorable class of the population, but we could fill up several pages of this journal with the names of confreres, as able with their pen as their plugger, from whom we never hear professionally, either in the societies or the JOURNAL. It is most provoking to witness this indifference. If it is due to the overweening conceit that they "know it all," surely it is a duty to enlighten us who deplore our ignorance every day in the year. If it is due to the love of ease and a happy *insouciance*, let us remind them that one of the surest steps downward is apathy, and one of the surest upwards, an active interest in the communication of ideas. Necessarily there is some rubbish published in all journals, but perhaps there would not be if the wiser men would contribute oftener.

As a national duty, our Canadian dentists should waken to the fact that, however skilful as practical men they may be—and we have scores of men who hide their lights under a bushel—the world of dentistry expects to hear from them, and Canada has a claim upon them, to honor and uphold the professional talents committed to them. If men would put their patriotism, as well as their religion, into professional life, who might not be canonized?

Correspondence.

The Congress.

To the Editor of the DOMINION DENTAL JOURNAL:

SIR,—I was sorry that you and our worthy Vice-President and Secretary did not appear on the scene, and so, as Deputy Secretary, I was called to answer for our noble country.

To say I enjoyed the Congress is drawing it very mild. They used every possible means to entertain the foreigners both socially and professionally, and as science was the order of the day, so they were hospitable in a scientific manner.

Never before did I see such unison as prevailed in the Executive Committee. I consider much of the success of the Congress is due to their indefatigable labors. One must be present to appreciate the closing words in Dr. W. W. Walker's speech, when he said: "They, as a committee, have been working hand in hand and shoulder to shoulder, to accomplish for our chosen profession that which places it where it should justly and truly be placed, in the front rank of scientific professions of the world. In the performance of that duty, many obstacles have arisen, but 'there is no such word as fail' in our vocabulary, and with the assistance of those who have worked with us the result has been accomplished."

Now, those who were present can certainly say, "Well done, good and faithful servants," for they were the life of the Congress, and held a welcome hand for the members, and especially for those from other countries. I am only sorry you were not present yourself to appreciate the efforts put forth to make the Congress a pleasant place of meeting, as well as a most profitable one.

The President, with his wonderful staff of officers, was sufficient guarantee for the success of this huge undertaking before them, but this is just where our American brethren avail themselves of the opportunity to exhibit their tact and ability in handling gigantic affairs with success. They are no cowards, and the larger the work to be encountered, the more pleasure they take in accomplishing it. It was thought possible the Congress was somewhat unwieldy, but judging by the way they kept the interest up and the attendance at each meeting, section and clinic, one is only left to congratulate the officers on the excellent, systematic manner they handled this seemingly unmanageable Congress, proving our neighbors are capable of anything they undertake.

There are some people eager to accept the invitation and hospitality offered to them, yet show so little appreciation or possible apathy in the matter they did not deem it necessary to even put in an appearance. Surely they are not ashamed of the fact that they are members of the profession, the exercise of which furnishes them with their daily bread. It will be indeed charitable to suppose this attitude, or lack of interest displayed, by the members from localities quite familiar to us, was due to unavoidable circumstances.

The Congress is a wonderful teacher, and instils one with a motive to enter into fresh studies with a zeal; let it suffice to say if it acts on them all as it has done with me it will evoke an interest that will be beneficial to conventions and the local meetings.

FRED. J. CAPON.

12 Carlton St., Toronto.