

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from:/
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments:/
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
						✓					

DOMINION DENTAL JOURNAL.

VOL. IV.

TORONTO, SEPTEMBER, 1892.

No. 5.

Original Communications.

A Plea for the Preservation of the Natural Teeth.

Read before the Ontario Dental Society, Toronto, July, 1892.

By W. PEARSON, L.D.S., Toronto, Ont.

The Committee on Programme have assigned the above subject to me for a paper. Had they asked me to choose a subject for myself, this certainly would not have been the title. It never would have occurred to me that there existed a disposition to remove natural teeth, to the extent that any special pleading in their behalf would be in good taste or called for. That they have done so leads me to think that there is a necessity for something to be said on the subject. Where it exists, why it exists, and to what extent, I am at a loss to determine. There may be a few, one or two, perhaps a score of dental surgeons in Ontario who need reconstructing. That there are many I do not believe. In all learned professions there will be found some, whose interpretation of the meaning of a word or the sense of a phrase is very different from the generally accepted idea. So we may have those among us who do not exactly grasp the meaning of the word dentistry, more particularly the symbolic combinations of L.D.S., D.D.S., or M.D.S.

That there should at the present day appear to be a necessity,

that there should exist an idea of the necessity for a plea for the preservation of natural teeth at this stage of professional progress, is to abandon the whole status and retrograde forty years or more, to disband the profession, as it were, to throw the fat into the fire and call ourselves failures, and we ought to seek some other honest calling in which spheres of usefulness may open up to us, in pursuit of which a just appreciation of our endeavors may be looked for. Is not the sum and substance, the life and vigor, the brains, the whole physical being of the profession, a concentration and embodiment of the principle of the preservation of the natural teeth? To say anything else is a giving away of the fundamental principles.

I apprehend that thirty years ago there did exist a state which, viewed by the light of the present scholastic training, was a deplorable era, marked by the blood of thousands of slaughtered innocents, and might be termed the age of slaughter: in which time the profession was made up of broken-down tradesmen and mechanics, bounty jumpers and refugees from foreign parts, farmers and furriers, plumbers and tinkers, who, for a monetary consideration and six months' service, were turned loose on the community, and permitted to pursue their course according to the light that was in them, and everything was good grist for their mill. Happily, law and order has prevailed over this state of things, and the profession and people are protected.

If I were to say that the practices that then prevailed do now exist even in remote districts to any great extent, would be a-begging the question. I do not believe so. Yet I am led to believe by the action of the committee in the choice of this subject, that there does at the present day and generation, exist somewhere in Ontario one or more of those fossils, or perhaps pupils of the extinct race, who believe that their mission is to mutilate humanity from mercenary motives. I do not expect to teach them any better, that would be too much to expect of them, for as a rule they do not attend conventions since they know it all now. It is far easier on their conscience to stay at home and feel right than to learn better and not be able to do better. The only hope we have of them is that they will soon die and make room for civilized and enlightened beings to take their places.

Where do these people exist? Do we find them in country places, or in the towns and cities? or why do they exist? There

must be some demand for them, or do they create the demand? I hold the idea that every graduate in dentistry is by virtue of his qualification an educator. To the extent of his interpretation of the technical teachings of his college days, he must be responsible for his acts and manipulations, which must be reflected in time by the community either to his credit or damage.

If by a careful consideration of a certain case a satisfactory conclusion is arrived at, and a monument of skill and durability is the result, he has commenced to educate the community to his advantage. So according to his leading may he expect to find his patrons following, and if we find an isolated community given to false teeth, the chances are that the dentist is a rubber worker. In large communities we find all sorts and conditions of humanity, the rich and the poor, the educated and the ignorant, those from the rural districts and the city-bred; these call for different classes of the profession to deal with them. They differ in tastes and inclinations. One has the idea that false teeth are the perfection of life, another has a longing for lots of gold to show. Many let their teeth decay because it is cheaper to do so, and so on all through. There is a difficulty here in discriminating conscientiously, and yet there ought not to be. In rural districts, perhaps to a greater extent than in cities, the dentist may reflect his ideas more upon his patrons, for if he is the only representative he may be firm and decisive, argumentative and convincing in just the degree his inclination leads him. If he is an artist in rubber, false teeth is his line of argument, and I am afraid that frequently this result is from inability or indifference, and sometimes, perhaps, from the financial standpoint of the patient, and not from a correct measure of the state of the teeth. I apprehend that there is a tendency all over the country for improvement on the old method of sacrificing natural teeth, both on account of the effect of the superior education at present obtainable at our colleges, and the higher attainments in matriculants, and the good taste and ability to indulge it by the prosperous farmers and artisans, making up the various communities, and aside from individual cases which prove very little, there is a decided change for the better in the way of saving natural teeth.

It does not come within the province of this paper to discuss ways and means of saving teeth, or of the advisability of doing so under

exceptional circumstances. These points are left to the superior judgment and intelligence of the conscientious operator to decide. What the writer expects to do is to introduce the subject from a personal standpoint, and invite discussion and criticism, and thus lead up to a consideration of the many points involved. The subject is so wide, so big, so important, that a whole week could be spent on it, and the whole range of the curriculum gone over from Genesis to Revelation, in consideration of means to be adopted and ways to be pursued in saving teeth.

Let me ask you a question here, and let each one of you be prepared to give me an answer of some sort. I know each one of you will have an answer, and each one perhaps a different one, according to his personal practice, subject to local and personal qualification. The question is, When am I justified in using the forceps? Is it in the case of the temporary teeth? No, decidedly not; not under any circumstances, until the age of the child indicates that the time for action has arrived, and which to my mind is not until the new tooth is ready to take the place of the old one. More harm may be done at this age by premature removal than by delaying too long. Judicious treatment and filing (if possible) is always to be resorted to. Have a mind of your own and a policy to pursue and carry it out, and take the responsibility on your own shoulders without regard to parental or childish whims. In removing these teeth I have fallen into the habit of operating chiefly with my fingers or by an incidental application of a probe or excavator, and very seldom indeed resort to forceps, rather preferring to wait until such times as they are not a necessity, and prefer leaving roots until the full time for the new tooth to appear in a few days after operating. Is it in the case of the sixth year molars that I am to begin my maltreating practices, to do evil that good may come of it? That is my opinion in a general way of removing sixth year molars. To make a quotation for the occasion: "To be or not to be, that is the question. Whether it is better to suffer the stings and pains of outraged nature and present troubles, or to take up arms and fly to the evils that we know not of." No dentist is able to determine what is going to be the result of premature extraction of a sixth year molar upon the undeveloped maxillary. The facial derangement is more than he can foresee.

After years of careful observation and study of many cases in

regulating by myself and others, where these teeth have been sacrificed and where not, I am strongly convinced that there is an injudicious and wholly unnecessary sacrifice of good teeth here. I shall have to admit that once in a while a case is presented where extraction is advisable, but this is the exception, while too many make it the rule.

It is the shortest way out of a difficulty, the easiest way to settle the question. No account of the future years of lost usefulness, no consideration of facial expression, of the possibility of a contraction of the maxillary, or of a deviation from the plane of the grinding surface of the future arrivals enters into the consideration. It is simply expedient to extract and that ends it for the time being. No ghosts of the slaughtered innocents are likely to arise to trouble the conscience or rob us of innocent repose. Notwithstanding all this the principle is wrong. Conceived in ignorance and born in iniquity, it is practised too much and ought to be discontinued. Nature never provided a more fitting object for man's good, at a more opportune time, in a better place, than this same tooth, and am I, the learned and intelligent fellow-being who, by choice in a scientific specialty, is referred to by reason of my standing and experience, justified when I say I can do nothing but extract? I think not. Or does it justify me when I say, "Oh, yes, I might perhaps do something for you. I might save the tooth for a few years, but ultimately you may lose it. You had better lose it now and later on you won't miss it much." This looks like prostitution to me, and I prefer to save the semblance of a sixth year molar, at all events for a few years, until nature provides another to take its place to carry on the great work for which they are so vitally essential, which you all very well understand, and so much longer as skill and modern advanced dentistry may enable me to.

Use your skill and resources on these teeth without regard to remuneration or desire of the patient. It does not excuse you to say that it is ulcerated or the nerve is dead, or that the patient is poor, or ignorant, or unappreciative. Save the tooth and put it down to charity, which may cover a multitude of sins otherwise laid up against you. As far as individual cases of extracting are concerned, as they are presented to the dentist for relief from present pain, and where the denture is not the immediate question.

I apprehend that there is no difference of opinion, that all modern operators do make an attempt, and generally successfully, to save such a case. The point of debate and hesitation is generally when a few of the teeth are in need of treatment, or in case of a few good ones remaining, and the others more or less involved in doubt as to the advisability of attempting their salvation. In the light of present progressive dentistry, we can scarcely be excused in our action if we recommend a resort to extraction, except in cases of badly wasted roots. I hold a strong prejudice against removing even sound roots, preferring to fill them where they cannot be crowned, and protecting the soft tissue and upholding the alveolus as long as possible. A sound root may be serviceable for years, especially so after treatment and filling or capping.

Looking at the æsthetic effects of removing teeth and restoring by the factory-made article, I presume that many will consider me wild when I make the assertion, that it is a physical impossibility to restore or reproduce the natural expression to a face when once the roots of the teeth are removed. Yet, I make the statement, and challenge the artist in dentistry to get up and say so. It cannot be done.

The canine eminence cannot be prolonged on the outside of the maxillary sufficiently high, without interfering with the free action and motion of the lips. As soon as the six anterior teeth are removed, there begins a change in the body of the jaw as well as the alveoli, too high up for any outside artificial contrivances to be placed for the comfort of the patient.

It may be possible that this is the reason why our English brethren do not, as a rule, remove the roots in substituting the natural teeth; and, if so, I commend them for their good taste, from an artistic point of view, while from a sanitary or economic point, perhaps there is not so much to be said in its favor.

My faith in the dentist of the present and of the near future is unbounded, as to their action in regard to saving teeth. Everything is promising, their inclination is in that direction, their education is directed in that way, public taste is being directed more in that way, humanity calls upon them to do so, progressive ideas must prevail, and the time is coming when the forceps will be a quarterly or semi-annual issue, instead of a daily. This will

be brought about by honest, intelligent application of ways and means of treating and preserving the teeth. Honest endeavor and individual enterprise will help the public to see the folly of making needless sacrifice. Honest dentists will help to make honest and intelligent patrons.

Intelligent patrons will demand the best of service, and if honest to themselves and the profession, they will not be rummaging the newspapers to find the Cheap Johns who advertise eight dollar teeth (and gas free until the first of the month). Unfortunately for both the public and the profession, the curse of dentistry of the present day is this demoralizing system of advertising cheap work.

If I were to be told that a party had administered, on an average gas six times a day, for a whole twelve months or two years, I should unhesitatingly say that that party was a conscienceless humbug, and was not practising dentistry at all, but prostituting a noble calling for filthy lucre. No doubt would exist in my mind that hundreds of good teeth must have been removed to be substituted by china store teeth.

This difficulty is difficult to regulate and can only be done by a firm determination upon the part of each and every new graduate to live up to the standard of professional etiquette, and adhere to the moral code of ethics, so generally understood if not always expressed.

A personal sense of honor and right pervades every properly constituted gentleman, and while he obeys this better instinct there is not much need for a written code to be placed before him.

There is much need in this country, in all countries, for advanced, scientific, conscientious dentists, who are willing to climb the hill of fame step by step, and by carefully laying the foundation of success upon correct principles, build up a reputation which will be lasting and enviable, but it can never be done on the line of false teeth, nor by printer's ink. If you know of any young man, graduate or undergraduate, bursting with ambition to do it all, given to big head, capable of running the whole concern, without much moral restraint and no conscience, utterly selfish, for whom the world was made and without whom the earth would be a desolation, you might advise him to put money into ink slinging and cheap teeth for his theme; but to any of my hearers who regard honor above any other external advantage, who have any

regard for the opinion of good and true men, and who would care to establish a reputation on substantial grounds, avoid the stumbling-block of cheap teeth and advertising. The success attending this line of procedure is of the most ephemeral nature, requiring a constant resort to the same artificial stimulant, while without doubt it ostracises the operator from association and intercourse with such as might be a benefit, and it does not catch those of the public whose patronage and influence are the mainstay of a lucrative practice. It appeals to the most degrading sense of humanity, and leads the ignorant, thoughtless victim to expect good results without adequate remuneration, a principle which the commonest laborer, from the head-carrier to the 'longshoreman and washee washce Chinaman, has long since recognized as vicious and wrong. We would perhaps not be interested in this disgraceful, unprofessional, unsound and undignified way of boasting along an unhealthy and undesirable practice, if it were not for the pernicious and totally uncalled-for sacrifice of good teeth which it involves, and the false impressions and wrong views it fastens upon the poor victims, who are led to measure the standard of the profession by their experience with these snappers and whippers-in whose failures and misdeeds are laid up to the general account too frequently.

It may be possible that this idea of demoralizing degeneracy is an outcome of too much competition, of too much supply for the demand for professionals, and the resulting sickly and unsatisfactory growth of practice, but my own opinion is not that such is the case. Since we will always find room at the top for good men, and the demand is always for more of such, and welcome to them with both hands held up.

What the public and professional demand of the day is, for less indiscriminate slaughter of good teeth, and more conservative treatment and preservation along the lines of advanced ideas and present day possibilities.

Some Recent Antiseptics.

Read before the Ontario Dental Society, Toronto, July, 1892.

By W. E. WILLMOTT, D.D.S., L.D.S., Toronto, Ont.

Mr. President and Gentlemen,—In this paper I can give but little original matter. A full discussion of the newer members of

this class of drugs would supply far more material than I would have time to place before you, so the presentation must necessarily be more superficial than minute. In this age of investigation and theory regarding micro-organisms, the subject of antiseptics must be important to the dentist. Antiseptics are medicinal agents which have the power of preventing the formation of putrefactive and fermentative changes, while disinfectants destroy these germs.

As the division of remedies into these two classes is more theoretical than practical, as far as a dentist is concerned, we may consider the drugs we will discuss belong to both, and will destroy as well as prevent. You will agree with me that antiseptics are the most important class of drugs to the dental practitioner, as without antiseptics no dentist can conscientiously practise his chosen profession. There are many drugs in our *materia medica* classified under this head, but there are several new ones which have not yet been accorded that dignity. One of the newest, and in my humble opinion, the best for general purposes is

ARISTOL,

or to give it its proper name, Dithymol-Biniiodide. This remedy was discovered in a laboratory of Elberfeld, Germany; prepared by pouring an aqueous solution of potassium iodide into an alkaline solution of thymol, which gives a reddish-brown amorphous precipitate; has no unpleasant odor, is non-irritating, non-poisonous, insoluble in water, alcohol and glycerine, but soluble in chloroform, ether, essential oils, and slightly so in campho-phenique; infinitely safer than bichloride of mercury and less irritating than carbolic acid; contains 14.8 per cent. iodine, which it readily yields up. This property, Dr. E. C. Kirk says, is perhaps the key to much of its therapeutic value, affording, by decomposition in the presence of purulent secretions, a means for the presentation of iodine in the nascent state, in which condition its well-known antiseptic and germicidal properties are most active. Aristol is similar to iodoform, but has not its disgusting and suspicious odor, nor its toxic properties. A chloroform solution on cotton is a very pleasant and efficient substitute for sandarac as a wedge or temporary filling. It is entirely antiseptic, and after remaining for a week, has no unpleasant odor or taste. A thick chloroform solution makes a very good capping varnish flowed on paper, asbestos, felt, sheep-

skin, or some other material. As an injection for fistulous openings or as an application for pulpitis, a ten per cent. solution in sulphuric ether is recommended. Dr. Kirk reports astonishing success in the treatment of pyorrhœa alveolaris with a ten per cent. solution in oil of cinnamon or oil of wintergreen. As a dressing for root filling it seems to be just what we have been looking for in combination with campho-phenique on cotton, or in a ten per cent. solution in chloroform with gutta percha. I have used it with campho-phenique for some months and have found it more efficient than any of the other drugs I have experimented with. As it mixes more readily with campho-phenique, I regard it as preferable to iodol. I find it especially useful in cases where after an application to destroy a pulp it is not quite dead. I open up the pulp chamber and put in a pledget of cotton dipped into campho-phenique and then into the Aristol powder. This I leave for about a week with a temporary filling over it. At the end of that time I find the nerve has become much toughened and is easily removed. To quote again from Dr. Kirk, he says, "My own experience with it makes me commend it unhesitatingly, feeling assured that it possesses a unique combination of chemical, physical and therapeutic properties, which must, as it becomes more widely known, win for it a permanent and increasingly useful place in the catalogue of our therapeutic agents."

HYDROGEN PEROXIDE.

Although discovered in 1818, it was not till about ten years ago that peroxide of hydrogen was used to any considerable extent in surgery, and it is only within a year or two that it has been extensively used in dentistry. It is a clear, odorless, watery liquid with a bitter taste. Marchand's preparation is the best on the market. It should be kept cool, as when warm it decomposes and becomes so much water, should never be used with metal instruments, as that impairs its usefulness. It is used extensively in treatment of alveolar abscess, pyorrhœa alveolaris, necrosis and caries, and lacerations and wounds of the mucous membrane. While perfectly harmless, it is the strongest bactericide known. It has been said that "rats have as good times with terriers as microbes have with the peroxide. It readily reaches the pus in its secret recesses, and by the boiling and bubbling process carries it out with its corpuscles, microbes and company."

This agent, "in contact with diseased tissue, decomposes, and the ozone coagulates the albuminoid matters of the secretions, the pus is destroyed and also the bacteria" (*Headlight*) Peroxide is of little use for sterilizing cavities, as it acts only on a very thin layer of the dentine, and will not penetrate any deeper. It is almost impossible to obtain a sample free from hydrochloric or sulphuric acids, and some think these may be responsible for the boiling and bubbling.

Dr. D. R. Stubblefield, of Nashville, says, "Further experiments repeated several times with the same sample showed the effervescing action when the peroxide was applied in root canals, whether there was any pus present or not; also that when the drug was placed in contact with pus outside of and away from a tooth, there is no evolution of gas. The next step was to free the peroxide from all acids, when there was no evolution of gas whatever, in the canal or out of it, in contact with pus or away from it, in the mouth or in the tooth out of it. The last experiment was with hydrochloric acid by itself, and it produced almost the identical phenomena as those by the peroxide in the first place, evolution of gas and all." Notwithstanding these experiments there is no doubt hydrogen peroxide has a place in the dental office to whatever it may owe its properties.

CAMPHO-PHENIQUE.

Though this is comparatively a new remedy, still it has been extensively experimented with, and reported in the *Medical Age* as an antiseptic without a rival. It is prepared by adding 49.5 parts of crystal carbolic acid to 50.5 parts of gum camphor. Dr. J. Foster Flagg, of Philadelphia, says it is "the most remarkable medicament which has ever been offered in connection with dental therapeutics. When it is known that it is a notable germicide, an efficient antiseptic, a non-irritant, a decided local anæsthetic, non-poisonous, insoluble in water or glycerine, does not stain or discolor, is possessed of agreeable odor, and not disagreeable taste, and maintains an unchanged integrity, it will at once be recognized as wonderfully adapted to a large proportion of all dento-pathological conditions, from sensitivity of dentine, through the varying conditions of pulp-irritation, pulp devitalization, pericemental irritation, alveolar abscess and caries, and necrosis of contiguous

osseous structure, and that thus it must rank as one of the most, if not the most, valuable polychrest which dentistry possesses."

Where cotton is indicated as a wedge, if dipped into this remedy the pain of separating and subsequent preparation of the cavities is reduced to a minimum. It is serviceable in the treatment of wounds, burns, scalds, sensitive dentine, pulpitis, periostitis, for canal dressing on cotton, fistulous canals. Hypodermically it is used as a local anæsthetic without any constitutional disturbances. By a series of experiments it has been shown that pure campho-phenique is perfectly safe to be used in the mouth, and that in that condition it is as efficient in inhibiting germs as a 1 in 85 solution of bichloride of mercury. This solution of corrosive sublimate is six times as strong as is safe on the unbroken skin, and twenty-five times as strong as is safe on cut surfaces. If any of you have not used this remedy, I would strongly advise you to give it a trial.

IODIFORM.

One drug which has been used considerably in dental practice, and one which, after a short trial, I burned, is iodoform. It is prepared by the action of chlorinated lime on an alcoholic solution of potassium iodide, heated at 104° F. It is in the form of a bright crystalline powder, with an extremely disgusting odor, insoluble in water, but soluble in alcohol, chloroform and ether. It is generally used in combination with oil eucalyptus, oil cloves or oil cinnamon, and is recommended especially in septic roots and pyorrhœa alveolaris. "Although destroying organisms less readily than carbolic acid, according to Miller it is ten times as powerful in preventing their development, and it would appear to have a much more marked effect than it as a disinfectant and deodorizer." (S. H. Hayward in *Dental Record*.) As far as its properties as a deodorizer are concerned, I fancy the cure would be about as bad as the disease. On account of iodoform's toxic properties and its abominable odor, iodol has been extensively substituted for it. This is prepared by precipitating pyrrhol (a derivative of animal oil) with iodo-iodide of potassium. It is insoluble in water, but soluble in alcohol and ether, and slightly so in glycerine. It is chiefly used with glycerine under any conditions where iodoform could be used.

Although I have mentioned only a very few of the many desirable antiseptics, I trust I have said enough to provoke an animated

discussion which will, I am sure, bring out many points which I have not had time to touch upon, and which will be of benefit to us all.

Copper Amalgam.

Read before the Ontario Dental Society, Toronto, July, 1892.

By GEO. H. WEAVER, L.D.S., Cornwall, Ont.

It was with considerable reluctance that I acceded to the polite request of your secretary, and consented to write a paper upon "Copper Amalgam." I hesitated, from the fact that the ground has been gone over so often and so thoroughly already, that to most of you the subject is become thread-worn and uninteresting. I also hesitated from a feeling that I might be suspected of taking an undue advantage of the opportunity to advance my personal interests; and the latter consideration almost forced me to ask to be allowed to decline. I have, however, decided to lay aside my objections, trusting to your good nature not to misconstrue my motives, and to bear with me if I am tiresome.

During the last two or three years you have doubtless seen in many of the dental journals numerous papers, articles and discussions upon copper amalgam, some lauding it to the skies, others condemning it in the strongest terms. There is probably not one of you who has not had some experience in its use, if even only as an experiment. Many of you have used it very extensively; some use it occasionally, and others have discarded it altogether from their practice. You have all something to say, I am sure, either for or against it, and I hope my paper may provoke a discussion which will tend to lead us nearer towards discovering the subtle principle inherent in copper amalgam, which produces all the manifestations that have puzzled us so long.

There is no doubt that for certain cases, copper amalgam is one of the best tooth preservatives we have. Its efficacy as a filling material has been proven to the satisfaction of all. When properly manipulated, it is easy and smooth and clean to work, sets with a promptness enjoyed by no other amalgam, takes a fine, if ebony, polish, and keeps its shape and place as part and parcel of the very structure in which it is imbedded. It is next to impossible to

remove it when once hard, and that it exerts a therapeutic effect upon soft dentine requires no deep scientific and microscopical examination to demonstrate. Teeth which seem to have almost an antagonism for other materials, are reconciled to the presence of copper amalgam, and lose all their malign repellent behavior, so detrimental to their own safety, under its protection.

But copper amalgam is said to be unreliable, in that some fillings after a few months or years become "cupped"—the surface wearing down as if by attrition or the action of some solvent. Such a filling presents a scooped-out or concave appearance, even though the edges of the cavity may still be covered by the material. They are generally of a light color, but this is due no doubt to the constantly wasting of the surface. Other fillings appear to disintegrate—to become quite soft and easily cut to pieces with an excavator.

In describing the peculiarities noticed in fillings of copper amalgam which have not resulted in success, I cannot do better than cite from a paper recently read at a meeting of the New York Odontological Society by Dr. J. Allen Osmun, of Newark, N.J. He says :

"1st. We have all seen cases that have filled us with admiration, black but clean fillings, hard as adamant, and edges absolutely perfect—the ideal plastic filling.

"2nd. Then again, we have observed fillings black, but dirty in appearance, teeth in the immediate neighborhood all discolored with the stain of the disintegrated filling, probably the black sulphurent of mercury—however, saving the teeth as far as recurrence of decay.

"3rd. The third class of fillings is much like the preceding, only with this difference, that at the cervical edge we find that the filling has decomposed, and in some cases entirely wasted, so that it does not afford the tooth any protection ; in fact, it resembles, to a great extent, the phenomenon observed with the oxyphosphate fillings, and leads one to the conviction that the same agent is responsible for this condition of affairs. This I consider one of the most deplorable situations that can possibly exist, much more so than the other which is so familiar, and has brought copper amalgam fillings into such disrepute, and which I assign to the fourth class.

"4th. Where we find the filling material of a light or dull gray color softened, and in some cases to such an extent as to be easily removed with an excavator, while in others it simply is washed away, leaving a hard, glassy appearance, yet not hard enough to resist whatever the agent may be, and slowly the fillings cup. Yet this is not so dangerous to the welfare and preservation of the tooth as that class of fillings just mentioned which give way at the cervical edge, because in the one case no knowledge is had until great mischief is accomplished, while in the latter case it gives way from the outside surface, and the patient is conscious that something is radically wrong, and hence seeks relief."

Dr. Osmun thus classifies the different manifestations of copper amalgam in the mouth, as they have come under his personal observation. I would, I think, classify them a little differently. No. 1, and perhaps No. 2, we leave out of the list of failures, as these cases constitute the successful ones, and in my own practice the large majority. No. 3 I do not often notice, and I should place them under the same heading as the first cases in No. 4, namely, the cases of softening or disintegration. This class of failures I am satisfied is due to faulty manipulation, and think if care is taken it may easily be avoided, because the same tooth may be refilled with the same material and prove all right the second time.

The class of fillings mentioned in No. 4 which, although remaining hard, gradually and slowly waste away, is, as he says, the most frequent and the least dangerous. I do not know how the fillings become worn away. It cannot be simple attrition, as the material is much harder than ordinary amalgams, and I have seen fillings of both kinds in the same mouth equally exposed to the action of attrition—the alloy filling unchanged and the copper filling badly cupped, though the material remained hard and flinty. It cannot be due to acids, because no acid is ever found in the mouth strong enough to dissolve a copper amalgam filling. Some have claimed that it must be due to some constitutional peculiarity of the patient and suggest that we ought always to first make a trial filling, then if this filling proves successful, we can insert as many as we please in the same mouth with safety. Dr. Osmun says, "It does not seem plausible that all of these different conditions, from the 'very, very good,' to the 'horrid,' can exist sometimes in the same mouth

(which he has repeatedly seen), and the cause be attributed to the environment."

Dr. W. B. Ames, of Chicago, in a paper read before the Mississippi Valley Association of Dental Surgeons in March of last year, attempts to show that the solution is brought about by galvanic action. His argument is very ingenious, but I cannot fully agree with him. I think galvanic action may have something to do with the failures, but do not think it is brought about as he states. He admits that it would be unreasonable to "suppose that there was ever a condition of the saliva sufficiently acid to dissolve copper and mercury to the extent that we often see, unless the action was in some way intensified, as these metals are only soluble in powerful acids, unless the less energetic acids be used in connection with a galvanic couplet, etc., etc." Then he goes on to show that outside the mouth the galvanic current would cause the solution of the components of a copper amalgam filling in the weak acids. And likewise the same phenomena might be observed in the mouth in the rapid washing of those fillings which were so placed as to form the positive element of a battery, the negative element of which was an adjoining or occluding gold filling or crown. But then sometimes copper fillings waste when there is no gold crown or gold filling in the mouth, or even a filling of any other material, so he lays the blame to free copper. He notices the fact that many copper amalgams, when made dry, presented the appearance of being composed of copper amalgam and *free copper*. This free copper poses as the positive element, and the amalgamated portion the negative element; both placed in the acid fluids of the mouth, and here we have a galvanic battery in full swing working merrily night and day, pulling down bit by bit the edifices we were at such pains to build.

He does not say how the battery works in alkaline saliva, and we are all aware that fillings sometimes waste in mouths showing a distinct alkaline reaction.

This peculiar coppery appearance upon which Dr. Ames bases his whole theory of galvanic dissolution, I very rarely see, as I do not work my amalgam so dry as to bring about this condition. I have, however, some fillings which, when inserted, presented this very condition. I have been watching them for some time, but so far have seen nothing that would lead me to think galvanic

action was pulling them to pieces, and they are in a mouth distinctly acid. Dr. Ames thinks this coppery color is due to the material being improperly or insufficiently amalgamated in the first place, and to *excessive grinding*, at least I think he *guesses* at the last. My experience goes to show that extensive trituration improves all amalgams, and especially copper amalgam.

Dr. Custer, who opened the discussion upon Dr. Ames' paper, and who fully endorses the theory advanced, says that "Copper amalgam consists of copper particles in a fine state of division, whose surfaces are more or less amalgamated. If this amalgamation is perfect there will be no copper surface exposed at all, yet if one of these particles be broken in two its whole inside will present a clean copper surface." He says, "there is no fusion of one metal into another." I have seen it stated time and again that there is no real chemical union between mercury and another metal in an amalgam. Perhaps there is not; but I believe there is fusion, just as much as there is between gold and silver, in an alloy of those two metals, or as there is in an alloy of silver and tin.

I do not know exactly what relations the different metals bear to each other in the state called fusion, whether the minute infinitesimal particles of each metal remain intact and distinct from each other; but, whatever fusion is, I think that the same condition exists in an amalgam. There may be particles of free copper in copper amalgam, and in the coarser grades I think there are; but their surfaces must be covered with an alloy composed of copper and mercury fused into each other. It is reasonable to suppose this coating of alloy has a perceptible depth, and the finer those particles are the more complete the fusion, and if we follow it up we can imagine a state of affairs when this fusion goes clean through the minute particles of copper, and then there would be no free copper contained in the mass. We can cover a piece of copper completely with mercury by rubbing it in; so, by grinding copper amalgam and breaking up the minute particles of copper and rubbing in the mercury upon them we get more complete fusion. But, better still, if the copper, in the first place, be precipitated in as fine a state as possible upon the mercury, we have a more thorough fusion still, for we know that copper precipitate, in a nascent state, amalgamates or fuses with mercury.

The precipitate from a strong solution of a cupric salt is coarser grained than from a weak solution. If the solution was diluted with an equal bulk of water, the precipitate would be twice as fine; the weaker the solution the finer the precipitate, and the more complete the fusion between the copper and the mercury, in short, the more thorough the amalgamation. I agree with Dr. Ames and Dr. Custer that the copper amalgam must be thoroughly amalgamated and of fine grain to give the best results. I go further and repeat what I have always maintained, that it must be thoroughly clean and free from all kinds of impurities, especially oxide of copper or mercury or any other metal. If we overheat it or allow it to become wet or damp while mixing, it becomes more or less oxidized and therefore unclean. I attribute the discoloration of tooth substance by copper amalgam fillings to impurities in the material.

I received a letter not long ago from a prominent American dentist asking me what was my theory concerning the wasting of copper amalgam fillings. He says, "we know copper amalgam will save teeth; now, we want to know what will save the fillings." I was obliged to confess I had no theory to advance. But I have been experimenting with the material for a number of years. I have made a great many experiments both in the mouth and out of it, and have kept a record of fillings put in and notes of the various methods employed and peculiarities observed. The results of my observations, I fear, do not amount to a great deal. They have certainly not led to the adoption of a theory. But I have learned to avoid many things which invite failure, and to recognize indications which promise success. I have noticed that failures are more likely to occur in some localities than in others, for instance: copper amalgam fillings placed in approximal cavities extending over the grinding surface of molars and bicuspid, are more apt to fail than all others. Large crown and contour fillings in molars come next. These fail from the wasting or cupping described before. Buccal fillings very rarely fail unless they extend to the grinding surface, when "cupping" generally takes place. Small crown and fissure fillings seldom fail, and approximal fillings, anterior or posterior, which do not reach the grinding surface, are almost invariably successful. The most permanent and successful I find are fillings in those shallow groove-like cavities on the palato-cervi-

cal and linguo-cervical surfaces of molars and bicuspid, and sometimes of canines and incisors.

In my own practice I have very few failures, and I dare say it is because I use copper amalgam very cautiously. I never employ it where other amalgams would do as well, nor where experience teaches me it was likely to fail. I have never considered it to be a substitute for other materials, but rather a material to use where I knew anything else would fail. I have not begun to have the number of failures in my own work that other dentists report in theirs, and I have seen more failures in fillings made by other dentists than in my own, but I think that is because they use it too indiscriminately. In fact some have told me they have used it altogether to the exclusion of every other kind, and I have no doubt it is due to this fact that it has proved so disastrous in many hands. Dr. Trueman says that he "considers copper amalgam, judiciously used, a valuable addition to our list of tooth-saving materials. It does not, however, supplant the alloy amalgams." He is disposed to think "that in the long run, those who use it most cautiously will appreciate it most highly."

I have never seen recurrence of decay around a copper amalgam filling, except in those small shallow buccal cavities in molars and bicuspid at the margin of the gum, where we find a disintegration and softening of enamel. I think the fault in these cases lies in not cutting enough of the enamel away in the first place. I would not blame the amalgam, as another material would have done no better—certainly not an alloy amalgam. It is in those very same shallow buccal cavities where the use of copper amalgam is specially indicated just there where it exhibits, in strong contrast to other amalgams, its peculiar unshrinking qualities. Even the small amount which good alloy amalgams shrink would be quite sufficient to cause it to "drop out."

Of course, in speaking of failures, one would not include those cases where recurrence of decay was caused by the accidental fracture of the tooth at the margin of the cavity. My experience has been that there is less liability of marginal fractures where copper amalgam is employed than where we use an alloy amalgam, and I account for it in this way: There being no shrinkage with copper amalgam, the enamel is better supported, and consequently not so apt to break. With some alloys we know

there is considerable shrinkage, and a space is left under a thin portion of enamel inviting fracture sooner or later.

In mixing copper amalgam or preparing it for the cavity, if it is too soft it will result in disintegration and softening of the filling. Neither must it be used hard and dry. See that it works with a smooth plastic finish under the burnisher. If it is dry and granular under a burnisher, it will result in failure. It is not difficult to determine the proper plasticity to give best results, as when it works smoothest and easiest is when it is right; and when it is properly mixed it certainly is a very pleasant material to work.

Do not insert the copper amalgam after it has begun to set, for your filling will fail. After it has begun to set it should not be reheated until thoroughly hard.

Dr. Ames argues that we heat and triturate it too much. Dr. Barnes and Dr. Osmun contend that we do not heat and grind it enough. It is my opinion we heat it too much and triturate it too little. When I say heat it too much, I do not mean too often, but with too high a temperature. Copper amalgam should be heated slowly over a small flame, care being taken not to raise the temperature too high. If care is taken, it does not matter how often we heat it and allow it to get hard again; the oftener the better; but I think that part of it is the manufacturer's business to attend to.

I would like to say a word in reference to mortars. It is important to have a good one. Some of the small porcelain mortars to be found at the depots are worse than useless—smooth inside, with a pestel also smooth and too small to grasp. Some of the larger glass and wedgewood mortars are better, but some of the pestels are too large. The mortar I have found to give the best satisfaction is a ground glass mortar and pestel made by Fletcher of England.

The Diagnosis of the Diseases of the Teeth.

Read before the Ontario Dental Society, Toronto, July, 1892.

By JAMES STIRTON, D.D.S., L.D.S., Guelph, Ont.

The subject on the programme assigned to me, and which I have been requested to give a paper upon, is one of great interest

to every active practitioner, and which affords broad scope for interchange of practical observation and idea.

On account of the number of diseases to be taken up, the remarks will necessarily have to be exceedingly brief. We know that every *effect* has a *cause*. Every drop of water that ebbs and flows on the sea shore, every grain of sand that goes forward and recedes, for the force thus exerted there is a cause. So in our subject. The diseases of the teeth are the *effect*; find out the *cause*, and by thus doing we are able to diagnose the trouble.

The one disease alone, caries, the most prevalent of all diseases that affects all races and classes of humanity, would of itself be a subject that could not be adequately dealt with in the confined extent of an essay upon an occasion of this kind. In one way the diagnosis of caries is simple. We see it every day, and it can be told at a glance. Our whole life work is to combat the ravages of its insidious work. Still to find out the prime cause of caries is one of the most difficult tasks that has yet met investigators, and I shall not attempt that which the most brilliant minds have as yet failed to solve thoroughly and to the satisfaction of all, and thus not follow the saying that "Fools step in where angels fear to tread."

I shall divide my paper into three parts: 1st, diseases of the pulp; 2nd, diseases that affect the external portion of the tooth and peridental membrane; 3rd, diseases that are indicated at some part distant from the tooth.

1st. Diseases of the Pulp. It will be well to glance at the physiological structure and appearance of the pulp. It is a highly vascular organ, composed of blood vessels and nerves held together by connective tissue, with spindle-shaped cells, the periphery of the pulp being formed by a layer of odontoblastic cells. It must be remembered that the pulp is the organ of thermal changes of heat and cold, also that in diseases of the pulp and peridental membrane inflammation in some form or other is invariably the prime cause of the trouble.

After caries has done its work, and the tooth has been partially destroyed, the pulp is encroached upon, and we have a case of slight or complete exposure. This is recognized by the blood-red appearance, no pain, or if any, slight, indicating that no severe inflammatory progress has taken place.

When inflammation of the pulp has commenced, we have a case of *superficial pulpitis*, indicated by pain followed by the other inflammatory symptoms, stasis, exudation of blood corpuscles, causing darkened appearance of pulp, no periosteal disturbance.

This will in all probability continue until the whole pulp is affected, when we have a case of *hyperæmia* or *deep pulpitis*. Here we have more excruciating pain and complete inflammation of the whole pulp with its attendant results. There may also be tenderness of tooth to the touch should inflammation exude through apical opening. Inflammation may be of long duration, and especially if apical opening is large; patient may go for weeks in a state of torture.

This is the condition so aptly described by Burns in his address to The Toothache :

“ When fevers burn, or ague freezes,
Rheumatics groan, or colic squeezes,
Our neighbors' sympathy may ease us,
We, pitying, moan ;
But thee, thou de'il 'o' a' diseases,
Aye mocks our groan.”

When apical opening, however, is small, it will not be long, if inflammation is severe, until another form will take place, viz., complete death of pulp; this will take place by strangulation of pulp tissue at apical opening, and that result is indicated by cessation of pain, and the fact that upon application of instruments no discomfort is caused.

We occasionally find in teeth which are dark the decay is of a black, dry appearance; upon opening we find the pulp a dead, dry and shrivelled mass. Sometimes a viscid, creamy substance may be found with a brooch at the apical approach, but usually the canal is completely dry. This is termed *dry gangrene*, and is often the result of the withdrawal of the albumen of the tissue.

Secondary dentine, or *nodular deposits*, are sometimes called disease or a pathological process, but I am doubtful if they are not an entirely physiological process, an effort of nature to shield her own organ against the encroachment of disease.

Pulp tumor, or *polypus*, are found mostly in teeth of imperfect calcification and in young persons. The only other disease which it might be taken for is *epulis*, but the latter is found attached to

the alveolar border, while polypus proper is always an appendage of the pulp, and is a proliferation arising from the structural connective tissue of the pulp. It is of a dark, reddish color, spongy in texture, not particularly painful, and found in broken down teeth.

We have now reached the apical opening and to the diseases of the peridental membrane, the fine tissue well supplied with blood vessels and nerves surrounding the root of the tooth, and serving, as well as to give nourishment, to retain tooth in place. The peridental membrane is certainly the organ of touch of the tooth, and it must not be forgotten that nearly all diseases of that membrane arise from some form of inflammation. We know what the cause is, and knowing that, the symptoms of the effect are at once apparent, and a correct diagnosis made easy.

Acute pericementitis always commences near apical opening, and is usually the result of death of pulp, or sometimes before the demise of that organ if the apical opening is large. There is soreness of tooth, a slight elevation of tooth in socket causing pain on biting, a reddish appearance and swelling of tissues surrounding. The pain is pulsating and exacerbating. This may continue for a short time and terminate in acute alveolar abscess, or may become modified and become chronic without formation of pus. We have then a case of chronic pericementitis. There will be continuous soreness of not so exacerbating a character as in the acute variety, swelling, pain upon touch, may remain stationary for a few days or a lengthy period, disappear for a time and then return.

Alveolar abscess is always the result of inflammation of peridental membrane, and is always primarily located at the apical opening. It may enlarge its area until the whole peridental membrane is affected. There is exacerbating, throbbing pain, patient may be fevered, reddish swollen appearance over gum; swelling may continue to frightful extent, cheeks œdematous, swollen and protruding, eye on side of face affected may be closed, or if on lower jaw cheek may be hanging in baggy shape, and face and mouth distorted. These are the symptoms carried to the most serious conditions, and often long ere this degree is reached the formation of a point of exit for pus and its discharge, permits the swelling to subside and the face to resume its normal appearance.

We have now a chronic alveolar abscess, and this is easily

diagnosed by the fistulous opening through which the pus formed exudes. This may almost close up, but a very small opening being visible, and it may completely close, resulting in a blind abscess. The tooth affected may present an appearance of perfect health. Perhaps the translucency is not quite so natural as in a tooth where the pulp is alive. In diagnosing chronic abscess the *fistulous opening* is the important point to keep in view. A fistulous opening may be found in various parts of the face, on the cheek, in the nasal cavity, on the roof of the mouth, in the antrum, under the chin, and on the neck as low down as the clavicle. The only trouble is that occasionally, but rarely, these fistulous openings may be caused by *necrosis*. In any case of doubt the only method is to examine every tooth with the greatest scrutiny. A tooth must be pulpless to cause abscess, and by examining every pulpless tooth carefully the origin of pus exuding from fistulous opening will surely be found.

The deposits of tartar and its inflammation results, as known by the various names of salivary, calculus, calcic inflammation, is comparatively simple in its diagnosis, although the disease is very destructive in its effects. There is supposed to be three sources of origin of the adherent matter, the *serum, saliva*, and particles of food. The serumal variety is recognized by its brownish nodules encircling the root of tooth under the gum, which is red, inflamed, and receding from tooth. The salivary variety is of various shades of color, from a yellow to quite dark. It is deposited in some mouths in large quantities, sometimes covering many of the teeth, and is supposed to be a deposition of the lime salts of the saliva. The inflammation will continue, causing recession of gums, and if permitted will eventually destroy. This disease usually attacks lower incisors and upper molars.

Phagaedenic pericementitis, or Rigg's disease, is a disease essentially of the peridental membrane, exceedingly destructive and usually associated with less apparent inflammation than calcic inflammation. It is irregular in its attacks. One side of a tooth may be affected while the other is not. At the inception of the disease the gingival margin of the gum is slightly red and inflamed. As the disease advances, this to some extent disappears; the peridental membrane is destroyed longitudinally, forming pockets. These pockets may be detected by passing towards the apex a

thin flat blade. This process of destruction will often extend around the tooth, destroying the whole peridental membrane. This disease may be associated with calcic inflammation; a brownish deposit of serumal calculus may be found under the flap of the gum, while the destructive phagaedenic inflammation pursues its work on the membrane and alveolus. The essential points for diagnosis are, 1st, not great superficial inflammation; 2nd, formation of pockets and destruction of peridental membrane; 3rd, its infectious character or liability to attack neighboring teeth.

THE DISEASES OF THE EXTERIOR OF THE TOOTH.

1st. Caries, which I shall make no remarks upon, as its diagnosis is easy.

2nd. Abrasion and Erosion.

Abrasion may be called a disease, but it is the result of mastication, and is seen in the worn-off cusps of bicuspid and molars; little pits and grooves being formed on the grinding surfaces of these teeth. The incisors and cuspids also may be worn; in some cases all the teeth may be worn almost to the gum. This trouble is seen in persons getting up in years.

Erosion is found usually on the labial surface of the anterior teeth, and is recognized by pits or an angular depression a little below the gum; these being formed apparently without any cause. The base of these depressions are hard, and thus differ from caries. The etiology of erosion is very obscure.

We have now reached the third and last class of diseases. Those when the pain is indicated often at a distance from the tooth.

A patient comes into your office complaining of shooting exacerbating pain over side of face; cannot localize it. You examine the teeth; apparently nothing the matter with them; tap them with an instrument, no discomfort caused. What is the trouble? In nine cases out of ten it is one of two troubles: either there is a filling encroaching upon the pulp, or there is an obscure carious spot which has reached the pulp, setting up violent inflammation. It is not absolutely necessary that the carious spot should be obscure, as sometimes an apparent exposed pulp causes pain hard to localize. If there are any fillings which you suspect, use a syringe and cold water, and you will soon localize the guilty tooth.

In some cases hot water is better for a diagnosis, as it expands the gases under the filling, causes pressure and pain. Cold water is the better for diagnosing an obscure case of pulpitis, which causes reflected pain.

Neuralgic pain may be caused by the teeth, and these are the most difficult of all for diagnosis. I have a case in view, for during the last four years I have taken out six apparently sound and healthy teeth for a gentleman who has suffered the most excruciating and agonizing neuralgic pain. Upon the first consultation, he complained of severe shooting pains over side of face, and, in his opinion, localizing itself at a bicuspid. Upon examination the teeth were found perfectly sound, and diagnosing neuralgia. I sent him to his physician for constitutional treatment. He returned shortly, however, no better, and demanded that this tooth be taken out, and out it came, as sound and perfect as the day it was erupted. This gave him relief for a month or so, and again he came in agony, and again another tooth had to disappear, with relief as the result. During four years he has lost six teeth in this way. Why the extraction of a perfectly sound tooth should give relief to the most excruciating pain is more than I can tell. All I know is that it is a fact, but impresses me with the belief that the diagnosis of the cause of neuralgic troubles associated with the teeth are the most difficult we encounter. I must now conclude. If I have not dealt so fully with the various diseases as might be desirable, I must plead lack of space and time. The subject is so vast and interesting that in an essay suitable for an occasion of this kind, which should not be prolix, but a very brief consideration of each disease is permissible.

Electricity—Its Application to Dentistry.

Read before Ontario Dental Society, Toronto, July, 1892.

By T. BROWN, Otterville, Ont.

Mr. President and Gentlemen,—I trust that you will overlook any shortcomings that appear in this paper, as I am rather at a disadvantage. We expected Dr. McElhinney to prepare an essay on this subject, and I was asked to open the discussion instead of presenting this hurriedly written one of my own. However, as the

subject of electricity is one in which we should all take a deep interest, I will endeavor to give you a brief outline of its uses as applied to our profession.

Electrical science has made rapid progress in the last few years, and what was a very interesting experiment has become a success, and applied to nearly all branches of civilization. We, as members of the dental profession, should be proud of the progress made in our calling. We are keeping abreast of the times in operations, therapeutics and mechanics, and are ever ready and willing to adopt any means that will assist us in our work. In the adoption of electricity, we have indeed a valuable assistant as a motive power, an illuminating, heating and therapeutic agent. It has ever been the chief aim of man to find a substitute for muscular energy. We have looked to the elements to supply us with this power. Various means have been tried from time to time, such as gravity, running water, wind and expansion of gases. But the only one suited to our needs is electrical energy, as it may be carried a great distance on a small wire and supplied to the electric motor which propels our dental engines, mallets, lathes, and many other appliances generally found in our offices.

The chief reason the electric motor has not been more generally used by us, is on no account due to the want of a perfect motor, as we have many good ones, but rather to the defective supply of electrical energy.

In former years batteries were the only source we had to rely upon. Powerful ones were few, some dangerous; others gave off disagreeable fumes. The bichromate of potash battery has been most successfully employed, but this is also difficult to use for any length of time. If some day we should have a perfect battery, easily handled, powerful, constant, and not wasteful, without doubt it would be largely employed by us. But at present it is impracticable to make a success with a primary battery. As an improvement on primary batteries, secondary or storage batteries have been employed, and with somewhat better success. But still they are not just the thing. The lead plates soon wear out, and it is necessary to charge the battery frequently, according to the amount of work performed. This form of battery is also rather expensive. Thus you see this means of supplying us with electrical energy is not to be depended upon where continuous work is required. But

as electric lighting and power companies are so common throughout this country, we can dispense with batteries, and seek our energy from street circuits.

Before investing in an electrical dental outfit, I would advise you to acquaint yourselves with the various currents supplied by electric power companies. The three in general use are High Tension, Low Tension, and Alternating Currents. The first should never be used by us, as the voltage is too great to be brought in contact with our patients, the mouth being a good conductor of electricity, as it is always in a moist condition. The company will generally try to persuade you that by making a shunt from the main current, and introducing a rheostat outside your office, the voltage may be decreased sufficiently to answer your purpose. However, I would not consider myself justified in recommending this to be used on either the electric mallet or dental engine, but could be advantageously employed in our laboratories to propel lathes, etc. Do not think me pessimistic on this subject, as I am rather inclined to be otherwise, and simply wish to give a word of warning to those who are not thoroughly acquainted with the difference in the currents.

The Alternating current is also of a high voltage, but as this is not applicable to the electric mallet, it will never be generally used.

Wherever a Low Tension current is available, it can be used with perfect safety, and will afford much pleasure to both patient and operator. Especially is this the case in large and tedious gold fillings. When once accustomed to its use, the operator will save fifty per cent. of the time necessarily employed by hand or automatic mallet, and the patient does not experience the unpleasant jarring usually felt with other mallets.

Most appliances on sale at our depots are intended for the Edison incandescent current. Dr. Kells, of New Orleans, has the most complete dental electric outfit that I have ever seen. It consists of a small motor which turns the engine, a hooded lamp of about five candle power for illuminating the mouth, wires for attaching the electric mallet. The current is controlled by a movable pedal switch, which may be started or stopped almost instantaneously. The strength of the current is regulated by a rheostat confined in a neat walnut case, on the outside of which is a double row of contacts. The upper one gives current for electric mallet and mouth illuminator, while the lower row throws the force to the motor,

which will increase the speed of the engine from sixteen hundred to six thousand revolutions per minute.

As illuminating power, besides supplying us with light for our offices, it is recommended as a valuable assistant in diagnosing doubtful cases. Where pus is supposed to be confined in some interior cavity, as the antrum, a small lamp of three candle power, is used. The patient is placed in a darkened room, the lamp inserted in the mouth, and the mouth closed; if pus is in the cavity the rays of light will not be transmitted.

As a heat producing agent it will soon be used to heat our offices, run the vulcanizer, and generally take the place of gas or kerosene.

A dental electric cautery is recommended to relieve sensitive dentine, as a root dryer, etc.

Electro-therapeutics has not been very largely employed in dentistry. Some claim to have made a success in applying it to cases of hyperæmia, peridental membrane, neuralgia, facial paralysis, and various nervous affections. Having never used it in such cases, I cannot vouch for its success. Before closing this paper, I wish to say a few words about the disgraceful way this valuable agent was abused by some unscrupulous members of our profession a short time ago, who claimed to have made great success in using it as a local anæsthetic in extraction of teeth, under the name of the Dental Electric Vibrator. Electricity, as a local anæsthetic, holds no place in surgery, and whatever good results were attributed to its effects were entirely due to other causes.

Electricity has been thoroughly investigated by the best men in our profession, and all pronounce it nil as a local anæsthetic; but as a motive power, heat producer and illuminator, it is one of the most valuable agents that can be applied to dentistry.

Eastern Ontario Dental Association—Thirteenth Meeting.

Address by CHAS. A. MARTIN, L.D.S., Ottawa.

Another year passed, and we meet again on the thirteenth anniversary of our existence as an association. Recollections of the past, will, I am satisfied, assure those who have partaken of the genial hospitality of the Kingston dentists, that we will be made

to feel at home. I always anticipate with pleasure the meetings held in Kingston. There is no city or town in the Dominion where the resident dentists live in greater harmony and friendliness. They have ever been, singly and collectively, a powerful help to our society. It can hardly be expected otherwise; they live in an atmosphere where the greatest intellects Canada has produced have lived in harmony, and after a diversified course, occupying the highest and most responsible positions Canada could offer. Those great men have returned to old Kingston to rest for ever. I have said on another occasion that our meetings should partake largely of recreation. The programme, I see, provides for this to a pleasing extent; still it is due to those who have taken the pains and trouble to prepare papers and clinics that we should give them our earnest attention. That it has been a benefit to those who have taken an unselfish part at our meeting, I have reason to believe. That in our unostentatious deliberations a portion of the Ontario dental profession have not only benefited but have raised its standard in public estimation, *i. e.*, by a higher and nobler conduct towards each other. It has caused a fraternal feeling to exist and grow in towns and cities where two or more dentists practise—a co-operation for mutual improvement, as it were.

The year just past has been an eventful one for our little association; it has caused the whole Province of Ontario to listen to its appeals, and has received the support of the majority in its demands. A great change is about to take place in the management of our institutions. A Bill has passed the Ontario Legislature with amendments conforming with the wishes of the majority of the Ontario dental profession. The dissatisfaction which has long endured with existing state of management has been increasing with the additional number of licentiates. Those licentiates who have passed through our college course are, no doubt, better able to judge of existing defects, and are therefore the more capable to suggest improvements and ameliorations; providing they are honest in their actions, and not moved by personal spleen, their ideas will prevail. That they are honest is shown by the earnest unanimity of their actions. That the change will give better general satisfaction time will show; at all events we will require to remain for a time satisfied with the present change, as our legislators are grumbling at the frequency of our appeals for

amendments. But it must be remembered that we are young (comparatively speaking) as a recognized profession; that the dental profession is astonishing the world by its rapid progress, and we therefore cannot be expected to remain content with slow evolution. The framing of a Bill by active members of our association, and submitting it to the licentiates of the Province for approval, resulted in obtaining a majority over the one submitted by the Board. This I pointed out to the Board assembled from figures given me by our Secretary. The Board then passed a resolution (see notes) adopting a bill of amendments which was to have been discussed at the general election meeting in July, when an agreement could be arrived at as to the best mode of procedure. But, alas, the wisest schemes are oft frustrated. During the interval a deputation from Ottawa went to Toronto, with the result now obtained. Members of the delegation can explain to those who desire to know what transpired. Now, this has not been brought about without expense, the details of which will be shown later on. As a few only of the licentiates have expended their time and money in this movement, and as it was carried out in accordance with the wishes of the majority of the licentiates, it is the duty of the licentiates of the Province to contribute their share of the expense. This can be done by presenting a bill of expenditure to the Board of Directors, and have such expenditure recouped from the general fund.

The concession made by our delegates as to the annual fees demanded of the licentiates may not meet with general approval, as is shown by the last vote taken on the question, but I think the objectors will concede that we should be on an equal footing in this respect with the medical and pharmaceutical associations, and contribute our quota for the establishment and maintenance of a suitable institution such as we can point to with pride and honor, an institution that will continue to guard our professional interests.

Dental licentiates are rapidly increasing in Ontario; between forty and sixty annually receive the parchment with the college stamp. Judging from the conduct of those established in Ottawa, the code of ethics is generally well adhered to. From other parts we hear of some stray ones, in apparent desperation to realize their extravagant expectations of a rapid and easy road to wealth, turning their dental office into a factory, where a number, combined,

turn out rapidly *plates of teeth*, cheap, as advertised. Judging from numerous failures in this mode of practice, and in contrast, the steady growing and stable practice of the skilful practitioner in a select office, the one who starts out with a patient and determined purpose to hold and raise the dignity of the profession will reap the greater reward in the long run.

The higher standard of education required at present by our college of students desiring to enter for the study of dentistry will naturally evolve men capable of writing interestingly on dental topics; therefore a medium through which we can express our opinions, advocate our rights and condemn wrong-doings, is a necessity, and no doubt will be supported by the profession of Canada generally, if it be not sectional in its selections, but conducted in a true catholic spirit. We have, it is true, a creditable publication at present, the DOMINION DENTAL JOURNAL. I would prefer it to be what the name implies simply, not an official organ of any association. It might perhaps be more cosmopolitan, and find greater favor. As I predicted in a former address, viz., that if the younger members of our association would take a more active part in its proceedings, an attractive programme could be issued. We have such an one before us now, and a very creditable one it is, showing tact and energy on the part of the officials. It will, no doubt, be carried out successfully. Being a lengthy one, I will not further trespass on your time, but give place to more interesting proceedings.

Hemorrhage after Extraction.

Read before the Eastern Ontario Dental Association.

By A. A. BURNS, L.D.S., Smith's Falls, Ont.

In this paper I do not purpose dealing with any minute physiological state of the blood or tissues, but more especially to recall to the mind the ready and effective methods of arresting an undue flow of the blood after the extraction of a tooth. It has been stated that the appearance of a patient will be a key as to whether there is a likelihood of any hemorrhagic trouble. After taking due notice of the above, very little warning is given the surgeon from this source.

About the only correct warning is when the patient informs the surgeon of a trouble of this nature on a previous occasion. When a case of this kind is presented, it is well to take every precaution when performing operations of a similar kind for any members of the same family, as the trouble is said to be hereditary, and good grounds are presented from past experiences for so believing.

After a tooth has been extracted, the blood comes spontaneously and flows for an unlimited time in a degree such as will not cause any alarm. Usually after five minutes' flowing there is a process of clotting taking place. This stage in the flow of blood is called primary hemorrhage, and is usually all that the surgeon has to deal with, as the blood generally stops flowing as soon as the clot is formed ; but sometimes after the clot has formed, even eight or ten hours after, there appears a flow of blood more rapid than the preceding and in a somewhat pulsating manner. This is known as secondary hemorrhage. When this occurs, it is first advisable to remove the clot which has formed in order that a more definite application may be made.

Some surgeons advise the use of a large burr as a first means of arresting the hemorrhage. The burr is passed up the socket and then given a half turn. This carries out, to an extent, the Torsion method of dealing with hemorrhage. But while this may be all sufficient, it is open to doubt, as frequently the blood comes from the underlying portion of gum, and should this be the case, the foregoing method would fail.

What seems more practical is to take a strong solution of alum, formed by dissolving alum in warm water, and first applying with a syringe ; after a few applications in this manner, pellets of cotton may be saturated with the solution and forced into the socket. Some think that a greater effect is produced by applying powdered alum to the pellet after saturation. This may make the action more powerful. However, if this is not effectual, it is well to repeat the treatment ; or should we prefer another treatment to this : the wound may be syringed with peroxide of hydrogen, which is said to have an immediate action causing a clot which is not soluble in the blood. Pellets may also be saturated and inserted into wound.

While the patient is being treated, it is well to lose no time as patient is growing weaker, and the blood is losing its clotting

action on account of one of its exponent parts, namely, the serum becoming greater in proportion, displacing the organic matter. If none of these methods are successful, the stronger styptics must be resorted to.

The following are classed among the more powerful styptics for local application : Nitrate of silver, tannic acid, subsulphate of iron, perchloride of iron, persulphate of iron, gallic acid, tincture of ergot. Care must be taken so that no agent is employed as a styptic which will in any way destroy the tissue.

Nitrate of silver may prove successful in some cases, but it causes destruction of the tissues with which it comes in contact, and also forms a clot which is soluble in blood. Perchloride of iron acts in much the same manner.

Persulphate of iron is the best of the iron compounds. It acts readily, does not destroy tissue, and after action presents a clean looking wound.

Tannic acid is an excellent styptic, and answers well in connection with a compress of lint or cotton. Also gallic acid. The clot formed by these is not soluble in blood.

Powdered subsulphate of iron used on pellets of cotton saturated with sandarac varnish, followed by the use of the compress so adjusted as to act directly upon the mouth of the bleeding vessel. This is generally effective in alveolar hemorrhage.

Tincture of ergot is also good, but must be used hypodermically in about the proportion of one part ergot to two parts water. It is found that when the tissue has been punctured by the needle it presents a dark, swollen and unsightly appearance. During the time that operation is going on, it is well to see that the patient rests, and is in the horizontal position, having the head and shoulders raised. It is well in severe cases to treat other ways than locally. Arterial sedatives should be administered, such as opium one grain, and acetate of lead two-third grains. Opium should not be administered in this quantity more frequently than once every three hours, and then as few times as possible.

If it is found necessary to resort to other means, the following might be of use : Take a piece of compound, and having heated it place it upon the jaw directly opposite the wound. Have patient close jaw, and in order that they do not meet closely, it is advisable to place two little blocks of wood in the compound before insert-

ing ; when this is properly hardened, it may be removed. The part of compound which came in contact with the wound should now be removed, leaving only a sufficient quantity to serve as a division between the jaws.

Take a quantity of plaster of Paris, and mix it to the proper consistency, using alum water for the purpose. It is necessary to hasten in doing this, as the plaster when mixed in this manner hardens quickly. Fill the cavity recently formed in the compound and place again on the jaw, requesting the patient to close as before, and then having bandage ready pass it under the chin, allowing the two ends to meet over the head, where they are securely fastened. In this manner the jaws are caused to remain in a fixed position.

In any treatment it is well to leave local applications, such as pellets of cotton, compress, etc., in position until there is not the least danger of a recurrence of bleeding. Some even go as far as to allow the pellets to remain in until they are thrown off by nature.

While the object of this paper has been to try and throw out a few ideas for use in any case of severe hemorrhage, if you will permit, I will spend a few minutes in the general treatment after every case of extraction.

I consider it best to syringe out the wound until a sufficient quantity of acid has flowed from wound, and endeavor as far as possible to carry this out. It will be found that if a slow stream of cold water is poured upon the bleeding tissue with the aid of a syringe, the blood will almost immediately cease flowing.

While the treatment may be somewhat heroic in general practice for winter, it might be more agreeable to patient to dispense with the above. As a substitute take carbolic acid and glycerine in proportion of one to four, and in about a quarter glass of tepid water ; drop from six to ten drops. This will be found to be equally as effectual as the other.

Some patients are given to what may be called continuous sucking of the wound immediately after a tooth has been removed. Others keep up a constant spitting. Blood is found to clot more quickly when allowed to flow of its own free will, so that either or both of the above actions are a great hindrance to *nature's* method.

The Uses of Electricity in Dentistry.

Read before the Eastern Ontario Dental Association.

By MARK S. McELHINNEY, D.D.S., Ottawa.

The subject with which this paper deals, that of the uses to which electricity may be applied in dentistry, is rapidly becoming a very important and much discussed question.

Electricity, as a contributor to human needs, has rapidly passed beyond the stage of uncertainty and mystery, subject to the pseudo-scientific arts of magician and charlatan, into the brighter position of an exact science wherein both its possibilities and limitations are intelligently recognized and studied by scientific men. There is always a time in the evolution of knowledge regarding a newly discovered, or at least recently investigated force, during which are ascribed to it innumerable properties that it does not and cannot possess. Especially has this been true of electricity, from the promulgation of the false axiom of the electro-medical appliance vendor—"Electricity is Life," to the dentist that claims the attainment of painless extraction by means of the electric vibrator.

Yet there are legitimate uses for this force in our surgeries and laboratories, uses that are served far less efficiently by any other means, uses that cannot fail to recommend it as an invaluable friend and helper. A few words on the nature of this force will perhaps be in place, as the curriculum of our college includes necessarily what is very elementary on this subject, and as after graduation, amid the perplexities of office practice, time for study is limited, the dentist cannot be blamed for a somewhat restricted knowledge of the subject.

Electricity is considered to be a mode or state of matter co-relative with, but not similar, to heat, light, chemistry, etc. All substances are supposed to be pervaded with this force, but under ordinary circumstances do not exhibit it.

All forces in nature tend toward the establishment of an equilibrium. Suppose, for instance, two basins of water, connected by a pipe; now if one of the basins be filled, and the other be left empty,

there will be a current of water established between the full basin and the empty one until the level of both become the same.

In the case of two bodies of matter, if the electrical condition of one be raised above that of the other, there will be a current established, flowing from the higher to the lower. This difference in the electrical state of two bodies, or in different parts of the same body, is known as a difference of potential, so that, in short, the dynamo, battery and pile are various kinds of pumps by which a difference of potential is created, while the force is produced and the work accomplished by the effort of nature to restore the substances to a state of electrical equilibrium.

Electricity is often said to be intangible, and the knowledge regarding it in its infancy; but granting its corporeal intangibility, it must be admitted to be at least as well defined as any of the other forces of nature with which we are acquainted. Electricity is germinated, transmitted, stored and measured accurately as to quantity, quality and efficiency. It is as manageable as steam, gas, water, compressed air, or other powers.

Analogies are sometimes misleading, but I know of no better illustration of the nature of this current than that of a body of water such as is used for running water-wheels. The voltage or pressure of an electrical current is equivalent to the head of water in our analogy, while the amperage or body of current is represented by the size of the stream. The difference between frictional or static electricity and that generated by induction, or by chemical action, is in quality and not in kind. Static electricity is represented by a great head of water with a very small stream, while the other is more like a larger stream with a lower head.

A dynamo may be constructed to give a current of any quantity and pressure that the work to be accomplished may require.

As far as the dentist is concerned, the appliances come to him ready made, so that his duty is to ascertain the uses to which they may be put. The possible uses to him are to produce light, heat and power, and as a therapeutic agent.

Electricity may be generated by battery, small dynamo, or obtained from a general circuit. The running of an isolated plant is out of the question for the dentist. Battery power for lighting and heating purposes is both costly and troublesome, so that the only really satisfactory source is from the street circuit. Where

there is no general circuit available, the dentist will find either foot or water power far superior to batteries. For the electro-cautery and induction coil, in which but small currents are required for brief periods, the battery is both economical and handy, as one or two cells, requiring two or three charges a month, will suffice. Where the street circuit is available, the electric motor applied to the grinding and polishing lathe is a splendid arrangement, while for operating on dark days and in the evening, a properly constructed lamp apparatus is in some ways superior even to daylight. Though, perhaps, somewhat enthusiastic on this subject, yet I recognize that life is too short to be spent in fussing with a multiplicity of appliances, consequently I have discontinued using the electro dental engine and the small mouth lamp. There is no doubt that the best use, for some things at least, is merely to keep them lying around to mystify the uninitiated. The application of electricity to heating purposes is not yet perfect enough to provide the dentist with one really useful appliance. There is to be procured at the electrical supply depots a small kettle surrounded by a jacket containing the heating apparatus. This kettle was originally intended, no doubt, by some thirsty electrician, for making hot punch, but the dentist will find it extremely convenient to produce a small quantity of hot water at very short notice. If I could have brought one of these little appliances with me I have no doubt the gentlemen present would have been pleased to test some electrically heated water, to which might safely be added about twenty per cent. of a certain popular Gaelic antiseptic.

In therapeutics, electricity has truly been thought to be the elixir of life, and I do not hesitate to say that its value has been greatly over-rated. There is no evidence to show that it possesses such wonderful curative powers, especially in the forms often used, and this is why, in a recent number of the DOMINION DENTAL JOURNAL, it is termed "the mainstay of charlatanism." It is peculiar, but true, that mystery attracts more followers than does truth; thus the intangible and wonderful nature of electricity has made it a tempting bait by which to catch the dollars of a gullible, because ignorant, community.

Electrical currents will produce certain effects in the animal organism, such as congestion, depletion, stimulation, spasmodic contraction, etc., according to the method of use, but are not all

these as easily produced by other means fully as accessible and as pleasant ?

The value of the induced current or a local anæsthetic has received considerable attention on my part, for I have used the vibrator in different forms, in extracting, lancing and filling. The result of a study of some twenty-five cases, in which great care was taken to observe the effect upon the patients, goes to show that primarily the current has a very slight benumbing effect upon the soft tissues, this effect being far short of anæsthesia ; secondarily, that the substitution of sensation is an important element, the pain being forgotten in the more sudden and unfamiliar sensation of the galvanic current ; and lastly, and, strange to say, most important, the patient's conception of the relative intensity of pain.

Of the twenty-five above mentioned, about five claimed that the operation was absolutely painless ; ten thought the pain considerably alleviated ; of the remainder, a few considered the shock of the current worse than that of extraction ; a few were doubtful, and one at least, who was an engineer by profession, stated that while he felt the pain of extraction, his attention was diverted by the peculiar sensation caused by the current. This last patient was the coolest and most intelligent of the lot, and consequently most capable of judgment in the matter. He had the opinion to which I plead adherence.

It is evident from these closely observed cases, and from numerous others at various intervals, that the effect is almost entirely mental, dependent upon the expectancy and the pain standard, so to speak, of the patient. This branch of the subject would of itself furnish matter for a paper ; certainly it has been frequently overlooked in the study of local anæsthesia.

Two cases are worthy of notice : A lady, who was in that interesting condition necessary to the continuance of the species, was brought to my surgery by her husband to have a troublesome lateral extracted. He desired greatly to have the operation performed with as little resultant shock as possible. Fearing that a sudden shock might produce untoward results, I arranged the vibrator, and having told her that she could expect but slight inconvenience, extracted the tooth, being careful not to turn on the current. She was delighted with the result, and said that she scarcely felt the tooth coming out at all. Whatever qualms of

conscience were caused by this hardly defensible course were more than compensated by the success of the operation.

The next case was that of a young lady whose broken English gave evidence of undoubted French Canadian origin. She came in fear and trembling like a lamb to the shambles, and asked for extraction "par electricity." With the previous case as an example, and my battery being out of order, I attached the handles to a couple of wires that were near the chair, and extracted the tooth, a somewhat difficult one, to the utmost satisfaction of the patient, and so scored another brilliant success for the omnipotent electro-dental vibrator.

Most of you are aware of what great advantage the injection of even external application of pure water to the gum of a hyper-sensitive patient is in the prevention of pain. Applying the same principle to the vibrator, I leave you to draw your own conclusions. In lancing I found the vibrator slightly more successful owing to its slightly though superficial benumbing effect.

In the excavation of sensitive dentine and the removal of pulps the current is worse than useless. The appliance for this purpose, and with which I experimented, is here, and you may examine its truly formidable looking construction at your leisure.

To secure the highest degree of excellence combined with the smallest possible degree of pain, is the end to which operators and surgical dentistry strives, and the most direct though laborious route to this much desired end is through decision and skilful manipulation, and I am further convinced that electrical science at least can furnish neither method nor appliance which will enable the careless and unskilful dentist to escape from the results of his own unprofessional incapability. As as much has been said as time will permit—much has been left unsaid—I will here leave the subject with you, at whose hands it cannot but secure an unbiassed and intelligent discussion.

Proceedings of Societies.

Eastern Ontario Dental Association.

By GEO. H. WEAGANT, L.D.S., Secretary.

The Thirteenth Annual Meeting of the Eastern Ontario Dental Association was held in the parlor of the Hotel Frontenac, Kingston, Ont., June 29th and 30th, 1892, the president, J. H. Parnell, L.D.S., in the chair.

Dr. R. E. Sparks introduced to the association Mayor McIntyre, of Kingston, who, in a very eloquent and courteous address, welcomed the members of the Eastern Ontario Dental Association to the historic city of Kingston.

The following gentlemen were admitted to membership in the society: W. H. Steele, L.D.S., Arnprior; Oliver Martin, L.D.S., Montreal; D. A. Black, L.D.S., Kingston; C. G. Stackhouse, L.D.S., Ottawa; C. D. Wartman, L.D.S., Napanee; C. A. Terry, L.D.S., Newmarket; A. H. Mabee, L.D.S., Gananoque.

The following members were elected officers for the ensuing year: J. C. Bower, L.D.S., Ottawa, President; A. A. S. Burns, L.D.S., Smith's Falls, Vice-President; Geo. H. Weagant, L.D.S., Cornwall, Secretary-Treasurer.

The retiring president's address was then read by Dr. J. H. Parnell, of Ottawa.

Thursday morning was devoted to clinics, held in Dr. R. E. Sparks' office. Dr. Brace, Brockville, demonstrated his method of making cast aluminum plates. Dr. Stackhouse, Kingston, gave a clinic on porcelain work, using Beacock's furnace. Dr. W. H. Steele, Arnprior, gave a clinic on administration of vitrous oxide gas.

At one o'clock p.m. the members of the association accepted an invitation to a complimentary sail among the Thousand Islands, tendered by the Kingston dentists. The day was perfect, and the trip was truly an enjoyable affair, and was made much more so by the presence of a number of ladies. Refreshments were served on board the boat. The party returned about seven o'clock.

In the evening the meeting was called to order at 8.30, and Dr. W. Geo. Beers, of Montreal, then read a paper upon "Some New Observations during Pregnancy and Menstruation."

Dr. Robertson—"Is there any danger in extracting with an anæsthetic during pregnancy?"

Dr. Beers—"I think not. If a woman is unconscious, there is no shock."

Dr. Hanna—"What are the dangers to fear in extracting during pregnancy?"

Dr. Beers—"The danger of abortion."

Dr. Hanna—"A woman came to me to have a tooth extracted to avoid abortion. She said she had already had three miscarriages on account of decayed teeth. Her physician had refused to extract the tooth for fear of miscarriage. I extracted the tooth, at her earnest request, and no accident occurred."

Dr. Sparks—"In case of the teeth of young girls, which begin to decay as menstruation occurs, with what would you recommend them to be filled?"

Dr. Beers—"I invariably recommend them to be kept in a thoroughly clean condition. Generally fill with gutta-percha, or oxyphosphates. Have no objection to fill with gold; but generally defer filling at that period."

Dr. Hanna, of Kemptville, read a paper upon "Treatment of Exposed and Devitalized Pulps."

Dr. Ira Bower—"Does Dr. Hanna find as good results in capping nerves in patients of the age of eighteen or twenty?"

Dr. Hanna—"I find no difference."

Dr. C. A. Martin—"What is the object in using gold, and not gutta-percha alone in capping?"

Dr. Hanna—"It was suggested to me as a result of experience in my own family. I found irritation was induced by gutta-percha alone. I also found the gums congested."

Dr. C. A. Martin—"You can always get gutta-percha, rolled between the fingers, to pass to end of root. Would you not be able to use gold, rolled in the same way, with chlora-percha, to be carried more easily to end of root?"

Dr. Hanna—"Would fear chlora-percha would pass entirely through canal?"

Dr. Beacock, of Brockville, read a paper on "Micro-organisms," or, "Microbes, and what they are doing." (Will appear in next issue).—ED.

Dr. A. A. Burns, of Smith's Falls, read a paper entitled "Excessive Hemorrhage after Extraction."

Dr. Beers noticed in the *British Dental Journal* "that there was a decrease in the number of cases of severe hemorrhage after extraction." Also in cases of dysmenorrhœa, hemorrhage is more liable to occur. Cobwebs, on account of being full of microbes, are dangerous to use in case of hemorrhage. The best styptic I know is the common puff-ball, or *Lycoperdon giganteum*.

Dr. Clements cited a severe case of hemorrhage after extraction, and method of stopping by the simple means of taking an impression, using warm beeswax.

Dr. McEllinney, of Ottawa, read a paper entitled "Electricity as Applied to Dentistry."

Dr. McEllinney also exhibited a number of ingenious electric appliances, including a lamp to be used in operations at night.

Dr. S. S. Davidson cited two very interesting cases in his practice.

It was decided to hold the next meeting of the association at Cornwall.

National Association of Dental Faculties.

The Ninth Annual Meeting of the National Association of Dental Faculties was held at the Cataract House, Niagara Falls, commencing Monday, August 1, 1892.

Twenty-six colleges were represented, as follows :

Baltimore College of Dental Surgery—R. B. Winder.

Boston Dental College—J. A. Follett.

Chicago College of Dental Surgery—Truman W. Brophy.

Harvard University, Dental Department—Thomas Fillebrown.

Kansas City Dental College—J. D. Patterson.

Missouri Dental College, Dental Department of Washington University—W. H. Eames.

New York College of Dentistry—Frank Abbott.

Ohio College of Dental Surgery—H. A. Smith.

Pennsylvania College of Dental Surgery—C. N. Peirce.

Philadelphia Dental College—J. E. Garretson.

University of Iowa, Dental Department—A. O. Hunt.

University of Michigan, Dental Department—J. Taft.

University of Pennsylvania, Dental Department—James Truman.

Vanderbilt University, Dental Department—W. H. Morgan.

Northwestern College of Dental Surgery—B. J. Roberts.

Louisville College of Dentistry—Francis Peabody.

Indiana Dental College—J. E. Cravens.

Northwestern University Dental School—E. D. Swain.

Dental Department of Southern Medical College—Wm. Crenshaw.

Dental Department of University of Tennessee—J. P. Gray.

School of Dentistry of Meharry Medical Department of Central Tennessee College—G. W. Hubbard.

University of Maryland, Dental Department—John C. Uhler.

Columbian University, Dental Department—H. C. Thompson.

Royal College of Dental Surgeons of Ontario—J. Branston Willmott.

American College of Dental Surgery—John S. Marshall.

University of Denver, Dental Department—George J. Hartung.

The *ad interim* committee reported that it had investigated a charge preferred against the University of Maryland, Dental Department, by the College of Dentistry of the University of Cali-

fornia, of graduating a person in less time than the rules demanded; that it found that no rule of the association had been violated, and had so reported to the parties in interest; that it had dismissed an effort for the reinstatement of the American College of Dental Surgery, Chicago, as not within the jurisdiction of the committee, with the advice to reorganize the college before attempting to influence the association to change its action, which reorganization has since been accomplished.

The committee also stated that its value in settling such matters had been made so clearly apparent that it recommended that it should be made a standing committee, to be elected by the association, instead of being appointed by the president.

The report was received and placed on file, and the recommendation with regard to the status of the committee was adopted.

The following resolutions, laid over from last year, were adopted:

Resolved, That in case of charges against any college, no final action shall be taken until all parties concerned shall have at least thirty days' notice.

Resolved, That at all future meetings of the National Association of Dental Faculties the delegates shall consist of members of faculties, and demonstrators will not be received.

The following resolutions, also over from last year, were laid on the table:

Resolved, That after June, 1893, the yearly course of study shall be not less than seven months, two months of which may be attendance upon clinical instruction in the infirmary of the school, now known as intermediate or infirmary courses.

Resolved, That after the session of 1892-3, four years in the study of dentistry be required before graduation.

The following resolutions lie over under the rules:

Offered by Dr. Winder,—

Resolved, That hereafter graduates of pharmacy be placed on the same footing as graduates of medicine, and be entitled to enter the second-year or junior class, subject to the examination requirements of each college.

Offered by the Executive Committee,—

Any college failing to have a representative present for two successive sessions without satisfactory explanation, shall be dropped from the roll of membership of this association.

The chair, having been asked for a ruling upon the admission of graduates of pharmacy to the junior class, decided that under the rules they could only be admitted to the first-year or freshman class.

The Executive Committee offered a report recommending the restoration of the American College of Dental Surgery to full membership, which, after an explanation by Dr. Marshall of the reorganization of the college, was unanimously adopted.

The Executive Committee reported on the application of the Western Dental College, of Kansas City, recommending that it lie over for one year. The report was adopted.

The report of the Executive Committee recommending the rejection of the application of the Tennessee Medical College, Dental Department, of Knoxville, Tenn., for irregularities in conferring the degree of D.D.S. and in the reception of students, was adopted.

The application of Howard University, Dental Department, Washington, D.C., was laid over for one year.

The following applications for membership, also reported by the Executive Committee, lie over under the rules :

United States Dental College, Chicago.

Homœopathic Hospital College, Dental Department, Cleveland.

Detroit College of Medicine, Department of Dental Surgery.

The report of the Executive Committee recommending that the Baltimore College of Dental Surgery be censured by the association for conferring the degree of Doctor of Dental Surgery upon Charles F. Forsham, M.A., LL.D., of Bradford, England, *in absentia* and honorarily, in violation of the rules of the association, was adopted.

Dr. Truman offered an amendment to the rule regarding the conferring of the degree of Doctor of Dental Surgery honorarily, absolutely prohibiting the exercise of that privilege to the members of the association, but the amendment was lost, after discussion, it being the general sense that the present rule is a sufficient safeguard against the unworthy bestowal of the honor.

Dr. Cravens offered the following amendment to the constitution, which goes over under the rules :

Amend Article VII. so that it shall read as follows :

ART. VII. Any reputable dental college, located in any State of the United States, may be represented in this body upon submitting to the Executive Committee satisfactory credentials, signing the constitution, conforming to the rules and regulations of this body, and paying such assessments as may be made.

The association adopted a protest against the classification of dentists as manufacturers, as provided in House Bill No. 7696, known as the Wilcox Bill, and against the collection of statistics from dentists under its provisions, on the grounds that dentists are not manufacturers in any sense, not being engaged in the manufacture, fabrication, or sale of any product having a merchandisable value ; that all the laws heretofore passed in the various States and Territories and the District of Columbia distinctly recognize dentists as professional men ; and that the attempt to collect statistics would be an injustice not only to them but to their patients, and that such statistics if collected would be valueless to the Govern-

ment because showing the products of a class of men not engaged in manufactures.

The following, offered by Dr. Winder, was also adopted :

Resolved, That the National Association of Dental Faculties recommends that their alumni write and demand of the Census Bureau of the United States the return of all statistical reports, as, under the recent agreement between the dental profession and said Bureau, lawyers, physicians and dentists are exempted from making statistical reports for the census of 1890 ; and that a copy of this resolution be forwarded to the chief of the Census Bureau.

A communication from the Post-Graduate Dental Association of the United States, suggesting the establishment by the colleges of short courses of training and teaching especially designed and arranged for practitioners, was received and referred to the Executive Committee.

The manuscript of a Compend of Materia Medica and Pharmacy for Dental Students, by Dr. E. L. Clifford, of Chicago, was referred to the committee on text-books, with power to act.

Dr. Marshall offered the following resolution, which was adopted :

Resolved, That the secretary be instructed to notify the National Association of Dental Examiners that the National Association of Dental Faculties considers it out of its province to legislate upon the relative values of the L.D.S. and D.D.S. degrees.

The following were elected officers for the ensuing year : J. D. Patterson, Kansas City, President ; H. A. Smith, Cincinnati, Vice-President ; J. E. Cravens, Indianapolis, Secretary ; H. A. Smith, Cincinnati, Treasurer ; F. Abbott of New York, J. Taft of Cincinnati, and A. O. Hunt of Iowa City, Executive Committee ; James Truman of Philadelphia, Frank Abbott of New York, and Thomas Fillebrown of Boston, *Ad Interim* Committee.

The President appointed as the Committee on Schools, Drs. J. A. Follett, Boston ; S. H. Guilford, Philadelphia ; E. D. Swain, Chicago ; C. N. Peirce, Philadelphia ; T. W. Brophy, Chicago.

Adjourned to meet at the call of the Executive Committee.

Editorial.

Special Number.

The amount of valuable material presented at the various Associations, at this season of the year, has become so great that, in order to place it before our readers as early as possible, we have been forced to largely increase the size of this number. We feel, however, from the numerous encouraging letters we receive, that our efforts are being appreciated, and that there is an ever-increasing number of well-wishers to the national professional journal.