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Original Communications.

Sensitive Dentine.

By J. B. WILLMOTT, L.D.S., D.D.S., M.D.S.,

Professor of Operative Dentistry, Royal College of Dental Surgeons of Ontario.

The subject which I have chosen, for what I fear will prove a somewhat incomplete paper, is by no means novel, but is, nevertheless, interesting to both operator and patient. So long as a large proportion of our patrons approach our rooms with feelings akin to those experienced by the victims of the Inquisition in bygone ages, we, as practitioners, will be interested in the discussion of Sensitive Dentine. On this subject so much has been said and written that I cannot hope, at best, to do more than present known facts in a somewhat new aspect, and to make some deductions, which may possibly suggest a method of combating the difficulty, more intelligent, perhaps more scientific, than some which have been in use.

Though all are agreed that human dentine is endowed with the function of sensation, there is no general agreement as to the minutiae of the process by which a sense of injury is conveyed to the brain so that we may take cognizance of it.

The theory elaborated by Dr. Black, in "American Dentistry," is reasonable and accounts for the phenomena observed. In this view, experiment has demonstrated that protoplasmic cells are sensitive, and manifest their sensibility in response to contact with stimulants both chemical and mechanical. The tubules of the dentine are occupied by projections from the protoplasmic odontoblast. The central end of the elongated odontoblast is in close association with the fine nerve filaments in the periphery of the pulp.

A fair assumption from these facts seems to be, that the sense of injury experienced by the free extremity of the odontoblast is communicated to the nerve filaments, with which its central extremity is associated, and by these transmitted to the brain.

Whatever may be the precise *modus operandi* by which it is affected, it would seem perfectly clear, from the anatomical structure of dentine, that sensation is conveyed through, or by, the contents of the tubules, and that sensation in dentine is confined to these contents.

Though all dentine is more or less sensitive, there is a vast difference in the normal sensibility of the teeth in different individuals.

This variation is dependent on age, temperament, sex, quality of tooth tissue, and other causes, and is so great that what would be hyperæsthesia in one patient would not reach the standard of normal sensibility in another.

Ordinarily, in the discussion of the treatment of this painful condition, this fact has been overlooked. Methods of treatment which, in cases of exalted sensibility, as a pathological condition, have been entirely satisfactory, have, in apparently similar cases, proved useless and disappointing, because the condition was normal and not pathological.

Up to comparatively recent years the commonly accepted cause of hyperæsthesia of the dentine seems to have been inflammation. This theory is defended at considerable length by Dr. Taft. In the light of our present knowledge of the minute structure of dentine, as revealed by the microscope, his argument cannot be considered very exclusive. Nor has any treatment, scientifically based on the inflammatory theory, ever produced satisfactory results. Another, and more plausible suggestion, was that the dental pulp was really the seat of the exalted sensibility, and that the contents of the tubules were merely the passive instruments or agents to transmit the external impression to this central organ. Rational treatment based on this hypothesis would be the administration of such therapeutic agents as, acting on the nervous or circulatory systems, or both, should lower this exalted sensibility. The observed result of the use of nervous or arterial sedatives for this purpose has not tended to confirm the correctness of the theory.

Dr. Louis Jack has discussed the subject in the second volume of "American Dentistry," and concludes that "it may be considered clearly established that dentinal sensibility is attributable to the state of the tubular contents, and that it is excited into extreme manifestation by some physical irritation of the fibrillæ." The doctor has only considered this sensitiveness as associated with dental caries, and attributes the physical irritation to the disintegrating process by which caries are developed. It is well known, however, that this condition is not confined to teeth affected by caries, and, consequently, is not always occasioned by the disintegration of dentine.

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My own opinion, formed after considerable observation and study of the phenomena exhibited, and now expressed, not dogmatically but tentatively, is, that hypersensitive dentine as a pathological condition is analogous to the familiar condition known as "teeth on edge" and is produced by the same general cause, the irritation of an acid.

In a severe case of "teeth on edge," from eating sour fruit, the irritating acid is concentrated and abundant. It passes through the pores of the enamel, which is itself devoid of sensation, and acting on the peripheral extremities of the fibrillæ, causes such irritability in this tissue, that the slightest impact on the external surface of the tooth, or any material elevation or depression of temperature, causes extreme discomfort. In the hyperæsthesia ordinarily observed in dental practice, in association with caries, the irritating acid is dilute and not in large quantity, so that the effect is produced slowly and requires for its manifestation greater variations of temperature, the contact of such irritating agents as sugar or salt, or some injury to the locality affected, as the cut of an excavator. The difference of the two conditions is one of degree only. In the former the irritant being applied for a short time only, and soon becoming so diluted by the saliva as to become inert, the exalted sensibility rapidly subsides. In the latter, the irritation is persistent and the hyperæsthesia becomes chronic.

We are occasionally asked to prescribe for patients whose teeth have become so excessively sensitive, that the slightest variations of temperature produce acute suffering, requiring that both food and drink be taken warm. We are frequently called upon to treat cases where the necks of the teeth have become acutely sensitive to the touch of the tooth brush or other hard substance, and are especially so to contact with such chemical agents as sugar or salt or strong acids.

The first we assume to be due to an acid condition of the system generally, or a markedly vitiated state of the oral fluids, the last to be due to the acid secretions of the sub-mucous glands, probably associated with an acid condition of the saliva. If our theory be correct, antacid treatment, systemic or local, or both, should be effectual. In practice we find that the former condition, when not associated with other serious constitutional disturbance, will yield promptly to Potassium Bicarb., in ten-grain doses three or four times daily. The latter is effectually relieved by the free use of precipitated or prepared chalk, rubbed into the interstices of the teeth and pasted around their necks on retiring at night, or by frequent rinsing of the mouth with lime water.

It is, however, with the treatment of sensitive dentine in caries that the dentist is principally concerned.

If we diagnose this as a pathological condition, the indications will be to gently remove as much of the debris as may be done without severe pain, neutralize any free acid with a drop of liquor ammonia, and fill temporarily with zinc phosphate, thus shutting out the irritant and permitting the exalted sensibility to subside.

If the sensitiveness, extreme though it be, is the normal condition of the tooth, temporary filling for a month, or for a year, could not be expected to afford any relief. The fact that the average dentist is able to discriminate with a good degree of certainty between the normal and the pathological, does not bring him much comfort. What he wants is some easily available treatment that shall promptly control either or both. For this purpose the whole materia medica has been ransacked, and on one theory or another, or on no particular theory but at hap hazard, a large proportion of the therapeutic agents known to science have at some time been recommended and tried, with such indifferent success, that there is still an anxious inquiry from our patients for some relief from the tortures of dental operations.

A great deal may be accomplished by gaining the confidence of the patients—by stimulating their courage—by tact and gentleness of manner and touch, by the use only of suitable and sharp instruments, skilfully and intelligently used; but even so, there is still very much to be desired. Surely science or common sense can suggest some means to this end. Referring again to the structure of living dentine, we find the tubules occupied by fibrillæ, ready instantly to communicate the fact of any injury to their extremity. If it were possible to cause these fibrillæ to draw themselves back into the tubules so that there should be a free, unoccupied portion of the tubule which would be cut off without injury to the retracted occupant, it would seem that we had accomplished our desire. Probably not entirely: as there would still remain that part of the pain due to vibration caused by the force necessarily employed in cutting dentine: this would be slight. Is it possible to secure this retraction? Agents which stimulate contraction are at once suggested. Contraction of living tissue is, however, not a condensation of bulk but merely a change of form. As the tubules are already full and the walls are unyielding, change of form so as to produce contraction is not possible. A large percentage of the contents of the tubules is water: if a portion of this could be removed, until it could be replaced again from the central source of supply, the cell would shrink from its free end towards its central attachment.

This is doubtless what occurs when a carious tooth has been isolated and protected by the rubber dam and the free moisture in the cavity absorbed: the natural heat of the tooth slowly evaporates the water, the

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fibillæ retract and the surface can be removed with less pain than when it was moist. Here, it seems to me, we have suggested to us *dehydration*, as the true secret of promptly obtunding sensitive dentine whether it be normal or pathological.

There are two principal methods by which this may be accomplished: by evaporation, and by the use of agents which have a marked affinity for water. To succeed by either method it is essential to protect the cavity from moisture, not only when the dehydration is being accomplished, but until the excavation is completed. With the advent of moisture we soon have a return of sensation and that exalted by the irritation of the previous dehydration. If we propose to dehydrate by evaporation, a good plan will be to protect the cavity, thoroughly absorb the free moisture, remove the loose debris, then saturate the cavity with absolute alcohol, and, in a minute or two, absorb it and apply a jet of warm air by one of the appliances for that purpose. In this way the water is evaporated and the fibrillæ retracted to a greater depth than by using the warm air alone. Of the available agents having a strong affinity for water, zinc chloride has long been used as an obtunder, the effect being generally ascribed to its escharotic property. The fact that the sensation returns after a brief period would seem to contradict this theory. It is more probable that its virtue is largely due to its activity as a dehydrator. If this view be correct, Dr. Jack's direction to carefully and thoroughly wash out of the cavity the dissolved zinc chloride, would appear to be a mistake. The best results will be obtained by protecting and thoroughly drying the cavity, removing the loose debris, then introducing the zinc chloride in crystals, forcing them against the walls of the cavity. When the pain has subsided, absorb the now fluid zinc chloride and carefully exclude moisture until the cavity is prepared. Whatever agent is used the same general procedure is indicated.

A preparation consisting of equal parts by weight of absolute alcohol, anhydrous glycerine and tannic acid has been used with good success, though it is doubtful if the astringent adds anything to its virtue, that depending on its dehydrating property.

What is known as Herbst's obtunder, whether so designed or not, is evidently a combination of a dehydrator, sulphuric acid, with an anæsthetic, cocaine, with a view, doubtless, to lessening the pain of the application. Having had no experience with this remedy I cannot speak from observation as to its success. As its efficiency would seem to depend on the presence of an amount of free sulphuric acid, danger to the integrity of the tooth tissue might reasonably be apprehended. What is known as Robinson's remedy—carbolate of potassium—when properly

prepared is a really efficient agent. Dr. Robinson's directions were to rub together equal parts of carbolic acid in crystals and potassium hydrate. This, however, results in a powdery mass very inconvenient for use. The addition of about fifteen minims of anhydrous glycerine to each dram, makes a friable solid mass which can be readily applied to the cavity. That which is solid in liquor form, however valuable in the treatment of pyorrhœa alveolaris, is not the best form for use as an obtunder of sensitive dentine. In the use of this agent the same precautions are necessary in the exclusion of moisture as have already been referred to in the use of zinc chloride.

In comparison with zinc chloride the pain of application is less severe and not so long continued. My own experience would suggest that it improves with age; the chemical combination of its constituents probably requiring a considerable time to perfect. A suggestion as to the possibly far-reaching action of zinc chloride may be obtained, by placing a drop of a strong solution in a considerable portion of white of egg. In the course of a few hours the coagulated mass will have extended to the diameter of probably an inch. A fragment of carbolate of potassium of similar size will, under similar circumstances, have converted a considerable portion of the albumen into a firm transparent jelly, possibly due to the abstraction of its water. Which agent is most dangerous to the integrity of the fibrillæ I am not prepared to say, but have a strong suspicion of the former.

There are a number of other agents, such as dry chloride of lime, potassium carbonate, etc., which have an affinity for water, and might doubtless be used with some success. There are none, however, all things considered, equal to those already named.

Arsenious acid, for obtunding purposes, has been proved to be so dangerous to the vitality of the dental pulps, that it has ceased to be used for this purpose, and need not be here discussed.

To sum up—the points I have endeavoured to make are :

1st. Excessively sensitive dentine may be either a normal or a pathological condition.

2nd. As a pathological condition it is due to acid irritation.

3rd. This irritation may be local and confined to the walls of the carious cavity, or it may be systemic and affect teeth otherwise healthy.

4th. This pathological condition from systemic causes may be effectually treated by antacids, and when from local causes, by the neutralizing of the debris in the cavity and temporary exclusion of the irritating agent.

5th. That exalted sensibility of dentine, whether normal or pathological, may be successfully combated by intelligent dehydration.

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6th. The treatment to be effectual must include the entire exclusion of moisture until the cavity is prepared.

7th. That the dehydrators with which I am familiar may be placed in the order of their utility as follows, viz.:

- (a) Absolute alcohol and warm air combined.
- (b) Robinson's remedy.
- (c) Zinc chloride in crystals.
- (d) Alcohol, glycerine and tannin.

Dentistry in the Province of Nova Scotia -- Past and Present.

By A. C. Cogswell, D.D.S., Halifax, N. S.

Dentistry in the Province of Nova Scotia has steadily advanced as a science since 1862. At that time, with a population of about 200,000, ten dentists filled the bill for the whole province, not one of whom had a dental degree; two were M.D.'s and made dentistry a specialty. Three of the principal towns in the province had in each of them ten resident dentists. Halifax, a city of 20,000, had seven, while several of the latter visited periodically some of the towns and villages, as well as Newfoundland; and thus divided their skill and time as occasion required. And at that time a dentist had no professional standing, little attention had been paid by the inhabitants to the conserving of teeth, hundreds of valuable organs were removed to give place to artificial dentures, not that teeth could not be filled as well, and possibly in many cases more carefully and honestly done than in this age when time is considered more valuable, and quantity not quality seems too frequently to be the incentive to action. As for permanency of work, done twenty years ago, many of us can testify from cases presented by patients, in whose mouths not only gold plates as well as gold fillings prove that skill was not wanting, even at that period of the profession in this province. Not later than last year a tooth was removed for a gentleman aged 80 years, in which the filling had done faithful service for 49 years, and had it not been for absorption of the process and loosening of the tooth, might have lasted as long again. Twenty and twenty-five-year fillings can be seen in very many patients' mouths in this city, still sound and good. At this date can be shown at any time, gold fillings placed in the superior central and lateral incisors proximal and distal surfaces, that were carefully and honestly made for a gentleman in the year 1852. Some 37 years ago without the slightest change or defect, these fillings were made by hand pressure and non-cohesive gold, and speak volumes for the operator, and credit to the patient for his care and preservation during the period named.

Dental prothesis was probably more resorted to 20 years ago than at the present time, possibly for several reasons. First from the fact that so many persons had allowed their teeth to become so diseased and objectionable, besides suffering and inconvenience arising from exposed nerves and abscessed roots, that necessarily seemed to demand that something be done to alleviate pain and restore lost organs for speech and mastication, and as usual when a few in a community or city found beneficial results and improved appearances, many follow; again, treating exposed pulps, and restoring devitalized teeth was scarcely thought of, or at most if nerves were treated with arsenic, seldom or ever were they removed, but fillings were placed over the dead body, and ten to one if the patient was not obliged to have the tooth removed, feeling confident that by so doing "dead men tell no tales;" and as for beneficial results from that method, neither the dentist nor the patient would recommend or endure it.

While now the removal of teeth is confined principally to dentists, few people are willing to risk their jaws in the hands of unprofessional men. Twenty years ago, physicians, barbers, druggists, blacksmiths and handy men scattered throughout the Province, and in the city of Halifax, each possessed some unknown skill, that enabled them to use with wonderful dexterity a most valuable instrument called the Turnkey, that no doubt was invented at the time of the Inquisition, and this was made to do duty on all occasions, and when applied, something had to give way, "either by hook or crook" when Hercules stood in front of the patient with both hands applied to the instrument which was wound round with an old silk handkerchief, ostensibly to prevent the instrument pressing on the process, while the assistant firmly held the head of the patient between his knees, and pinioned his hands like a lamb led to the slaughter. And when the tooth was out the greater joy seemed to be expressed by Hercules, when he exclaimed exultingly "Oh, his jaw is not broken."—It would be hard to describe the feelings of the victim unless we say as the boy did, that just before they killed him his tooth came out. While this describes the method of removing teeth some 20 years ago and more, I am sorry to say there still exists some relics of past ages in the city of Halifax—owned and used whenever chance offers by unprofessional men, and owing to there not being any dental law to regulate the practice of dentistry, it is not unusual to have parties call with broken jaws from such piratical treatment. Not later than 1887, two cases were treated. In one case, the teeth were wired together and Barton bandage applied for ten days.

At the present time there are about 40 dentists practising in the Province with a population of about five hundred thousand. Some 20 of these are graduates of Dental Colleges—and several have degrees of M.D. in

addition. Most of the towns and villages support one or two, while the city has the largest number. Some six years ago an effort was made to obtain Dental Legislation, but it met with little support from the members of the country; and lacking that assistance desirable from those in the profession, owing to their not being any interest manifested, it was not carried through the Legislature. But we feel hopeful ere long to secure a bill similar to Ontario and other places, and to put this province in a position to send our delegates abroad, and affiliate with other societies.

Thumb and Tongue Sucking.

Illustrated by Models.

By W. Geo. Beers, L.D.S., Montreal.
Read before the New England Dental Society.

To many a child who resents weaning as an inhuman breach of maternal affection,

“There’s nothing half so sweet in life
As love’s young”—*thumb*

Nature has designed a baby’s thumb as the sweetest substitute for the mother’s nipples, even for the supple stripling who can put his toe into his mouth, and wriggle off a nurse’s lap like a globule of mercury. It is evident that in spite of its horny tip, and the absence of the milky way, there is something to a baby in its own tender thumb, which adults have forgotten, and no gross soul can know. I have just asked my wife why a baby likes to suck its own thumb better than its mother’s, and without intending a pun, she said, “It is because it is handy.” The habit seems to verge upon a sort of self-cannibalism, without a parallel in the records of the Anthropophagi; and certainly without one in the history of our Indians, whose papoose, strapped in its “raranon,” has no chance to indulge in fruitless sucking, unless it sucks its tongue; and I believe that sucking the tongue and lips, is only the revenge a child enjoys for depriving it of the opportunity to suck its thumb.

It is not surprising how a little habit, daily indulged in, will deform the features of the face in early life, when the cartilaginous and bony framework are soft and pliable: pulling the lobes of the ears, the lower lip, the eyebrows, each have their Nemesis in some unnatural result. I once had under my daily observation a lad who had caused a considerable protusion, as well as torsion of the left central and lateral incisors, from the inveterate habit of biting his left thumb nail, and I am convinced that many cases of irregularity of these teeth are due to just such simple but undetected causes. We know how easily teeth may be widely separated in a few hours,

with wood or rubber; in a few minutes with a mechanical separator; how uneven occlusion, such as the anterior side of an inferior bicuspid meeting the posterior side of a superior cuspid, will deviate the weaker towards the median line above, or the posterior below. The constant and careless use of stiff tooth picks, even the vulgar habit of keeping one between the teeth, must do more mischief in producing irregularity than we imagine. But there is this difference between the bad habits of adult life and those of infancy; those of the former never in any way effect or alter anything but the teeth and the transverse septa, and are not made hereditary; those of the latter not only affect and alter the position of teeth, but create abnormal developments of the whole alveolus, which frequently descend to succeeding generations. I know that this law of heredity does not apply to such abnormalities as cleft palate, hair lip, etc., frequently it follows the mature result of a habit formed in childhood, when it seems altogether absent as the result of habits begun in adult life. The irregularities of the teeth which owe their origin and first cause to habits occurring after maturity, cannot divert the direction of the anterior plate of the alveolus, unless deliberately and persistently applied with a force that would make them exceptional.

In cases of protusion of the upper incisors it is easy to distinguish between those of a congenital and those of an acquired form. I have one case that is the best illustration I have ever met of the former. It is a perfect V shape from the first molars to the turned points of the centrals, and is an exact reproduction of the upper jaw of the patient's mother. These cases seem to be bred in the bone, and run in the blood, but I think the opinion of Dr. Kingsley is generally accepted, that they may have the hereditary tendency eradicated, if corrected as soon as they are developed.

Where no such hereditary transmission can be discovered, and where the peculiarity is not directly due to the retarded shedding of the deciduous teeth, outside of which the permanent ones may have erupted, it may safely be credited to the habit of sucking the thumb, even if the patient or parent deny it. The habit of tongue-sucking may become so unconscious that it may go on during the day, and even all night, unknown to the patient. Sucking the under lip has been frequently noticed when the child is awake as well as asleep, and it is not uncommon to observe the habits continued until the child is into its teens. I am not disposed to believe that the teeth of the lower jaw are much affected by thumb-sucking. It is said that they are frequently elongated and pushed back, but I cannot see how this can occur when the thumb is *in situ*, as the nail or knuckle rests on top of the incisors, and ought to prevent rather than produce elongation;

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while the action of the strong tongue striking behind the *am* at every suction, and the position of the lower lip in front, would seem to counteract any such effect as follows in the upper jaw. No matter how short or long a tooth is, it has its anatomical limit of enamel at the neck, and however elongated it may appear, it is not abnormally so if the cementum is not visible, but you can perceive that they are naturally long. I have one remarkable case where it was declared that the lower jaw had been pushed back as a result of thumb-sucking, but it was a congenital malformation; the rami were short and small; in fact, it looked as if it did not belong to the skull, as the superior maxillary was very broad. There was an unsymmetrical development of the temporal bones, and a peculiar shortness from the symphysis to the last molar. The patient was about forty and yet there was no *dens sapientiae* in the lower jaw, while they were fully developed in the upper. The teeth of the lower were disproportionately smaller than those of the upper. There was a great fullness and depression of the occiput, what an Hibernian might call, a hump-backed skull. These various malformations were distinctively congenital, and yet it was apparent that notwithstanding the distance between the upper and lower incisors when closed, thumb-sucking had caused the uppers to spread like a fan. I could not induce the patient under any circumstances to let me secure impressions. In the meantime, I am keeping my eye on him with the hope of a post-mortem. Of course the pushed-back appearance of this lower jaw was exceptional, but I have yet to see the first case where the lower incisors were elongated or pushed back by thumb-sucking. I can understand how sucking the lower lip as an inveterate habit, might draw the lower incisors backward, but never upwards.

Every one of us, no doubt, has met these cases in practice, and has found the difficulty in getting the patient to admit the soft impeachment. Very likely a thumb-sucker becomes unconscious of the habit in the delectation of the indulgence, and is as honest in his denials as the Greek sailor, who repudiated the charge of cursing, by swearing by all the Gods that he did not swear.

I have also a genuine case of an hereditary thumb-sucker, whose father's upper teeth were protruded by the same habit, and whose grandfather, on his father's side, had also caused an ugly deformity in the same way. To such an extent did this patient suck his thumb, that the nasal septum was deviated to the left side by the pressure of the fingers lying against the nose in sleeping. There was but slight respiration through one nostril. I have at my office a model showing the perfect regulation of this case, giving color to the theory that the deformity, even when transmitted for two generations, may be remedied.

I think it will be found in almost every case of thumb-sucking that the tonsils are enlarged and the saliva vitiated. I have not met a case of an inveterate thumb-sucker that was not also a mouth breather, and it may be that this last habit originates as a coincidence of the former. If the patient sucks during sleep, the tongue will lie under the thumb, instead of in contact with the hard palate; the mouth will necessarily perform the act of breathing. I venture to believe there is a good deal of superficial diagnosis, and nonsensical writing indulged in as to the nasal and mouth results of mouth breathing. Dentists who are constantly at the open mouth from childhood, have more claim to be dogmatic in such statements, and it would seem to be their general opinion that while enlargement of the tonsils may occur, the assertion that uneven, irregular, or protruding teeth, and arched palate result from imperfect closure of the mouth, is not sustained by facts. There may be coincidences, and these would appear to be consequences. I believe that more careful diagnosis would trace the true origin to thumb or tongue sucking, and that the shrunken *alae* which lie close to the septum, is as certainly due to the pressure of the fingers during sleep, as the fan-like spreading of the incisors is due to the thumb. Specialists are apt to become fanatical, and to attribute every abnormality to a perversion of the principles they maintain; and to assert that mouth-breathing *per se*, will alter or affect the formed arch of the hard palate, is to show an ignorance of the anatomical and physiological laws of the maxillary. I admit the possibility of changing the form of the hard palate, but not by the natural or unnatural breathing. The acquired cause, if any, will be found to be in the thumb. When it is known that the spontaneous dislocation of the lower jaw has occurred from vigorous thumb-sucking during sleep; that the thumb is a hard mechanical force against the roof of the mouth and the teeth, and especially that the bones of a child are so easily altered by pressure, it is no surprise to find the palate behind the incisors of a thumb-sucker, a perfect fit for the patient's thumb. The chief muscles used in sucking are those of the tongue. The centre of the tongue is depressed by the *genio-hyo-glossi*, and the side elevated by the *stylo-glossi*, and thus a vacuum is created. Of course the *orbicularis oris* is brought into play in seizing the thumb, much more than it could be in sucking the tongue, if it is used at all in the latter, but the tongue does the sucking. It is curious how inevitably this habit will extend from the thumb to sucking the clothes, and in fact, whatever the young imp can get into its mouth. It is quite strange to witness the indifference of parents and even physicians where the habit is observed. One would imagine that the idiotic expression which often results would be sufficient to warn parents from neglecting it. If we, as dentists, have opportunity, as we should have,

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to watch the growing teeth at least twice a year, we can hardly fail to detect children addicted to these habits. Like sleeping with the mouth open, which can be easily cured by gently and frequently pressing the lips together in sleep, if taken in the outset, fruitless sucking can be cured by daily watching and nightly prevention. When parents are made to understand the evil consequences and the difficulty of treatment, they will be more disposed to follow the advice we give them. Some children can be easily restrained or cured by making the habit a subject of ridicule and shame; others must be put beyond the power to indulge in it. Whether you put aloes on their lips, gags on their mouths, boxing gloves on their hands, or Solomon's regulating apparatus on their buttocks, early and persistent attention will prevent one of the most unsightly deformities of the human mouth.

Just as I was closing this, I was given the accompanying slip from a paper: "According to Dr. Berillon, the well-known French specialist, the practice of sucking the thumb at night, to which so many children are addicted, and of which it is next to impossible to break them, can be put a stop to by a single hypnotization, accompanied, of course, with the requisite suggestion. The child never by any chance returns to the old habit again, though his memory retains no trace of the order or prohibition which operates so powerfully on his will."

Dr. Blackett: This very interesting paper is now before you for discussion.

Dr. A. M. Dudley: From a case I once saw, I can heartily endorse what is said in the paper in regard to the ignorance of parents as to the result of allowing children to indulge in this habit. I was going home from some dental meeting I had been attending, with a friend. We observed a child with its mother, in the car, the child sucking away at its tongue. The whole expression of its face became distorted. We watched the operation as long as we could, and, seeing how different the mother was, we finally thought it was our duty to go forward, and broach the subject to the mother, and warn her of the danger which was coming to the child. The child was a little girl, eight or nine, possibly ten or twelve years old. The jaw had been badly deformed. To our surprise we found that the mother, instead of correcting the child, had rather indulged her in it, and had gone so far as to give the child something to hold in its mouth in the night to suck. She had not realized the serious results that were occurring from it, and was greatly surprised when we told her, that the child had a paricle of deformity. The child never went to bed without something in its mouth to suck.

I had a case in my own practice, of a young lady, her father was superintendent of the public schools in Boston. This young lady had grown up

to be twenty-two or three years of age, and had followed it up until she was a young lady, and had done nothing to break herself of it until she went to a dentist in Paris, and then found out, for the first time, that the irregularity was the result of thumb sucking. The case had been treated by the dentist to correct the irregularity so rigorously, as to cause the death of the pulps, and my work consisted only in bleaching the teeth.

It is true that many parents do not realize that for their children to indulge in the habit of tongue and thumb-sucking, is to produce irregularities.

Dr. Potter: I fully agree with the paper, and what has been said on the subject, but I know of a case of a child always taking hold of a blanket, and sucking it. Her parents indulged her in the habit, and the blanket was cared for by the mother. When that child was ten years old I noticed that the blanket had worn away till it was about a foot square. I think the lady is about twenty-five years old, and she has about the most beautiful set of teeth I ever saw.

Dr. A. H. Gilson: I would like to ask Dr. Dudley, if in the case he mentioned he saw any deformity in the upper lip? I have noticed that in the upper lip there is a groove, caused, I think, by the thumb.

Dr. Dudley: In both the cases there was an apparent thickening of the tissues at the median line of the teeth, a shrinking of the lip, so that it did not come down over the teeth.

Dr. J. A. Bazin, Montreal, P.Q.: I remember a case that I had about twenty-five years ago. The patient was a young man of seventeen, and on questioning him he admitted the fact of sucking his thumb in his "baby" days. I brought about a satisfactory result in a little over two months. It was done in this manner:

A gold plate was struck to embrace the bicuspid and first molars and extending outside well up on the gums. On these extensions I fastened lugs to which I tied small rubber rings, and when the plate was in position in the mouth I passed a silk ligature through the ring and drawing tightly around the outside of the tooth, tied. To prevent the ligature slipping up on to the gums I made from thin plate, two flat hooks, similar to crane hooks, which were put over the cutting edge of the central incisors, the ligature being caught and held by the other end being squeezed.

Thus constant traction was exerted, and plate easily removed. About twice a week new rings were put on, and rapid movement obtained.

I may say that as the teeth came to the desired position I found that the lower teeth interfered, as they were long and nearly touched the gum of the upper jaw.

By keeping up a strong pull I found that the roots of the incisors of the upper were being brought outward, the lower teeth acting as a fulcrum,

THUMB AND TONGUE SUCKING

and the facial lines being materially changed, and the whole expression of the face much improved.

In due course, the plate was removed, and the teeth ligated for some weeks, and some few months after no sign of yielding could be perceived.

Dr. A. W. Colvin : Not having a model I wish the person was present. I expected she would be to-day. The case is of a young lady whose teeth protruded to that extent that she was ashamed of the appearance of her mouth, and would frequently cover her mouth with her handkerchief when conversing. I do not think the lip was shorter on one side than on the other, but had that appearance. The case just spoken of reminds me of my case. The inferior teeth striking the upper incisors and laterals so as to force them outward. I removed the left inferior incisor in order to make room. I then proceeded to force the whole front inward. The change was very marked. I have treated many cases of this kind, but none with such pleasing results to the patient and myself.

Referring to the incident of thumb-sucking, related to by Dr. Porter, it is readily seen that in sucking the thumb, the weight of the hand and forearm would have a greater tendency to draw the teeth outward than the sucking of the corner of a blanket, as the weight of the blanket would be less.

A Member : I well remember that up to fourteen or fifteen years of age, I had considerable difficulty in covering my front teeth. The teeth were exposed, and my lip did not seem long enough.

Pulpless Teeth.

By CHAS. A. MARTIN, L.D.S., Ottawa.

I have no doubt that in the practice of most dentists, as well as my own, the greatest number of patients applying for services from the middle, or less intelligent class of people, are those that have suffered, or are suffering pain ; although they are repeatedly told that they should have their teeth attended to in time, still, the exposed nerve or suppurating tooth, is as repeatedly presented. Awaiting the approaching period when the people will be better educated regarding their teeth, and more obedient to the instructions of the dentist, it behooves us to obtain all the knowledge possible as to the best method of treating such cases. I purpose this evening as briefly as possible to state what I know about preserving pulpless teeth. I do not claim entire originality, nevertheless I believe each time a subject of this kind is recorded, new material or ideas, are always added. If it was not so, there would have been no progress.

The great number of pulpless teeth that are treated and preserved, is proof positive of the good we are capable of conferring on our fellow beings. Teeth that have dead pulps are called "dead teeth," but they are not really without life so long as the vital connection is maintained by means of the live cementum and periosteum; there is no doubt but that circulation of nutritive fluids continue between the investing tissue of the tooth (at least is kept alive) and as the canaliculi of the cementum are more or less connected with those of the dentine, the latter tissue may also possess some vitality in its external parts in pulpless teeth, after conservative treatment.

A recent writer says, "A tooth has two sources of nutrition, the pulp and the alveolo-dental periosteum; and when it is cut off from both of these, it becomes quite dead."

The principle upon which the methods for conserving this class of teeth are founded, is the curing and rendering undecomposable the inner parts of the tooth structure, after removing the pulp remains as thoroughly as possible, by the complete and perfect saturation of those parts with carbolic acid.

I will endeavor to describe the treatment of the ordinary varieties of the disease. First, as the simplest variety we have a tooth in which it is necessary to destroy the pulp. After thorough devitalization by one or more applications of arsenical preparations, the cavity should be well saturated with carbolic acid, and the pulp remains removed through the fluid, using broaches dipped in carbolic acid to clean out the canals; after syringing with tepid water commence filling by lightly saturating with carbolic acid the end of the first piece of filling that is to be pressed to the apex of the canal.

Continued soreness from any irritation will indicate longer treatment: over treatment should be carefully avoided, for there is a point beyond which continued medication cannot be carried safely. In many cases, letting alone or giving longer intervals of rest will be the best treatment.

The next variety is that of a tooth in which the pulp has been dead some time, and with the chamber open; the tooth has now but little sensibility to pressure, or percussion; tenderness will, however, very nearly always be found over the apex of the root; the pulp is decomposed, and presents a brownish matter mixed with pus, or only pus; careful removal of the debris will be the first step, to be followed by syringing well with tepid water and extirpate with a broach dipped in carbolic acid. The critical point in this case will be in stopping the canal, and thus preventing the escape of pus, and putrefactive gases, the parts having become accustomed to this accommodating vent. So long as there is a discharge.

PULPLESS TEETH

the canals should not be tightly stopped: a pledget of cotton loosely placed in the cavity, will act as an absorbent and prevent food, or other extraneous matter, accumulating. The treatment should be on alternate days, or more frequently according to the urgency of the case, and at longer intervals as gradual improvement takes place. Periostitis, acute or chronic, will be most readily combated by the application over the root of a mixture of equal parts of tinct. iodine and aconite, or iodine simply, repeated as frequently as soreness arises.

The next variety is represented by a tooth which indicates a dead pulp by its dark color, soreness, etc., but in which the pulp-chamber is closed: the tooth may contain a filling or may not, and the best manner of securing communication with the chamber, will be indicated by the case; either to remove the filling, or, if this is good and can be avoided, drill directly into the pulp-chamber as near on a line with the axis of the canal as possible: at the same sitting thoroughly cleanse the pulp cavity and canals of all decomposing matter, and treat the same as preceding case, until all soreness and disagreeable odor is removed.

The next variety will be that of a tooth having acute periostitis from apical irritation, arising from pus exuded from the foramen of the pulp canal: if closed, the pulp canal should be opened, which will afford more or less relief by removing the pressure induced by accumulating pus and gases. Iodine and aconite applied to the gums, cleaning and dressing the canals, and probably the administration of a cathartic, will be indicated as necessary in order to outflank the probable result of the periostial trouble—swelling and suppuration. If the inflammation succumbs, daily dressings and applications to the gums, until the soreness disappears, will prevent a return, and then the ordinary periodical dressing must follow. Sometimes the case will come to you with the swelling and suppuration already in progress; there will be the story of hours and days of agony and sleepless nights, and the aspect presented will be swelling and feverishness of the face, partial closure of the jaws, and sometimes the eye, swollen gums, loose tooth, etc. The parts will require immediate depletion, which must be accomplished by lancing and scoring, then counter irritants, as iodine and a cathartic; fomentations should be applied to the face, or roasted figs to the gums to hasten suppuration. The tooth being tender and painful to the lightest touch, can generally, have but little done to it for a time, but as soon as possible the canal must be opened to afford free exit to the pus, and furnish vent to the putrefactive gases there collected. As soon as pus is formed over the apex, and indicates a disposition to "point," it should be reached with the lance or drill. The swelling once subsided and the canal cleaned,

carbolic acid should be forced through the apex of the root by a sort of pumping motion in the canal with a piston formed by wrapping cotton on a barbed broach. In some cases, when the fistula heals too readily, it will be necessary to insert a cotton tent, to prevent granulation, that you may more thoroughly cauterize the abscess or cyst. A fistula of long standing should be treated from the outside, as well as through the root canal. Sulphuric acid has been recommended by those who have used it as very efficient in obstinate cases. Crownless roots which are firm in the bone and useful in mastication, are amenable to this treatment and can be made more durable. Pivot roots should also be treated, and cured before inserting the crown permanently. Incisors (with rare exceptions) can always be cured and retained. Bicuspids are not so easily filled, the canals being frequently divided, and the roots curved, making it extremely difficult to reach the apex; gold wire is recommended to be inserted in small canals. I generally use a chloroform solution of gutta-percha, then fill with tin foil. I seldom use oxychloride at the apex, having experienced trouble by its use. But if the canals cannot be found, then careful saturation must be depended on, and temporary filling remain longer than usual. Buccal roots of upper molars are perhaps the most difficult of all other varieties in obtaining entry to the canals; when impossible, saturate with carbolic acid thoroughly and proceed to fill pulp chamber. In old age, or middle life, the root-canals of lower molars are seldom capable of being well cleaned, their passages being generally flat, and very narrow and dangerous to drill, if the roots are curved; this being the case, saturation is the only course left I know of.

The central fact and principle of this method of treatment, is the repeated and continued saturation of the internal parts of the tooth with carbolic acid. This I believe will result in perfectly destroying all putrefactive matter in the pulp canal, in the dentinal canaliculi, and their ramifications, and in the crystalline substance of the dentine; not only are putrefactive matters thus destroyed, but live organic tissue is converted into the insoluble and indestructible carbonate of albumen. From this substance no putrefaction can arise, and the clogging of the canaliculi by it will prevent the entry of organic fluids from the cementum, which if once in the pulp-canal, or the inner canaliculi of the dentine, could not return and would decompose. When the pulp-canal of the root of a tooth has been thus saturated, and after all sensibility of the tooth or the parts about it has disappeared, it is ready for filling. Oxychloride of zinc may be used in a fluid state, and forced in with the gold wire to remain there, or a wire made of pure tin, which I have found to answer equally as well. Tin foil I generally use when it can be thoroughly compacted. Some

writers advocate temporary filling (in every case) with oxychloride to remain a month or longer. If the tooth is to be filled with gold, I think it is better to do so; the pressure required to manipulate gold is liable to produce serious irritation, if done too soon. When amalgam is to be used, I generally fill at the same sitting, except when the color of the tooth is to be restored, then fill with oxychloride and leave for a day or two.

When crowns are completely excavated within by caries so that little more than the enamel remains, they should first be filled with porcelain or os artificial. This material being a cement adheres to the walls, and makes a stronger support for the permanent filling to be subsequently inserted.

Rather than bleach discolored teeth by chemicals (which is not generally satisfactory) a better method is to cut away as much of the discolored dentine as can safely be done without endangering the strength of the crown, and fill with light colored cement which will show through the enamel. The chlorine of the cement will in time bleach the dentine.

Failures in the treatment by this method arise, (1st) from irregular or entire neglect of attendance by the patient, (2nd) from the impossibility of finding and filling the root canals, (3rd) from forcing the wires in small roots through the foramen, and from drilling through the side of the root in search of the canal. In chronic fistula and bad constitutions you are forced to proceed with little hope and without promises.

[An excellent article by Geo. H. Weagant, J. D.S., Cornwall, Ont., on "Polishing Disks," illustrated with cuts, will appear in our next issue. It should have appeared in this, but cuts did not reach printer in time for publication.—ED.]

Societies.

Notes from Proceedings of Dental Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN, FEB. 4, 1889.—Mr. Henry Sewill, M.R.C.S., L.D.S., President, delivered his inaugural address, from which we make the following extracts:

Notwithstanding all that has been hitherto accomplished, there yet remain unfinished tasks sufficient to satisfy the scientific ardour of our most zealous labourers. But of the questions which are still left for solution, perhaps those concerning the etiology of caries are to us among the most difficult as well as interesting. To illuminate all that is dark in our knowledge of the prime cause of tooth decay, inherent structural inferiority of enamel and dentine, demands far-reaching research. Evolution is an agent;

for we have the demonstrated fact of the diminishing development of the organs of mastication from the anthropomorphic apes by regular gradations through savage races of man to the civilised European. The question of heredity is involved; for we see the dental characteristics of parents, even in the quality of the tissues, transmitted to children: often the teeth of offspring will closely resemble those of one parent, the girls, as a rule, taking after the father, the boys after the mother. Again, disease acquired by parents often leaves its mark upon the tissues of their offspring: and although the typical teeth of Hutchinson, the significance of which is unquestionable, are present in only a small proportion of undoubtedly syphilitic children, their occasional occurrence clearly shows the power of hereditary disease to influence the development of enamel and dentine.

When we consider that differentiation of the rudimentary mucous membrane into the germs of the future teeth is demonstrable before the seventh week of intra-uterine life: when we recollect that hereditary bias largely governs the formation of the organs, and when we bear in mind the early periods in infancy and childhood at which the outer shell of temporary and permanent teeth has become calcified and physiologically unalterable it seems evident that to produce sound dental tissues we must, above all direct our energies to improvement of the race.

Disease is no necessary accompaniment of civilization. Most diseases which lead to deterioration of the human species, and leave their mark upon the organism, including the teeth, are at this day preventable, and the time must surely come when every zymotic malady shall be as unknown in civilized lands as the plague: when scrofula and rickets, and all diseases the products of darkness, filth and starvation, shall no longer exist: and when ignorance, sickly sentimentalism, or pseudo-humanitarianism shall no longer be allowed to stand in the way of prevention of scourges like small-pox and syphilis. With finer physique, finer teeth will appear: and in presence of the fact that man is steadily gaining more and more the conscious power of moulding his physical future, it seems absurd to suggest that in the end there can be evolved a toothless race. Our concern is, however, more urgently with the present than the future, and if we cannot help materially towards the production of sound dental tissues in our time, we can, at least, do much to prevent their decay, and do more to repair them when decayed.

Vitiation of the secretions of the mouth, a pre-disposing as well as the direct cause of caries, has not been hitherto exhaustively investigated. This, not so difficult a subject as the last mentioned, is equally important. If we were fully acquainted with the chemistry of the oral fluids in disease, more certain methods might be devised to prevent those changes which

lead to the formation of acid and give rise to putrefaction and fermentation in the vicinity of the teeth.

Our knowledge of the process of disintegration of enamel and dentine in caries is almost complete, yet new facts might probably be of further practical value. The principles of treatment, the right method of preparing and stopping simple cavities, were empirically established many years before the physiology of the tissues was understood, and it is hardly possible that those principles can be overthrown. But instruments, materials for stopping, and methods of working them may be improved. The mechanical genius of our members may find, and does find, exercise in improving our present instruments and in devising new ones. This in itself is a large subject, and very attractive; but I must not now dwell upon it.

There is vast scope for scientific work to be directed towards the improvement of materials for stopping. For these we are too much dependent upon manufacturers, many of whom, there seems reason to fear, are imperfectly acquainted with the chemistry of the compounds which they prepare. A thorough research into the metallurgy of gold might lead to the production of foils capable of more rapid and certain manipulation than those with which we are now supplied. But of much greater importance than the improvement of gold do I hold the improvement of amalgams and all the class of plastic fillings. I need not enlarge upon the superlative beauty of gold stoppings from an artistic point of view, nor emphasize the fact that the dentist who has made himself a first rate gold-stopper has mastered the greatest difficulty of his craft; and that to him no other operation will appear hard or laborious. But to insist upon gold stoppings for every case in which this material could be fitly used would be about as reasonable as to prescribe a warm winter climate for every case of incipient phthisis in which it might be beneficial. Gold fillings for carious teeth, like warm winter climates, must be considered as luxuries beyond the reach of the vast majority of sufferers, and those most needing relief; they are too costly. Besides this, gold fillings involve the infliction of pain and fatigue which cannot be borne by every patient.

It was once the fashion of a certain class of writers to denounce the use of amalgams as a species of malpractice approaching crime; and dire were the injurious effects ascribed to these substances. These prejudices were based upon impressions which had no scientific foundation, and it is not necessary to again expose their falsity. An ideal filling would, however, not be metallic. It would be a cement which, applicable in a condition thoroughly plastic and adhesive to the walls of the cavity, would, on setting, approximate in its character to dense enamel. The advances which have been made in the preparation of non metallic

cements go to show that it is not beyond the power of chemistry to produce such a material.

Simple caries and the operation of filling by which it is treated are peculiar, there is nothing quite like them in general pathology and surgery; but when we turn to the inflammatory conditions occurring within and around the teeth we tread more common ground, for the processes of inflammation, modified only by the anatomical peculiarities of the part, are essentially the same in all vascular structures. In the case of the teeth we have such facts to consider as that the pulp is confined within the rigid walls of a chamber which allows neither of swelling, nor of the escape of exudations; that lesions of the hard tissues are incapable of natural repair; that an exposed pulp does not tend to heal and cicatrize, and, therefore, if it is to be preserved, needs to be hermetically sealed beneath an artificial covering. Except in cases where the cavity is readily accessible and bounded by strong walls of sound tissue, it seems questionable whether it may not be better to destroy a diseased pulp and extirpate it rather than attempt to save it, seeing how easily the operation may be performed, and how well the teeth endure after antiseptic treatment.

A disease which seems greatly on the increase at the present day, and which is the sole existing opprobrium of dentistry, calls urgently for investigation. Of its etiology and pathology we are almost completely ignorant, and its treatment is proportionally unsatisfactory. I allude to the malady which consists of slow wasting of the sockets, and loosening and shedding of the teeth, and which is commonly designated *pyorrhœa alveolaris*. I have formed the opinion that cases of this affection may be grouped into three classes, and that they are closely analogous to varieties of diseases of the hair commonly classed under the term "baldness."

In one variety there is little or no inflammation or discharge until the final stage; and the cases occur mostly in robust healthy individuals, although very often of the gouty diathesis, and with massive well-formed jaws and teeth free from caries. These cases are like those of simple premature baldness. In a second group there is present either general debility, or one or another of the dyscrasie such as are so often associated with alopecia. A third class of cases resembles sycosis—although I do not suggest that their etiology is identical—and these are the cases of true *pyorrhœa alveolaris*. I have long made this comparison between this disease and affections of the hair, and I was much interested to learn lately that a similar analogy had been drawn by Mr. Jonathan Hutchinson.

Among other topics worthy of full discussion to which I am tempted to refer, but to which time allows me only to allude, antisepticism as applied in dental surgery might well occupy a lengthy essay. I must not, however,

pass beyond my purpose, which is to suggest how extensive are the fields for our labour.

Dentistry does not, like general surgery, involve direct issues of life and death, but, nevertheless, the theories at the base of each are identical. The art of surgery was for ages founded in greater part on empirical knowledge, that is, knowledge derived solely from experience, and neither explainable nor verifiable by the imperfect science of the day. That error should flourish, and that progress under such conditions should be halting and uncertain, need excite no wonder. We all, on the other hand, can review the epoch making discoveries—the outcome of true knowledge—by which, from time to time, long and sure strides in advance were made possible. Indeed, the history of the healing art in every department, and not much less in dentistry than elsewhere, brings out in bright relief the fact that practice can have little permanent growth unless based upon the sure foundation of demonstrated truth, and can advance only with the general advance of natural science. Never was the prospect of improvement more hopeful than it is now, and in view of the wonderful progress which has been made within our own times in the investigation of every class of natural phenomena, it cannot be believed that any of the problems in dental science which remain unexplained will continue for ever insoluble. It would be rash, indeed, to ascribe limitations in any direction to future scientific achievement. For instance, we ourselves have seen chemistry advance by rapid steps to a position in which the growing wonders of synthesis no longer surprise us, so that we are prepared to take, as a matter of course, the artificial production in the laboratory of any definite chemical compound found in the organic world.

In physiology we have witnessed, as a crowning marvel, localization of the functions of the brain and almost complete unravelment of that tangled web, the nervous system.

In etiology and pathology the study of micro-organisms has been surely leading to great results, and the fundamental fact has been established that the processes of fermentation and putrefaction, which were formerly looked upon as of purely chemical character, are essentially connected with certain low forms of organisms.

These discoveries in their turn have led to the science of bacteriology, which has made of surgery a modern miracle. Passing from the time when such operations as trephining and abdominal section were very frequently fatal, we have seen arrive the day when the surgeon, almost certain of the result, no longer hesitates to act, because of the intrinsic danger of any operation, and when he does not shrink from opening the cranial cavity and searching for and removing the cause of disease from within the substance of the brain itself.

Science, by which alone such achievements have been made facile, can advance only by means of observation and experiment; but observation and experiment must be exact; the record of mere impressions, unverified by instruments of precision, by balance, thermometer, microscope, and test-tube, are, as a rule, worse than worthless. He who in the investigation of phenomena accepts the evidence of his unaided senses can never form a true conception of the nature of things. No sense, for instance, is more easily deceived than sight, and to trust to that alone is to believe in a host of falsehoods, among which that the sun revolves around the earth will be far from the most preposterous. Healthy scepticism is the only safe habitude for the scientific intellect; it is that which every scientific explorer, worthy the name, cultivates within himself and expects to find in others. There is no shame in occasional error. The pithy phrase in the American Minister's farewell speech at the Mansion House a few days ago, applies as forcibly to the pursuit of science as to any other work of life—"the man who makes no mistake does not usually make anything."

In the promotion of scientific progress, exposure of old error thus stands in importance, second only to demonstration of new truth; and, therefore, workers who may find it difficult to take up a fresh line of research may yet perform good service by examining the facts and theories of others, and subjecting their statements to searching criticism and discussion. If the future of biological science is full of promise, it is mainly because every new statement is forthwith submitted to examination; progress was formerly long delayed for want of careful sifting of the evidence on which generalizations were formulated, and because the testimony of a great authority was often accepted without doubt or question.—*Transactions of the Odontological Society of Great Britain.*

FIFTH, SIXTH, SEVENTH AND EIGHTH DISTRICTS DENTAL SOCIETIES OF NEW YORK STATE, OCT. 25TH, 26TH, 1888. *Continued from page 20.*—Dr. A. P. Southwick, Buffalo, spoke on the effects of heat on rubber. To prevent it becoming porous in vulcanizing do not burn it. Rubber will not stand over 300 F. without injury. If a block of teeth is removed from a set made as they usually are, after it has been worn, a space will be found between the teeth and the rubber filled with the debris secretions of the mouth. The lowest heat at which vulcanization can be accomplished is best for the fit, because there will be less contraction in cooling than if the rubber has been subjected to a higher temperature. Too much heat accounts for most misfits. Dr. Southwick showed two plates, one vulcanized at 280 F., the other at 310° or 350 F. The difference in their texture was at once apparent. 280° to 285 F. is the highest temperature that

should be employed, and the time should be two hours. To make misfit plates fit the casts, save the casts : if the plates won't go on the cast warm it, and adapt it. Dr. Southwick spoke highly in favor of copper amalgam as a tooth saver. Do not put it in a tooth if you expect to have to remove it again. Dr. M. L. Rhein, New York, read a paper entitled, "Studies of Pyorrhea alveolaris," in which he reiterated the general methods in use : laying stress upon absolute cleanliness : the injection into the pockets of solution of mercuric bichloride in hydrogen peroxide. Dr. W. C. Barrett read a personal letter from Dr. W. D. Miller, of Berlin, in which he gave his present view as to the three factors concerned in the production of this disease : 1st, a certain predisposition ; 2nd, a local irritant ; 3rd, bacteria. A predisposition to the disease consists in a lack of tonicity. Dr. Barrett, speaking for himself, simplified the matter, by remarking that there is a deposit upon the teeth near the gum-margin, which produces an irritant effect upon the surrounding soft tissues, and the trouble goes on, the deposit increasing and the irritation growing, until the tooth drops out. The first indication is to remove all the deposits. Often the pockets containing the deposits are hidden. The other day, in treating a case, he found a tortuous pocket extending clear to the apex of the root. The deposits should be removed thoroughly ; the edges of the alveolus should be dressed to stimulate it to keep it in good condition. We will meet with failures until we know the cause which produces the condition.

Dr. Darby, referring to the subject of competition among the dental colleges, said that he had no doubt that all who have the good of the profession at heart are in favor of longer terms for the college sessions. He had it in his heart to say that there are too many colleges, even though it might be charged that he was actuated by selfish motives. There are too many colleges; only because they make a competition for students which should not be found in professional schools. The moment that element is introduced, professional education is degraded. His reason for thinking that there are too many schools, is that most of them depend upon the fees received from students for the means to pay their expenses, and there is consequently an unseemly scramble for students, with the result that some of those accepted are not the proper material to make good dentists. In some of the smaller cities where colleges are located the tendency has been to give too little education, especially on the practical side. They have not the facilities, not sufficient patients for the clinical needs of the students. If he were to mark out an ideal course in dentistry, he would extend the term to seven or perhaps nine months, and require three years' study. Some schools expect to send out their students as good dentists with less than ten months actual study, but it cannot be done. He is,

therefore, thoroughly in favor of extending the time of study. By making the period of study three years, the student would be able to get one year of practical instruction in the laboratory, which is just what he needs. Then give him two years instruction in the higher branches. Those who have made for themselves a name and a reputation as dentists without the help of higher education, and whose ability is well known, may say that they had no need for these things, and that they don't care for their sons who are to succeed them to spend their time in acquiring them, but it must be remembered that conditions have changed. The demand is now for a higher grade of average attainments than was necessary a generation ago, in order to maintain a proper professional standard. He would not say that more anatomy, or more physiology, or more chemistry is needed, but he would give students a month or two more in dental histology and work in the histological laboratory than is now possible.

Dr. Marshall was not aware that he had anything new to add to what he has in other places said upon the subject of dental education. Some may not agree with him that dental students to-day need a more thorough knowledge of the fundamental sciences of medicine than they are receiving. Dr. Darby says they have enough anatomy, physiology, materia medica, etc., in the courses as now prescribed, but the speaker thinks that in most at least of the purely dental colleges the students only get a sort of a kindergarten knowledge of these subjects,—that is, merely the first principles. He believes that dental students should be examined in all the fundamental branches just as the medical men are; that in these studies they should be educated as medical men. It is not necessary for them to take obstetrics or gynecology, but they should have everything pertaining to the principles of surgery. If he could have his way he would require that all students intending to become dentists should take the medical degree first, and then begin their special training. Let them have the fundamental first before beginning their special studies. If one of you had a defect of the eye, would you go for treatment to one who only knew the anatomy of the eye? Certainly not: you would go to the best educated man you could find, who with a medical degree as a foundation had taken the special studies of the oculist. There is a tendency in the educational ranks to advance. He is sorry to see that some of the schools accept students who have not the necessary preliminary education. The best medical schools do not take that class of material. Why do we not educate our students in that way if we want to be recognized as the equals of medical men in culture? We begin at the wrong end; we put the cart before the horse by beginning our special training before we have laid a broad and deep foundation of the fundamental sciences upon which all departments of the healing

art should be built. By this system of education we cannot expect to take rank as medical men, and be competent to treat all those diseases of the mouth and adjacent parts which are the legitimate province of the dental and oral specialist. The arguments urged against medical training for dentists have no real or sensible foundation. It takes time and money to prepare for any of the learned professions, and if one would excel he must be thoroughly prepared for any emergency. Shall the dental specialist be content with a smattering of that knowledge which, if possessed in a liberal degree, would make him eminent, and the peer of any in the other professions? No! He has a better opinion of the future practitioners of dentistry than to believe that they will be willing to be hampered by such *poor preparation for their life-work as that which clogged the efforts of many of their predecessors.* He believes the time is coming, and that right soon, when the public and the profession will demand of those entering our ranks the same liberal education, the same general culture and equal professional knowledge and skill, that they expect to find in the other learned professions.

Dr. J. Branston Willmott, Toronto, had been asked to prepare a paper on the subject of education to be read here, but he had not had the time to do so. He finds himself in a peculiar position. He represents an institution which has been twice vetoed by the National Association of Dental Examiners as "disreputable." They have placed us on the same plane as Delavan. We have also been rejected by the National Association of Dental Faculties, and he did not know that the applications for membership in that association would be renewed. In the Dominion of Canada we live under what is known here as a "grinding monarchy." In conducting our school we don't do as we please, but we are obliged to do what the law says. Every student passes an examination which the teachers, because they are interested parties, have nothing to do with. They have taught the student what he knows, but they have no part in ascertaining whether he has acquired the proper amount of information. We have no competition. The whole matter of dental education in the Province of Ontario is placed in the hands of a board elected biennially. This is not a close corporation, but so long as they keep within reasonable bounds they can fix the standard just where they will. The speaker's judgment on this subject is practically incorporated in the curriculum of the Royal College of Surgeons of Ontario. We lay good stress on a preliminary examination, as we think there is no other calling where wide general information is more important than in dentistry. The ~~great~~ bulk of our students are teachers; some of them come from the colleges, but most of them have been teachers, and they have learned to control themselves in the presence of their pupils.

Time is an essential element in the education of a dentist. A student when graduated should be reasonably well qualified to enter upon practice. To become thus qualified involves the training of the mind, of the eye, of the hand, and of the judgment. Perhaps the mental training may be acquired in the usual two years devoted to the education of dentists, but the proper training of the other faculties—the eye, the hand, the judgment—necessitates a longer time. Our judgment is that three years' study of twelve months each should be demanded before graduation. We have adopted the English apprenticeship system as a further aid to the manipulative education, and we require attendance at two sessions of five months each exclusive of the time spent in apprenticeship. He is quite willing to agree that attendance at two sessions of four and one-half or five months, without other training, is not enough to educate a man to practice dentistry.

Another point to which he wished to direct attention is the importance of an independent final examination. He has on more than one occasion been struck by the small percentage of the students coming up for final examination in the American colleges who fail to pass. In the Royal College of Dental Surgeons of Ontario, the professors who teach have nothing to do as such with the examination of the students for the license of the school. The examinations are conducted by an independent body, and the teachers think they do very well if not more than fifteen or twenty per cent. of the candidates fail to pass. In fact, they usually expect nearly twenty per cent. That proportion of failures is because those who examine have no financial interest in the result of the examination. They are there simply to find out what the candidates who come before them know. If an American school with a class of say two hundred students were to "pluck" fifty, what would be the result? The next year there would be a much smaller class, but a correspondingly higher standard. He thinks that if the National Association of Dental Faculties would agree to put the examination of the students attending the colleges under independent auspices, they would do more for the raising of the standard than by any other one thing. He would admit that not much exception can be taken to the course of the better class of dental colleges, but he does think they make a great failure when they come to the final examination of their students; that under these examinations, as now conducted, the D.D.S. does not certify that the young man who receives it has reached a high standard. We are not prepared to lengthen our term beyond five months (exclusive of the examinations, which make it practically six months). If the work is carefully insisted on, in a term of five months the student will get a pretty good grasp of the subjects taught, but these of course do not

NOTES FROM PROCEEDINGS OF DENTAL SOCIETIES

include the manipulative training before referred to. Oral surgery, as will be seen by reference to the curriculum, has been transferred to the medical course.

One word more about the "disreputable" stigma before referred to. The Royal College is governed in its actions by what the law says. When the members of the Association of Faculties shut down on the application of this college they virtually stamped it as disreputable in their eyes. He wanted to say that the College has formed a union with the Toronto University, and no degree will be conferred until the candidate has spent three full years in the study of dentistry. They hope to be able to relieve somewhat the pressure on the Philadelphia schools. They would be delighted if the colleges on this side of the line would raise the standard of their preliminary examinations. About a score of Canadians have expatriated themselves for the winter because they couldn't pass the matriculate examination of the Royal College of Dental Surgeons. They don't object to the three years' course, if they could only get started.

Dr. W. H. Dwinelle, New York, thought that thirty odd years ago, in a valedictory address at the old college in Baltimore, he had placed his idea of the standard of dental education above anyone else he knew of. He held then that as the office and privilege of the dentist was to deal with suffering humanity and bring it up to its primal condition, there was no device, no principle, no knowledge, that could be made tributary to that end which should be neglected. There has been a tendency on the part of some of the projectors of dental education to diminish rather than increase the standard. Dentists should be accomplished in all branches of knowledge. This has perhaps not been possible in the past, but we should in the future raise the standard as high as possible. He indorsed Dr. Marshall's idea. Such a course may not be practicable now, but the future is before us and it may yet be accomplished.

Dr. Barrett thought that he need not remind his hearers that the standard of dental education needs raising. In Europe the D.D.S. has fallen into disrepute, so that he is glad to see a disposition to raise the standard to what it should be. It has been too low in the past, and the colleges have had the reputation of granting the degree all too easily. There are men wearing the degree of D.D.S. who can scarcely read or write. Of course, the granting of the degree to such men is not done to-day. Time was when the practice of dentistry was a reproach to a man, but the dentists of that day were not, as a rule, men of education and refinement. To-day the men in dentistry have some scientific knowledge, and the growth is going on. The time is coming when to be a dentist will be to be known as a man of science all over. The schools are helping in this work, and he

hopes to see the time when students will not be received unless they have sufficient education for the full comprehension of all the laws of science; when the competition of the schools will be for the best and most thorough system of instruction, when they will each strive to see which can give the most for the money. He thinks all present have been broadened and enlightened by the discussion, and he moved a vote of thanks to those who have spoken.

(To be continued.)

Notices of Society Meetings.

EASTERN ONTARIO DENTAL SOCIETY.—The Tenth Annual Meeting will be held in Cornwall on Tuesday and Wednesday, the 18th and 19th of June next.

All communications in reference to the above should be addressed to W. Brace, L.D.S., Secretary, Brockville.

MASSACHUSETTS DENTAL SOCIETY.—The semi-annual meeting will be held at the Institute of Technology, Boston, June 5, 6, and 7. From the preliminary programme issued by the Executive Committee, of which Dr. H. C. Meriam is chairman, and Dr. E. O. Kinsman is secretary, (15 Brattle Sq. Cambridge, Mass.) there is every certainty of an instructive gathering. Boston has not yet set up its claim to be the hub of the dental universe, but everybody who knows anything of our Massachusetts confrères, knows that whatever they undertake to do in this direction they are sure to do well. The full programme of the meeting will be ready in May. Do not stay at home if you can go.

Selections.

Anæsthetics in Dental Practice.

In *The Journal* of March 2 we noticed editorially a case of death from chloroform in a dentist's chair. Dr. J. C. Reeve, of Dayton, Ohio, has kindly sent us the October, 1888, number of the *Dental Register*, containing an article on "Anæsthetics in Dental Practice" from his pen, which, on the subject of anæsthetics, is one of the ablest in the profession. Dr. Reeve says:—"There is no professional duty I perform so unwillingly as that of administering an anæsthetic for dental purposes, no fee that I consider so hardy earned as that which I receive for this service. At the same time I am frequently giving anæsthetics for general surgical purposes without hesitation and without undue anxiety." Again he says:

ANÆSTHETICS IN DENTAL PRACTICE

“Are anæsthetics more dangerous in dental practice than in general surgery? The answer must be unqualifiedly in the affirmative. Without attempting to collect statistics take only those of the Royal Medico-Chirurgical Society and those of Sansom. The one gives 8 cases of death under tooth-drawing out of 100 of all operations, and the other 12 out of 107. Here then is nearly 10 per cent. of all the deaths occurring in dental operations. But this statement alone gives no just idea of the relative mortality. This could only be accurately ascertained if the total number of administrations in all surgical operations was known. Certainly anæsthetics are administered for general surgical purposes hundreds of times for once in dental practice, and if so, then the relative number of deaths under tooth-drawing is enormously large. The causes of the high rate of mortality during this particular operation are not far to seek. I do not believe that the entrance of blood into the air-passage is very important. Several deaths, however, have been caused by an extracted tooth falling into the larynx, without doubt due to the position of the patient. Anæsthetics should never be administered unless the patient be recumbent. This is not, however, in my opinion, a very potent factor, and was fully considered in the paper. Another is the particular nerve involved in the dental operation, the acute pain caused by injuries to it, and the powerful effect of sudden impressions upon its branches upon the great and vital processes of respiration and circulation. By sudden impressions upon this nerve more than any other, is that inhibition of the heart's action brought about which is sudden death. Far more important than all, however, is the fact that the induction of anæsthesia for tooth-drawing is likely to be incomplete, and will pretty certainly be so if the operator is also the administrator. Now it is a positive doctrine of the highest and latest authorities that such reflex actions as above given are increased under chloroform, that a state of partial anæsthesia is therefore one of especial danger, and especially so if the pain produced is at once sudden and sharp. It is gratifying, therefore, to see that this source of danger is fully recognized by the author of the paper, although it is not emphasized as it deserves to be. There is no more seductive procedure than to give a few whiffs of chloroform for the extraction of a tooth; there is no more dangerous practice. If an anæsthetic is given at all, it should be given until the patient is ‘off.’ There is no plainer doctrine than this connected with the subject.”

Dr. Reeve wholly dissents from the doctrine that a full dose of whiskey before the administration of the anæsthetic secures safety. There are on record many cases of death from chloroform in which an alcoholic stimulant was given just before the fatal inhalation. In regard to bromide of

ethyl, Dr. Reeve thinks it is a dangerous agent, on account of its bad record, and its marked perturbative action on the heart. He does not know of such objections to the use of nitrous oxide as will justify dentists in resorting to stronger anaesthetics. The objections adduced, he says, "seem but trivial when the tremendous responsibility is considered which the dentist takes upon himself when he proceeds to administer chloroform or ether, when the awful calamity of a sudden death from these agents comes to mind."

It may be said, finally, that when a dentist administers chloroform for the purpose of pulling a tooth, he incurs a responsibility that he has no right to incur. *Journal of the American Medical Association, Chicago.*

A CASE OF DENTAL FISTULA OPENING ON THE MAMMARY GLAND.—The following case, reported by Dr. Nicolai, of Stuttgart, Germany, in the *Deutsche Monatsschrift für Zahnheilkunde* for December, 1888, illustrates forcibly the importance attaching to the necessity of placing the mouth at all hazards in a perfectly physiological condition.

Dr. Nicolai says: A lady, 32 years of age, who has not had her teeth examined for four years, presented herself to me to have her teeth placed in good condition. This necessitated cleaning the teeth, the removal of salivary calculus, and the introduction of eleven gold, six amalgam and two cement fillings.

On the completion of these operations, the mouth was in a normal healthy condition, with the exception of the lower left first molar, of which nothing but the roots were left; these were broken, and underneath the margin of the gum. They were filled with the ichorous products of decomposition, and their margins were overhung with the inflamed, tumefied gum. This condition of affairs has prevented the lady from masticating her food on this side for some time, and as a natural result the right side alone was used. After having performed all the necessary operations in her mouth, I endeavoured, by naming all the disadvantages arising from the presence of the roots, to convince her of the necessity of removing them. I told her that the left side of her mouth was completely useless, that these roots have caused diseases of the two adjoining teeth of the same jaw, and of the articulating tooth of the upper jaw; that a tendency to the recurrence of caries still existed, that inflammation of the gums would always exist and that the breath will be always tainted. All these efforts were futile and were met with the single statement that, while the roots were not painful, she would not submit to their removal. To diminish the jeopardy of my work to the minimum, I concluded to place the roots in as good a condition as I could and, if possible, make them serviceable

for mastication on that side of her mouth. Removing the tumefied, spongy gums, and all products of decomposition, and by means of the bur the ichorous contents of the roots, I adopted the most radical means of disinfection known to science, capped the roots with red gutta-percha, and dismissed the patient, satisfied in my belief of having aided her to the best of my ability.

The following day the patient's husband came to my office, hastily requesting a few moments' interview. "What have you put in the lower tooth of my wife? Was it iodoform, carbolic acid, creosote, or some such substance having a marked odor?" On being answered in the affirmative, he merely thanked me, stating that the family physician would call on me. In astonishment I waited the latter's call, who stated to me that the lady had had a slight discharge of pus for the last eight months, at a location about 1 cm. above the left nipple of the breast. There was no apparent disease of the breast. At first cold poultices were applied, these were succeeded by warm ones; later, a probe was introduced following the channel upward, and this was followed by the injection of astringent remedies, and finally by cauterization of the wound. The discharge, however, continues. To-day the patient claims that she discovers the odor of the medicines used in her tooth yesterday, in the discharge from the breast. He wished to know whether it was possible that the lady is in error, or whether it is possible that there is some connection between the breast wound and the roots.

I have had a case of pus inundation where the discharge took place in the neighbourhood of the shoulder. Many cases have been reported in our literature, among others by Carabelli, but no case of infiltration to the mammary gland. The connection, if any exists, can be ascertained with certainty. If it is true that the medicaments used have passed from the roots into the wound on the breast, a harmless colouring would also do so. A cochineal solution was injected into the root-canals, and the following day the discharge from the breast was coloured, thus positively establishing the connection. I concluded to extract the roots and thus, by removing the primary cause, cure the ailment. The examination made after the extraction of the roots proved that the pus had passed through the basilar portion of the lower maxilla, followed the border of the sternocleido-mastoid muscle, perforating the strong fascia of the platysma myoides, it followed the pectoral muscle and infiltrated the tissues of the mammary gland, discharging into the external world according to the laws of gravitation. Phenol water and boracic acid were afterward used. In about twelve days the wound on the breast was healed.—*The Dental Review*, February, 1889.

Our Canadian College.

The annual examinations of the College were held in the Medical Council Hall, Toronto, on the 5th of March. The following examiners were present:—Dr. C. S. Chittenden, Hamilton; Dr. J. B. Willmott, Toronto; Dr. Rowe, Cobourg; Dr. R. M. Fisher, Warton; Dr. C. A. Martin, Ottawa; Dr. G. C. Davis, London, and Dr. J. G. Roberts, Brampton. We warmly welcome the following gentlemen, who obtained the title of Licentiate of Dental Surgery, with the right to practice dentistry in Ontario:—A. Hugh Hipple, St. Catharines; J. W. Oakley, Toronto; R. G. McLaughlin, Brampton; Charles Ferguson, London; Charles S. McLean, Brockville; J. J. Kerr, Campbellford; G. P. Matthewman, Ottawa; A. F. Webster, D.D.S., Toronto; J. H. Swann, Toronto; Ed. Eidt, Berlin; J. T. Ireland, Seaforth; H. P. Martin, Toronto; N. W. Cleary, Renfrew; Andrew Rose, Picton; E. Cunningham, Collingwood; A. J. Smith, Prescott; C. A. Risk, Aberfeddy, and George McDonald, Arnprior. J. B. W. Topp, Bracebridge, will take some subjects again in June. Thomas Bruce, Toronto, who was ill in the hospital, will also be examined in June. Faculty gold medalist, A. Hugh Hipple; College gold medal for practical work, A. F. Webster, D.D.S.; College silver medal for practical work, C. A. Risk. Honor men: A. Hugh Hipple, R. G. McLaughlin, J. W. Oakley, and Charles S. McLean. The following juniors passed the intermediate examination:—Mark Binkley, G. F. Wright, Sylvester Moyer, S. A. Aykroyd, Thos. Butler, Benjamin Gallop, G. P. Allen, W. H. Steele, J. J. Wisser, M. G. McElhinney, M. Cavanagh, C. M. French, James Leatherdale, J. A. Armstrong, Oliver Martin, A. T. Pearson, Wm. R. Hamilton, A. J. Edwards, J. F. Simpson, J. F. Chittenden, A. E. Sangster, G. F. Belden, J. L. Young, Ira Bower, M. W. Sparrow. S. Burns will take a supplemental in October in Surgery; H. E. Harris and A. A. Shaw in operative dentistry; H. E. Harris, W. W. McPhee, and G. W. Lloyd in physiology.

The following are the examination papers. They will show our readers that "the boys" had to know something:—

MECHANICAL DENTISTRY.

1889. Time—Two hours.

C. A. Martin.

PRIMARY CLASS.

- 1—Describe indications necessitating the extraction of teeth, the principal dangers connected therewith, and how to guard against them.
- 2—Give component parts of Black, Red, and Pink Vulcanite.
- 3—In repairing plates how best secure adhesion of new to old vulcanite?
- 4—Describe process of constructing dies and counter dies for swedging plates; name the metals that are best for the purpose.
- 5—How prevent ebullition of metal after pouring?
- 6—How is Plaster of Paris prepared; how increase its hardness and hasten its crystallization?

OUR CANADIAN COLLEGE

FINAL CLASS.

- 1—How soon after extracting a number of teeth would you consider the mouth in fit condition to bear a plate? Give particulars of condition.
- 2—What roots should be retained where a plate is to be inserted? When and why retained?
- 3 Describe preparation of roots and shape of exposed parts where artificial teeth are to rest.
- 4—To retain a Gold Plate with one or two Superior Incisors, should narrow or broad clasp be used? What teeth should they be clasped to? What form of clasps are injurious, and how?
- 5—How prevent blowing or sponginess in thick parts of Vulcanite Plates? What can be added to prevent such results?
- 6—Describe process of preparing Root, constructing and inserting. What in your opinion is the best Pivot Tooth.
- 7 How best secure Gold Crowns to Molar and Bicuspid roots? How obtain proper articulation.

DENTAL MATERIA MEDICA AND THERAPEUTICS.

1889. Time—Two hours

Dr. Roberts.

PRIMARY CLASS.

- 1—Define the following terms as used in Pharmacy.—Essences, Infusions, Extracts Alkaloids, Tinctures, Distillation, Decantation, Delequescent, Clarification, Filtration.
- 2—Classify the following remedies.—Iodine, Opium, Aconite, Creasote, Ol. Caryophylli, Hydrarg. Bichlor., Arsenious Acid, Nitrous Oxide, Tannic Acid, Zinc Chloride.
- 3 State the Therapeutical action of the following.—Diaphoretics, Rubefacients, Sialogogues, Anaesthetics, Disinfectants, Cathartics, Escharotics, Sedatives, Antacids, Epispastics.
- 4 Name two drugs in each of the following classes.—Astringents, Arterial Stimulants, Tonics, Haemastatics, Alteratives.
- 5—To what measures are the following approximately equivalent.—Gill, Teaspoon, Dessertspoon, Tablespoon, Wine Glass, Teacup?

FINAL CLASS.

- 1—What is the difference in action locally between—(1) Aconite and Iodine, (2) Nitrate of Silver and Caustic Potash?
- 2—What are the antidotes for the following drugs and how should they be administered:—Arsenic, Aconite, Carbolic Acid, Opium?
- 3—Name four drugs in each of the following classes used in Dental practice:—(1) Antiseptics, (2) Topical Sedatives, (3) Deodorizers, (3) Topical Stimulants, (5) Haemastatics
- 4—Give the Source, Preparation, Physical properties, Therapeutical action and Use in Dental practice of the following.—As₂ O₃—Creasote, Tannic Acid, Arnica, Opium.
- 5—Write prescriptions for.—(1) Dentifrice for ordinary use, (2) Stimulating Astringent Mouth Wash, 4 oz mixture, (3) A 4 oz. mixture of Tartrate Potassa, Iron (Mur) and Elixir Cinchona, of which a tablespoon shall contain 5 grains Potassa, 5 Iron, and 2 drachms Elixir of Cinchona, (4) A half-drachm solution of Morphia to be administered hypodermically in 2 minim doses.

SURGERY.

1889. Time—Two hours.

Dr. R. M. Fisher.

PRIMARY CLASS.

- 1—What would complicate dislocation of inferior Maxilla rendering reduction difficult?
- 2—Treat a deep incised wound with division of artery, nerve, and tendon.
- 3—Describe briefly the process of inflammation in the soft tissues.
- 4—Why do not all wounds heal by first intention?
- 5—Describe healing by Granulation.

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FINAL CLASS.

- 1—(a) Enumerate the different varieties of tumors affecting the upper jaw, (b) State in general terms their treatment.
- 2—What, in your opinion, is the most effective means of arresting hemorrhage following the extraction of a tooth?
- 3—How would you proceed to examine a patient as to his fitness to have an anæsthetic administered?
- 4—(a) What is the cause of the extreme pain in Ostitis? (b) How most effectively relieved?
- 5—How would you treat a case of Chronic Fistula opening on the cheek as the result of Alveolar Abscess, the object being to prevent contraction and depression of the Cicatrix?
- 6—Treat a case of Acute Periosteal Inflammation with threatened abscess, the roots of the tooth exciting the inflammation being filled.

CHEMISTRY.

1889. Time—Two hours.

Dr. Chittenden

PRIMARY CLASS.

- 1—Give the colors of a ray of light as shown by its prism.
- 2—What do you understand by its terminations *ide*, *ite*, *ous* and *ic*?
- 3—What is meant by the following terms, viz.:—Sublimation, Analysis, Affinity, Synthesis, Crystalization and Evaporation?
- 4—Give the symbols and quantitative of gold, iron, platinum, silver, sodium, and copper.
- 5—Give the symbols and combining weights of mercury, lead, iodine, copper, arsenic and calcium.

FINAL CLASS.

- 1—Give the formula and method of preparing Hydrogen Dioxide.
- 2—Describe a method of detecting arsenic in a solution
- 3—Describe *the* process of obtaining silver from a solution.
- 4—Describe a method of obtaining gold from a solution of its chloride.
- 5—What is Galvanism, and how does it differ from Electricity?
- 6—How is humid Ferric Oxide prepared?

PHYSIOLOGY.

1889. Time—Two hours.

Dr. Rowe.

PRIMARY CLASS.

- 1—In the process of respiration how and where is Carbonic Oxide produced, and how and where is it exchanged for Oxygen?
- 2—What effect has size on the rapidity of Animal respiration and the reasons therefor?
- 3—Explain the necessary digestive processes through which a diet of Bread, Fat, Muscle and Cartilage pass to be entirely disposed of?
- 4—What is Fibrin, its supposed origin, and the reasons for such supposition?
- 5—What conditions affect the coagulation of the blood?

FINAL CLASS.

- 1—What are the functions of Cartilage, giving examples of each variety?
- 2—(a) How is animal heat produced and maintained? (b) In what tissues is the heat process most active? (c) How is the temperature of the body regulated?
- 3—(a) What is the composition of Human Lymph? (b) Whence is it derived? (c) How does it get into the Lymphatic vessels? (d) On what do changes in its composition depend?
- 4—(a) What is the function of a nerve fibre? (b) What effects are produced by irritating a centripetal nerve? (c) What functions are performed when a stimulus is applied to a centrifugal nerve? (d) On what does the effect of the stimulus of a nerve depend?

OUR CANADIAN COLLEGE

ANATOMY.

1889. Time—Two hours.

Dr. G. C. Davis.

PRIMARY CLASS

- 1—Describe the External Surface of the Occipital Bone.
- 2—Describe the Internal Surface of the Ramus of the Jaw.
- 3—Give origin and insertion of the Buccinator Muscle.
- 4—Give origin and insertion of the Occipito-frontalis.
- 5—Name bones articulating with Superior Maxillary
- 6—Name muscles attached to the Palate Bones.

FINAL CLASS

- 1—Describe the External Surface of the Superior Maxillary Bone.
- 2—Name the muscles of Mastication, and give origin and insertion of External Pterygoid and Masseter
- 3—Name the branches of the Inferior Maxillary division of the 5th Nerve, and describe the Inferior Dental
- 4—Describe the Antrum of Highmore.
- 5—Name the openings into the Pharynx.
- 6—Name the branches of the Spheno-Maxillary, or third portion of the Internal Maxillary Artery, and describe the Alveolar.
- 7—Describe the Otic Ganglion.

OPERATIVE DENTISTRY.

1889. Time—Two hours.

Dr. Willmott.

PRIMARY CLASS.

- 1—Why do some teeth decay, while others in the same mouth are free from Caries during life?
- 2—Define an "Original Predisposing Cause of Dental Caries." Name three.
- 3—Define an "Exciting Cause of Dental Caries."
- 4—Present the "Bacterial Theory" of the origin and development of Dental Caries.
- 5—Name and give the general composition of the "Zinc Series" of filling materials.
- 6—Name the metals essential to a Dental Amalgam. Give the one exception.
- 7—Give the method of preparing an alloy, for Dental Amalgam, containing Ag. Sn. Au. Pt. and Cu. In what proportions would you mix them?
- 8—What properties are aimed at in the preparation of Gutta Percha as a filling material.

FINAL CLASS.

- 1—Give differential diagnosis of Periostitis and Pulpitis.
- 2—What symptoms indicate death and putrescence of a portion of a pulp under a tight filling? How do you account for these symptoms? How would you give immediate relief?
- 3—Diagnose Pyorrhœa Alveolaris. Describe treatment.
- 4—What is the serious defect of Amalgam as a filling material? In the best class of alloys how may this defect be successfully combatted in preparing and inserting the filling?
- 5—Name the essential qualities of a matrix for use in filling proximate cavities. What failure is liable to occur in their use?
- 6—Discuss the relative advantages and disadvantages as materials for preserving Carious teeth, of Gold, Amalgams, Tin and Zinc Phosphate.
- 7—Distinguish between Salivary Calculus and Serumal deposits.
- 8—Name conditions upon which you would base a favorable prognosis for the operation of "Capping."

[The publishers wish to apologize to the students of our College, since they find through a mistake in mailing list, that they were omitted in first issue of the Journal.—ED.]

Obituary.

McNAIRN.—Died, in Milleroches, Ont., December 2nd, 1888, of pulmonary phthisis, Chas. A. McNairn, L.D.S., in the thirty-second year of his age. Dr. McNairn began the study of Dentistry with Dr. W. H. Wright, of Brandon, Vt., in 1877, remaining with him one year, when, being desirous of practicing his profession in Canada, he went into the office of Dr. Chittenden, of Hamilton, Ont., graduating in 1882 before the Board of the Royal College of Dental Surgeons of Ontario. Health failing him, it is said, from too close application to his work, he was obliged to go to Denver, Colorado. But the seeds of disease were too surely sown, and returning to his father's home at Milleroches, he lingered for four years. A large concourse of friends, among whom were many of his professional brethren followed his remains to the grave. He was an active member of the Eastern Ontario Dental Association.

WE publish the names of the following dentists, in addition to those given in the last number of this Journal, as having died since the organization of the profession in 1868 :—A. Bernard, J. H. Webster, Ed. Lefavre, Webb, Turcotte, Baldwin, Page, H. May, Schuyler, A. Wright, J. N. Samuels, A. D. Nutter, Locat, Pourtier, Jr., McKee, Jr., H. M. Bowker, all of Quebec Province.

Death of Mr. H. M. Bowker.

Since our last issue one of the oldest, if not the oldest practitioner in Canada, has passed away. Mr. Bowker was one of the pioneers of Canadian dentistry. In his early life he began practice in the vicinity of Kingston, moving from one place to another as was then the custom; but eventually he settled in Montreal, and secured a distinguished practice among the *elite* of the city and the garrison. He was a conscientious as well as a skilful operator, according to the light of the olden days. He will be remembered in connection with the amalgam controversy in Montreal, when some hot words were exchanged between him and the editor of the "*Canada Journal of Dental Science*," in connection with his attempt to fasten a stigma upon the Associations of Ontario and Quebec, in the use by its members of a material which he denounced as injurious. At the time several of his older contemporaries accused him of using the amalgam he denounced, and the editor, basing his statements upon the readiness of these parties to give proof, took sides against Mr. Bowker. The contest resulted in proving Mr. Bowker's veracity. Some years ago hands were shaken over the past and friendships made, which remained until the death of our friend and confrère. Whatever may have been thought of his

unwillingness to fall into line with the legislative efforts of 1869, the name of Mr. Bowker will be remembered as that of an honest, independent and intelligent gentleman, who, like all of us, had his faults, but none so glaring that charity might not cover.

Editorial.

After Twenty Years.

It has taken just twenty years to get efficient legislation in Quebec, which Ontario got in one year. Last month the Act to re-enact and amend the law passed, after being rejected by the Private Bills Committee as well as by the Lower House. Some day the history of this battle will be written, when it will form a suggestive contribution to the literature of dental legislation in Canada, as well as to the peculiarities of legislation in Quebec. The changes in the law are as follows: Various legal forms of procedure; a compulsory tax of \$2 on every member, which can be collected before a civil court. The matriculation examination is reduced to the examination in English, French, Latin, History, Geography, Arithmetic and Geometry prescribed by any medical college in Quebec Province for admission to study, to be passed before the examiner of the college then in office any time within thirty days of the completion of the four years' studentship. Various forms of procedure in complaints before the Board for breaches of discipline, in which the Board is constituted a judicial body, with power to try and punish; absolute prohibition is enacted to dentists without license practicing under patronage or in the office of a physician; perambulating quacks are prohibited in any street, hall or hotel, selling, or giving away medicines, and then practicing any branch of dentistry. The procedure is summary; one witness is sufficient; the fine extends from \$50 to \$200, and is to be paid to the treasurer of the association. The Quebec association is to be congratulated on possessing perhaps the most efficient Dental Bill in existence. The chief credit is due to the advocate of the Board, Mr. Arthur P. Globensky of Montreal, whose skill in framing the Act is acknowledged by a profession who know how to appreciate effective laws. Dr. Globensky, a member of the Board, proved a most expert lobbyist, and the profession owe him a debt of gratitude.

Practical Hints.

Not long ago we spent an hour in the office and laboratory of one of our Eastern Ontario dentists. Occasionally we have enjoyed an idling (?) out of town watching others in the shackles of work. The amount of practical

information one picks up when visiting his confrères in this way is frequently invaluable. Almost every one seems to have a professional fad of his own ; some revolutionize everything they buy from the depots, and make ingenious alterations enough to fill a Patent office. Many of our members have conceived and brought forth inventions of rare value, to such an extent, that the Patent office of every country has scores of modelled testimonies to dental ingenuity. The office and laboratory which specially struck us is a model in its way. Not one notion and improvement but dozens in every direction.

Now why is it, that with all this wealth of ideas among our Canadian practitioners, it seems so hard to induce them to put them in print ? When you visit them, they welcome you and show you everything ; but they are shy of writing. And most of them can write well ; but they wait for some divine *afflatus*, when a half-hour at any time of leisure would do to give our readers many a feast of mechanism and flow of ideas.

Exchange of Practices.

Men who honestly work body and brain as busy dentists do, have good excuse to steal away for a frequent rest, even at the risk of earning a reputation as truants. There is no profession, and few trades, so injurious to health in the long run as an active operative practice. That is a settled statistical fact. If one has opportunity to contrast the tired, worn faces in a dental convention, with those of a medical assembly, a trade or commercial meeting, the force of this statement is apparent. The sun which shines on the face of the physician, driving on his round of visits, shines, if it shines at all, on the dentist's back, while he stands at his chair. The few hours of daylight are the only hours he can work to advantage. He must "make hay while the sun shines." He must utilize day-light for all it is worth. The question of his health is the vital one of his pocket. He cannot delegate his labour to an assistant ; when he stops work, revenue stops, but expenses run on. Many a poor fellow metaphorically digs his own grave by compulsory devotion to his daily work ; but the most of men could indulge in a rest if they would. At best, however, the dentist in Canada cannot afford to idle months away unless he leaves a substitute in his office ; and one of our difficulties, especially under the Ontario law, is to get a substitute. What a capital idea it would be if we could exchange practices as the clergy exchange pulpits. Imagine Dr. Molar, of Toronto, asking Dr. Incisor, of Halifax or Victoria, to let him enjoy the salt air of the Atlantic or Pacific in exchange for the fresh water of Lake Ontario. How mutually delightful it would be, if it could be made financially agree-

able, for Dr. Cuspid to have Dr. Bicuspid spend a month or two of the summer in his lively city office, while he got the quiet life of a country practice ; both carrying their *Lares and Penates* with them. There is no reason why qualified men could not frequently make arrangements of this kind without prejudice to their self-interest, and even with pecuniary profit, in their own provinces ; but it is a matter of regret that our Provincial laws are not harmonious. A Canadian licentiate ought to be able to practice anywhere he chooses in this wide Dominion : not only should Gaspé be able to " exchange practices " with Sarnia, but Halifax with Victoria.

Arsenious Acid.

Some say they avoid it altogether. I have to confess I do not : but, like all poisons, it ought to be used as a last resort. My experience among students is that there is a loose teaching as to its use. Boys who will not have a license for several years, are given too much liberty to extract teeth, scale salivary calculus, and destroy pulps at their own discretion, and the consequence is that a great deal of mischief is done, for which tutors ought to be responsible.

When you intend to use arsenic, have your hot-water syringe filled, or hot-air syringe ready ; have a pellet of cotton on an excavator dipped in pure carbolic acid ; have your lamp beside you. Apply the rubber dam whenever possible. Remove the softened dentine at one or two quick scoops of a spoon excavator, immediately afterwards warming the carbolic acid pellet in the lamp, and putting it in the cavity, pumping in warm air. The pain instantly ceases. Every young operator ought to remember that unless the layer of dentine over the pulp is removed—and which layer is like the rind of cheese—the pulp becomes compressed when it inflames during the destructive process. The pulp does not die by strangulation of the blood-vessels at the root-canal entrance ; nor does it die by the entrance of the poison into the circulation. These facts are proved by the length of time needed to destroy a pulp, and from the fact that death is a progressive, not an immediate process, beginning, first at the point of exposure. The pulp dies by the effusion of blood in its blood-vessels, or, in other words, by thrombosis, and the pain is less severe and sometimes absent, if a thorough exposure is made before applying the arsenic. When you do not use the rubber dam, it alleviates the pain to syringe the debris with tepid water. If the pulp can be made to bleed a little, it will also prevent future pain. Apply carbolic acid to staunch the bleeding.

A careless way of applying arsenic to the pulp, especially if in an approximal cavity or a cavity under the gums, is one that is recommended in

the last work on Operative Dentistry. It is a method which has caused frequent gangrene of the gums, and even necrosis of the alveolar process, because the arsenic generally oozes out of the cavity or touches the gums when being inserted. I refer to the use of a pellet of cotton on a small excavator, saturating the cotton with carbolic acid, then touching it to the arsenious acid, using what adheres to one side of the pellet. The authorities say one-fiftieth of a grain is enough. Now, just for curiosity, weigh one-fiftieth of a grain, and you will be surprised to find what an unnecessary large amount you have been using as a rule. Another mistake, I think, is using morphine or tannic acid in combination. It is the arsenic which devitalizes, and anything combined renders it either inert or prolongs its work. My belief is that it will act quicker if pure, and the quicker it acts the sooner it can be removed; the less chance there is, too, of discoloration of the tooth, because the sooner the dead pulp is removed and the pulp-cavity and roots treated, a healthy condition is ensured.

My method of applying arsenic in all cavities is simple and safe. I double narrow strips of thin paper: cut out diamond-shaped openings as big as a pin-head; open the paper, and cut it into as many small squares as there are holes. I now place the pure arsenious acid, made to the consistency of thick cream—country, not city cream—over the little opening; having another little bit of paper without an opening as a cover, and a pellet of gum sandrac ready. I dry the cavity; apply a mouth-napkin, or the rubber dam, touch the pulp with carbolic acid, drying afterwards lightly, pick up the paper with the arsenic, apply the opening immediately over the exposure, press the arsenic gently through the opening put in the paper cover, then insert the gum sandrac. Here is a neat, clean method, which can be used as nicely in approximal as in crown cavities, without danger of messing the margins of the gums. When a cavity extends below the gums, and the latter projects above the edge of the roots, I apply the rubber dam; or, at least, take extra precautions against moisture, and I am sure that neither moisture gets in nor arsenic gets out.

One idea that should have been exploded long ago, is that no injury ensues from leaving the arsenic in the cavity sealed up for a week. It is pretended that because the tooth proper is destitute of absorbents, and because the dose is not as great as any patient could swallow in a day, and because much larger quantities are used externally to destroy malignant growths, and because it is a powerful antiseptic and prevents decomposition of animal substances, it is safe to leave it alone. I maintain that it would be safer under any other condition; but just because of the structure of the dentine not possessing blood-vessels, and not having the power of soft tissue to absorb and eliminate poison readily and rapidly, the pulp imprisoned in unyielding walls, cannot bear what, for instance the stomach, could.

The result, not unfrequently, is pericementitis and pathological changes in the tubuli, which produce infiltration of the coloring matters of blood, and more discoloration than would occur if the arsenic was removed in twenty-four hours. It is hard to discover any scientific operator prepared to defend to-day, the uselessness of removing the pulp after devitalization. I feel quite sure that it will be as difficult some day, with fuller knowledge than we now possess, to defend the use of arsenic, and even the destruction of many pulps we feel justified in now thus treating; but in the meantime, it is important to use our dangerous remedies with judgment and precaution, and leave no dead excuse behind, in the shape of putrid matter, for future trouble.

I began this article by saying that arsenic ought to be used as a last resort. In cases where a tooth has been fractured, leaving the pulp exposed, and it is necessary to devitalize: in cases where a crown has to be inserted, and in fact in all cases where the operation is possible, the most speedy and painless way, is to administer nitrous-oxide gas, and remove it surgically, by quickly enlarging the pulp-cavity with a sharp bur on the engine, and using the barbed broach. I have repeatedly done this ever since nitrous-oxide was first introduced, and I know many others use it. Some writers constantly deplore the necessity for the destruction of the pulp, while others have gone to the other extreme, and declare that its absence is better than its company; but until the public are educated to the point of believing that they can avoid its exposure by timely examination, death will enter its little chamber as well as parts that are less hidden.

“GIVE THE DEVIL HIS DUE.”—Typographical errors are always made by “the printer’s devil.” Not the traditional one; but a genuine imp, who hates letter-press and loves disorder. There is a fiendish ingenuity in the way which verbs are made to jostle adjectives; commas to pop into the best places to make false syntax and confusion, and drop out of places where they are especially needed, so that a writer would be ready to take his oath that he never sent the printer the copy. The cloven foot of our printer’s assistant demon has kicked up a such row in our first issue, that we must beg our readers to paste the enclosed “errata” opposite page 42. Were it not that the very Bible has seldom, if ever, escaped the Beelzebub of the printer, authors would despair. What more exasperating, for instance, than the following slips in Dr. Mills’ notes on the case of Reflex Nausea:—Page 9, paragraph 1st, “contraction” for “condition,” and the “*tetanus* vomiting centre” instead of the “central vomiting centre.” As the doctor remarked, “it is enough to make Physiology epileptic.”

Along with this number of the Journal we send “Errata” to our first number, which you will kindly paste opposite page 42.

Correspondence.

QUERIES.—I. Does a graduate in Arts or Medicine get his term of pupilage shortened on account of such graduation?

II. Why do graduates of our Toronto School of Dentistry go to the other side and take a finishing (?) course in some of their colleges?

III. Does length of service confer upon graduates of the R. C. of D. S. the title of "Doctor"? or, is public opinion or appreciation in advance of dental legislation?

QUIZ.

ANSWERS.—No. 1. Yes. A graduate in Arts or Medicine of any Canadian University is exempted by the Royal College of Dental Surgeons of Ontario for one year of his pupilage, making the term for him two years. See announcement 1888-9, pp. 19.

No. 2. Mainly to obtain a diploma conferring the title of "Doctor." The degree of D.D.S. can now be obtained from the University of Toronto.

No. 3. No: certainly not, and a nice sense of the proprieties should prevent those not legally entitled to the title of "Dr." from either assuming it or encouraging others in applying it to them.

J. B. W.

The editor has to thank a great many correspondents for kind encouragement; and accepts the general advice not to push the idea of a Dominion Dental Society until next winter, or, perhaps spring. The proposition seems to meet with great acceptance. We must urge our friends to jot down practical hints, and send them in any shape, rather than not send them.

Notices.

TRANSACTIONS OF THE BRITISH DENTAL ASSOCIATION.—8th annual meeting held in Dublin, August, 1888. A complete volume of 151 pages, containing the full proceedings as published in the Journal of the Association.

L'ENSEIGNEMENT ET L'ORGANISATION de L'Art Dentaire, aux Etats Unis. Par La Dr. Kuhn, Paris. We have to thank the author for a copy of this bulky and valuable report addressed to the Minister of Public Instruction. Dr. Kuhn attended the Medical Congress at Washington, and studied the organization of the profession in the United States, with a view to the presentation of this report. The author might have found some profit as well as amusement, had he paid a visit to old Quebec, and studied how our Provincial Legislature can make a law one hour, and unmake it the next. He would have heard some extraordinary arguments that would have made his hair stand on end.

REVIEWS

Reviews.

A TEXT-BOOK OF OPERATIVE DENTISTRY.—By Thos. Fillebrown, M.D., D.M.D., Professor of Operative Dentistry in the Dental School of Harvard University. Written by invitation of the National Association of Dental Faculties. 330 illustrations, \$2.50. Philadelphia, P. Blakiston, Son & Co., C. Ashford, Dorchester st., Montreal.

Any one familiar with the author would expect from his pen a production of value on the subject of operative dentistry, but we candidly confess to a sense of disappointment, in spite of the fact that the work is heralded as the result of an invitation by the National Association of Dental Faculties. The book will be useful to students who expect merely an outline of operating. For a work that is evidently intended to be a college text-book, the treatment of operative dentistry proper is altogether inadequate, and in the discussion of such subjects as "opening cavities," "formation of cavities," the uses of gold, etc., the matter is much too elementary. Evidently the author has labored under a dread of amplification. As an epitome, concise and to the point, the book is a success, but it must remain chiefly of use to beginners. In fact, the author frankly avows as much in his preface, but we feel that he merits a good-natured scolding for hiding so much of his light under a bushel. A new edition will no doubt be demanded; when we hope that any attempt at making our muddled nomenclature worse will be avoided, and that the modern trick of advertising manufacturers by filling a text-book with pages of their catalogue illustrations will be removed. A large part of the book is made up from articles in the "Cosmos" and the "American System of Dentistry." The author is able to give us something more original, that will not only be useful, as this work is to beginners, but to those of us who are always learners, and who welcome every worthy addition to the literature of the profession.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery, and Mechanism, by Chapin A. Harris, 12th edition: revised and edited by F. I. S. Gorgas, A.M., M.D., D.D.S., with one full-page plate and 1028 illustrations; Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia, 1889. J. M. Renouf, St. Catharine St., Montreal. Price, cloth \$7.00, Leather \$8.00. It is a very happy thought to keep this grand monument to a grand man in frequent repair. There have been many books on dentistry written since our Chapin Harris died, but not one of them will live longer in the hearts of the profession, old and young, than this standard for students and stand-by for practitioners. Harris could hardly have

asked a better posthumous tribute than the revision, for the twelfth time since 1840, of his early love in dental literature; and it would have been no bad idea, had many more of our modern authors studied this work as a model of composition, as well as a compendium of practice, before issuing their own productions. Not only has this work "reached every civilized country, but has been translated into several languages." Hardly a chapter but has been revised, and about 226 new pages, and 382 new illustrations have been added. The late Prof. P. H. Austen supervised the revision of the tenth edition, and Prof. Gorgas, of Baltimore, gave a great impetus to the fresh popularity of the work when he revised the eleventh. By his labors on this last edition, he has not only perpetuated the great reputation of Harris, but merits for himself another niche for another statue. The dental student may learn all he may ever need of dental anatomy and physiology, which occupies 161 pages with about 80 illustrations. In dental pathology and therapeutics the work covers dentition, diseases of the mucous membrane, diseases of the gum, tumors of the mouth and jaws, calcic deposits of the teeth, the fluids of the mouth, diseases of the pulp, alveolar processes, etc. In dental surgery are comprised irregularities, treatment of caries, extraction, anesthetics, etc. The natural prejudice many of us entertain against the profuse display of manufacturers' catalogues in text books, will be provoked here again, but the text is so well prepared, and there is such a faithful attempt made to enlighten the student, that one feels like overlooking it. Dental mechanics cover the whole range of mechanism, introducing crown and bridge work, almost all taken from published sources. This department is a complete treatise in itself. It is impossible to say too much for the editor as well as publishers of this useful work. Every dentist should add it to his library. Every student should make it his own.

Miscellaneous.

A PRACTITIONERS' COURSE, similar to that inaugurated in England, opens on the 1st of this month and terminates on the 27th, in connection with the Chicago College of Dental Surgery. Dr. Truman W. Brophy, Dean, 96 State St., Chicago, will send any information desired. The cost of the course is only \$25. It will be made practically useful to busy practitioners.

About ten years ago, a coloured woman in Montreal, gave birth to a child, which came into the world, with the two central lower incisors. About two weeks afterwards the mother tied a string to the premature arrivals and extracted them. Successively as the incisors were developed she worked at them, until she actually extracted them from the alveoli!

MISCELLANEOUS

Mentioning this a medical friend, he told me of a squaw in Oneida Co. Ontario, who thirty years ago, finding the mid-wife could not extract the head of a child after the birth of the body, thought she'd make sure of the latter, and severed it from the head with a knife. Twelve hours afterwards a physician removed the head.

IN times gone by, barbers performed minor operations in surgery, and, in particular, when much bleeding was in vogue, it was to barbers that patients applied to be bled. The barber's pole represents the staff held by persons during the process of venesection; and the two spiral ribbons painted round it represents the two bandages, one for twisting round the arm previous to blood-letting, and the other for binding up the arm afterwards. The gilt knob at the pole represents a brass basin which in former times was actually suspended on it. Lord Thurlow, in a speech in the House of Lords, July 17, 1797, said that "by a statute, still in force, barbers and surgeons are each to use a pole as a sign. The barbers are to have their blue and white, striped, with no other appendage; but the surgeons', which was the same in other respects, was likewise to have a galley-pot, and a red rag, to denote the particular nature of their vocation." The last barber-surgeon in London was a man named Middleditch, of Great Suffolk Street, in the Borough. He died there in 1821. Mr. Timbs in his "Autobiography" says: "I have a vivid recollection of his dentistry." The "barber-surgeons" still retain their "Hall" in Monkwell Street, Cripplegate. Consult p. 46 of "Words, Facts and Phrases" by Eliezer Edwards (Lippincott); p. 266 of William Pulleyn's well-known "Portfolio of Origins and Inventions," (London, William Tegg,) p. 65; Dr. E. Cobham Brewer's "Dictionary of Phrase and Fable," (London, Cassell & Co.); and p. 125 of "Things not Generally Known" by John Timbs, F. S. A. (London, David Bogue). Mr. Timbs writes at the end of his article: "Barbers have in our time let blood and drawn teeth. The last we remember of this class (and with praise), was one Middleditch, of Great Suffolk Street, Southwark, in whose window were displayed heaps of drawn teeth." The mention of this operator subsequently in the "Autobiography" of Mr. Timbs is calculated to make us all rejoice that barbers are no longer permitted to try their hands on surgery or dentistry.

THE application for a private bill without examination by Mr. Alex. Graham, L. D. S. of Ontario, upon the ground that he was actually practicing in Quebec when the Bill granting the privilege passed in March, 1883, was granted by the Local Legislature. A similiar Bill on behalf of Mr. W.S. Cotton, upon the ground that he obtained a diploma in Boston, was rejected, and the applicant ordered to appear before the Board for examination.

DOMINION DENTAL JOURNAL

Go Thou and Do Likewise.

STRATFORD, March 8th, 1889.

Dominion Dental Journal Pub. Co.

DEAR SIRS,—It is with much pleasure that I again hail this Dental Journal of dental science; also glad to find my friend W. G. Beers at the head of it. May it go on and prosper. It is the very thing every dentist wants on his table, therefore I cheerfully send my remittance, \$1. Yours truly,

J. G. YEOMAN.

PORTAGE LA PRAIRIE, MAN., March, 1889.

Dominion Dental Journal Pub. Co.

SIRS,—Enclosed please find \$1, for which please send me the D.D. JOURNAL for one year. I received the January copy, and like it very much. I hope the venture will prove a success. There should be a sufficient number of dentists in Canada alone to support a journal of this kind. Yours, etc.,

R. H. ROBERTSON.

NEWMARKET, Feb. 14th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—I have just received the DOMINION DENTAL JOURNAL. Am much pleased with it. Enclosed please find three dollars. Send the JOURNAL for one year to me; also one to Dr. Stewart, Newmarket; also one to Dr. Bentley, Newmarket. They have both looked over it and are quite pleased with the present number. Try and send the first number to them.

Yours respectfully, A. J. HOLLINGSHEAD.

OTTAWA, Feb. 18th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—I was pleased, but somewhat surprised, on receiving the first number of the D. D. JOURNAL, having had no intimation of its coming. I hail (with fervent hope of its success) the second appearance of a Canadian Dental Journal, a medium through which the individual may become more intimately connected with the profession generally. Enclosed please find my subscription, one dollar. Yours, etc.,

CHAS. A. MARTIN.

ST. CATHARINES, Feb. 25th, 1889.

Dominion Dental Journal Pub. Co.

DEAR SIR,—Enclosed please find one dollar for DOMINION DENTAL JOURNAL for 1889. I trust that the profession of the Dominion will support your undertaking so as to make it a success, and that in the near future you will be able to publish it monthly. Yours truly,

CARL E. KLOTZ.

SMITH'S FALLS, March 6th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—Please find enclosed one dollar for a year's subscription to the JOURNAL. This is what I have been looking for quite a number of years, and wish success to the promoters. Sincerely yours,

O. H. WEAGANT.