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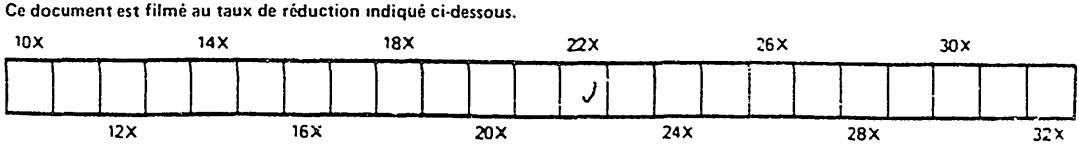

CANADA

Journal of Dental Science.

VOL. IV.—AUGUST, 1877.—No. 1.

ORIGINAL COMMUNICATIONS.

PRESERVING DECAYED TEETH BY FILLING.

BY L. D. S., TORONTO.

A consideration of the subject of this paper has been suggested by the instances which, almost daily, come under notice, in which the dentist has from some cause failed in what has been considered the specific mission of dentistry, viz :—preserving decayed teeth by filling.

This failure does not, by any means, always arise from the same cause, but from many and widely differing causes.

In many cases doubtless from want of skill in the operator. In other cases the failure is induced by the patients themselves, in refusing to submit to so thorough an operation as was essential to success on account of the suffering necessary to be endured. In a large number of cases failure results from inattention to proper cleanliness after an excellent filling has been inserted. Others are undoubtedly due to hygienic and physiological causes, to a great extent beyond the control of either patient or dentist. To all, or any, of these causes of failure it is not now our intention to revert. The cases which claim our present attention are those which are manifestly due not to a lack of mechanical skill, but to an entire want of apprehension of the theories which underlie successful conservative dentistry, or a criminal negligence in carrying them into practice.

A Surgeon called upon to treat the most serious lacerations, cuts, or bruises, of the soft tissues, if the lesion does not necessitate the entire removal of the part, only requires to re-adjust the wounded tissues as nearly as possible to their normal relations, and guard against any undue inflammation—nature does the rest and restores the parts to a healthy condition. Not so, however, with the Dental surgeon in the accidents and diseases which he is required to treat. The work of restraining destructive action and restoring lost parts devolves wholly on the operator—nature in his case gives no assistance.

Upon his thorough understanding of the causes of caries, and the various influences which combine to produce and extend them, will very largely depend his success in the efforts to preserve decayed teeth. It is now, we presume, generally admitted that neither what is known as the "vital theory" nor what is termed the "chemical theory" of caries is of itself sufficient to account for all the phenomena which are manifested in decaying teeth. Scientific men are agreed that both chemical action and diminished vitality are in most cases necessary to the production of caries, and consequently hold as correct the "chemico-vital" theory.

For the purposes of this paper it will be sufficient to assume 1st, That in a mouth where the fluids are normal and the teeth perfectly formed, and in a hygenic condition decay *never* takes place—in other words that nature designed that the teeth should remain perfect during life.

2nd. That where decay occurs there is always present vitiated fluid acting chemically upon teeth naturally imperfect, or made so by accident, or in which from some cause the normal vitality has been lowered.

Decay occurring from natural defect in the calcification of the enamel, is found principally on the grinding surface of molars and bicuspids and on the lingual surface of the superior incisors and laterals. Decay predisposed by loss of vitality may occur on any portion of a tooth, but most commonly occurs on the proximate surfaces.

It is generally taught that teeth are more liable to decay on the proximate surfaces, from the fact that particles of food are there retained and decomposed.

A careful observation will, we think, show that there is another and perhaps equally potent cause for the decay so frequently met with. We find that, other things being equal, the more tightly teeth are wedged together, and consequently the less space for food to lodge and decom-

pose, the more liable, we might almost say, the more certain they are to decay. And why?

We account for it on the theory that partial devitalization is either general or local. The former occurs in sympathy with an impaired condition of the vital force of the system, generally, as during, or after a prostrating illness. The latter is produced by pressure. In some way which, it is true, we cannot explain, but which observation nevertheless teaches us to be true, where teeth are firmly pressed together, a local devitalization of the enamel at the point of contact occurs which renders it pervious to the chemical action of the fluids of the mouth, and caries is the result. So much for our theory of carious teeth. How does dental science propose to effect a permanent cure?

1st. By arresting the decay at the point at which it has arrived.

2nd. By removing as far as possible the predisposing causes. Unfortunately the exciting and active cause, "vitiated oral fluids," is rarely within our control.

In those cases where decay has arisen from defects in calcification this is comparatively easy. The decay has obliterated predisposing causes, and it is only necessary thoroughly to remove all partially decalcified tooth tissue, and replace it with an indistructable filling of gold or other material. We cannot, however, too strongly impress upon young operators the necessity for thoroughness in excavating cavities in the grinding surfaces of molars. Very frequently, apparently fine fillings prove in a a few months miserable failures, from the fact that decay extending from minute-fissures in the sulci of the teeth has been allowed to remain when the main cavity was filled.

In those cases where there is a marked deficiency of ability in the enamel of the teeth to resist chemical action, the best we can do is to insert as perfect a filling as possible, insist upon great attention to cleanliness, and advise such regimen or medical treatment as would seem to be favourable to a better condition of the teeth and fluids of the mouth, without being over sanguine in promising good results or holding ourselves for the failure of our operations.

It is in cavities occurring on the proximate surfaces of bicuspids and molars that by far the largest proportion of failures occur from inefficient treatment.

Two methods have been in practice in this country; one to make with a V shaped file a free opening between the teeth, wide at the cutting edge

and tapering to the cervical wall of the cavity—then filling the cavity flush with the walls thus formed.

The other has been to separate with a wedge or flat file, or both, and then removing as little as possible of the over-hanging comparatively sound enamel, to fill from the approximal surface and trim off flush with the veritical wall formed by the file. There are very strong objections to both these styles. In the first not only is the appearance of the teeth rendered unsightly, and an opening left which gives great annoyance in mastication, but the teeth will come in contact at precisely that point where the enamel is thinnest and least capable of resistance, and when in most cases it is further weakened by the cavity extending behind it, leaving but a thin wall intact. Under these circumstances further decay at this point sooner or later is inevitable. In the other the antagonizing surfaces of the teeth, with the fillings inserted being scientifically "trued up" with the file, approach each other and come together with a "perfect fit" over their whole surface. What is the consequence? Instead of a single point of contact, whence the decay originally spread, we have now the whole margin of the partially devitalized enamel surrounding the fillings in contact, under circumstances the most favorable for further decay, and the most perfectly inserted filling must in a comparatively short time become loosened and the cavity very naturally enlarged.

In some cases, it is true, that either from the extent of the separation or from a peculiarity of occlusion, the teeth thus filled do not come together. In these cases when the excavation has been thorough, and the filling skilfully inserted, the operation is durable, the only drawback being, that the opening thus formed between the teeth is a never ending source of annoyance to the patient, from the facility with which particles of food become lodged in it, giving pain and discomfort by their pressure on the gum.

The question arises how can a more hopeful operation be performed? We think by an essentially different course of practice. Accepting as true the theory advised by Dr. Garretson that the mucous membrane covering the primitive dental papillæ in a modified form, continues to exist after the teeth are fully formed between the enamel and the dentine, and that it is through this membrane that the enamel receives the nourishment which is conveyed from the pulp through the dental tubules, it follows that enamel deprived of the subjacent dentine and of course of its nutrient membrane, by caries, becomes exceedingly

brittle, the brittleness increasing as you recede from the intact dentine. From this view of the case we consider it desirable to cut away on all sides of the cavity all over-hanging enamel, after having separated with wedge or other appliance when necessary. Secure the future stability of the filling by cutting retaining groves in the dentine, and for this purpose, even when the cavity is small, cut down from the grinding surface of the tooth. Introduce the filling from the grinding surface and in such a manner that when finished smoothly with a convex surface it shall present as nearly as possible the original *size* and form of the tooth. When the teeth come together the point of contract is where nature placed it, extending from nearly the grinding surface from one half to one third the length of the crown of the tooth. The substances in contact are the indestructable filling. The margins of the cavity are of strong, vital, enamel and are in the most favorable conditions for cleanliness. By thus treating this class of cavities we think we can arrest the decay, and at the same time remove its predisposing cause with the best prospect of permanent success.

We do not ask any one to accept our theory or adopt our practice. We shall be quite satisfied if the suggestions thrown out induce such reflecion and discussion as shall add something to our knowledge of Dental Science.

CONSERVATIVE DENTISTRY.

BY OLIVER MARTIN, L.D.S., OTTAWA.

It is customary for the majority of dentists to extract the roots of teeth, either because they are the cause of pain, or for the insertion of artificial teeth; for it is thought by many operators that artificial teeth cannot properly be inserted over roots, and that suppurating roots cannot be cured; at least, that neither can be successfully performed. I will try to point out the usefulness of roots when properly treated; for, as a rule, most of them can be saved for many years, with great advantage to the patient, and credit to the dentist. In the extraction of roots more of the alveolar process is cut away in one moment than would take one year for natural absorption to remove; the deep socket left after the extraction of

a root is another cause of rapid absorption, leaving a deep depression between the two adjoining teeth, and depriving them of their natural support, so that in course of time we find the lateral surface of their roots denuded of bone,and especially when the antagonizing teeth come on the opposite cusps from the space, we find the teeth moved towards each other, often so that the lateral surface of their crowns come together, forming a shaped opening, a sure receptacle for tartar, which also causes absorption of the bony structure, and often to the apex of the roots; in fact it is not unfrequent to see the roots of teeth quite bare of bone on the side where teeth, or the roots of teeth, have been extracted; this is sufficient to show the important relation of one tooth to another, or the roots of a tooth to the two adjoining teeth. When roots have been rendered healthy and properly filled they will last for a very long time. To illustrate I will take one case of the many that have come under my observation. A gentleman for whom I had treated and filled eight roots, wearing a gold plate with teeth over them, in thirteen years, two were lost by gradual wasting away, so that he removed the small portion left with his pen-knife, the remaining six are still doing good service, and he has never had the least trouble from them. Let us now consider what this patient has gained; first, he did not suffer the excruciating pain of having them extracted when firmly embedded in their sockets; second,they kept the jaw and gums in their proper position, which is much to be desired, especially in wearing artificial teeth, as no teeth look more natural than plain teeth well fitted to the natural roots; third, roots are great distributors of force, and also prevent much of the absorption of the alveolar process caused by the constant pressure of plates; fourth, plates will retain their nice adaptation for a much longer time, because the mouth changes but very slowly; and very frequently when artificial teeth have not been worn for a short time, owing to illness, or other causes, they cannot be replaced without an alteration owing to the teeth having moved one way or another. This does not take place when the roots are there to support them. Fifth, the filling or building up process is much greater when roots are retained in the jaw until they waste away, than when extracted, leaving a more prominent alveolar border which is more favourable to the wearing of artificial teeth. And again if we consider the loss of expression caused by the extraction of roots, especially those of the canine teeth, which no artificial teeth can restore; the loss of the natural gums, which no artificial gums can replace; the loosening and falling out of sound teeth because they have been deprived of their sup-

port, this should make us more appreciative of their value, and careful in their treatment. You will receive the thanks of your patients for freeing them from the dread and pain of having roots extracted, and with liberal remuneration for your services; you will also find that the use of gas, chloroform, or any other anæsthetic, will be but seldom needed, lessening in a great degree the accidents that too often take place by their use.

As a rule roots should not be extracted, but all rules have their exceptions; these are, first, when the patient is young, and the teeth over-crowded, then the judicious extraction of roots relieves the over-crowded arch; second, when roots have lost their living attachment and are only held by soft parts; third, when roots are split or divided beyond the alveolar border; fourth, roots that have their canal so enlarged, and the walls so thin that at points there are openings in the socket; fifth, enlargement of the roots, or nodular formation; these are the principal causes for extraction of roots. ' Apart from the first two mentioned,—that is the over-crowded teeth in the young, and the loss of bony structure in the aged, both are of rare occurrence. It is evident then that the most frequent cause of pain from roots is inflammation of the periosteum, caused by the decomposition of matter in the nerve canal, generally resulting in alveolar abscess. How fortunate that the most frequent cause of trouble should be the easiest to control. The extraction of roots, like the extraction of teeth with dead pulps, should be considered as something of the past and be forever buried in oblivion.

CAN PULPS OF TEETH BE SAVED?

BY FOSTER ELWELL, L.D.S.

The above query might be enlarged to the extent of an elaborate essay, but my object is not to elaborate, but to be pointed. Following the question comes the replies—dependent upon the condition of the pulp, the constitutional character of the patient, the method of procedure. I may dispose of these and my own experience by simply saying that I attempt the salvation of every pulp which has never given more than a recent temporary pain; but that while trying to save about forty per cent. of others, I never hope for success in more than ten per cent. of

these. I think it unscientific and folly at best to attempt the salvation of pulps which have been inflamed and *violently painful* for a day or two. There are constitutional conditions when everything tells against the conservative treatment when we have to succumb to circumstances and kill the part. I doubt if in a system under the influence of inflammatory diseases, a painful pulp can be saved. I doubt if we can hope for success where the system is under the influence of mercury.

I think it mal-practice to destroy a recently exposed pulp, or a painless pulp at all. I do not believe in prolonged therapeutic treatment. Carbolic acid left over a pulp too long becomes an irritant. I like to remove all decay—apply rubber dam; gently touch the exposed pulp with carbolic acid and leave it there for five minutes, then remove, dry it thoroughly: warm a thin slice of Hill's stopping, lay it gently over the exposed pulp, then having your Osteoplastic ready slightly warm the first piece, lay it over the stopping and then add more unwarmed, pressing bibulous paper upon the filling to absorb the superfluous acid.

Where the pulp has been recently exposed I insert gold or amalgam filling as soon as I can cut into the osteoplastic. Where the pulp has been exposed for some time and painful, I delay the permanent filling.

A CANADIAN DENTIST IN MEXICO.

BY J. W. BASTOW,

MAZATLAN, SINALOA, MEXICO.

Although domiciled in the land of the Aztecs, it is with pleasure I read a notice of the re-issue of the "Canada Journal of Dental Science" for the current year. I regret very much that the profession in Canada, with outside auxilaries, were not more interested in sustaining it in the past, and trust that they may now come forward and lend you the necessary assistance to enable you to continue the publication in Canada of a journal devoted to Dental Science. I would be pleased to have you put my name on your list of subscribers so long as the journal is issued; deeming it the duty of every Canadian Dentist in particular to maintain the honor and progress of the profession in his native country. Dentistry in Mexico is but little appreciated. I have published

in Spanish a summary on "the teeth and how to save them," and present it to my patients with the idea of educating them to the importance of the preservation of the dental organs, the necessity of saving deciduous teeth, their allotted period, the evil effects resulting from accumulation of salivary calculus and other matters relative to the eruption, etc. It is the first treatise of the kind that I have known to be printed in Spanish, with the object of conveying to the public instructions on the teeth, and have no doubt but that the seed dropped by the way-side will eventually bring forth fruit to be enjoyed equally by the patient and the profession.

I have found, in 16 months practice, that those persons in whom the type of the Indian is dominant, (i. e. among the mixed races) universally have their dental organs in a good state of preservation, of large medium size and very regular, but the nearer they approach the Spanish stock, proportionately I find a deterioration from the normal state. The lowest state of perfectness is met with among the younger generation of Spaniards. I attribute the superiority of the teeth of those in whom the Indian blood is dominant, partly through inheritance, but principally from their food of corn, beans and beef; these three articles forming the staple of their subsistence. From neglect in cleanliness combined with (I presume) the extra amount of phosphates of lime taken in the food of those in medium or more humble circumstances, I have observed very great numbers with heavy deposits of white or cream colored tartar on the lower incisors. You would be surprised at the large per centage of my plate work in favor of replacing the lower dentures, without exception all caused by accumulation of tartar, resulting in a complete loosening of those organs through the denudation of the teeth from the gums and absorption of the alveolar process. I have also noticed, in those persons of but little or no Indian blood, many cases of atrophy on the anterior surfaces of the superior incisors and occasionally on the superior and inferior cuspids, but whether it is caused by a constitutional disturbance obstructing the assimilation previous to eruption of the material elaborated for its construction, or by subsequent chemical effects, I am unable to say. In some of the cases where the tooth structure has been undoubtedly weak considerable caries has been the result, notwithstanding which, it has surprised me to find in the same mouths that horny production which appears to almost arrest caries, at least considerably retard its progress.

A CANADIAN DENTIST IN GERMANY.

BY WM. R. PATTON, D.D.S., COLOGNE, GERMANY.

Through some years experience of dentistry in a German centre, a few observations on the practice of our profession may not prove totally uninteresting to some of your readers--for among the very large majority of those with whom I came in contact during my last visit to the States and Canada, a decided lack of knowledge was shown relative to Continental practice and theory, combined with as decided a thirst for information.—Our Continental colleagues do not stand so high in regard to operative work as the representatives of our specialty on the other side of the Atlantic, and this may be easily accounted for by the want of practical study in such institutions, devoted solely to that purpose, as the American colleges offer to the dental aspirant.

Until but lately, comparatively speaking, the German dentist has been struggling against the same disadvantages that the Americans suffered many years ago. viz : the acquiring of the knowledge they sought for, through the office business of some practitioners in the capacity of drudge or assistant, a knowledge charily imparted through vague fears of later competition, being his only means of advancement.

Notwithstanding the foundation during the last few years of dental chairs in Berlin and Leipsig etc. they are proved to be more theoretical than practical, and there is a general feeling, which is now expressing itself, from the leading class of the profession, for improvement.

General convocations of dentists, provincial and local, take place mostly yearly, in the American style, when dental subjects are discussed.

That a precedence is taken by American dentists on the continent, could be practically shown by naming the leading practitioners in most cities of large population : however as it is not my intention to give cause for rival comparison I will rigidly abstain from any thing verging on personality, merely observing in the interest of the profession—that dentistry on the Continent as represented by Americans, can claim the highest practical intelligence—also that there are native Continental practitioners whose writings as well as researches in the dental field have made their names known not only to Europe but America.

Referring to what I have remarked about the general lack of dental education on the Continent, I must in justice say that an annual increase occurs in the number of those who visit America from these shores in search of improvement, and who on their return seldom fail to meet with a just appreciation of their merits.

I am sorry to state however that the larger number remain but for one course, and having picked up somewhat at the practical manipulation, do not thoroughly perfect themselves, but return to compete on a firmer groundwork with the colleague who has not been capable of the same advantages.

American dentistry is represented as a body by the *American Dental Society of Europe* the last meeting of which was held in Paris. Through absence, (being then in Canada) I cannot give you an account of that convention. The topics treated however, are of the same standard and general character of those discussed at similar assemblages in the United States ; for example the list of essays for this summer embrace.

(1) Irregularities of the Teeth, causes and treatment.

(2) Cause of " " " "

(3) Is it desirable to separate Operative and Mechanical Dentistry?

(4) National types of teeth.

(5) What materials are best for filling and preserving the teeth between the ages of twelve and fourteen ?

I hope to render you a good account of European opinion on these subjects.

As far as Germany is concerned the profession is represented by various societies :

Central Verein Deutscher Zahnärzte—

Gesellschaft Berliner Zahnärzte—

also societies in Frankfort a Main—Austria and Schleswig Holstein.—there hold their meetings I believe annually. The American dentist excels in operating over his Continental colleague for the reasons mentioned, but as mechanical workmen they can fully compete with their American brethern. I have seen plate work of the highest standard, that had been in use for years, and showing skill equal to that of more modern date.

Still rubber has, as in the States, worked its evil influences upon the character of mechanical dentistry, and plate work (gold etc) by the many,

may be considered a lost art—rubber, rubber, whole sets and partial, is the order of the day and at prices equal to the $8.00 sets of the celebrated American avenue men, and the reasons therefor are the same as those which cast a slur on the profession, even in the land of its fruition the competition of merely mechanical men, who offer the public by every means in their power, swindling advertisements, etc., the benefits of cheap dentistry.

Fillings are made with Gold, Tin, Amalgam and the plastic preparations, the two latter being used to an excessive degree, and consequent detriment of many organs, capable of being well preserved through nobler manipulation.

Practical education is not alone necessary for the majority of German dentists, but also for the patients who are not universally elevated to the proper appreciation of artistic dentistry, who accustomed to submit to an operation which may necessarily occupy from one to three hours duration and finally reward with a corresponding remuneration ; the only exceptions being the highest circle of society who really do take an interest in conservative dentistry. American dentistry has to struggle against the evil effect of cheap and consequently quick and imperfect work, the victimised becoming obstinate disbelievers in the worth of operative work, until the prejudice has been fairly eradicated by the lasting influences of some good conservative practitioner. Amalgam plays the greatest role amongst filling materials, and no wonder, for when the large majority are not educated to a proper remuneration the class of work must correspondingly balance the scale.

American dentists as educated operators receive the highest return for their labor, and are really appreciated when once their name and worth are known and spread through their abilities. That there are native professional men of the highest capacity, whose services are highly thought of there is no doubt, but they are in a minority to those, whose operations are not worth the small fees paid for them.

That the great question of dental education is causing thought in Europe as well as in America the following article will prove to your readers—and probably will give a better idea of dentistry in Germany—than anything I could indite; for published in the German quarterly,edited by Dr. RobBaume of Berlin—the organ of the Central German Society, it is a thoroughly German expression. I will translate as literally as possible.

THE DENTAL TUITION QUESTION.—*By Dr. G. von Langsdorff.*—It is exhilirating to read, how on this and the other side of the ocean the question of elevating our dental standing, through bringing up qualified—that means theoretically practical educated Dentists, has become a subject for general earnest counsel.

For example, it is very easily said ; *Only proper and able schools of culture meet our aim— or a gymnasial education as a ground work must be present ; —or Dental surgery must be practised before all as a specialty ;—or a dental candidate must be as fully capable of passing his medical and surgical examinations as his dental* "; and such like.

By reading and after thought over all there remain various propositions. I have formed by degrees the following code for dental education, which I now place before my readers.

I believe I can make my opinion clearest, when I undertake to throw light on the education question from *negative and positive* sides.

(1) The negative side—that is how Dentists should not be brought up, is now-a-days undoubtedly the universal method.

We can presume that we have in Germany at least a thousand practitioners, officiating as Dentists, that is carrying out the duties that can be claimed from a regular Dentist. Where have the majority of these thousand received their education ? Answer : Through having been one or more years with Dentists who for some few hundred shillings have taught them the most needful of that they themselves know.

Or, they are those who having worked here and there as Mechanics for Dentists, have gradually flattered themselves into the belief of their capability to practise self dependently the same business. Through power of the law which gives liberty of exercising any craft, (Gewerbe freiheit) they are allowed to make artificial sets ; and as they stand under no control whatever so they extract and fill teeth and perform all other oral operations, as if they were *qualified Dentists*—with the only difference that they do not call themselves *Dentists*—but * *Tooth mechanists—Tooth practitioners—Tooth artists—Technical dentist* so forth. This is then the class of " colleagues " through whom our calling is so much discredited : for these persons spoil and extract more teeth than they can ever be answerable for.

* Tahntechniker—Tahnpractikant—Tahnkinstler—Techniker Tahnarzt etc.

Or, there are Barber surgeons — Chemists — Apothecaries.—Watch-makers—Goldsmiths and other tradesmen who appropriate so far as they consider needful the technical work, * then practise every thing connected with the dental department. Solitary cases where persons have raised themselves through innate energy and assiduity must be regarded as exceptional.

Or again, there are medical students and even medical men who all at once get the idea into their heads to practise dentistry.—To make a rubber set of Teeth is soon learnt and that accomplished, they flatter themselves they are first-class dentists. They are probably not in a position to faultlessly perform the simplest gold filling and yet they condescendingly look down on their other colleagues, write themselves † Dr. of medicine—Medical practitioner and Dental practitioner—often with the addition Professor or Teacher and Examiner; although they hardly have a conception of the different diseases of the Teeth nor what remedies to have recourse to.

Many a one, through need, qualifies himself by reading practical and instructive guides or impelled by native integrity seeks good counsel from Dentists of known reputation but the wished for information is either not imparted in the proper manner, or so miserably and unmethodically that they comparatively, become only competent through their own energy and industry.

The main point however, *the preservation of the Teeth* through solid and lasting fillings, one can only learn under a *capable instructor*, to be perfected by the opportunities of practise.

If I could show the letters I receive, which ever increase in number, as examples (and I am sure I must consider them as such), it grieves me sorely that our schools for instruction fail in assisting such active assiduity. I have indeed on three occasions, when the parties had advanced to the second class in the gymnasium, accepted such as pupils; but when they had learned how to treat painful Teeth and then fill them with the different materials employed to extirpate a nerve—to extract Teeth—to adjust Pivot Teeth—to take impressions and make Rubber work etc., yet I have mentally felt that of *fundamental solidity*

* Dr. med—Praktischer Arzt. Praktischer Tahnarzt.

† In the German titles of Dr. they general precede the work Arzt with praktisch—meaning practising his profession.

there could be no question, for Anatomy, Physiology, Analytic Enquiry and Microscopy could only be conversationally dwelt on and that without any preceding preparation.—It was imperfect, just piece work.

Fundamental solidity can only be acquired at an education al institution where the various branches can be inculcated *theoretically and pratically*, by teachers who have devoted their time to the study of their particular departments.

We have, it is true, in Germany dental teachers, but no proper Institutions where a dentist can be theoretically and practically educated.

It is therefore for this reason that he who has the stimulus to accomplish something as a Dental practitioner, spares neither the time nor money necessary,—to receive in one of the eleven Dental Colleges of the United States, the educational culture he lacks. I know this, for I have frequently been applied to by such energetic young colleagues for letters of introduction.

Who will not find in these facts the surest evidence that our German Dental Schools cannot satiate that thirst for knowledge which the dental candidate expects? The majority even of these return after a half years sojourn at an American Dental College * (mostly at the Philadelphia Dental College) as *perfect dental operators*, for treating diseases of the teeth as well as filling them with gold.

(2) The *positive side* of how to bring up Dentists, I find much more difficult to treat, for even in America, the land of dental nurseries, the Reformers have not as yet discovered the vital means of reaching their desires. Still the question should meet with an easier solution in Germany, as our excellent preparatory schools viz the Gymnasial, endows each with a well filled school bag that fits him for universal education, which is not the case in America, where many aspirants for medical as well as dental diplomas cannot even write correctly their own mother tongue.

Consequently, with us, Jewelers, Watch makers and such tradesmen should only be permitted to enter a dental educational institution when through attendance at a Gymnasium, (high school) they by the study of Latin could prove a scientifical ground work.

To adhere to this in all cases might prove for one aspirant or another very inconvenient, but, a rule must exist and exceptions to every rule are admissable.

* Notice that this verifies my statement in the commencement of this paper. W. R. P.

That the code of *a scientific ground work* must be adhered to is proven by the facts—that the best works written on general and special subjects of Dental science do not emanate from the Mechanical dentists, etc. but principally from qualified Dentists and then medical men and surgeons, with fundamental medical education.—It consequently follows that, a *foundational, scientifical, medical education is beyond every thing necessary, if we wish to be regarded not as superficial but as Dentists of sterling worth.*

But a farther important question is the following. Is one, who as a Dentist can write a very scientific production, also a practical Dentist? No. For he may not understand how to perform lasting operations through proper solid fillings.

He who wishes to gain celebrity as a Dental practitioner, must add to his scientific knowledge, the manipulation and dexterous skill necessary to make faultless Gold fillings, otherwise he will ruin more teeth than he can conscientiously answer for, and does not earn the right to call himself a Dental practitioner—but to learn this; before all, comes the need of, *establishing independent practical educational institutions for Dentists;* —where able technical instruction, necessary to the proper manipulation of difficult cavities, can be imparted. The large number of enquiries, that I receive, in which honorable practitioners admit their lack of skill and pray to be informed where and how the defect can be remedied, is to me the best proof that in none of our existing German schools, wherein lectures on "*all departments of Dentistry*" are held, do we possess the proper instructors for Operative work or filling Teeth. What avails the person who wishes to educate himself for practise, that he has so thoroughly studied the Anatomy, Physiology Microscopy and Therapeutics of the Teeth, so as to teach and write books on these branches; when it becomes the question of preserving a painful, carious tooth, knows naught but how to apply a palliative remedy —order a leech— pressing a gutta-percha or amalgam filling, or extract that which treated by an able practitioner could be probably still retained for 10 to 20 years. Our *dental specialty* embraces such an extensive field that in establishing an Institution, six professors at, the very least are absolutely necessary."

The writer then advances the branches necessary and what apertains to the department of each chair, which results in :

1 Anatomy and Physiology.
2 Chemistry and Metallurgy.
3 Dental Pathology and Therapeutics.

4 General and Oral Surgery
5 Practical course of Operative Dentistry.
6 Mechanical Dentistry,

in their varied relations to general practice, dwelling on the advantages of clinical demonstration—in fact the curriculum is similar to that of the U. S. Dental colleges—if any thing embracing a wider field. This is to be preceded by what we would term a high school education—would suffice for a commencement and be sure to bear good fruit; but he would not stop here. Later when the system would be firmly established, higher ground still should be taken and the candidate be required to be an M. D. before he became a D. D. S.—He then dives into ways and means, favoring connections with medical colleges, for the beginning. I have given the pith of his words, which express the feelings of the educated Dentist of Europe. Progress is up in arms, and let us hope, that the strong hand of education may speedily stamp out the evil effects of charlatanism.

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO.

QUESTIONS PROPOSED AT THE EXAMINATION, MARCH 1877.

Anatomy.—H. J. Wood, L.D.S., Examiner.

1. Describe the interarticular fibro-cartilage of the temporo-maxillary articulation.
2. Describe the actions of the several muscles of mastication on the inferior maxillary bone.
3. Give the origin, distribution and function of the lingual or gustatory nerve.
4. Describe the internal surface of the occipital bone.
5. Mention the branches of the internal maxillary artery, given off in the spheno maxillary fossa and their distribution.

Dental Surgery.—L. Teskey, M.D., L.D.S., Examiner.

1. Neuralgia; give the causes and symptoms. Mention other painful affections for which you might mistake it and how you would distinguish them.
2. Ranula; describe it, give its diagnosis and treatment.
3. What would lead you to suppose that an ulcer in the mouth was syphilitic?
4. What would lead you to suppose a tumor in the mouth was cancerous?
5. Mention the causes of the hemorrhagic diatheses; what would lead you to suppose it existed in a patient? How would you treat hemorrhage occuring from an operation on such a patient?

Physiology and Dental Histology.— C. S. Chittenden, D.D.S., L.D.S., Examiner.

1. Describe the circulation of the blood, beginning at the right auricle.
2. Describe the fluids assisting in digestion, their sources and functions.
3. Classify the elements of the blood and explain each.
4. Name the substances of the third class of proximate principles and mention some properties peculiar to them.
5. Describe the minute anatomy of an incisor tooth.

Operative Dentistry.—F. G. Callendar, L.D.S., Examiner.

1. Give the origin, manner of deposition and characteristics of salivary calculus; give the cause of "green stain," and state how each affect the teeth, gums, alveolus, and general health.
2. State your opinion of the causes, conditions and agents producing Dental Caries and how they affect tooth tissue.
3. State how you would treat Dental Caries in each of the following pathological conditions, respectively, viz:—
   1. When pulp recently exposed.
   2. " " inflamed, from exposure, involving the periosteum.
   3. " " partially devitalized.
   4. " " is putrescent.

4. How would you treat alveolar abscess?
   1st. When no fistulous opening exists.
   2nd. When such an opening has been found.
5. Name the materials used in filling teeth. State the conditions when each may be used, and why, and describe the essential points in the preparation of a cavity and in filling for a successful preservation of the tooth.

Dental Pathology and Therapeutics.—J. B. Willmott, D.D.S., M.D.S., Examiner.

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1. From what several causes may we have odontalgia? Give the diagnosis in each case.
2. In the case of a Dental Pulp exposed by caries when would you consider the prognosis favourable for the operation of capping?
3. Explain *when* and *how* a "cold" may be an exciting case of odontalgia.
4. Give the history of alveolar Abscess.
5. Give the source, general properties, preparations, therapeutical action and legitimate use in dental practice of Zinc Chloride, Iodine, Tannic Acid, Creasote.

Chemistry.—C. P. Lennox, L.D.S., Examiner.

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1. Explain the terms "Quantivalence," "Acidulous Radicle," "Reagent," "Hydrate," "Anhydride."
2. Write formulaes representing the several mineral constituents of the teeth and state the sources whence they are obtained.
3. Give the offices of a chemical symbol, also those of a chemical formulae.
4. Describe the process of the manufacture of Ammonium Nitrate; give an equation shewing the reaction, and state how many pounds of Nitrous oxide will be formed by the decomposition of 50 lbs. Ammonium Nitrate.
5. Describe the element potassium—the principal source—manner of isolation from its compounds.
   State how the following salts may be prepared and give equations and formulas, viz:—
   Potassium Hydrate, Potassium Bicarbonate, Potassium Iodide.

Mechanical Dentistry.—A. Pearson, L.D.S., Examiner.

1. In preparing a mouth for an artificial denture, what, as a general rule, would be your practice.
2. What accidents are liable to occur in extracting teeth? How would you avoid them?
3. State the consideration which would guide you in the selection of a set of artificial teeth for any given patient.
4. Give the composition of Red Vulcanite, the objections to its use, and its advantages. What chemical change takes place in vulcanizing? What causes porosity and brittleness and how would you prevent them?
5. In the insertion of an upper denture what changes will be made in the expression by the following alterations in the position of the Cuspids, viz:—Too far forwards—too far backwards—points too much drooped—points too much raised, respectively?
6. Describe the proper relations of the teeth for the most perfect æsthetic results.

EDITORIAL.

VERY PERSONAL AND PARTICULAR.—From the many cordial replies received to the circular proposing to revive this journal, we take it for granted that the Canadian profession feel the want of a home periodical. It is about time. We fully hoped when circumstances obliged us to abandon the work, that some of the wiseacres, who were always telling us how to manage our own business, would take the bull by the horns when the chance was offered, and show us how to drive it. But they did not, wisely for their own peace and profit. It may appear easy to bring out a journal of this kind; but as a speculation it is not as profitable as devoting the same time to one's legitimate business. It is ever so much easier to receive it regularly; and we would much rather be subscriber than editor. It involves personal sacrifice of time and money: it binds one down to a routine of work. Yet it has its compensations in the feeling one has of doing a duty.

We feel sure that the profession in Canada is prepared as before to support a monthly: but we could not give the necessary time this year for more than a quarterly. We hope we will not have to importune our friends to remit their subscriptions. It ought to be just as easy for any Dentist to remit at once as in twelve months. Of course it is easier not to remit at all: but we expect better things from our friends.

One thing ought to be borne in mind. We have many excellent dental journals on this continent, but this humble Canadian enterprise is the only one not conducted in the interest of a College or a Depot. Therefore as we have no ulterior object in view; no ware or institution to advertise; no corporate or business body to draw upon save our own purse in case of a deficit, we ask our friends to hurry their cash, and to keep their congratulations for the end of the volume. We want too, practical contributions. We want our subscribers to make this journal their vehicle of communication. As of yore, it is an independent organ, and will advocate whatever it feels to be for the good of the profession.

FEES.—Some of the best men in our ranks see undignified conduct in those who use show cases and loud advertisements to attract public attention, but they can see nothing undignified in lowering their own fees to the standard of these cheap advertisers. They very properly denounce the quacks who give very inferior services at very low rates; but *they* give the diamond of dental practice and experience at the price of paste, and see no mote in their own eyes! It is a fact that while low fees, as a rule, have discouraged good operators, and diminished the excellence of their work, there are men in the profession placing their best skill and the result of long and faithful study on a level with the fees of rascals, who would cheat widows and orphans with gusto, and steal coppers from dead men's eyes.

QUEBEC DENTAL STUDENTS.—Our students in the Province of Quebec have heretofore had to complain that while being obliged to submit to an examination for license no means of college instruction were provided by the Board. Of course it is optional with them to attend the colleges in the United States, some of which are fairly efficient, though none what they should be, and some of which are mere cheap and speedy manufacturing establishments for Dentists. Considering the numerical strength of the profession in Canada, it was high time that we should have a Canadian college. This want has been met by the School of Dentistry of the Royal College of Dental Surgeons of Ontario.

The Board of Quebec sent one of its members to Toronto to examine into the working of this school, and to receive proposals for the attendance of Quebec students, and after mature deliberation has decided that on and after the meeting, in July of next year, students of Quebec will be compelled to attend at least one session either in that institution or some other recognized Dental College. *In our next issue we will be able to* give particulars of interest to Students.

"How we Apples Swim!"—A young man from the city, much greener than his cousin from the country, writes us to say he "is of the opinion that he can practice Dentistry in Ontario or Quebec in spite of the Acts of Incorporation: that he maintains the said Acts to be utterly valueless, &c."

It's amazing how many such people have mistaken their vocation. Amazing how many eminent barristers have been spoiled in third-rate dentists. We know one simple soul who has concentrated the whole energies of twenty years in the one absorbing ambition to be a successful ("money-making") dentist. He has turned out a very poor failure at best. Yet without ever having studied law, without ever having had a reliable legal opinion given him, he smiles self-complacently, and dogmatically denies the value of the Dental Act in particular as well as all corporate legislation in general. It is a very unlikely thing that the Legislature would make a law "utterly valueless," and that the legal opinion of a dentist should be more reliable than that of eminent attorneys.—*Ne sutor ultra crepidam.*

Canadian Dentists Abroad.—When the Fenians threatened an invasion of Canada, and the robbers of hen-roosts were said to be swarming in upon us like the locusts of Egypt, Canadians all over the continent turned up in person or by letter anxious to have something to do on our side of the question. And so when the Canada Journal of Dental Science gave signs of rousing again into life, Canadian dentists abroad seem to have got wind of it through the courtesy of one of our contemporaries, and we are able to tell our readers where some of them are. When in France two years ago we enjoyed delightful holidays in Paris with Dr. Ed. Lefaivre, formerly of St. John's, Que. Dr. L. is associated with Dr. Thos. Evans, of Paris, and looked hearty and happy. Dr. Patton, of Quebec, has become a permanent citizen of Cologne, Germany, and has not only achieved a splendid success professionally, but has formed an alliance for life which we trust may make him a happy

home. Dr. Day, of Kingston, has made his mark in Chicago; Dr. Bastow, of Kingston, is enlightening the Mexicans; Dr. Henry Davis, of Montreal, is settled successfully in California. Twelve more from Ontario, whose residences we do not know, have also left for better locations. We regret to lose so many of our best men. But this is what comes of cheap dentistry and an over-crowded profession. The Canadian public has not yet learned to discriminate between true worth and boasting mediocrity.

A SELF-REGULATING VULCANIZER is one of the desideratums of the Laboratory. We do not intend turning our editorial columns into an advertising medium; but there may be special reasons for drawing attention to a good article which will justify its insertion here. When in England we learned that several using this vulcanizer of Messrs. Walkers, found it met every want in vulcanizing, and a confrère in Montreal who has used it for some time, thinks it improves the vulcanite by the steady manner in which it maintains the heat. It needs no attention; saves time; and is not at all likely to blow up like so many of the common vulcanizers now made.

BOOK NOTICES.

A SYSTEM OF SURGERY, THEORETICAL AND PRACTICAL, IN TREATISES BY VARIOUS AUTHORS. *Edited by T. Holmes, M. A., Cantab. Surgeon and Lecturer on Surgery at St. George's Hospital; Member Corresp: de la Société de Chirurgie de Paris. Second edition in five volumes, with illustrations. London: Longman, Green & Co., 1869.*—Few undertakings have been of greater benefit to suffering humanity than the publication of this magnificent work. Its success as a publication shows the appreciation in which it is held by the profession in Britain and the Colonies, where it is universally recommended as a book for reference in the colleges, and there are few medical libraries of successful men that do not contain a copy of the work. As the combined effort of a large number of practical scientific men, it is one of the finest evidences extant, of the advancement and civilization of the age. Written as it is by a large number of surgeons, each particularly well versed in the subject on which he treats,

the work is of double interest to the dental surgeon; first, on account of the intrinsic value of the information conveyed, and secondly, as shewing the tendency and necessity—from the widening field of knowledge and operative procedure—to divide practical surgery into separate sections. The surgeon who would rise to eminence in any particular field must be thoroughly grounded, not only in the general principles of surgery, but must also be well acquainted with the diseases and accidents, and methods of treatment in general surgery. By this means a more general and varied view of particular cases in special sections of surgery can be obtained, and the best methods selected for successful treatment. There are no parts of the body, with which its longevity and general health are more intimately connected, than those with which the dental surgeon has to deal. The every-day comfort and beauty of the multitudes moreover, to say nothing of the successful treatment of accidents and the remedying of disfiguring deformities and defects of innumerable unfortunates, is so closely connected with the deep and varied knowledge of the dental surgeon, that he should avail himself of every means to enlarge his own powers and to elevate the grade and widen the scope of the dental profession. A study of this work will afford such a variety and extent of information, capable of direct application, or by inference or deduction capable of being made serviceable in advanced dental surgery in its various parts, that we advise all those who are ambitious of rising in and advancing the science and practice of dental surgery to make themselves acquainted with the teachings of this exhaustive work. If, as is usually the case, it is considered necessary that surgeons who practice on the eye, ear, throat or other parts, should be graduates in medicine, having a fair knowledge of general surgery, of equal importance is it surely, that those who treat and operate on organs so important and delicate, and prone to disease and deformity, as those that come under the care of the dental surgeon, should be no mere tyros in general medicine, or ignorant of the possibilities and capabilities of surgical science and art.

The arrangement adopted in this work is as follows:

I. The diseases which affect the whole system are first described, and this part comprises the essays (on Inflammation and its sequelæ, Erysipelas, Pyæmia, Hectic and Traumatic Fever, Tetanus, Scrofula, Hysteria, Syphilis, &c.) ending with that on Cancer.

II. The next part treats of injuries which involve either the whole or a large part of the body, or which may be met with in any region. This

extends to the end of the essay on gunshot wounds in the second volume. These two parts comprise the whole subject of Surgical Pathology.

III. The various local injuries are next described, and in this part the anatomical order has been followed, the body having been divided into eight regions—the head, face, neck, thorax, back, pelvis, upper and lower extremity. By this plan it was thought that the injuries which affect the same parts, and which in practice have to be diagnosed from each other would be brought into the same part of the book and under the treatment of the same author.

IV. The principles of operative and minor surgery, and of the employment of anæsthetics, follow the essays on local injuries.

V. The next part comprises the surgical diseases of the various organs of the body. These have been arranged according to the function of the parts affected : as the diseases of the organs of special sense—the eye, ear, and nose ; of the organs of locomotion—the bones, joints, muscles, tendons, and their sheaths, &c.

VI. An appendix completes the work, comprising the principles of Surgical Diagnosis, of the Surgical Pathology and Treatment of Children's Diseases, the construction and management of Hospitals, and various miscellaneous matter which it was found difficult to bring under any of the previous heads."

Such a rich mine of knowledge as is contained in these five systematically arranged and well-printed volumes, deserves to be diligently and continuously studied by the dental surgeon who would practise with benfit to his patients, and credit and emolument to himself.

STUDENTS GUIDE TO DENTAL ANATOMY AND SURGERY, &c. *By Henry Sewill, M.R.C.S., L.D.S. &c., London, Eng. 77 illustrations. Price $1.75. Lindsay & Blakiston, Philadelphia, 1877.*—It is refreshing in these days of verbosity in dental literature to open a book so practical, pointed, and free from penny-a-lining. Too many of our text-books are crowded with words and illustrations. The art of writing a student's text-book so as to avoid either fault has been obtained by Mr. Sewill. The second chapter contains the most recent physiological knowledge of the origin and development of the teeth, showing tersely and clearly the lessons of Kolliker, Waldeyer, Huxley, and Robin. Those who found their first lessons in Goodsir will enjoy this. The chapters on exposure and diseases of the pulp, periostitis, diseases of the gums,

neuralgia, extraction &c., are well written. The book is got up in a dangerous style, because when a dentist takes a holiday he should leave dentistry in his office. We went off fishing one day and instinctively put Sewill's guide in our pocket.

TAFT'S OPERATIVE DENTISTRY, *3rd Edition, with 128 Illustrations. Price $4.25 and $5.00. Lindsay & Blakiston, Philadelphia, 1877.*— This work filled a void at the time it was first issued, but with the addition of one hundred pages of letter-press and forty-two illustrations it may be said to monopolize the specialty at which it aims. It is very easy to run hastily or even carefully over any work and pick out faults. We do not think Prof. Taft's work by any means free from sharp criticism. We might easily point out faults of omission and commission. We do not think he has quite rid himself of some old prejudices, which modern investigation prove to be unsound: but for all this we are willing to accept the work as that of an honest man, actuated by an earnest desire to assist the student in the details of operative dentistry; and after all what he writes is simply his own opinion, just as wherein we differ is simply our own individual opinion. But there are two or three points in which we think he dogmatizes without seeming to know, or rather affecting to ignore, the experience and experiments of careful investigation by conscientious and scientific men. Probably no book can be opened to agree with every opinion its readers hold. We put some sharp criticism side by side with much praise; for the author has so systematized the principles of operative dentistry, written his ideas in such clear languge, and given so much practical information, that his book must command large support. To pick out petty faults, and split hairs over slight mistakes, is only the work of jealousy and narrow-mindedness. The work is got up in Lindsay & Blakiston's best style and does them credit. It is one of the books, like one of the friends, with whom to differ is sometimes to whet the edge of liking.

EPITOME OF THE PROCEEDINGS OF DENTAL SOCIETIES.

We will resume this feature of the C. J. D. S., which, omitting all superfluities of speech, gives the gist of discussion. It will give as much practical matter in one page as is generally occupied by five.

NEW YORK ODONTOLOGICAL SOCIETY.—Dr. S. P. Cutler read a paper on the transplantation and replantation of teeth, chiefly confined to the consideration of the transplantation of old, waste teeth lying about the office. Dr. C. gave six cases in point, some of teeth transplanted which had been out of the mouth for several years; also several cases of personal experience in replantation. The Dr. thus explains the rationale of the process of growth after transplantation: "When a tooth is removed from the socket there is a solution of continuity similar to that of a broken bone, and a process of restoration is then commenced. When a bone is fractured there is improvised from plastic lymph, within twelve or fourteen days, a connective-tissue matrix to serve as a cartilage for ossification, which begins about the time specified. In about a week after the callus becomes quite firm, and in 30 days from the time of the accident (generally) the bone has, if properly adjusted, become knit together, although perfect union cannot so soon take place; the time for such union varying from one to two years. The periosteum is mainly concerned in the above.

In the cavity whence a tooth has been drawn a similar process ensues, the cavity must fill up at the bottom, while the alveolar border must waste away—the process being a double one, in waste and reproduction. The process is chiefly accomplished by the alveolar membrane; first by improvising a matrix of plastic material at the bottom of the cavity, which in about two weeks begins to fill up with lime, and ossification goes on in about the same manner as in the case of fractured bone. An external table of bone is then formed over the point, when the process may be regarded as complete, the gum afterwards forming a true periosteum.

Dr. C. denies the possibility of any union of nerves, or blood vessels, in replantation; and holds that there is no difference, as regards the final results, whether a tooth has been out of the socket five minutes, or five years. The only circumstance that can affect those results is adaptation. If a transplanted tooth does not entirely fill the socket an extra filling must take place. From the 12th to the 30th day is the most critical period of the process, as in the case of a broken bone—absence of motion being essential to success.

Transplanted teeth, having no membrane left to experience subacute inflammation, are not as liable to after-trouble as dead teeth which remain in their sockets. Where failures occur no osteoplatic inflammation takes places, but the alveolar wastes and the transplanted tooth is

expelled. Dr. C. does not advocate indiscriminate transplanting or replanting. One in four cases may be looked for as failures.

Dr. C. A. Marvin dissents from the statement that the process following a fractured bone is the same as that following the extraction of a tooth, in the matter of filling up the cavity, and held the retention of a replanted tooth to be mechanical, a closure of the alveolar walls, without any renewed vital connection. The tooth is tolerated. Having no vital connection it can receive no injury except through mechanical violence. The subject, however, was worth attention. Better to remove a diseased tooth if it can be replaced as is claimed, than to preserve a long, painful course of treatment with doubtful results.

Dr. W. H. Atkinson, referring to Dr. Cuttler's denial of a ruptured pulp re-uniting in replantation, said where teeth have been extracted accidently before complete development they were replaced and the roots developed to completeness, and pulp connection restored.

Dr. Wm. Jarvie, Jr., could not accept the proposition that a tooth which has been out of the mouth for years can be put into another mouth, the root being filed and trimmed to fit the socket, and cementum be deposited upon its root.

Dr. W. H. Dwinelle pooh-poohed the idea that old teeth transplanted could have a new crust of cement deposited upon them with all the peculiarities of cementum, with its new bone-cells and canaliculi and lacunæ.

At a subsequent meeting Dr. E. A. Bogue read a paper upon the subject of Dr. Cutler's; being an elaborate review of the last one hundred years experience of various persons, "all tending to show that there is no physiological reason why replantation when necessary and even transplantation under proper conditions should not be successful." Dr. Bogue gives very interesting and suggestive extracts from different writers *pro* and *con*, and draws his own conclusions as follows:

What deduction can be made from these records?

So far as I am able to judge, this: that from the days of Hunter on until the practical abandonment of this operation, about 1820, teeth were transplanted and replaced without regard to what we now look upon as essential conditions, and yet the percentages of success were such as

to cause those operations to be classed among the regular operations of surgery.

Now, what is meant by essential conditions?

I mean to enunciate the proposition broadly, that a dead body or one severed from its vital connection, whether it be in the pulp cavity of a tooth, or lying out upon the open prairie, will inevitably undergo putrefactive decomposition. I mean to assert, too, that I can find no record save one in which I can place any confidence of the reforming of vital connection between the replanted or transplanted tooth-pulp and the socket into which it has been placed. Indeed, the process of luxation was devised for the special purpose of breaking, and thereby destroying, vital connection between the pulp and the soft parts within the socket, for the cure of toothache, long before the use of arsenic was thought of for the same purpose.

The single exception to this rule was in the case of the tooth which Hunter "transplanted to the comb of a cock," and which was the only success after many failures.

I think we may safely conclude from this that no teeth transplanted in actual practice had vital connection renewed in the pulp; hence they had a decomposed pulp within, in precisely the same condition which to-day is known to produce alveolar abscess, and which to-day we know so well how to prevent that I regard an alveolar abscess as an entirely preventable disease; not agreeing with the old writer who said that "the cause of toothache is known only to God."

Again, the antiseptic system has, I think, made some advances in these latter days; if not toward new discoveries, at last toward re-discoveries, with results that have been exceedingly fortunate in the domain of surgery. So that to-day we may reduce to a minimum, if we may not dispose of altogether, the danger of transmitting infectious diseases.

As experience has shown that replanted teeth do equally well after having been out of the mouth some hours as when immediately transplanted while still retaining their animal teeth, and as we are pretty well assured that the virus we most dread carries no infection after once becoming cold, we may consider ourselves by so much in a better condition to make this operation successful than were the practitioners of a hundred years ago.

We now approach another part of this subject, and one, I will confess, offering to me far deeper interest than the one just reviewed, viz., the

transplantation of dead teeth, or teeth that have long been out of the mouth.

One of our guests at our last meeting pronounced this part of the question "unmitigated nonsense," and hinted that we should perhaps next be called upon to believe that porcelain teeth could be transplanted and made to grow in the human jaw.

I am disposed to think that this gentleman did not receive his invitation to attend this meeting sufficiently early to enable him to examine into the question that was announced for discussion; for a gentleman who has forgotten more than most of us ever knew can surely not be ignorant of the physiological facts bearing upon this matter, and recorded in the pages of Billroth, Kölliker, and Tomes, and other investigators of that field.

Billroth found that ivory pegs that had been driven into living bones had osteoklasts upon them, and Kölliker found in such a case that Linhard had not only typical Howshipian lacunæ, but also polynucleated giant cells, showing the continued vital action of the parts surrounding the intruding substance. Mitscherlich relates instances of partially successful results from the implantation of dead teeth, in which cases the inserted tooth becomes fastened by osseous tissue which grows into the dentine from the maxillary surface. This observation is quoted also by Wedl, at the end of a sentence giving his views as to the cause of the results of transplantation, being upon the whole not favorable, because the roots of corresponding teeth, in different individuals, vary so much in thickness, length, and curvation; consequently, the alveolus is either injured or incompletely filled, and the subsequent inflammatory processes prevent the desired fixation.

In conclusion, then, it seems that the weight of testimony in favor of the implantation of dead teeth equals, if it does not surpass, the testimony in favor of transplantation and replantation; while these latter operations, with our present knowledge, offer a field for increased usefulness to our fellows that promises to be of far greater value than was formerly supposed to attach to them.

Pennsylvania Association of Dental Surgeons.—The committee on mechanical dentistry reported that the *cuspids* in gum section are too small and narrow, and not sufficiently prominent. These teeth should be fully as wide as the central incisors. Notice was drawn to the error made in having separations between the over-lapping or crowded teeth in

sections, designed to represent irregular teeth. Bicuspid teeth of block sections are not large enough, nor do their masticating surfaces approximate sufficiently in shape and depth of cut to the natural teeth of this class. It was suggested that the holes in pivot teeth should be bored entirely through to allow of them being used for various styles of wood and metal pivoting. Pivot teeth should be set up in sets of two, four, and six to facilitate selection.

In a discussion on irregularity of the teeth the general tone of the meeting was, that whenever a tooth could be brought into position *without* a ligature, it should be preferred. Whenever screws could be applied they should, as their action was less irritating, and generally more certain. That the mouth should be encumbered as little as possible with plates or appliances for changing the position of the teeth, and that whenever nature could be *made* or *aided* to do the work of regulating the teeth by the simple extraction of one or two teeth, this plan should be adopted in preference to ligatures, bands, screws, plates, inclined planes, etc. (*Cosmos*).

SELECTION.

To users of amalgams.—The best form of instrument for condensing the first part of a plug so as to obtain proper contact with the walls of the cavity is a small ball-headed burnisher, and all plugs should be commenced and built up with this instrument alone as far as possible. The correct form will be found in Ash's catalogue for 1875, fig. 43, p. 130. *This instrument is one of the essentials in obtaining sound plugs which do not discolour the dentine.* The surface discoloration of the plug depends, to a certain extent, on the alloy used, but almost entirely on the quantity of mercury contained in the amalgam. The smaller the proportion of mercury used the less the discoloration. If a cavity cannot be kept perfectly dry until the plug is finished it is far better to pack the plug under water from the commencement. This at first sight appears strange, but the explanation is simple. If a plug gets wet on the surface before it is condensed, the air enclosed in the under part of the plug is compressed. When the pressure is removed the confined air lifts and disintegrates the plug. Pack either all wet or all dry, and do not leave a plug soft in the mouth in contact with water. Unless moisture is totally

excluded a soft amalgam is worthless if both freedom from discoloration and permanence are required. An alloy used for amalgam, whatever its composition, is utterly unreliable unless every ingot has been carefully tested for shrinkage, expansion, packing and retaining its shape under water, and discoloration. However good an alloy may be generally, no single sample of it is trustworthy until after a series of tests which cannot be completed in less than three to six months. The difference between a tested and untested amalgam is the same as between a tested and untested steam boiler; one is trustworthy, the other possibly may be so. If a steam boiler is made to work at 30 lbs. 39 inch pressure, and is worked at 100 lbs., the failure, if it occurs, rests with the user. In the same way, if an alloy is made to work with 30 per cent. of mercury and is used with 100 per cent., the maker cannot well be blamed for unsatisfactory results.—THOMAS FLETCHER.

(*Brit. Journal Dent. Science.*)

HINTS AND QUERIES.

Understanding that your independent Journal is soon to appear again, I trust you will give some hints and hits to Dental manufacturers. Is'nt there a sickening amount of bragging among them? G. L. [*See next number.*]

Is not the profession in Canada overcrowded? R. J. [We will answer this in our next number.]

Have you used the Eureka, or 15 minutes Rubber? T. H.

Will some one give us a concise and practical paper on Alveolar Periostitis? L. D. S.

Speediest temporary treatment for inflammation of the pulp? M. E.

Will some one with experience in the use of Phosphates give their action, especially directed to the teeth, and especially during pregnancy. [We are already promised an article for the next number on this subject. We have used and recommended for several years Dr. Wheeler's preparation made in Montreal.]