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ORIGINAL COMMUNICATIONS.

EDITORIAL NOTES ON PRACTICAL SUBJECTS.

EXPLOSION OF A VULCANIZER.

BY W- GEO. BEERS.

My neighbor, Mr. C. Brewster, sent in for me on the 22nd of last month, to see the result of the explosion of a vulcanizer, which had just occurred in his laboratory. The scene was one of chaos.

The vulcanizer was a Whitney, No. —, for two flasks, and had been in use for about seven years. The brass top with thermometer attached, was blown straight up through the ceiling, a distance of twelve feet, making a round hole as clean as if cut with a sharp knife. The copper boiler was thrown into a corner to the left, and would no doubt have gone further but for the impediment of a hard partition. A flask containing an upper case of gum teeth was lying under the work-bench, about eight feet to the right from the place where the vulcanizer had been. The following simple diagram will explain exactly the flight $\begin{matrix} \text{A} \\ \nearrow \\ \text{B} \end{matrix}$ A being the direction upwards taken by the brass top, B the direction taken by the boiler, and C by the flask. The centre of the brass top was raised about the eighth of an inch; the thermometer guard was twisted into a spiral form and forced partly off the screw. The boiler had several large dinges, and one in particular in which might be placed a large walnut: was cracked in several places around the screw, and a deep groove cut on the inside, as if by collision by some hard substance, or by the jamming of the flask

as it shot out. The whole apparatus was entirely twisted out of shape; the lead gas-pipes and a zinc jacket were literally ripped to pieces; several steel excavators which had been attaching a shelf, were bent up like bones, and one driven an inch into the floor. The paper on the wall was stripped; maps thrown down, and a wooden shelf was smashed into chips, and a large clock thrown off the wall. Strange to say, though the flask was bent not a tooth was cracked, and not even the arrangement disturbed.

The most maraculous part is that Mr. Brewster, who was standing not more than three feet from the vulcanizer, was untouched, and saving a deluge of lime and dust and a terrible stun, as if struck on the head with a mallet, and a stupor for two days, he escaped unhurt. Had he been standing two feet nearer any other part of the room he must have been injured, and possibly killed, as fragments of the explosion were thrown into every other part of the laboratory except within his immediate place. It was a most Providential escape, and only Providential.

Mr. Brewster says there was no loud report that he heard; all he knew was a sudden stun on the head, and the after realization of the explosion.

The cause is solely attributed to the high pressure of steam, as Mr. B's assistant had about five minutes previously turned on an unusually large full flame of gas. The explosion must have occurred at about 430°. No blame is attached to deterioration in the boiler, as it and the brass top remain almost perfect, excepting a few cracks and dinges. Is it not possible that the *too rapid* generation of steam had considerable to do with the explosion, and that the copper boiler may have deteriorated so much as to unfit it for safe use, though even now it looks very safe to the eye. A proof that the fusible safety plug is not always reliable as a test of the pressure of steam, is that it still remains in the brass top of this exploded vulcanizer.

This adds one more to the warnings to use diligent care with the vulcanizer, and never comfort oneself with the assurance that because ours has never blown out the fusible plug, it never can blow up till it does, and that because the process of vulcanizing is simple, it may not be also considered dangerous. After a few more have had their heads blown off, we shall begin generally to realize the little terrors we are daily using in our laboratories, in the vicinity of which, we, our assistants, and often our wives and families may be calmly sitting.

THE HYGIENIC MEANS OF PRESERVING THE TEETH.

BY G. O. FISET, D. D. S., QUEBEC CITY.

CONTINUED FROM PAGE 328.

The confectionary colored with mineral substances is a poison to the system, and also acts upon the dental structures in two ways ; a rechrystallization of the sugar takes place on mastication, small particles of which being forced into the fissures (consequent upon the malformation of the enamel of the grinding surfaces of the bicuspid and molars, or by accident) and remain stationary ; the first thing occurring is the immediate action of the colouring matter, the second is the acetous fermentation of the sugar. The common or cheap confectionary is frequently coloured with mineral substances, but I believe not as much in this country as in other countries, judging by the very few cases of poisoning on record from the eating of confectionary. The substances mostly used are the carbonate of copper, sulphide of mercury, &c. Confectionary or candies colourless or coloured with vegetable substances act upon the teeth only in one way, that is, by the fermentation of the sugar into acetic acid.* Ripe fruits also act by acetous fermentation. In all cases where starchy or saccharine food is taken, *ptyaline* or the animal principle of the saliva acts as a ferment, but so long as such does not become stationary in or about the teeth there is no danger to apprehend.

Although I believe that once the dentinal tissue has become diseased, and an acid is formed by the decomposition of its salts and a degeneration of its organic matter, too much care cannot be taken to prevent the formation of acetic acid by the fermentation of sugar, therefore, after any saccharine food has been taken, luke-warm water should be recommended to be used in order to dissolve the sugar which has lodged into the fissures and other portions of defective teeth. Sweet beverages do not act deleteriously upon the dental organs, because their transition through the mouth is too sudden for any fermentative action to take place. Picromel is one of the animal principles contained in bile, so that vomiting of that fluid alone cannot cause any injurious effect upon the teeth, as that principle pertains to the class of imperfect sugars. The drinking of very cold water, or the eating of ice cream or other substances of a similar kind, immediately followed

* The confectionary coming under that head is generally coloured with cochineal.

by that of an opposite nature, tends to the production of crevices in the enamel, the change of temperature being so sudden. In the correction of irregularities of the dental arch ligatures are frequently used, they absorb and retain within their fibres, acids and other deleterious agents, which by their immediate contact produce evil results, for that reason the ligatures should be changed often.

Tobacco acts upon the system as a nervous sedative. Its alkaline principle, which is nicotine, acts in the same manner upon the dental fibrillæ on their exposure, (*i. e.*, when the dentine has been deprived of its protection, (the enamel) from disease) and by its continual action impairing their vitality, involving the loss of the recuperative power of the *germinal matters* of the cells, which is thereby metamorphosed into *formed material*, the latter fusing together is hardened by the disposition of calcareous salts, being the last stage of calcification or the formation of *esteeo-dentine*. The same thing occurs in cases of exposure of the pulp, especially one case on record, to which I refer the readers of this article, which I believe is to be found in the last February number of the *Dental Cosmos*. We must, therefore, infer that the smoking or chewing of tobacco in excess, acts as a nervous sedative on the system, and consequently proves ultimately injurious to weak constitutions; that its action upon the nervous element of the teeth does not altogether destroy the life of the organ, although a portion of its vital principle is sacrificed.

There are many diseases, general and local, which influence a chemical change of the saliva, and others preventing the secretion of some of the salivary fluids, in the former instance the saliva becoming acid. There are also certain physiological phenomena which act in the same manner. Dyspepsia and all disorders of the mucous membrane of the alimentary canal, fevers of all kinds, mercurial ptyalism, phthisis pulmonalis, syphilis, amenorrhœa, and pregnancy, act indirectly upon the teeth.

In dyspepsia, and in all gastric affections, the saliva is acid, its condition being regulated by, and dependent upon the state of the digestive apparatus; in the former disorder the acid eructations from the stomach in connection with the acidity of the saliva, exert a most pernicious effect upon the teeth. For that reason it is almost impossible to save the teeth of persons suffering from chronic dyspepsia. Vomiting acts in the same manner, both producing that disagreeable sensation called *cataplexis* (toothedge).

Stomatitis and other diseases of the mouth induce a morbid as well as a more profuse secretion of mucus, which has always an acid reaction, is extremely viscid and is imparted by its animal principle, *mucosine*, and clings to the teeth most tenaciously. It is secreted alone in the advanced stage of fevers, or diseases attended with fever, but in health it is neutralized by the other salivary fluids which are alkaline, except during sleep, when it is the only active salivary secretion.

Mercury, when administered, does not act directly upon the dental organs, but causes a profuse secretion and vitiation of the oral fluids, which produces gingivitis, resulting in an undue flow of mucus at the margins of the gums, having a direct influence upon the unprotected dentine at the necks of the teeth, where we find the junction of the enamel and cementum. After the effects of the mercury in the system have subsided, to reduce the inflammation of the gums a resolvent should be prescribed; in consequence I would recommend the use of the following gargle and mouth-wash, which is beneficial in such cases.

R. Potassæ Chloras 1 dr., or, R. Potassium Iodii 2 gr. to 1 dr.

Aqua, 1 oz.

M.

Persons suffering with dyspepsia or mercurial ptyalism, should be cured before any operations upon the teeth are attempted. They should also be instructed to consult the dental surgeon after recovery from any serious malady. We dentists must educate our people to the appreciation of dental services, and impress their minds with the idea, *that a normal condition of the teeth is absolutely necessary to the preservation of the general health.*

Pthisis pulmonalis is accompanied with fever which acts upon the buccal secretions as already described, and by the continued exhalation of the gases generated by the diseased lungs, and purulent expectoration. It may also depend upon the improper nourishment of the teeth, from the absence in the system of a sufficient amount of phosphates.

Syphilis produces a vitiated state of the glandular system, and in that manner acts indirectly upon the organs of mastication.

Amenorrhœa acts upon the teeth by influencing a change of the fluids of the body, the saliva being of the number. That is the reason why the teeth of females, on an average, decay more readily than those of males.

The state of pregnancy is conducive to the production of caries of the teeth. It is the case with delicate females who have enjoyed the luxuries of fashionable life, and have turned the hours of sleep into that of mirth and pleasure, and when they become pregnant, instead of appropriating the phosphates which they require for the nourishment of the osseous dental and other tissues of their own organism, it goes to the fœtus, the consequence being that the health of the mother and that of the child (after birth) suffer producing as well decay of the teeth in the former, and their malformation in the latter.

We have seen that, unfortunately, several of the aliments and condiments forming part of our diet, some of the local and general diseases, and even some of the vital phenomena conducive to the production of dental disease. The preservation of the temporary organs of mastication are as essential to the existing and future welfare of a patient as that of the permanent ones, and the same hygienic means above mentioned for their preservation are applicable.

DENTAL EDUCATION.

Read before the Ontario Dental Society by

C. P. LENNOX.

I have selected for a subject, that which, I think, has not previously been brought before you, and when the good of the profession is taken into consideration, should stand side by side with other great movements towards its elevation to a high standard of respectability. I refer to the educational qualifications or literary attainments of Dental Students.

There is no avocation in life which does not require a degree of educational qualifications in order that it may be successfully followed. From the humblest artizan to the most dignified professional, any lack of education which the calling of either demands, is recognisable, and brings with it a degree of regret or contempt. The swarthy smith who deals with the king of metals, and subjects it to the requirements of civilization, in order to a successful transaction of his business, requires it to a limited extent; while a professional man, who has the writings of great minds to digest, and whose judgment, at times, undergoes the most trying ordeals, requires to be highly educated.

It depends, therefore, gentlemen, where you rank our profession to be able to decide whether or not our men should be educated to a higher or lower degree. If we are to occupy that position to which some would consign, viz: if we are to be regarded simply as manufacturers of artificial teeth; if we confine ourselves only to this branch of our profession, and recognize it as dentistry; then we are on a level with the smith, and our education need be of no higher grade than his, but, if we rank ourselves with the members of the ancient, honorable and learned profession of medicine, who, I am happy to say are holding out the hand of recognition to us, then we must be equal to them in educational attainments.

The great object at the present day on the part of the legitimate members of our profession, is, to exalt it to that standard of respectability, which shall merit that recognition bestowed upon us by our brethren of the medical profession, and many noble men have devoted their energies, time and capital in order to rear it to its present position of respectability. Indeed, I may say that a new era has dawned upon us, and that the dental world is effectually laboring to accomplish the same end. In this little Canada of ours, whose institutions, though but an adopted son, I have learned to love, although of little importance, likely, we are not the least in the good work. "Our banners have been hung upon the outer wall," and quackery has received its death blow. No longer shall the fair fame of the dental profession be blasted by the evils forced upon a confiding public by a class of traveling usurpers, but the public will be forced to patronize those, whom, I hope, they will also learn to respect because of merit.

In directing the mind's eye through the vista of the past, and following up the path which our profession has trod, we see much to encourage us and not a little which may be regretted. Noble men we discover contending with the superstition and bigotry surrounding them, bearing aloft the insignia of their rights to respectability. The time is fresh in the memory of many of us, when the idea of professionalism being granted to dentists was considered a thing absurd, and more especially was this so on the part of the medical fraternity, when the dentists dare claim the right of recognition for his calling as a branch of the medical profession; but we will prove to the world the right of such recognition. Already we find, that, with but few exceptions, the hand of

recognition is extended to us by the medical men of the day, and we are regarded as the younger offspring of that noble profession, and although existing in our infancy, we have a being, and are rapidly approaching vigorous manhood.

Since, then, we are advancing to manhood, professionally, I venture the assertion, that our profession will not be confined to the narrow link at present encircling it. There are those diseases of the face and mouth which should properly come under the treatment of the dentist; many of them calling forth the greatest surgical skill, and when the profession is universally stocked with men capable of treating such cases, then will the dentist be called upon universally to do so. In order that such men may constitute its membership, it is absolutely necessary, that none be admitted to our offices as students, who do not possess educational qualifications equal to that required by the medical board. It may appear to some, that this is carrying the matter to excess, to whom I reply, that, if you never intend any advancement in your calling, if you are content to grovel in ignorance, with an intelligent world giving you the cold shoulder on account of that ignorance, if mechanical dentistry, and that very unmechanically done, is your highest ambition, then, to you, the matter is carried to excess.

The educational qualification required for matriculation in our medical schools would be all the better were it still of a higher grade. The man, who at times, holds the lives of our dear ones in his keeping, should be master of every faculty for a proper understanding of his profession, and that a high grade of education is one of those faculties is proved by the fact, that none but the highly educated ever excel or obtain merited fame in the practice of medicine. Why this is so, is simply from the fact, that educated men are generally profound thinkers, possessing a greater power of judgment than those less highly educated, as all the text books used in modern schools of medicine are the productions of educated minds, the educated student has less difficulty in understanding them thoroughly.

But the object of this paper is to show that the dental should be equally educated with the medical student. This is so: because the dental profession is a branch of medical science: because one of the specialities of the dentist, is the treatment of disease, calling for, at times, profound judgment: because another speciality is surgery, sometimes demanding the greatest surgical skill; because the text books of the medical, are also, to a great extent,

those of the dental student. Anatomy, the first book placed in the hands of the medical, is also the first presented to the dental student, and is "the substratum of all medical knowledge." If medical science depends upon a thorough understanding of anatomy (this will also apply to dental science), is it possible for any one to be a thorough medical man who is not a classical scholar, since we must admit that the anatomist must be a classical scholar. This is true of any other study connected with the profession of medicine, and as the dental profession is so closely connected with it, the dental student using the same text books, and undergoing to a great extent the same training; it follows, that what applies to the one will apply to the other also.

It is a general conceived notion, that the profession adds dignity to the man. This is a false idea; it is the man who dignifies the profession. Can you show me anywhere, one illiterate man of whom it may be said, he dignifies his profession? It is impossible. If this is true, gentlemen, is our profession to be an exception to the rule? The educated mind dignifies the man, and, if the profession of dentistry is to be exalted in the eyes of an intelligent world, it must be done through its membership, and that membership must be composed of men possessing cultivated minds. Intelligent people always desire to associate in their business transactions with intelligent men, and never fail to honor the calling for the sake of the man.

It has not been my intention in these remarks to cast a shadow upon the mind of any humble worker in the right direction, whose literary attainments are of a limited character. Be it remembered that the majority of us are of such, and let it urge you onward, when you recognize the fact that an incarnate God made choice of the humblest of Judea's sons as instruments to establish that religion which claims the great men of the world for its advocates. I have intended these pages to apply more particularly to the coming dentist than the existing one; but should they stir up to action the slumbering energies of any member of this society, my object will be more than accomplished.

To my young brethren possessing limited education I would say that two hours daily devoted to your books, even without a teacher, will, in a few years give you that position in your profession and in society, of which you would be proud, and prove to you, that an appreciating world does and will honor the educated men. The world's history points me to men who have climbed

fame's ladder to its highest round, and did it in this way, under less auspicious circumstances than at present surrounds you. Why cannot you do it? Who says, I will?

NOTES OF SOME EXPERIMENTS IN VULCANIZING INDIAN RUBBER.

Written for the Ontario Dental Society, June 8th, 1870.

In all the range of mechanical and industrial arts, there is, perhaps, no one article which has been made available for so many and so multiform uses as Caoutchouc, or Indian Rubber.

Fifty years ago it was imported from the East Indies, solely for the manufacture of pencil erasers.

Since then human ingenuity has made it subservient to our necessities, comfort and luxury in a thousand different ways. The uses and importance of indian rubber have been very greatly increased by the discovery of Charles Goodyear, that, when india rubber and sulphur were mixed in certain proportions and the compound submitted for a considerable time to a high temperature a product was the result which was hard yet elastic, dense yet flexible, and for all practicable purposes insoluble. The name given to this compound is vulcanized rubber.

These valuable properties brought the vulcanite immediately into the notice of manufacturers of various classes of goods, and during Goodyear's lifetime it had been employed in the manufacture of more than 500 distinct articles, protected by 62 patents, obtained from the American, English and French Governments.

About twelve years ago it was proposed to substitute vulcanized rubber for silver and gold as a base for artificial teeth. The compound then introduced was said to be composed of about four parts of rubber, three parts red sulphuret of mercury and two parts flowers of sulphur. This was directed to be subjected to a temperature of 320° for a period of from four to five hours.

This, when properly manipulated, produced a material more perfectly suited to the wants of the mechanical dentist than any preparation of rubber which has since been introduced.

Whether the compound was essentially different from that now in use, or whether the cumbrous, complicated and expensive apparatus then used for vulcanizing, requiring a much longer time for completing the hardening process, was better suited for the manufacture of a strong article, the fact, I think, will scarcely be

disputed by those who have paid any attention to the subject, that the earlier specimens of vulcanite introduced into this Province, while equal in color and in susceptibility of polish, were much stronger and less liable to wear and lose their polish in the mouth than the varieties now in general use.

The introduction of vulcanite into the dental laboratory while heartily and almost enthusiastically accepted by a great part of the profession, was met by the earnest protest of nearly all the more prominent and more advanced dentists of Philadelphia, New York and other large American cities. This protest was founded on the fear that the comparatively small amount of skill required to manipulate the rubber would enable empirics and unscrupulous men to reduce the price of artificial dentures as to make very many ignorant persons neglect the preservation of the teeth, have them extracted and replaced by artificial ones, to their own personal and permanent injury and to the great injury of the conscientious and high minded dentist, who must ever consider the preservation of the natural teeth the highest aim of his profession. The result has unfortunately justified the fear. Thousands of teeth are each year being extracted, which by skilful treatment might have been preserved. It is a subject on which much difference of opinion may well exist, whether, after all, the benefits to humanity resulting from bringing the price of artificial dentures within the easy reach of all classes of the community, has not been more than overbalanced by the wanton extraction of the natural teeth which has also resulted from the same cause.

In spite however of this opposition, founded on a praiseworthy conservatism and of the still more widely spread opposition which arose owing to the oppressive exactions of the representatives of the Goodyear patent, vulcanite as a base for artificial teeth has become all but universal.

The section of the profession which thus gave the "cold shoulder" if not actual opposition to this innovation in mechanical dentistry comprised probably a very large proportion of the dentists who have the skill, the taste, the knowledge and the means necessary to imitate and carry on to completion such experiments as might result in very materially improving the vulcanite for dental purpose. Not approving, they have declined to attempt improvement, hoping rather, perhaps, that acknowledged defects might eventually drive the material from the laboratory.

On the other hand a very large portion of our profession, in this

as well as other countries, practice dentistry simply for the dollars which it brings them, and are consequently satisfied with any material that is offered them, which tends to increase their profits. From these, and it may be other causes, improvement in vulcanite for dental purposes has been left mainly to the manufacturers, who, apparently satisfied with their sales, put themselves to little trouble to cater to the wants of the progressive dentist.

On no subject of anything like equal interest to the dentist has so little been published in our dental periodicals by the prominent men of the profession.

While regretting that such should be the case, I do not for a moment presume to be able to supply the deficiency. However good the will to do so might be, the necessary leisure, skill and means are entirely wanting.

The experiments proposed are within the easy reach of every intelligent dentist.

If we have not the means at hand of improving the quality of vulcanite, we have at least the means of ascertaining by careful experiment which, of all the samples offered to the profession, are best suited to our wants, as also the heat and length of time necessary to produce the best vulcanized rubber. On these two points I propose to experiment. When the subject of this paper was announced I expected to have had much more leisure to devote to it than other and pressing engagements have left me.

The samples which I have tested are nine in number, viz.: "Boston Star," "English Red," "English Pink," "Hard Rubber Co.," "Black," "White," "C. Ash & Son," "Johnson & Lund," and a sample furnished by Mr. Chittenden, maker unknown. The results, while they have not been entirely satisfactory to myself, have induced me to discard the rubber which I have been using for some time from the conviction that it is not equal in strength to other samples of equally good appearance. The essentials of a good rubber are toughness, elasticity, rigidity with a certain amount of flexibility, suitable color, density, and susceptibility of polish. To ascertain the comparative degree in which these characteristics were possessed by the samples under consideration I carefully prepared two small strips of each—making them all as nearly as possible of the same size and thickness.

These I vulcanized, the first series, for one hour, at a temperature of 320°. The second series, for forty minutes, at a temperature of 350°. Having them prepared, to ascertain their relative

strength I secured the end of each in a small vice and broke them with an ordinary spring balance, applying the pressure as nearly as possible at right angles to the piece, and carefully noted the number of pounds force at which each broke. This register was as follows:—

Boston Star....1st series	20 lbs 2nd do.	18 lbs.	C. Ash & Son..1st series	14 lbs 2nd do	9 lbs.
Hard Rubber Co.1st do.	20 " 2nd do.	16 "	Black.....1st do.	10 " 2nd do	12 "
Johnson & Lund.1st do.	18 " 2nd do.	8 "	Chittenden....1st do.	7½ " 2nd do	5½ "
English Red....1st do.	14 " 2nd do.	16 "	Pink.....1st do.	5 " 2nd do	6 "
			White 1st series	5 lbs. 2nd do.	5 lbs.

The Boston Star and Hard Rubber Co., broke with a fibrous fracture, indicating toughness, strength and flexibility.

Johnson & Lund's exhibit the same characteristics but in a somewhat less degree, especially the sample vulcanized at the higher temperature. The English Red and C. Ash & Son's are of about equal strength though much inferior to the former. The "Black" bent and cracked at 12 lbs. indicating a lack of rigidity and elasticity, when vulcanized at ordinary temperatures. Mr. Chittenden's sample, though supposed to be something extra costing \$10 per pound, proves to be inferior, the strongest sample breaking at 7½ lbs.

The White and Pink break with a clear crystalline fracture at about 5 lbs., showing them to be quite worthless for making dental plates.

In color Johnson & Lund's to my mind is the most pleasing, though not by any means of a gum color. Boston Star and Hard Rubber Co. are a shade darker though of the same bright color. English Red and C. Ash & Son's are very much alike, of a dark brown shade. Pink is perhaps the nearest the color of the healthy gum. All the samples of red rubber tested are capable of a good polish. Examined through a powerful magnifying glass the Pink and White exhibit a large proportion of earthy matter which appears to be very badly mixed. The bright colored samples, Johnson & Lund's, Hard Rubber Co., and Boston Star appear to be almost perfectly homogeneous, Johnson and Lund's the more dense, Boston Star the more porous. English Red and C. Ash & Son's are very evenly mixed, of fine materials, very dense, and probably capable of a higher polish, but not equal to the red samples in strength. The Black would seem from its toughness to be well adapted for clasps, but does not vulcanize thoroughly at the heat required for red. In the sample tested the sulphur does not seem to be perfectly mixed with the rubber, leaving small

soft spots in the vubcanized article. For all purposes I would prefer of the samples before me the Hard Rubber Co.'s, as combining in the greatest degree the characteristics of a good rubber. It will be observed that with one exception the samples in the first series were stronger than the same rubber of the second series, some of them very markedly so. From this and other observations made from time to time I am of opinion that increasing the heat beyond 320° and shortening the time produces an article inferior in strength.

My impression is that vulcanizing the varieties in general use at a temperature of from 290° to 300° for 100 to 120 minutes would produce an article of better color and of materially greater strength. I hope some day to have leisure to verify these experiments and to satisfy myself more fully of the merits of the various preparations of rubber offered to the profession. In the mean time if I have excited in the mind of any member of the society sufficient interest in this question to induce him to experiment for himself my object in writing this paper will have been fully accomplished.

PROCEEDINGS OF SOCIETIES.

FIRST DISTRICT DENTAL SOCIETY OF NEW YORK.

At the meeting of this society, held in April, 1870, a paper was read by Dr. Atkinson on "Wasted Alveolar Process."

The paper started out with the declaration that to ask questions upon this particular subject requires more of him who is to *answer*, than enters into the mind of most persons who ask them. The greatest difficulty in the way of clear elucidation and explanation to dentists as a class, is their utter lack of knowledge in histology.

"Coming into the practice of dentistry from the shop, rather than from the college, is the principal cause of this lack." "And even those who have availed themselves of all the colleges have taught are yet in the alphabet of histologic science." "Inspection of the exterior of systems and organs is not sufficient,—we must become familiar with the character of bodies too small to be seen by the natural sight, before we can comprehend the subject of function." In order to make a proper diagnosis and prognosis of a case, a knowledge of the formation, growth and nutrition of the parts concerned is necessary. The normal function of the territory

concerned is to accept or reject the pabulum or non-pabulum respectively; "the two conditions of interference are deficiency and excess of the work of the normal functions." The elemental bodies of the alveolar process are a mixed example of mineral and vegetable elements, produced and maintained in specific degree of differentiation by animal surroundings: the first being pabulum; the second, nervous; the third, vascular in character. These animal bodies themselves partake in their degree of the character of vegetable and mineral modes of maintaining existence." "The enamel is maintained in sound condition exactly as crystals are in the mineral domain of natural bodies: the dentine is kept in condition by the to-and-fro movement of fluid in the passages which admit it, after the manner of vegetable." "Bone is supplied by a mixed expression of these mineral and vegetable modes of endowment: cement may, in this sense, be classified as bone; although it is the compromise of nutrient activity, just midway between dentine and bone proper, of which the alveolar process is a legitimate type."

The gum tissue, wrought out of the blood corpuscles, and callagonic fibres, is well supplied with blood-vessels, but sparingly with nerves, especially the margin around the neck of the teeth, which is wrought into connective tissue fibres, and constitutes the "ligamentum dentium."

(It is impossible to do justice to the remainder of the paper without quoting it entire; but a few points only can be given here.—Sec.)

"There are two forms of wasting of the alveolar processes, viz., solution of earthy material in the membranous or callagenous matrix,—the latter remaining entire in place—and solution of both matrix and mineral salts." "The latter occurs under two forms also," "atrophy," and "ulceration." Ulceration is the result of systemic debility or local uncleanness; "atrophy results from pauperized blood or mechanical interference." Mechanical disturbances are of two kinds,—foreign matters, and injudicious cleansing operations.

"The production of the alveolar processes is part and parcel of that of dentition; and the only reason why the alveolar processes are liable to wasting and reproduction to a degree not known to the "enamel and dentine, is in consequence of the difference of the mode of growth and nutrition." "In all cases of wasting caused by constitutional degeneracy, general treatment combined

with local cleanliness will be the remedy." In cases of ulceration, cleanse, and use a strong solution of chloride of zinc. "After which, establish correct hygienic habits, and all is well."

The brush should be moved in a line with the tooth, from gum to crown, and never transversely. Polish off Nasmyth's membrane so soon as the crowns of the temporary or permanent teeth emerge from the gums.

The doctor then proceeded to speak at considerable length on the subject, and said the teeth were sometimes brushed too much, and poor brushes and injurious dentifrices are used. He recommended J. D. White's brush; said correct hygienic habit consists in keeping the mouth and teeth clean: remove everything that does not belong there. He only objects to injudicious manner and means.

Dr. Bogue does not think that Dr. Atkinson has ever seen teeth brushed too much, though he may have seen them brushed improperly, unless it may be in cases of ptyalism, or where the necks of the teeth have been denuded by salivary calculus or accident. If the mouth is opened, and the teeth brushed by longitudinal motion and a rotary movement, so that all four sides of the teeth are thoroughly cleansed and the gums properly excited, you will have no injury, but only benefit, from brushing.

Dr. Francis related a case of a lady who had for years been troubled from inflamed gums. At times they would swell so as to almost envelop the crowns of the teeth; alveolar process was much absorbed, and several of the incisors, both superior and inferior, had worked considerably out of position; patient had taken rather more than ordinary care of her teeth and gums, by daily cleansing, and occasionally using astringents. Her mother lost her teeth at an early age; and the children of the patient, of seven, nine and twelve years of age, exhibited evidences of a similar trouble. He considers this case a constitutional difficulty. In the large majority of cases where gums are diseased, he attributes the cause to collections of extraneous matter which find lodgment about the necks, and fill the interstices of the teeth. Harsh, gritty substances, used as dentifrices, will cause irritation to the gums. He condemns the use of charcoal; for, however finely powdered it may be, its sharp insoluble particles insinuate themselves into the gums, where they remain imbedded for years.

He objects to having dentists say that teeth are injured by

brushing; believes that where one person brushes too much a thousand are remiss. He hardly ever sees teeth as clean as they ought to be, and lectures his patients continually for the want of thoroughness. He does not base his opinion from office patients only, but from *general* observation. The American people have a bad habit of keeping their lips apart, and thus exposing their incisors. The rich and poor, residents of cities and country towns, all suffer in consequence of neglect to keep their teeth clean. People naturally shirk this duty, and are too ready to take advantage of statements made in regard to overbrushing. A physician once said to him that people in this country wore their teeth all out by brushing, and he always condemned the use of a tooth-brush.

Intelligent dentists should be cautious about making statements that encourage people to neglect keeping their teeth clean.

O. A. JARVIS, *Secretary*.

ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

A MEETING was held on Wednesday, February 2, 1870, in the Philadelphia Dental College building. The President in the chair.

Dr. M. Lukens Long presented a left inferior twelve-year molar, having three roots.

Dr. Alfred Cogswell, of Halifax, Nova Scotia, forwarded a canine tooth, with what appeared to be a deposit of salivary calculus near the apex of the root.

Dr. C Butler, of Cleveland, O., presented a cast of a case of muscular contraction of the jaw, from the effects of salivation.

The following gentlemen were unanimously elected as corresponding members:

Dr. J. G. Perry, No. 111 Madison Avenue, New York; Dr. William M. Hunter, Cincinnati, O.; Dr. J. N. Niles, West Halifax, Vt.

Then followed a somewhat lengthy discussion as to the origin and cause of the deposit at the end of the root of the tooth presented by Dr. A. Cogswell.

Dr. Grady, of California, had met such a case in the mouth of a gentleman of sanguine temperament. The removal of the deposit was more difficult and painful than the extraction of the tooth itself would have been.

Prof. McQuillen considered the case as interesting as it was

rare, and believed it was a deposit of salivary calculus through a fistulous opening of a long-established abscess.

Dr. Eisenbrey thought the deposit on this specimen, judging from its character, was from the saliva, and not from the mucous glands. The deposit thrown down from the mucous secretions of the mouth partake largely of organic material, and are very injurious both to the gums and teeth when decomposing, while that from the salivary secretion furnishes an excess of inorganic material; and such appears to be the composition of tartar on the present specimen. The character of tartar, though very irritating to the soft tissues, exerts a preservative effect on the teeth themselves, though eventually it proves their destroyer by taking away their support. It is not at all uncommon to find teeth under the tartar sound, white, and as well preserved as it is possible for them to be, and if it fill a cavity of decay, it will often preserve the tooth.

How this deposit got to the apex of the root is a question that each one can answer for himself, but none can describe it satisfactorily. Just as it collects around the necks of teeth, so it may reach and collect at the apex. This specimen presents the appearance that an effort has been made to remove the tartar, which was unsuccessful; hence the result was the loss of the tooth, from the inability to remove the cause. Had thoroughness attended the operation, he makes no doubt that the tooth would have remained comfortable and durable for a long time to come.

Prof. Stellwagen explained a manner in which the tooth might have been held in a position by a small portion of the periosteum (peridentium, pericementum), a portion of which was still firmly attached to the specimen on one of the approximal surfaces of the root, and which seemed to have been the only point of attachment left at the time the tooth was extracted, since there was no trace of any other, and the tooth, it was said, had been very easily removed, showing this slight point was that by which the tooth was suspended in a cavity formed by the alveolus, lined perhaps with periosteum. (Such cases are often met with in alveolar abscess, when the pus discharges around the neck of the tooth.) The free motion of the tooth, oscillating like a pendulum, surrounded where it emerged from the cavity by the mucous membrane, made it a kind of pump piston, sucking and forcing the fluids of the mouth up to the top of the cavity; in this the free margin of mucous

membrane acted as a valve to retain it, and the deposition of the foreign matter could readily take place,—the friction of the sides of the tooth against the sides of the cavity keeping it clean there, and the apex, from want of, or only very slight motion, permitting it to remain as deposited.

Prof. McQuillen spoke of the new remedy, the hydrate of chloral, some of which he exhibited, and, directing attention at the same time to the possible use that might be made of it in excavating sensitive teeth and in the extraction of others, he then proceeded to make the following experiments :

I. A solution was made, which was allowed to stand some minutes before using, and from the evaporation of the volatile portion it lost its effective properties, so that, when injected under the skin of a frog, it only produced slight insensibility of the eye.

II. Ten grain were dissolved in water, and by the hypodermic syringe were thrown under the skin of the thigh of a frog. In ten minutes there was a complete anesthesia, with a tetanoid and injected condition of the lower extremities, particularly the one to which the application was made. Death, without any appearance of pain, followed in eleven minutes, and upon opening the thorax the heart was completely paralyzed, not even answering to the prick of a knife.

III. Five grains as above in a frog showed the effect in two minutes. Animal died in about fifteen minutes, with the same symptoms as No. 2. The blood in each of these were very dark.

IV. Ten grains were used as before, under the skin of the thorax of a cat ; after being held quiet for thirty minutes, she seemed indisposed to move, but remained wide awake.

A meeting was held on Wednesday, April 6, 1870. The Vice-President, Prof. Kingsbur, in the chair.

Dr. Carl Emmanuel Tellander, of Stockholm, Sweden, presented, through the Corresponding Secretary, some very curious and beautifully constructed extracting forceps, that were made by him in 1840, after patterns used by Dr. Burdell, of New York city. These instruments were about seventeen and a half inches long, the beaks being about two and three-quarter inches to the joint, thus preventing that leverage which such an unusually long handle would give, and at the same time admitting of spring enough to grip very securely without much danger of crushing teeth. It

was a part of the design of their manufacturer to allow them to be held with both hands at once, so as to be serviceable where the operator was weak or timid. There was also a pair of forceps of the ordinary size, with a hook forged upon one of the handles, that projected between them for the forefinger to be placed over.

These contributions were no less valuable as historical relics than for the perfection of their make and finish. After about thirty years of use, they still were almost as free from blemish as on the day they were completed.

The same gentleman also presented a cast in plaster, representing the mouth of a patient for whom he had extracted twenty-eight supernumerary teeth.*

The Society expressed itself as highly gratified with these valuable additions to its museum, and a vote of thanks was unanimously tendered to the donor, and his name handed to the Executive Committee to report upon for corresponding membership.

Dr. Trueman exhibited some specimens of nickel-plated dental instruments. He said it was considered to be superior to silver, as it was harder, more durable, and not liable to oxidation or discoloration from sulphur. The difficulty of depositing the metal upon steel had recently been overcome, and its efficacy could be judged of from the manner in which the ordinary brass pins wear. These had for some time been coated with nickel.

It was ordered that the subject for the next discussional meeting, Wednesday evening, June 1, 1870, be: "The Free Use of the File and Chisel as a Means of the Preservation of Teeth."

The Corresponding Secretary was directed to address Dr. Robt. Arthur, of Baltimore, Md., stating that the society would be pleased to see him present, and hear him describe the methods approved by him.

In the absence of the regular essayist, Dr. Eisenbrey introduced the subject of absorption and recession of gums from the necks of teeth. He has seen it take place in the mouth of young persons as well as older ones, of both sexes, where the teeth were immaculate and the gums perfectly healthy. He recognizes that hard and frequent brushing, with a stiff brush, the use of charcoal and other insoluble dentifrices, will cause it. But when these

* See Transactions of the Odontological Society of Great Britain, where drawings of twenty-four and full description of case are given.

things are not used, and the teeth receive judicious treatment, why does it take place? and what is the treatment for arresting it, or to excite a reformation of the lost parts? In elderly persons he attributes it to the usual waste and repair of the body, and the greater density of the teeth, and consequently a less amount of vitality, and which vitality was necessary to maintain the affinity between the gums and the teeth; such affinity no longer existing, the gum pulls off and supports itself, leaving a portion of the roots exposed to the ravages of decay. He feels a lively interest in the subject from a personal standpoint, having almost every tooth-neck so exposed. By using a tooth powder composed largely of *chalk*, he prevents the softening of the exposed portion of the root. To restore the gum, he has used as stimulants chloride of zinc, nitrate of silver, iodine, etc., but without any perceptible reparative result. The zinc and silver diminished the exquisite sensibility of the cementum, without discoloration, but after a time it again returned.

Dr. Trueman reported twelve cases of capping exposed pulps with oxychloride of zinc. Five were cases of recent exposure; the teeth (two lateral incisors, one bicuspid, and two molars) had given but little pain; all in young and healthy patients. The exposure in each case was complete. They gave no pain during the operation, and, as far as heard from, are comfortable. The bicuspid was filled Jan. 1869; the others are more recent. Four (one bi-cuspid and three molars) were more favorable cases, the pulp being protected by a covering of dentine, but not sufficient to bear the pressure of filling without the capping. He preferred, in these cases, prepared gutta-percha, or Hill's stopping. In three cases the pain was so severe that the capping was removed and arsenic applied. Although the success attending these experiments was quite flattering, he was not yet prepared to indorse capping exposed pulps as current practice. The cases selected were for patients he frequently met with, and who would report immediately if they gave any trouble. With these experiments he intended to let the subject rest until sufficient time has elapsed to pronounce judgment upon it. He also spoke favorably of Dr. Stellwagen's modification of Dr. McQuillen's lead-water and laudanum mixture for periosteal inflammation, suggested by Dr. S., at a meeting of the Society, Jan. 1869. Since then he had used it quite frequently with the happiest result.

Prof. Stellwagen compared the recession of the gums from the teeth to the absorption of the skin from around the root of the finger nails; indeed it was only an exemplification of the laws of supply and demand witnessed anywhere in the economy. The continued wearing of a finger-ring produces a change in the tissues under it from pressure. If the fingers were not properly attended to, and the amount of work required to keep the growth of the skin from off of the nail neglected, in a short time the cuticle would almost cover the nails, as on the hands of persons wearing splints, the feet of cripples, etc. The teeth, if not properly used in masticating hard substances, would be surrounded by unhealthy and tumid gums, as we see in the sick; while, on the other hand, the too constant or severe use of the nail or tooth-brush produced the opposite results, such as complained of. Again, if a splinter is pushed between the nail or tooth and the flesh, it will cause this same condition, only locally; but if many fine splinters, as are found in the charcoal tooth powders, bole armenia, or any other insoluble dentifrice, are placed under the free margins of the gums, they will cause irritation enough to result in this trouble.

To speak of this condition as occurring without causes would of course be illogical, and no doubt in Dr. Escobrey's mouth this state was originated by the use of charcoal as a dentifrice, which he admitted he had employed some years ago. The morbid condition excited then has been kept up since by the lodgment of foreign matter of various kinds, or some irritant.

The treatment, however, is clearly indicated. After having removed the cause, stimulate and guide the parts to regain their former healthy condition, using for this purpose the proper instruments, a soft brush, the finger, and, if necessary, stimulation by washes, one of the very best being the solution of the chloride of zinc, ten grains to the ounce of water, applied of full strength, or diluted as the case demanded, to the necks of the teeth and gums, three or four times per diem on a little cotton wool.

He then stated that he had been experimenting with the oxychloride of zinc, and found that much of it varied greatly in the time required for setting. He had succeeded in getting some that would set in thirty seconds after mixing; hoped to report more fully at a future meeting, but, so far as his experiments had gone, the differences between mixtures containing small quantities of borax and silix with the oxide of zinc and the pure oxide

were not evident. With a fine white oxide he had not even found it necessary to calcine to obtain this result. The fluid used was simply the deliquesced chloride of zinc.

The seventh annual meeting was held Wednesday, May 4th, 1870, the President in the chair.

The Recording Secretary reported that nine regular stated and two special meetings had been held during the past year, at which essays were read and discussions entered into. The roll of membership contained 107 names, of which 48 were active, 44 corresponding, and 15 honorary.

The reports of the officers were accepted, and the society proceeded to consider the following amendments to the Constitution, which, according to the custom, had laid over for one year:

“ Any one who shall procure a patent for a remedy or instrument used in medicine, surgery, or dentistry, or who shall keep, or profess to keep as a secret from the profession any compound, prescription, or mode of treatment, in either of the above professions, or who shall enter into a collusive agreement with an apothecary to receive pecuniary compensation for patronage, for sending his prescriptions to said apothecary, or who shall hereafter give a certificate in favor of a patent remedy or charlatan, shall be disqualified from becoming or remaining a member of this society.”

The 4th article of the Constitution was also amended to insert the word “ curator ” immediately after the word “ librarian,” in the list of officers.

The By-Laws had an article inserted to read:

“ The Curator shall take charge and keep an accurate record of all the specimens presented to the society, with the history of each, so far as he can obtain it, and the names of the donors.”

They were adopted separately without a dissenting vote; and a motion to amend the By-Laws was offered, to make them read: “ The annual dues shall be \$12.” This motion was amended to make the dues \$5, and an amendment to this amendment was made to make the amount \$3; these were then laid over for consideration at the next annual meeting, Wednesday, May 3, 1871.

Prof. Kingsbury introduced a preamble and resolutions approving of the course of the Hartford Dental Association, declaring

Dr. Hodace Wells to be the discoverer of Anæsthesia, and inaugurating a movement to raise a monument to his memory.

The following officers were unanimously elected for the ensuing year :

President.—Dr. J. H. McQuillen.

1st Vice-President.—Dr. C. A. Kingsbury.

2nd Vice-President.—Dr. J. L. Suesserott.

Recording Secretary.—Dr. Alonzo Boice.

Corresponding Secretary.—Dr. Thos. C. Stellwagen.

Treasurer.—Dr. Wm. H. Trueman.

Librarian.—Dr. C. M. Curtis.

Curator.—Dr. S. S. Nones.

Executive Committee.—Drs. Pike, Eisenbrey, and Long.

Prof. Stellwagen exhibited splints for fracture of maxilla capable of adaptation to any jaw, and also of being wired together, thus saving the time required to solder. The case will be reported.

Prof. McQuillen exhibited a necrosed portion of the lower jaw, consisting of a large part of the ramus and body of the bone on the right side, which he had recently removed from a child.

SELECTED ARTICLES.

CHLORAL HYDRATE AS A REMEDY FOR SENSITIVE DENTOS.

BY ROSCOE C. MOWBRAY, M. D., D. D. S., WARSAW, ILL.

Two years since the attention of the profession was called—by a gentleman of large experience—to the sulphate of morphia as a remedy of great utility in obtunding the sensitiveness of dentine.

Morphia *does much* to relieve sensitiveness *when placed in cavities*; particularly when it is placed there *properly*. I have never seen a case that morphia would not relieve to some extent, when used persistently.

To obtain the best results, free access to the cavity must first be obtained. This can usually be accomplished without much discomfort to the patient by the use of small chisels, from a lime to a half a line in width, and a mallet.

After carefully removing a portion of the diseased dentos, inject (by the aid of a small dental syringe) a strong solution of mor-

phia into the cavity, taking care to have the injection the natural temperature of the teeth, (about 98° Fahrenheit).

From the tubularity of dentine, as well as the communication of the irritated contents of the dental tubuli, absorption is exceedingly rapid. Appreciating the condition, as soon as the patient spits, you are ready with well-formed, sharp excavators to remove more diseased dentos, which you do speedily. If the condition is not much improved, inject it again, and repeat the application a dozen times if necessary.

Thoroughness in application is desirable, and perseverance is frequently essential to success. Teeth that this treatment does not relieve will invite your attention to other remedies.

A substance I have been using with great success is the new hypnotic, chloral hydrate. After suitably preparing a tooth, a strong solution of chloral may be injected; or, the chloral itself may be lightly compressed into every part of the cavity—which usually contains sufficient moisture to dissolve it; if it does not immediately soften, moisten it with a drop of water.

Thirty grains of chloral dissolved in forty of water, makes one fluid drachm of the saturated solution.*

When I use solid chloral I cover the orifice of the cavity with beeswax, and let the medicament remain for five minutes, when relief may be expected.

Thus far I have not used it in a single case without benefit. In many cases the relief is surprising; a complete absence of sensibility being effected.

It must be mentioned in regard to the use of this, as of all other dental medicines, thoroughness in their application is of the utmost importance, and often imperative to attain the desired result.

When a cavity approaches the pulp and is *very* sensitive, patients usually mention, "the tooth feels warm, but is not painful;" the effect is probably somewhat similar to that of chloroform, when placed in a carious tooth; but far more efficacious in cases of sensitive dentos.

The generally accepted view of the action of chloral, when given internally, is, that it is decomposed in the blood, and chloroform is set free; but its effect is different from the administration of chloroform by inhalation, being more prolonged in consequence of the slow evolution of chloroform.

*Lancet.—Braithwaite.

This peculiarity of the hydrate places it in a position between narcotics and anesthetics. Its somniferous principle has readily classed it with the hypnotics. The dividing line between anesthetics and narcotics has hitherto been sufficiently clear, but this drug calls attention to a new position, in some degree like both, but distinct from each.

I would state in conclusion, thus far I have observed no ill effects upon the pulps of teeth treated in the manner described.—*Missouri Dental Journal.*

CLEFT PALATE,
 ———
 STAPHYLOGRAPHY—URANOPLASTY.

BY J. HENRY CARSTENS.

(Continued from page 243.)

I can, in the present state of my experience, think of no form of congenital cleft palate in which either one or the other of the above described procedures would not suffice. In acquired defects of the palate, however, other proceedings may be necessary, and we may be required to transplant from one of the palatine or the alveolar processes.

The hemorrhage, during the operation of uranoplasty, is in most cases considerable, sometimes even so strong and sudden as to frighten the operator. The art. palatinae which ramifies in the periosteum, and must be cut in the incisions before described, is of such size that we have often seen streams of blood the thickness of a quill. As we are, however, always able to control the bleeding by ice water injections, I have never seen great prostration follow the operation. The use of ice water injections cannot be too much recommended; we now use a large 16-ounce syringe, with a nozzle turned at right angle, at the club-formed end of which are several openings. Styptics, as liquor ferri sesquichloridi, which prevent union by first intention, we have never used.*

In the majority of cases we found the reaction following uranoplasty less than that of staphyloraphy; yet in one instance no change of the pulse was perceptible from the operation to complete

*Liquor ferri sesquichloridi is, of all haemostatics, the most known and used. But it must be used with care, on account of the free hydrochloric acid which the commercial article always contains. It prevents union by first intention, and often causes inflammation and gangrene.

recovery, and we feared that the healing process would not take place, on account of the insufficient reaction.

I do not share the apprehension expressed by some, that exposing the whole arch of the bony palate would cause necrosis or exfoliation. I never saw an instance of it. The bony palate is less easily injured than other flat bones, for instance the bones of the skull, where I found, after rhinoplasty with the use of pericranium, a necrosis like exfoliation of the lamina of the bone.

The hemorrhage from the blood vessels of the bone, which is caused by separating the periosteum, soon ceases, and we can watch the exposed bone at leisure. In a few hours we are unable to distinguish the bone, as it is covered by a thin, dry, varnish-like substance. The first observed color is changed to a yellowish grey verging to red or reddish black. Touch the varnish-like substance and you find it dry. This remains until the seventh or eighth day, when the surface, which, however, still remains dry, gradually changes to yellow. We then notice a reddish tinge, first by small red spots that finally spread over the whole surface. The vascularity increases, and in four to six weeks complete regeneration and cicatrix is produced on the new involucrem palati. After fifteen months we saw one patient, and found the involucrem palati, although smooth and somewhat thin, still so like the normal that one who was not aware of the fact could not have told the difference. The surface was moist, the physiological appearance the same; the pathological formation of follicles has been sufficiently proven; still, I think it would require a microscopic examination to prove that mucous membrane with follicles has here been formed.

This immunity and regenerative power of the bony arch of the palate, is equaled by the same property of the muco-periosteal covering of the involucrem palati.

The muco-periosteal flaps, which are separated in uranoplasty, do not die, although they are stretched between two currents of air in the mouth and nasal cavity, if they are only attached to parts by which they can receive a sufficient supply of blood. This immunity is due, I think, to the periosteum, which is very vascular, being taken off, together with the mucous membrane. The mucous membrane alone does not possess this power, although the fissures have been closed by several operations, always a small flap taken at a time; but flaps of mucous membrane the size of

those mentioned in the above description, could not be taken without danger of gangrene.

Another evidence of the great reproductive power of the above named parts is, that in all ordinary cases, even the most complete congenital clefts of the hard palate, a new formation of bone takes place from the separated periosteum, forming a complete, solid arch. In all cases of congenital cleft palate that remained under observation more than four weeks after the operation, we have been able to prove the new formation of bone. This formation of new bone seems to commence three weeks after the operation and be complete at the end of the fourth, but consolidates more after that time. This, therefore, takes about the same length of time that is required to unite a fractured bone by first intention.

The apprehension that the newly formed bony palate may, by retrograde metamorphosis, again disappear, can now be proven without cause by numerous examples, as a fractured bone that has healed, in the course of time only gains in solidity, so the bone newly formed from periosteum only attains more compactness. As the callus in a fractured bone is slowly absorbed and disappears, so the arch of the palate, at first rough, gradually becomes smooth, the swollen cicatrices of the incisions at the sides vanish, and leave a normal appearance.

Taking the statistics of our operations as conclusive, it would not be advisable to close the soft and hard palate at one operation, viz., staphylo-uranoplasty. But as it is desirable that this very painful operation be finished at one sitting, I hope that at some future date we may be able to accomplish this successfully. At present, however, I think it advisable, especially if the patients are children, to commence with uranoplasty, and then perform staphyloraphy, the time to elapse between these operations depending on circumstances.

The opinion of Pollock that the operation of staphyloraphy should not be performed before the age of seventeen or eighteen, is based on the failure of eleven cases that were operated upon by Billroth, Passavant and others. Billroth has since operated according to my method on a child twenty-eight weeks of age, with complete success. Still, I think that although the recuperative powers of nature are great in children, it is not advisable to operate before the end of the first year.

The articulation of patients with cleft palate is of a very

stuttering kind, and their speech guttural. In several of my patients I found decided improvement in speaking, when they left the clinic five to eight weeks after the last operation, whom I had subjected to daily exercises in reading and speaking.

A systematic course of vocal gymnastics is not only beneficial but absolutely necessary, to make the operation a complete success. The words of Wutzer are to the point when he says (*D. Klinik*, 1850, s. 263): "The operation for cleft palate is for the improvement of speech, what tenotomy is for club foot or wry neck; it gives you an opportunity of gaining your object by a systematic course of orthopædic after-treatment." (*Langenbeck, Archiv. Klinischer Chirurgie*, 1863.)

By this it will be seen that Langenbeck's method differs from all others that have been heretofore made use of, by separating the periosteum as well as the mucous membrane, and using both for plastic purposes.

Until within a few years, surgeons have generally tried to relieve this deformity of the palate by means of an apparatus called obturator. Although these obturators have been made very perfect (especially by the labors of American dental surgeons), they can never take the place of the natural bony arch. An obturator presses on the edges of the fissure, and thereby, in the course of time, causes absorption, and makes the deformity only more extensive.

In the future, no surgeon who keeps up with the advancement of his profession, will think of using such an apparatus when he can relieve his patient permanently by an operation.—*Detroit Review of Medicine and Pharmacy*.

EDITORIAL.

END OF VOLUME TWO.

With the present number we close the second volume of this Journal, and in doing so, we wish to thank our friends for the very liberal support they have given us during past year. We are fully aware of the fact that we have not made it as interesting and valuable as it might have been, but we must say that we have not received as much literary assistance from the Dentists of Canada as we might reasonably have expected. Had each one of our readers contributed his mite, by relating his manner of

performing some difficult operation successfully, or of his failure of success, and the reasons for the failure. A vast amount of useful information might have been gained to the profession at large. For the next volume we have promises of contributions from a large number of the Dentists, not only in Canada, but of the States and England, and we trust that as the Journal grows in age, it will grow in the estimation of our readers. As one of the proprietors lives in Montreal and the other in Hamilton, it has been found a little troublesome at times to arrange our accounts with our subscribers and advertisers, and after due consideration it has been decided that it will be best that the proprietorship of the Journal shall revert to Mr. Beers, who was the originator of it. In doing this it is not proposed to change the editorial Management except that we hope to have the assistance, as corresponding Editor from the States, of a gentleman who has already written several articles which have appeared in our columns.

Contributions to the Journal may be sent to either of the Editors.

All accounts *now due*, either for subscriptions or advertisements should be sent to the Editor at Hamilton.

All subscriptions for the future, and all advertisements should be sent to the Editor at Montreal. C. S. C.

CHANG OF PUBLISHING DEPARTMENT.

In fulfilment of an understanding with our respected colleague, Mr. CHITTENDEN, we will with the next number, again assume the publishing department of the *Journal*; and having made special arrangements for its prompt issue, improved appearance, and the addition of illustrations by one of the best engravers in the Dominion, we venture to believe it will continue to merit the encouragement of the Canadian and American profession. We prefer to let the next number speak for itself. And yet, we aim at still greater improvements, determined to do our best, and give the best we can. The next number will not be issued until the 1st of October, after which the *Journal* will appear regularly on the 1st of every month.

OUR NEXT NUMBER.

We must ask our friends to bear with a short delay in getting at the first number of the transfer of the publishing department,

a great deal of extra labor is involved in beginning. We promise to have the *Journal* out sharp on time, on the first of every month. In the meantime we will be glad to receive contributions. The next number, besides much other interesting matter, will contain the following Original Communications:

1. Periodontitis, by Dr. Waite, Liverpool.
2. Rare case of Abnormal Development, (with a wood-cut illustration), by Dr. Lefairve, St. Johns.
3. Dental Hygiene, by Dr. Nelles.
4. Carbolic Acid, by G. V. N. Relyea.
5. Another case of Artificial Teeth in the Stomach, by Dr. Cogswell, Halifax.
6. Drying Cavities, by J. H. Webster, Montreal.

We will be glad to hear from our Ontario friends after the receipt of this number, in the way of contributions. W. G. B.

OUR EXCHANGES.

We return our most hearty thanks to the Editors and Proprietors of the following list of Periodicals, for exchanging with us during the past year.

Dental Cosmos; Dental Register; Missouri Dental Journal; Dominion Medical Journal; Bosto. Medical and Surgical Journal; Dental Office and Laboratory; American Journal of Dental Science; Pacific Medical and Surgical Journal; Phrenological Journal; Canada Medical Journal; American Homœopathic Observer; Ohio Medical and Surgical Reporter; Hahunimaninan Monthly; Boston Journal of Chemistry; New York Medical Gazette; New England Medical Gazette; Buffalo Medical and Surgical Journal; The Educator; Chicago Medical Times; American Journal Materia Medica; Dental Advertiser; The Health Reformer; Dental Times; Detroit Review of Medicine and Surgery; Canadian Star of Odd Fellowship; Gynœcological Journal; Oregon Medical and Surgical Reporter; Philadelphia University Journal of Medicine and Surgery; Medical Independant; Canadian Pharmaceutical Journal; Braithwaitis Retrospect.

The article on experiments in vulcanizing India Rubber should be credited to J. B. Willmott.

To the Editor of the Canada Journal of Dental Science.

DEAR SIR,—In looking over the report of the proceedings of the Ontario Dental Society as published in the last number of the *Journal*, I notice an error respecting the state of the finances.

The Report says: "The Finance Committee reported a balance

of \$7.00 in hand after paying all indebtedness." I am happy to state that the Treasury is in a much better condition than the above would indicate. The amount of funds now in hand to the credit of the Society is \$79.06.

J. BOWES, Treas.

O. D. S.

Hamilton, July 26th, 1870.

CHLORAL HYDRATE NOSTRUMS.

The great success and the growing popularity of that valuable remedy, hydrate of chloral, have led to the putting up for sale of nostrums called "Syrup of Hydrate of Chloral," "True Chloral Anodine," "Elixir of Chloral," "Solution of Chloral Hydrate," etc. Now it is important that physicians, and all others interested, should understand that the new agent cannot be mixed with syrup or other aqueous or spirituous bodies, without soon undergoing spontaneous change which renders it comparatively worthless as a hypnotic. What the nature of this change is, we do not well understand at present. We have specimens of the aqueous solution and syrup prepared two months ago, which have undergone important modifications. In crystalline form, in well stopped vials, the substance keeps perfectly well, and in this form it is probably permanent. If the nostrums just mentioned contain any of the agent, they are worthless, and may be dangerous.

Physicians should prescribe only the crystals, and should be very certain that they are pure. The taste of hydrate of chloral is quite unpleasant, but orange juice completely covers it, and so does peppermint water or essence of peppermint. If taken in aqueous solution, let the patient be directed to suck the juice of an orange immediately after swallowing the dose, or mix with the solution a little peppermint water, with syrup of tolu. The following is a good formula:

Take Chloral hydrate,	1 drachm.
Aq. menth. pip.,	$\frac{1}{2}$ ounce.
Syrup tolu,	$\frac{1}{2}$ ounce.
Aqua,	2 ounces.

Dose, from one half ounce to two ounce, as may be required.

The mixture should not be prepared in large quantities, nor be kept for any length of time, for the reasons intimated above.

Boston Journal of Chemistry.