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BY

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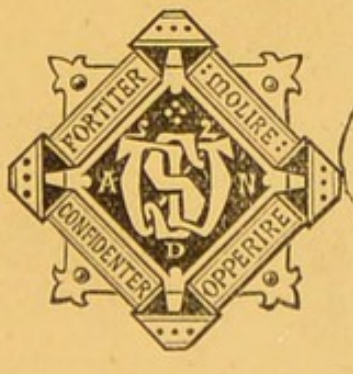

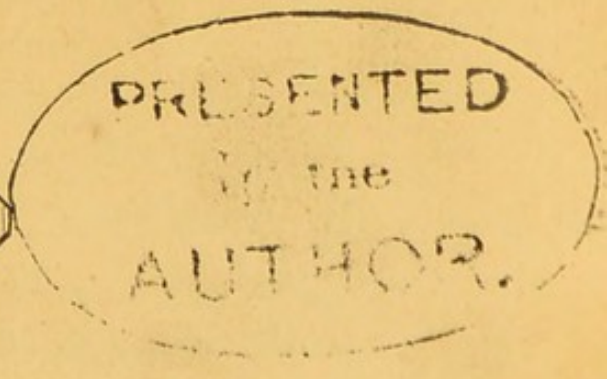

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On the Condition of the Mouth and Teeth during Pregnancy. By Mr. Oakley Coles.

Mr. President and Gentlemen,—There is an old-fashioned phrase, common amongst a large section of the female community,—"for every child a tooth."

I believe that the accuracy of the statement contained in this old woman's fable may be fairly doubted, but it is nevertheless true, that the period of pregnancy is one in which the oral secretions are subject to considerable alterations, whilst the teeth are peculiarly liable at this time to decay, or to undergo other pathological changes.

In the artificial life of the present day, the teeth are less able to resist the strain made upon them, in common with the other parts of the organism; hence we have during pregnancy an increasing liability to caries with each generation.

The interest of the subject, rather than my own qualification for writing on it, must be my excuse for treating of a matter in connection with which I would sooner have listened to some of the older members of this Society.

I propose in the following paper noticing,—

1. The changes and general condition of the teeth during pregnancy.

2. The condition of the gums.

3. The oral secretions, with their changes and influence upon the teeth.

4. The neuralgia of pregnancy.

And lastly, The remedial agents useful during pregnancy.

1. *The Changes and general Condition of the Teeth during Pregnancy.*—In a large number of cases the period of pregnancy passes by in a perfectly normal manner, the processes that take place are physiological, and no evidence is given (in the mouth, at any rate) of any pathological process having occurred. In other instances we find the first few months of pregnancy accompanied with severe toothache. This is usually (if it be a first pregnancy) attributable to neuralgia, and not to odontalgia. I shall therefore speak of it further on.

When the pain arises from the teeth, we generally find them the subject of caries, though not always. The one variety that I have found the most prevalent is the brown caries. The teeth are discoloured over most of their surface, the margin of the cavity of decay is black, and

beyond the margin, a shading of brown from almost black to a light stone-colour, spreads over the surface of the tooth adjoining the carious part. In the upper incisors and canines there is generally a line of green discoloration on the labial surface of the tooth, following the crescentic outline of the gum, or, in place of the green colouring matter, a dark line of blackish-brown, looking as if the enamel had been charred with a hot iron. The enamel is opaque in appearance and brittle to the touch.

As a rule, the upper and lower bicuspids will be seen in various stages of decay, the lateral incisors of the upper jaw standing next in liability to caries, and then the central incisors; the lower incisors, as a rule, escape, as under ordinary circumstances, apart from pregnancy.

The women of the lower classes seem more liable to this special description of caries during and subsequently to pregnancy than those of the middle and upper sections of the community.

A second variety that is very interesting, but comparatively rarely seen, is where decay takes place on the prominences of the palatine cusps of the upper bicuspids and molars. The cavity presents a ragged margin, and does not generally give rise to pain, since its existence is soon noticed by the tongue of the patient, and relief sought for at the hands of the dental surgeon. The dentine is found softened, but not much dis-

coloured, nor is the enamel changed in appearance, beyond the opacity surrounding the outline of the cavity.

We shall see the special interest attaching to this peculiarity of situation when speaking of the etiology of caries during pregnancy.

There is still a third description of decay requiring a few words of reference, and that is the soft caries.

Near the margins of the gum and around the necks of the teeth the enamel seems either to have disappeared or to have become so softened in texture, that a sharp excavator or enamel chisel easily passes through it: the teeth are very often exquisitely sensitive, and conscious of every thermal change. The removal of the softened tissue is an operation inflicting considerable pain, and it is very easy to go on cutting away till the pulp-cavity is nearly approached. Sometimes this softened state of the enamel and dentine is confined to a limited area, whilst in other instances it passes round the neck of the tooth like a ring. Whenever it is present, the enamel is generally less opaque in appearance than in the first variety of caries referred to, and there is, as a rule, no green or brown discoloration or deposit on the labial surface of the upper incisors.

All the teeth are liable to an attack of this process of disintegration; but the upper bicuspids, lower bicuspids and molars, and upper laterals

and canines, seem somewhat more subject to it than the rest of the teeth. Such an observation, however, is but of small value, unless extending over a larger area of cases than one observer has the opportunity of seeing.

There is a modification of this last variety, in which we find a general softening of the tooth without any actual decay, as it is ordinarily understood. The whole of the tooth (most frequently in my own experience an upper bicuspid) becomes very sensitive to the touch. A draught of cold air gives severe pain, hot fluids taken into the mouth produce discomfort, and occasionally even an instrument covered with cotton wool, or the touch of a linen napkin, will give a severe shock to the patient's nerves. Later on, in the history of such a case, we find the tooth more loosened from its socket, and at last it becomes a source of so much irritation to the patient, that even within a few weeks of her accouchement, she prefers undergoing the pain of extraction to the constant plague of an aching tooth.

Although we have loosening, there is no great elongation, or, to speak more correctly, protrusion from the socket, and we find that the loosening has been partly due to the absorption of the alveolus that has taken place. On removing the tooth, the periosteum of the fang is seen to be scanty in substance and anæmic in appearance. The tooth can be cut through easily with the

excising forceps or hand-saw; and on examining the pulp, even with an ordinary magnifying-glass, and pressing it between the finger and thumb, we are able to observe its fatty condition, unmistakably distinguishable from the ordinary healthy or inflamed pulp.

The cut portion of the tooth has also a soft greasy surface, very different to that which is felt with any tooth after extraction for inflamed pulp or periosteum with alveolar abscess. We have, I believe, a condition that may be fairly and scientifically called "fatty degeneration."

Although, so far as I am aware, this pathological process has not hitherto been associated with the pregnant state, still it is one that has been fully recognized and described in connection with senile and other forms of decay, by Professor Wedl ("Dental Pathology," pp. 233, 241, 415).

Thus, in treating of the affections of the pulp he writes:—"Fatty degeneration is of frequent occurrence, and is manifested in a general way by its diminished volume and succulency, its recession and pale reddish-grey discoloration, with a trace of yellow. . . . In some parts, the fat-globules form chainlike or fusiform aggregations, and follow the course of the vessels and nerves; in others, the minute fat-molecules are scattered in the interstitial connective tissue, which may be cleared up by the addition of acetic acid or carbonate of soda. . . . The pulps

of milk-teeth also, while the latter are undergoing resorption during the period of dentition, and really are senescent teeth, sometimes become the subjects of the above fatty degenerations, which occur in the same manner and form as with the subsequent teeth." Writing again of atrophy of the pulp, he states :—"The highest grade is displayed in the degeneration of the pulp into a soft greasy mass, unaccompanied by the odour of decomposition. . . . A tooth which has been the subject of a total decay of this description is no longer firmly attached within its alveolus." Whilst still further, when treating of the "Theories of Caries," he says :—"It is a familiar fact, that dead animal tissues undergo a marked fatty degeneration under certain circumstances; . . . fat may also be deposited in dead dentine; indeed it is found interposed in the dentinal canals in the form of drops."

There is, however, another explanation that may be offered for the softening that takes place in otherwise sound teeth, during pregnancy, and that is either a diminution in the supply of earthy salts, to repair the waste of constant use, or an actual resorption of the calcareous constituents of the teeth, such as takes place in the bones during the progress of osteo-malacia. Osteo-malacia is a disease peculiar to women, and generally connected with the pregnant or puerperal state, and it is quite possible that the condition of the teeth

that we have under consideration may be due to a modification of such a pathological process. This hypothesis is further strengthened by the fact, that in some cases softening takes place without any appearance of fatty degeneration.

It is somewhat singular, though I think it is capable of explanation, that "soft or white caries," with softening and loosening of the teeth unaffected with caries, is more commonly found amongst the upper classes, and those who have the reputation of being well nourished, than amongst the poor and lower middle class. It is perhaps desirable to mention, before leaving this part of the subject, that teeth that have been plugged before pregnancy are as frequently the seat of caries as others; and, moreover, we not unfrequently find that the margins of a cavity will have given way, leaving the plug standing alone, and only held in position by its deeply placed retaining-points.

2. *The Condition of the Gums.*—It may be well to state at once that, so far as my observations have gone, I have failed to discover any condition of the gums that can be regarded as specially and alone connected with the pregnant state. Whilst, therefore, speaking of those changes that take place in the gums, we must bear in mind that their appearance is due to influences that are in operation at other times than during pregnancy,

and that beyond the fact of their coincidence, they would call for no special attention.

When the teeth are the subject of "brown caries," with green deposit on their crowns, and tartar around the necks and fangs, we generally find the margin of the gum raised, glistening, and distended; immediately below the margin there is a well-defined reddish-purple line; occasionally this is of so deep a purple tint that it has been mistaken for a symptom of lead-poisoning; at other times we find midway between the margin of the gum and the purple line an intermediate space covered with cast-off epithelial cells. The surface of the gum is hot and painful to the touch, and bleeds readily. The affection is not confined to any special part of the dental margins, but is nevertheless most severe in the incisive region of both the upper and lower jaw.

In other cases we find the gums of a rather full colour, with their margins rounded, but not very much thickened; they are, however, separated from their attachment to the necks of the lower teeth (the incisors, canines, and bicuspids especially), and on pressing gently from below upwards, on the anterior surface of the gum, a thin fluid, and very often pus, is seen to ooze from around the neck of the tooth and free border of the gum.

This condition is not confined to those who are negligent in the care of their teeth, but will also

be found in mouths where the tooth-brush is used both freely and frequently.

We have here, doubtless, a state of passive congestion owing to impeded circulation, in the course of which a serous or corpuscular transudation takes place through the walls of the distended veins.

Associated (most frequently) with white caries, or softening and loosening of the teeth, we have an anæmic condition of the gums. Here, instead of the margins being thick and rounded, they are thin, pale, and shrivelled in appearance, withdrawn from the necks of the teeth, yet still adherent at a higher point of attachment; not unfrequently there is seen a prominent ridge a little beyond the free border, and this is sometimes of a deeper tint than the surrounding membrane. If any condition of the gums could be said to be especially associated with pregnancy, it would be that which I have just described, more especially as it is notably present in cases of frequently-recurring pregnancy.

3. *The Oral Secretions, with their Changes and Influence upon the Teeth.* — The changes that take place in the oral and buccal secretions are probably the most potent agents in the production of caries during pregnancy. The secretion of saliva is increased to a great extent, in many cases by irritation of the second

and third branches of the fifth pair of nerves, and also by the direct stimulation derived from the acrid eructations of the stomach and the morning sickness during the early months of pregnancy.

Test-papers, applied early in the morning, will determine the acidity of the contents of the mouth in a large majority of the cases examined, especially in first pregnancies; later in the day it is difficult to obtain data by means of test-papers that are of any value, since there are many agencies at work tending to counteract (if present) the acidity of the saliva. Patients will tell you that during their first two pregnancies (in most cases) they awake with an acid taste in the mouth, and after the sickness that usually occurs, the acidity in the mouth is much more pronounced, whilst the vomited matter is so acid in its character, that, even after standing for a considerable time, or if treated at once, by the addition of a little carbonate of soda or potash, a free liberation of carbonic acid takes place.

Before the sickness the secretion of the saliva * and mucus is generally increased, and the flow continues under the influence of the acid principle arising from the stomach.

From the recent investigations that have been

* "The act of speaking and also that of vomiting, are preceded by a flow of saliva."—J. Marshall, F.R.S., "Outlines of Physiology," first edition, 1867, p. 56.

made, there can be little doubt, I think, that the most fruitful source of the excessive flow of saliva is the acid matter regurgitated from the stomach, which undoubtedly possesses the power of stimulating the salivary glands. This is a point of great interest in relation to the origin of caries; I must, therefore, enter into the matter more fully than might at a first thought seem needful.

Dr. Sidney Ringer, in his "Handbook of Therapeutics" (p. 78), says:—"It has been fully established by repeated and careful experiments, that dilute acids, when taken into the stomach, possess the power to check its secretion; while, on the other hand, alkalies stand prominent among the most powerful exciters of the secretion of the gastric juice. From these facts the more general law has been inferred—namely, that acids possess the power to check the production of acid secretions from glands, while they increase the flow of alkaline ones, while the very reverse is the case with alkalies, which are supposed to check alkaline but to increase acid secretions. This general law (says the author) is made the more probable, as it fully explains the effects, which experience has shown to be true, of acids on the secretions of the alimentary canal in disease."

We see from the foregoing extract that there is more than one way in which to account both for acidity of the stomach and increased flow of

saliva. The salivary secretion may arise from dental irritation or neuralgia; and I may here mention that this has its analogue in the increased secretion that flows from the lachrymal glands when the ophthalmic division of the fifth is the seat of irritation. This * alkaline saliva being swallowed would increase the flow of the gastric fluids, whilst acrid eructations following, we have the salivary glands still further stimulated.

In Rigby's "System of Medicine" (1853, p. 63), under the head of Disorders of Pregnancy, the author says: — "The breath is usually sour, and an acid state of the saliva is indicated by the instantaneous reddening of litmus-paper laid upon the tongue." There is yet another mode in which increased flow of saliva and the production of an acid reaction may be produced, and that is by the gratification of the morbid taste that sometimes occurs in pregnant women for acid drinks and sour and unripe fruits.

Salivation † may occur, but it is rather rare, and,

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* "When first secreted, and especially during active secretion, the saliva is alkaline; that of the submaxillary is less so than that of the parotid. In fasting, the moisture of the mouth is nearly neutral, or even acid; at that time consisting probably almost entirely of mucus."—Marshall, *op. cit.*, p. 58.

† "The secretions are sometimes preternaturally excited, and one of the most remarkable of the effects of pregnancy is salivation. Some pregnant women have been as completely salivated as if they had been under the influence of mercury;

when present, is "easily distinguished," says Dr. Montgomery (quoted by Dr. Churchill, "Manual of Midwifery," fourth edition, 1860, p. 129), "from the ptyalism induced by mercury, by the absence of sponginess and soreness of the gums, and of the peculiar fœtor, and by the presence of pregnancy."

Hoppe-Seyler (quoted by Wedl, "Pathology of the Teeth," 1873, p. 335) states that after prolonged fasting, and particularly after continued talking, the saliva may become acid. Both of these conditions for inducing acidity generally obtain in women during the pregnant state.

Wright ("Physiology and Pathology of the Saliva," 1842, quoted by Wedl, *op. cit.*, pp. 355, 356) has observed that there are certain acids present in various specific diseases. Thus acetic acid is found in the saliva with aphthæ, indigestion, and after the use of acid wines, whilst hydrochloric acid is found in connection with simple gastric disturbances. The same observer has noticed that in purely facial neuralgia the saliva

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and hence the danger, lest the whole of the irritation should be attributed to the medical attendant if he should have given his patient mercury in any form . . . . It is necessary, therefore, to distinguish between it and mercurial ptyalism. The saliva is simply increased, continuous for a time, and then disappears without leaving any trace of previous irritation. In a few cases it has continued to the end of pregnancy, but generally it ceases at the end of the fourth or fifth month."—Murphy, "Manual of Midwifery," second edition, 1862, p. 53.

is alkaline, whilst in rheumatic pains in the face the saliva is acid. As these various conditions may arise in the course of pregnancy, they are of interest in the consideration of the subject before us. Beyond the changes that take place in the saliva we must notice the alteration in the condition of the mucus of the mouth. This, like the saliva, is secreted in greater quantities in most mouths during the early months of pregnancy; and although, in itself, comparatively innocuous, yet from its peculiar physical character and chemical composition (being rich in albuminoid principles) it tends largely to promote an acid fermentation, by combining with the particles of food lodged between the teeth. (Tomes, "Dental Surgery," 2nd edition, 1873, pp. 555, 557.)

By fermentation we may have lactic acid formed in the mouth. (Tomes, *op. cit.*, p. 724.)

We thus see that under certain conditions the saliva itself may become acid in its re-action; that the buccal mucus, by acting upon the decomposing animal tissues lodged around the teeth, may set up an acid fermentation; and, lastly, that the mouth is likely to be invaded by acid agents in pyrosis and morning sickness. I can hardly imagine that the alkalinity of the salivary or mucous secretion can have any injurious effect upon the teeth, although Dr. Garretson ("A System of Oral Surgery," 1873, p. 255) states that in a condition which he describes as oral typh fever,

"the patient may be said to labour under the dyscrasia of super-alkaline poisoning, the agent having its point of exhibition most markedly in the mouth."

Whilst Professor Gorgas (Harris's "Principles and Practice of Dentistry," 10th edition, 1871, p. 280) considers that caries "results more frequently from the acid contained in the mucous fluids of the mouth, than . . . from such acids as may be generated by the acetous fermentation of particles of food lodged between the teeth"; but it is certain that from the acidity, however it may arise, we sometimes find the tartar dissolved from the surface of the teeth.

After carefully examining the evidence afforded by published works, and the results of my own observations, with special regard to the action of saliva and mucus during the pregnant state, I cannot but conclude that the great prevalence of caries in women at that period is due in a very large measure to the acid conditions that obtain in the mouth.

It is very remarkable, if simply a coincidence, that the brown variety of caries, which I have found most prevalent in the lower classes, should correspond in its appearance with caries produced artificially out of the mouth by means of lactic and butyric acid.

On the influence of lactic acid, Wedl (*op. cit.*, pp. 418, 419) mentions that organic chemistry

teaches us that it occurs frequently in partially decomposed animal fluids, and Schmidt has demonstrated the presence of this acid in the fluid obtained from long bones affected with osteomalacia; the analogue of which condition I have endeavoured to show as occurring in some of the teeth during pregnancy. Fischer has also obtained butyric, valerianic, and formic acids from strongly alkaline or acid pus, and Wedl suggests "whether these may not occur as products of the decomposition of the puriform secretions of the gums."

Although in the majority of cases we find increased flow of saliva and mucus, in other instances the amount seems normal; and in these cases it is that we get the white caries and softening, with fatty degeneration, the gums being anæmic and receding, but still attached to the higher part of the necks of the teeth. Decay is not so rapid under these conditions, and seems to indicate impaired nutrition rather than altered secretions as a cause, strengthening negatively the views put forward as to the influence of increased and acidulated fluids in the mouth.

But even here we must not overlook the effects of localized acidity, such as occurs round the margins of the gums, as pointed out by Tomes (*op. cit.*, p. 555), and we must bear in mind that the symptoms which I have described, such as softening and disintegration, with white caries, may

arise from this cause, either alone or in combination with impaired nutrition; for it would, I think, be exceedingly unsafe to declare absolutely the specific cause for a certain condition of the teeth during pregnancy, when there are so many factors operating, the proper value of which it is almost impossible to take into account.

In an earlier part of my paper I referred to the decay that is sometimes seen on the palatine cusps of the bicuspid and molar teeth, and mentioned that this class of caries was interesting from the peculiarity of its situation. There are, I think, two explanations that may be offered for this fact (beyond, of course, the consideration of special structural defect): one is, that the inner cusps of the bicuspids and molars are those against which fluid would be most forcibly ejected in vomiting, and partially so in pyrosis; and further, that the tongue, when at rest, very often lies in contact with these teeth, and so the secretion of acid mucus from the side of the tongue would in time operate injuriously by dissolving the enamel.

Before leaving the subject of saliva, it may be well to state that we must not attach an undue importance to its acid condition as a cause of caries during pregnancy, since in healthy males there is occasionally an acid reaction in the intervals of digestion, and in certain acute diseases the saliva is very commonly acid; in fact, it is

almost the rule to find the saliva giving an acid reaction under such circumstances.

4. *The Neuralgia of Pregnancy.*—When pain arises in the face or in the regions of one or more teeth during pregnancy, without the presence of caries, we may reasonably ascribe it to a neuralgic origin. Whilst, further, neuralgia thus occurring may have no relation to the teeth, but be entirely dependent on either impaired or perverted nutrition. (Anstie.)

It is therefore not singular that we should find it associated with an anæmic condition of the system, and a wasting, rather than carious, condition of the teeth.

This view is clearly set forth in Aitkin's "System of Medicine" (1868, vol. ii. pp. 508—510), where the author states that facial neuralgia occurs, in the great majority of cases, in patients of an anæmic condition, occurring more frequently before thirty than afterwards, and especially in those whose menstruation is irregular either as to time or quantity.

Ramsbotham ("Obstetric Medicine and Surgery," 4th edit., 1856, p. 646), writing of the annoyances connected with the pregnant state, says, "Toothache and facial neuralgia are the most common; violent pain is referred to one tooth, or perhaps to the whole of one side of the jaw, without the presence of caries." And again, Murphy ("Ma-

nual of Midwifery," 2nd edit., 1862, pp. 53, 92), writing of toothache, says, "Pain in the ear and face sometimes causes distress, but the most frequent source of misery is toothache. Some caution is necessary when such a symptom presents itself, especially if there be a decayed tooth. The patient may fly for relief to the usual remedy—extraction. This, however, does not afford the customary benefit. The pain may be removed for a short time, but it soon attacks another tooth, and thus renders extraction useless."

In Tomes's "Dental Surgery," p. 567, it is stated that "the conditions which seem more often to predispose to neuralgia are the exhaustion of over-work: women are also specially subject to neuralgia, as opposed to toothache, in the early months of pregnancy."

It would enlarge too much the present paper to give all the extracts bearing upon the subject of neuralgia during pregnancy, that are to be found in the various works on midwifery and nervous diseases. The condition is one that has been fully recognized, and needs, I think, no further evidence in support of the fact of its occurrence.

In most cases the neuralgia is more severe in the first pregnancy than in the subsequent ones; and this remark applies also to toothache, for, although the caries may advance with successive pregnancies, the pain is much more severe in the early pregnancies than afterwards.

5. There are other changes that take place in pregnancy that demand some attention.

"The blood has a rather lower specific gravity than the average, from the deficiency of blood-corpuscles. The quantity of white corpuscles and of fibrine, on the other hand, is increased." (Kirke's "Physiology," 5th ed., p. 64.)

And further there is an almost unexplained liability in pregnant and puerperal women to plugging of the veins (thrombosis). It is not impossible that this fact may in some measure account for the impaired nutrition, from which the teeth certainly in some cases suffer.

The dropping out of the teeth is, there can be very little doubt, due to an arrested nutrition, and I think has its analogue in the transverse markings of the nails, met with after severe and exhausting diseases.

Wedl, in the "Atlas of Dental Pathology" (plate 5, fig. 50), shows a case of thrombosis occurring in the pulp of a tooth, and mentions that "it sometimes is seen in the pulps of old permanent and temporary teeth that are in a state of resorption." Impaired nutrition, manifested locally, may, however, be due to a perversion of the nutritive elements, or rather the direction of nutrition into a new channel, in order to supply the wants of the growing fœtus. Whether there is resorption of the earthy salts of the tooth, to supply the fœtus with earthy salts, is a question

that is open to doubt, but there certainly seems reason for believing that the deposition of the calcareous matter may not take place, and thus produce a condition equivalent to that in which resorption is supposed to occur.

6. *The Remedial Agents useful during Pregnancy.*—In all affections of the mouth and teeth that may come under the notice of the dental surgeon, it is well to see that the general health is being kept up to the highest state of excellence consistent with the pregnant state.

The diet should be simple, light, nourishing, and non-stimulating,—as nearly approaching that of the ordinary regime as possible. But above all things, I believe the use of oatmeal in any form as an article of diet to be of the greatest value to both the mother and child. It may be taken either as oat-cake or in the form of porridge, with milk or cream.

The taste for unusual dishes should be controlled, and the longing for sour fruit and acid drinks checked, through the derangement of the digestion, of which the craving is but a symptom, must be fully recognized, and proper steps taken to rectify it. Where there is increased acid secretion, either from the mouth or stomach, acids should be administered internally, every precaution being taken that their influence is limited to the stomach, and avoiding as far as possible their

action on the oral and buccal cavities. For this purpose, it is extremely important that the acids employed be administered—within half an hour of taking a meal—by means of a tube, the mouth being immediately rinsed out, either with water or with an alkaline gargle. By this means we secure all the advantages of the acid without any of its local ill effects. Either nitric or hydrochloric acid, or the two combined, may be employed for this purpose. Ten drops of dilute nitric acid with bitter infusion, such as chiretta or calumba, with half a drachm or a drachm of tincture of orange-peel, is a convenient method of administering the acid.

The carious cavities in the teeth should be filled up when it is possible, in order to allay local irritation and pain; and for this purpose I have always found either Hill's stopping or Jacob's gutta-percha the best agents. They are bad conductors and non-irritating,—both qualities of great value in a stopping that is applied at such a time.

When the teeth are the subjects of soft caries, or softening or fatty degeneration of the entire tooth, accompanied with great sensitiveness, I have found collodion of the greatest value. The tooth must first be wiped over with cotton-wool saturated in absolute alcohol, to remove the greasy surface and absorb any moisture. The collodion may then be painted over the whole of

the tooth that appears through the gum, and affords a most efficient yet simple protection against thermal change and irritating substances or liquids. This may be done thrice daily, but as a rule, twice a day will be found to be sufficiently frequent.

Dr. Kock, of Chicago, ("Missouri Dental Journal," April, 1873,) recommends covering the teeth and gums with prepared chalk, for allaying the sensitiveness of the teeth, where there is no caries.

When the teeth appear to be breaking down from the severe strain which the pregnancy puts upon all the resources of the patient, cod-liver oil in small and gradually increasing doses will be found beneficial. As a tooth-powder, precipitated chalk I have found the best, since it not only neutralizes the acidity, but tends to check the flow of saliva if it be in excess.

I have also found charcoal * used at night, with plenty of water and a soft badger-hair tooth-brush, most serviceable as an antiseptic agent for the teeth and gums, and it may also be used as a wash for the mouth before going to bed; thus checking decomposition and acid fermentation from the particles of food that have accumulated between the teeth.

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* Bragg's Vegetable Charcoal is a convenient preparation for this purpose.

Too much importance cannot be attached to the careful use of the tooth-brush before retiring to rest, as it is when the mouth is at rest that a good deal of mischief is done to the teeth. Quinine and chalk as a dentifrice (ʒ j. to ℥ ij.) are also good in some cases in allaying pain of a neuralgic character, and may be ordered with great advantage.

In periostitis, the usual remedies, such as iodine tincture and carbolic acid, seem the most valuable; whilst both of these agents diluted may be used as a stimulating application to the gums where there are apparently impaired nutritive processes.

The carbolic acid is also very good where there is a deficient secretion of saliva, such as sometimes occurs: the most convenient form is the following:—

℞. Acid. carbolic.	gr. xij.
Glycerin.	ʒ ss.
Aquæ Rosæ	℥ j.

In those cases in which a purulent discharge arises from around the necks of the teeth, the chloride of zinc (gr. iij. to ℥ j.) is useful; it must be applied well with a brush, so as to thoroughly enter between the tooth and gum.

Chlorate of potash and bromide of potassium may also be used sometimes with advantage in certain conditions of the gums and mucous mem-

brane; chlorate of potash being valuable on account of its healing and antiseptic properties, and bromide of potassium for its reputed sedative and anæsthetic action.

The treatment of neuralgia must vary according to the cause of the disease and the condition of the patient; as a rule, local stimulation is beneficial, by means of either mustard plaster or chloroform applied with liniment (ʒj. to ʒvij.); sal volatile, hot tea, large doses of quinine, small doses of alcohol, and light and nourishing food, so as to restore the impaired condition of the nervous system. (Aitkin.)

The remedy that I have, however, found the most useful is the syrup of the phosphate of iron (Parrish's Chemical Food),—a teaspoonful twice daily, ten minutes after meals. This, in my own experience, I have seen give greater relief than many of the agents I have mentioned. Under all circumstances, the treatment must be as gentle as is consistent with efficiency, and all shock saved the already overwrought nervous system of the patient.

Tooth-extraction for odontalgia or neuralgia must never be undertaken without a full recognition of the risk * incurred by the mother and child,

* "Abortion has been known to follow this simple operation (extraction). Chloroform may be inhaled, or chloric ether administered to relieve the pain; but iron will best remove its cause."—Murphy, *op. cit.*, p. 92.

and the responsibility attaching to the operator; and when absolutely necessary, is, probably, least injurious if performed under the influence of an anæsthetic, such as nitrous oxide or ether, or the two combined.

JUNE 1*st*, 1874.