the purpose of reaching a polypus situated in the pharynx and attached to the base of the skull. The patient's present condition is in all respects most satisfactory. The wounds have healed, leaving comparatively little deformity, and (as far as we had the opportunity of observing) no paralysis of the face. The large gap in the hard palate has contracted to a hole large enough to admit the point of the finger. This, of course, makes the articulation at present imperfect, but can be easily closed by an obturator. It seems to occasion no other inconvenience, and the patient is well nourished, and appears quite cured.

LONDON HOSPITAL.

DELIRIUM TREMENS TREATED WITH CHLOROFORM.

Under the care of P. FRASER, M.D.

[*From Notes by* JOHN CLEWIN GRIFFITH, B.A., *Acting Resident Medical Officer.*]

B. G., aged 32, a japanner by trade, residing in Stepney, was admitted on May 8th, under the care of Dr. Fraser, suffering from delirium tremens. He was immediately sent into the attics; and on account of his extreme violence, male attendants were provided for him.

About 8 o'clock, chloroform was administered. It took a very small quantity to bring him under its influence. Its action was kept up for an hour, after which he continued in profound sleep. The attendant was ordered to send for the medical officer if he woke; this, however, was unnecessary, as the patient did not wake till Dr. Fraser's visit at 1 P.M. He still suffered from many delusions. After he was left, he fell asleep without the administration of chloroform, and slept for two hours, when he woke and partook of some beef-tea and brandy. He had also a powder, consisting of five grains of calomel with fifteen grains of jalap.

At 8 P.M., he was restless, with no delusions; complained of pain in his head.

At 11 P.M., he was still restless, and said he felt no tendency to sleep; his bowels had been relieved.

Chloroform was again administered; a large quantity being required this time to remove the stage of excitement. He continued to sleep for four hours.

May 9th. The delirium has entirely left the patient, and he has made a very tolerable breakfast of bread and butter and milk. He was ordered milk diet and beef-tea, three ounces of brandy, and a pint of porter. He slept in the evening.

May 10th. He was ordered to have middle diet and a pint of porter, and to omit the brandy. He slept well.

May 11th. He was ordered three grains of calomel and a scruple of jalap. In the evening, he was removed from the attics to the wards, and slept well.

May 12th. He was ordered decoction of cinchona with five grains of sesquicarbonate of ammonia three times a day.

May 15th. He was discharged cured, and left the Hospital.

On inquiry of the patient since his recovery, it was found that he was taken ill on May 4th, and that the practitioner called in to attend him gave him medicine to "sleep him", as the patient says. He has never been an habitual drunkard, but has been in the habit of taking as much beer as he could without getting drunk.

[At p. 100, will be found the notes of a case of delirium tremens treated here in the same manner, with a similar beneficial result; and also after the unsuccessful exhibition of laudanum. Mr. Griffith mentions that he has seen six cases, all of which, he considers, have been highly satisfactory.]

KING'S COLLEGE HOSPITAL.

CASE OF AMPUTATION FOR RUPTURED POPLITEAL ARTERY.

Under the care of W. FERGUSSON, Esq.

[*Continued from page* 302.]

IN reporting this case, we promised to give the appearances of the amputated limb, and the future progress of the case, as soon as possible. As to the former point, it will be sufficient to say that an aneurism was found in the popliteal space, which had burst into the cavity of the knee-joint. The parts were exhibited at the Pathological Society. With reference to the latter, we are sorry that we cannot give so satisfactory an account as seemed at one time probable. The stump seemed at that time in a fair way of healing; later on, however, oozing of blood took place from it, not apparently from any large vessel, and now there are symptoms of the formation of an aneurism on the common femoral. Under these circumstances, the sequel of the case must be further deferred.

Original Communications.

ON SOME FORMS OF DISEASE ARISING FROM THE RETENTION OF DECAYED TEETH.

By J. C. CLENDON, Esq., Surgeon, Lecturer on Dental Surgery at the Westminster Hospital.

[*Read before the Greenwich Medical Society.*]

HAVING been requested by the Council of this Society to read a paper on the department of surgery to which my attention is more especially directed, I propose to bring before you my experience of some forms of disease directly traceable to decayed teeth, which I hope will prove interesting as well as useful in practice.

Considering the frequency, the severity, and the serious results, local and constitutional, of diseases of the teeth, it is always to me a source of great regret that they are not more studied by medical men, the majority of whom frankly admit they know nothing about them, and yet they are called upon to treat them! In general practice there is often no escape; they must either prescribe, and act judiciously, or consign the patient to an indefinite period of suffering, and perhaps to the injury and destruction of the neighbouring parts.

It is singular that this inattention on the part of medical men should apply to those diseases which are almost universal, while complaints that are of comparatively rare occurrence are thoroughly studied. Perhaps it is to their very commonness and frequency that the neglect is partly owing; but no doubt it is in still greater measure due to the ignorance and supineness of our examining bodies.

If pupils were required to attend lectures on the teeth, as they are those on the eye or any other organ of the body, if they were examined or likely to be examined on the subject, they would take care to study and master it; at present, it is shirked altogether; and although most of the metropolitan hospital authorities have *permitted* a course of lectures to be given every session on this head, a pupil told me the other day that only five attended them out of three hundred students in one of the largest schools in London. The consequence is, that when young men get into practice on their own account, they find themselves in difficulty. Many have admitted to me that they could not distinguish between the temporary and permanent teeth; and how is it possible for us to understand the disease of any structure or organ, if we are unacquainted with it in its natural and healthy condition? For the credit of our profession, and for the sake of humanity, I have long laboured to remedy this state of things, and called upon the authorities in vain. I have given gratuitous instruction to medical pupils for years, and held out inducements to them to profit by it, but with only partial success; and when so many branches of study are pressed upon them, and this one totally omitted, important as it is, it is not to be wondered at.

But to proceed. It is not my intention on the present occasion to trace the causes of decay of teeth; they are, although well defined, so numerous, that a treatise might be written on the subject: neither will I pause to state my reasons for believing that diseases of this nature are much on the increase; although, if it be so, and if, as I believe, the condition of the teeth is but a type of the condition of the system at large, this is a fact well worthy the consideration of the physician: nor yet can I stop to point out the measures to be taken to anticipate, retard, or arrest the progress of decay, when brought under notice at an early period: these are cases which seldom occur, save to the regular dentist. My wish is rather to consider the usual condition of the tooth when it first comes under the treatment of the medical practitioner; and then to point out the progress of the disease, its symptoms, and the result, if it be allowed to run its course.

Decay in a tooth often exists long before the owner has any idea of it; the ivory, or, as it is sometimes improperly called, the *dentine*—that term being equally applicable to all the hard tissues of the teeth—from want of adequate nourishment loses its integrity, changes colour, crumbles or softens, until so much of it is destroyed, that the enamel, losing its support and coherence, in eating suddenly breaks down, and reveals a cavity. The owner imagines the fracture to be owing entirely to the pressure of some hard substance eaten, perhaps a crust of bread; but the truth is, as I said before, the mischief had

been progressing for a considerable period—the crust merely betrayed the secret. Very shortly the tooth becomes tender to bite on, or particles of food entering the cavity and pressing on its softened parietes cause a slight pain, and the patient instinctively avoids biting on it in future. The decay extends; and soon a minute orifice, perhaps not larger than a needle's point, opens through the softened ivory into the pulp cavity; hot or cold fluids, or a draught of cold air, entering by this orifice, give rise to pain; which will presently subside, to be renewed perhaps daily, until in a little while, air entering freely, sets up inflammation in the *pulp*, or, as it is erroneously termed, the *nerve* of the tooth.

This pulp, a specimen of which I exhibit in its entirety, is the remains of the matrix in which the whole of the ivory of the tooth was formed, the portion remaining as pulp being intended to nourish the tooth up to a certain period of life. Small as it appears, it is made up of an artery, vein, absorbent vessels, and numerous filaments of the fifth pair of nerves, held together in a uniform and apparently inseparable mass by cellular tissue. These together form what is popularly considered and called the *nerve* of the tooth; and into this pulp, so constituted, blood is continually passing through a small foramen at the extremity of the root.

Aretæus describes toothache as a disease the cause of which is known only to God; and although, since that period, comparatively few people have passed through life without experiencing it, I believe there are fewer still who could give any more satisfactory account of the immediate cause of their suffering. I consider the pain to arise from the free admission of air to the pulp, which so alters the condition of the venous blood that it cannot readily be returned by the vein; while fresh blood being continually brought in by arterial action, congestion of the pulp ensues. Now, inflammation may, and generally does, occasion severe pain in any part of the body, even when the tissues are highly elastic and distensible: how much more must it do so when it takes place in a small canal of dense unyielding ivory, the distended vessels within which press on the sensitive nerve-filaments, giving rise to a sharp, throbbing, or lancinating pain, simultaneous with each contraction of the left side of the heart.

This—the swelling, congestion, and pain of the pulp—is what I call *true* toothache, and is very acute; it seldom commences before the twelfth or fifteenth year, and rarely occurs after thirty-five; the temporary teeth, and the six upper and lower front teeth of the permanent set, are seldom, if ever, subject to it. It appears to be confined to the twenty large and small *permanent* molars; and this fact has enabled me to draw the distinction between acute and chronic toothache still more clearly.

The throbbing or lancinating pain may continue for several days, and then subside, to be renewed when fresh cold is taken, or when, from the warmth of the bed or the state of the stomach, the circulation is accelerated or disturbed. Suddenly the inflammation extends; the cheek begins to swell, serum being effused into its cellular tissue; the eye is closed; the skin becomes tense and glossy, with an erysipelatous blush spread over that side of the face. To alleviate the pain, the sufferer has recourse to a variety of measures—to every measure except the right one; powerful stimulants, sedatives, or escharotics, are applied to the cavity of the tooth; eau de Cologne, brandy, tincture of myrrh, oil of cloves, pyrethrum, laudanum, creasote, caustic, and even oil of vitriol—everything suggested by clever and sympathising friends is in turn tried, often to no purpose. At the same time, the cheek is rubbed with chloroform, or some soothing oil, fomented with poppies, and blistered with mustard. All these are had recourse to, to allay the pain and retain the tooth. This has been the course of proceeding in all ages; some of the early writers prescribe it in so many words. Ambrose Paré, in the sixteenth century, the first systematic writer on the diseases of the teeth, recommends it with a few additions, such as thrusting a red hot iron into the tooth, and bleeding in the ear. Mr. Hunter, in the last century, repeats it; and we all know how implicitly it is followed at the present day.

What, I ask, prompts the sufferer to this tedious, injurious, and unsatisfactory course? It must be either unwillingness to submit to the momentary pain of extraction, or the hope of preserving the tooth. If the latter, it is a hope springing from ignorance, which the medical adviser should at once dispel; and, in either case, he should endeavour to overcome the reluctance; for experience shows that, when a tooth is once in this condition, it soon becomes analogous to a portion of carious bone, which Nature will make every effort to remove, if we do not. It may be retained for a longer or shorter period, but its fate is sealed; and the best thing that can happen to the patient is for all his tedious remedies to fail; and then, when the pain proves unendurable, and he is fairly worn out by suffering and want of rest, the medical man is summoned, and the tooth extracted. The pain immediately subsides; in a few hours the effused serum is absorbed; the surrounding parts recover their natural appearance; and there the mischief, and the symptoms of the malady, which I designate acute or true toothache, end together.

But let me not be misunderstood. There are, of course, exceptions: for instance, when, from the dense structure of the ivory, decay is very slow; or when the cementum (the third substance of the tooth) is deposited in the same ratio as the decay progresses, the tooth continuing firm in the socket, and the gum healthy. These are exceptional cases. I speak of the rule; and I repeat that, when once a tooth has been the subject of acute inflammation, it is virtually doomed. Yet I am frequently reminded, perhaps half reproachfully, that there are dentists who "never extract teeth; they can stop anything"! And I believe it; for I am often called upon to extract a tooth that has been stopped when in a state of active inflammation. Such practice cannot be in accordance with any principles of science, not even (as I must do my odontological friends the justice to believe) with "the principles of surgery gathered from a *local* knowledge of physiology and pathology"; it must proceed from sheer ignorance, or something worse; for, unfortunately, in dental practice, it is often far more lucrative to suppress the truth than honestly to declare it.

But let us take another view of the case. It may be that the patient endures and wears out the pain; the remedies are successful, without extraction being had recourse to; and he congratulates himself on his escape without the loss of a tooth. The satisfaction is, however, short-lived; the tooth continues tender in mastication, and is used with the greatest caution, or not used at all; the patient avoids it, and eats on the opposite side of the jaw, or on the front teeth; and thus, from the presence of this tender and diseased tooth, and their own consequent want of use, the neighbouring teeth and gums suffer. This is quite evident on looking into the mouth, the foul condition of the non-used teeth plainly showing on which side mastication is carried on. Again, the tooth so retained may be quiet for weeks or months; and then, on the accession of the least cold or derangement of the circulation, all the symptoms I have described will recur with nearly the same degree of violence, and this will be repeated again and again until the condition of the tooth is totally changed; for the termination of the acute stage can only be reckoned on when ulceration of the pulp has taken place.

But a new train of symptoms now sets in. The pulp destroyed, and the chief source of the tooth's vitality cut off, the inflammation is transferred to the membrane covering the root; and from this moment Nature begins her work of removal, which she eventually accomplishes at the expense, not of suffering alone, but of injury or destruction to the surrounding tissues. This stage (periostitis) I distinguish by the term *chronic* toothache; the pain is no longer in the pulp inside of the tooth, but outside the root in the jaw itself.

Now, this pain, whether acute or chronic—this severe pain, which the poet Burns terms "the hell of a' diseases"—is, to my mind, a most beneficial and salutary provision of nature; it is a knocking at the door, an intimation of danger which ought not to be neglected; for we shall presently see that, when it is absent, or when it totally subsides, grave evils often ensue. I will not detain you by attempting to describe them all; it will be sufficient for the present purpose to enumerate some of them; and then I will give you cases that have lately come under my notice, by way of illustration and confirmation.

The ordinary results of periosteal inflammation, or chronic toothache, are inability to close the teeth as usual, the affected tooth being raised by its thickened periosteum above its fellows; and absorption of a portion of the alveolar process, to make a passage for the pent-up pus, the result of the inflammation. Owing to the presence of pus, the gum is distended, and exceedingly painful to the touch, until it bursts and a sinus is formed. While this sinus remains open, the tooth, now in the condition of carious bone, is no longer troublesome; but the crown continues to break down until the roots only are left, after which the roots themselves waste, and the socket is absorbed. The tooth may, however, be retained in this diseased condition (the time depending on its structure, and on the chemical action of the saliva) for two, three, or four years, or

it may last only a few months; but, at any rate, it must go; plug it with cotton wool, gutta percha, or amalgam, as you will, its fate is sealed.

Often, however, its course is not so simple; and I may here repeat, I know nothing so much to be dreaded as the total absence of pain, for it leads the patient into supineness, or a false idea of security, from which very serious consequences may arise. Thus, instead of relieving itself by a simple ulcer (gum boil) in the gum, it may set up inflammation in the cheek; the capillaries becoming congested, and breaking down, the effused blood is converted into pus, which may ultimately make its escape, by one or more orifices, through the integuments of the face; and if you pass a probe into such an orifice, you will find it leads directly through the carious socket to the root of the tooth itself.

In the upper jaw, diseases of the roots of molar teeth often originate diseases of the antrum, the lining membrane of which becomes inflamed, and secretes pus to a considerable extent. This may escape daily through the natural opening into the nostril, or force a passage for itself through the outer wall into the cheek.

Repeated attacks of periosteal inflammation also give rise to the formation of bone on the root of the tooth, and to the distressing symptoms familiarly known as rheumatism of the face, facial neuralgia, or tic douloureux—a class of diseases arising from constitutional causes only, happily of very rare occurrence.

Decayed teeth lead also to the formation of tumours in the face, or in the maxillary bones; to large vascular growths on the roots; and to fungoid tumours of the gum.

Abscess of the parotid gland, involving the destruction of branches of the seventh pair of nerves, and consequent paralysis of the face, with permanent deafness, I have also satisfactorily traced to the irritation of a diseased tooth.

Now, all these may result without pain being felt in the tooth or root, or without there being anything more than a slight tenderness to the touch; and the patient will persuade himself, and often the medical man too, that the teeth have no share in producing them. It is surprising how long people of all classes and conditions will cheat themselves and persuade others into this belief. The rich and educated classes will gravely ask you to *stop* a tooth in a state of acute or chronic inflammation, while the lightest touch of the cleansing instrument is like an electric shock, or while pus is actually exuding from the tooth or the adjacent tissues; and the poor applying at the hospital will, with the cheek freshly blistered, describe their complaint as *rheumatism*, and be sent to the physician, who hands them over to the surgeon; while the latter, ascertaining the locality of the pain, and suspecting the cause, transfers them to the dentist; the patient all the while protesting that "the teeth have nothing at all to do with it".

[*To be continued.*]

DIPHTHERIA, OR DIPHTHERITE.

By DAVID THOMPSON, Esq., Launceston.

ABOUT three years since, this neighbourhood was visited by an epidemic of this rare disease. The first cases occurred in the town; and no others then appeared for several months, when it again broke out in the district north of this place, where it prevailed for several months; whilst the south side was comparatively free from it. From the north, it gradually spread, until the whole line of country had been visited by it. There appeared to be no difference in the geological nature of the country, the level, or the aspect, in increasing the severity, or granting an immunity from the disease. The premonitory symptoms varied somewhat. A few retired to rest comparatively well, and awoke in the morning with the throat sore, and covered with white deposit. In the majority, it was preceded by all the ordinary symptoms of pyrexia, of which headache was one of the most severe; followed in the course of a day or two by the usual throat symptoms. An extreme feeling of depression, not to be accounted for, by the amount of mischief in the throat, was a characteristic symptom in each case. An external examination of the throat showed the tonsil generally to be swollen, hard, and tender to the touch; while sometimes the parotid gland participated in the swelling. Internally, the tonsil was swollen, and either covered with the diphtheritic deposit, which frequently extended over the pharynx, and sometimes into the nares and palate; or else it would be scooped out into an ulcer, with raised violet coloured edges; the floor exhibiting a dark ash coloured slough. In some instances there would be no deposit or ulceration at first, but simply the tonsil painful and enlarged. These cases generally changed for a state of ulceration, which began in several distinct spots, and gradually spread over the whole tonsil. In the most severe examples, the tonsil sometimes sloughed *en masse*. I saw one instance in which this occurred, in an early stage of the disease; and where now (two years since it occurred) a cavity remains, capable of containing a pigeon's egg; across the surface of which extends a small band of mucous membrane, which did not slough at the same time, and gives great inconvenience, from retaining the food impacted in the hollow during deglutition.

I have seen no case in which I could detect the extension of the disease into the œsophagus; but in many it has entered into the air-passages, this being the most frequent and most fatal complication. Of 485 cases that came under my own observation, the instances in which the air-passages became involved in the disease amounted to fifteen; and of this number eleven died, the greater number within a few hours after the first symptoms of croupy breathing began. The false membrane formed on the tonsil and pharynx extended into the larynx, trachea, and frequently far into the minute divisions of the bronchi. In one instance, a girl, aged 17, expectorated, within twelve hours after the first symptoms of croup made their appearance, a complete cast of the larynx, trachea, and bronchial tubes, extending to the fifth division of the bronchi; in a few hours afterwards, a fresh membrane formed. and she died from suffocation.

In many instances, I saw numbers of minute casts expectorated from the lungs, while at the same time a stethoscopic examination gave all the symptoms of capillary bronchitis. A gentleman, aged 46, died from this condition of the lungs. His throat was first affected. After a few days, the breathing became impeded, with all the ordinary symptoms of capillary bronchitis in the first stage; the throat continuing to improve. He gradually sank, constantly expectorating casts of the small tubes, precisely similar to the deposit in the trachea.

I kept accurate notes of 125 of the most severe cases, including all the deaths.

	Cases.	Deaths.
Males	55	9
Females	70	4
Totals	125	13

The deaths, with two exceptions, were all below fifteen years of age; and, with two exceptions, were all from affections of the air-passages. In the two who died from other causes than affections of the air-passages, death occurred in one from the sloughing of a blister, applied for three hours to the upper part of the sternum; and in the other from extreme debility remaining after recovery from croup. There was a very remarkable tendency for blistered surfaces to take on unhealthy action; and I frequently saw the irritated surface covered with a deposit, similar to that on the throat.

A strong similarity appears to exist between this disease and scarlet fever—so strong, as almost to lead one to hazard the opinion that it may be a modification of that disease. The following are the reasons for considering so:—

1. Diphtherite prevailed in this neighbourhood as a contagious(?) epidemic at the same time as well marked scarlet fever, and chiefly among children.

2. In the same house, the father and mother had well marked scarlet fever severely, without any ulceration or deposit on the throat; while the three children had all the marked symptoms of diphtherite, without much feverishness and *no rash*, though attended by the same premonitory symptoms. The cases occurring at the same time.

3. In many instances, cases of apparently pure diphtherite were, after some days, attended by a rash, that seldom remained more than a few hours.

4. The disease in most instances commenced with all the symptoms of fever, its duration being similar to that of scarlet.

5. In cases of apparently pure scarlet fever, the throat became, after a few days, covered with diphtheritic deposit.

6. The sequelæ of the two diseases nearly resembled each other. Albuminous urine, with casts, being present in eight cases of diphtherite; and anasarca proving fatal from convulsions in one.

It would occupy too much space to give more than a mere outline of the subject; but future and more extended experience than mine may prove whether there is any connection