brush filled with the carbolic acid mixture, or with the same brush washed, dried, and replenished, you complete in the manner following the two operations required for each nostril. Having the left hand in the position already described, and the right hand holding the laryngeal brush with the hair pencil directed forwards from the body of the operator, push the brush along the floor of the nostril into the pharynx, and after ensuring free contact with the adjacent parts withdraw it. If during this operation the brush is over-full, some of the carbolic mixture will fall into the throat and excite coughing or some other discomfort. When you have thus finished the treatment of one nostril, and carefully removed any of the carbolic acid mixture which may have been spilt upon the nose or lips, you will proceed to treat the second nostril in exactly the same manner as you have dealt with the first. During the performance of these manœuvres great assistance will be obtained from the left hand of the operator being placed over the left side of the face and forehead of the patient. With this hand the operator can adjust the patient's head to the various movements of the laryngeal brush, and with the thumb of the same hand placed on the tip of the patient's nose, the opening of the nostril can be adjusted to a convenient size and shape. When the local effects of a paroxysm are severe, and have extended to the back part of the soft palate, it will be desirable to introduce through the mouth into the pharynx the laryngeal brush, moderately filled with the carbolic acid mixture, and there, by a manœuvre easily acquired and practised, to brush the posterior surface of the soft palate and the adjacent parts.

The immediate effects of these manœuvres differ in different persons and in the same person at different times. In all cases the effects are more or less disagreeable, and last from half an hour to half a day. Sometimes a little blood-stained mucus is discharged from the nose and throat, sometimes there is a slight frontal headache, sometimes there is a trivial cough, and occasionally you will have developed all the local phenomena of a paroxysm of hay-fever.

When advising a patient with hay-fever to submit to this plan of treatment for its relief, I have found it expedient to warn him beforehand of the disagreeable effects which sometimes follow the application of the carbolic mixture, and to assure him that they are both brief in duration and devoid of danger. When this warning is withheld, some patients will grossly exaggerate their sufferings, ascribe all sorts of injurious consequences to the application, and cover the physician with undeserved reproaches. Sometimes a single application of the carbolic acid mixture is sufficient to prevent for a whole season the return of the hay-fever paroxysm, and four times within my own knowledge it has never reappeared. Usually two or three applications are necessary to insure a full chance of success. The length of the interval between the applications must be determined by the character of the immediate effects. If these are mild, the applications may be renewed on alternate days; but if severe, at least three days should elapse between succeeding applications.

Of the measure of success which has followed this treatment of hay-fever, now practised over twenty years, I am unable to speak with exactitude. Patients when relieved seldom, and when unrelieved never, return to record their experiences, and I have been unable to get at the subsequent histories of more than a third of the number of persons whom I have treated. It is, however, my conviction that of this roughly estimated third whose cases I have been able to follow, a half has been cured for the season and four persons have been cured "for good." This you will say justly is not a success of which to boast. Quite so. But if you will compare the results of this treatment with the results of every other treatment, not excepting the cucaine treatment, which is its closest rival, you will have to confess that, however small may be the measure of success, it is not one which you can afford to despise. At any rate a communication of this kind is entitled to your indulgence, inasmuch as it is an honest, although very humble, endeavour to press pathology into practice and to take away the reproach which has been cast upon us of ignoring or of repudiating the natural and just alliance which should unite in closest relationships the science with the art of medicine.

LEPROSY IN RUSSIA.—A committee has been appointed at Dorpat to consider the best measures to be taken for checking the spread of leprosy in the Baltic provinces, where it is greatly on the increase.

EPILEPSY IN ITALY.—Recent statistics show that the greatest number of cases of epilepsy were met with in Liguria and Sicily during the years 1885 and 1886. At the end of last year 1,014 epileptic patients were under treatment in lunatic asylums, and 3,768 patients had been received at the different hospitals during 1883 and 1884.

SEVEN hundred Hebrew patients are said to be annually treated in the Jewish ward in the London Hospital.

LECTURES

ON

CERTAIN DISEASES OF THE JAWS.

Delivered at the Royal College of Surgeons of England, June, 1887,

By CHRISTOPHER HEATH, F.R.C.S.,
Hunterian Professor of Surgery and Pathology.

LECTURE I.—ON CYSTIC DISEASES OF THE JAWS.

MR. PRESIDENT AND GENTLEMEN,—The occupant of the Hunterian Chair of Surgery and Pathology in this College has a large choice of subjects on which to address you, and my predecessors in office have accordingly ranged at will over the domain of surgery. I propose to confine myself to a comparatively small portion of surgery, but one of no little importance, and shall have the opportunity of referring for illustration to that splendid collection of pathological specimens which, begun by Hunter, has in this special department been greatly enriched by the labours of Liston and Fergusson, and is now without a rival in its perfection.

The "Injuries and Morbid Affections of the Maxillary Bones and Antrum" was proposed as the subject of the Jacksonian Prize in this College in the year 1827, but no dissertation was sent in for competition. The same thing again occurred in 1842, and this is the more remarkable because the majority of Liston's great cases had occurred before this date, and both he and Fergusson were then actively engaged in instructing large numbers of pupils, some of whom might have reduced their teaching to paper.

In 1867, "The Injuries and Diseases of the Jaws, including those of the Antrum, with the Treatment by Operation, or otherwise," was again put forth as the subject for the Jacksonian Prize Dissertation, and having seen much of Sir William Fergusson's practice, and having myself done some little work in the same direction, I ventured to compete, and had the satisfaction both of being successful and of adding to the museum a considerable number of valuable preparations, many of which I shall bring before you.

DISEASES OF THE ANTRUM.

The antrum maxillare, or sinus of the upper jaw, was known as early as the days of Galen, but was first described with any degree of accuracy by our fellow-countryman, Nathaniel Highmore, of Sherborne, whose *Disquisitio Anatomica Corporis Humani* was published at the Hague in 1651. By the kindness of a former pupil, Mr. W. H. Williams, of Sherborne, whose wife is a direct descendant of Nathaniel Highmore, I am enabled to place before you the author's own copy of his anatomical work, bearing on the title-page the signatures of successive incumbents of the Sherborne practice. And yet it is remarkable that the copy of the same work in our College library is more perfect in containing a curious allegorical frontispiece, which is wanting in the Sherborne copy, although the *Frontis physiognomica descriptio* is there. At page 227 of this work will be found a plate illustrating (not quite correctly) the anatomy of the antrum, and from it Figs. 1 and 2 are reproduced. In another figure is shown a curiously inaccurate

Fig. 1.

Fig. 2.

rate drawing of the antrum, which, as the author says, "is more frequently empty, but is sometimes found filled with mucus, into which the humours from the head are able to distil by a certain meatus from the cavity in the frontal bone and from the ethmoid

bone." I need hardly say that there is no such communication with the frontal sinus as is here figured, any more than there is any passage from the pituitary fossa to the palate, which is given in the same drawing.

The only normal opening from the antrum is into the middle meatus of the nose, and this is shown on the section of the skull before you, on one side with the mucous membrane *in situ*, and on the other with it removed. The size of the aperture found in a macerated superior maxilla gives a very exaggerated idea of the opening in the articulated skull, where it is encroached upon by the palate, inferior turbinate, and ethmoid bones, which narrow and subdivide the opening into two parts. In the recent subject these are covered in by the mucous membrane of the nose, so that ordinarily there is only a small oblique aperture left in front of the unciform process of the ethmoid, and close behind the infundibulum. It should be observed that this opening is at the upper part of, and not near the floor of, the antrum, and that it opens into the middle meatus of the nose. Occasionally a second smaller aperture is found behind this, and nearer to the floor of the sinus, which has always been regarded as a natural formation. M. Giralès, however, in his *Recherches sur les Kystes Muqueux du Sinus Maxillaire* (Paris, 1860), maintains that the posterior opening, when it exists, is always the result of pathological change, and that the anterior opening is into the infundibulum, and not into the meatus itself. I believe that slight variations in the position of the opening exist; but it is undoubted that the aperture is very minute, and quite inaccessible from the nose.

Higmore describes the antrum as "a hollow, spherical or somewhat oblong in shape, and large enough to hold the terminal phalanx of the great toe." The fact is, that the size of the antrum is very variable, and this point was carefully investigated some years ago by the late Mr. W. A. N. Cattlin, F.R.C.S., who published a valuable paper in the *Odontological Society's Transactions*, Vol. ii, from which the following illustrations are taken.

As the result of the examination of a hundred specimens, Mr. Cattlin found that, as a rule, the antrum is larger in the male than in the female, and that it diminishes in size with extreme age. In the young subject likewise the cavity is small, and its walls comparatively thick. Fig. 3 shows in a transverse section both the roof and

Fig. 3.

floor of an adult antrum of the common shape and size, capable of containing two drachms and a half of fluid: but a large adult antrum may be capable of containing eight drachms of fluid, whilst a small adult antrum containing only one drachm of fluid has been seen. The two antra are often unsymmetrical in size and shape; thus Fig. 4 shows a much larger and deeper cavity on one side than on the other. The antrum may even extend irregularly into the malar bone, forming a supplementary cavity there; but the most remarkable variation is due to the development of the ridges of bone which subdivide the cavity; these are very variable in size and shape. Fossæ of considerable depth are often found in the floor of the antrum, particularly at the anterior and posterior extremities, of which Fig. 5 is a good example, showing on one side a perforation by an alveolar abscess. A rare form is when fossæ or cells are developed beneath the orbital plate, or a *cul de sac* is formed close to the lachrymal groove.

Suppuration in the antrum, or, as it is sometimes termed, *abscess*, is ordinarily the result of inflammation extending from the teeth to the lining membrane of the cavity; and the disease might, therefore, be not incorrectly termed an *empyema*, as proposed by Otto Weber.

The roots of the first and second molar teeth often, and the bicuspid and canine occasionally, form prominences in the floor of the antrum; and when these teeth become carious, the thin plate of bone covering their fangs not infrequently becomes affected, and disease is set up in the cavity. The fangs of the first molar tooth are occasionally

Fig. 4.

found in health to be uncovered by bone, and to project beneath the lining membrane of the antrum; and, under these circumstances, irritation and inflammation would be still more likely to occur. But an abscess may be formed in the alveolus, and eventually burst into the antrum, though connected originally with teeth not usually in relation with the cavity.

Fig. 5.

The symptoms of suppuration in the antrum are at first simply those of inflammation of the lining membrane—dull, deep-seated pain shooting up the face and to the forehead, tenderness of the cheek, with some fever and constitutional disturbance; but occasionally the pain is most acute, and of a sharp, stabbing, neuralgic character. A slight rigor may usher in the formation of matter, which will find its way into the nostril when the patient is lying on his sound side, either through the normal aperture or through an opening caused by absorption, as maintained by M. Giralès. An offensive odour is now sometimes perceptible to the patient, though not to those around him—thus differing markedly from what occurs in *ozæna*—and a sudden discharge of matter from the nostril, when blowing the nose, may relieve all the symptoms for the moment. The more common course of

events is, however, that without any acute pain the patient notices that he has a purulent discharge from the nose when blowing it, and perhaps is aware that, when lying down, the discharge finds its way into the throat. This latter point is often overlooked, however, though there may be a complaint of a very disagreeable taste in the mouth and a tendency to nausea in the morning, with a hawking up of pellets of inspissated pus.

With all this there is no distension of the antrum, and it is this fact which frequently misleads the practitioner. It is certain, however, that in health there is invariably an opening between the antrum and the nostril; and that, even when this is closed, the wall is very thin and readily absorbed; and it is quite exceptional, therefore, when the antrum is so distended with pus as to give rise to any prominence of the cheek. Undoubtedly cases of this kind have been recorded, but it may be doubted whether some of them were not examples of cyst, the contents of which had become purulent; for we know that cysts in the wall of the antrum readily produce great deformity. The natural opening into the nose is not at the level of the bottom of the cavity of the antrum; and hence there is always a small residuum of discharge, which the patient can only partially get rid of by holding the head on one side.

Given a patient who complains of purulent discharge from the nostril, with occasionally a disagreeable smell, and the case is too apt to be put down as one of *ozena*, and treated by nasal douches, snuffs, etc. But, as already mentioned, the offensive smell is perceived only by the patient, and not by his friends, the reverse being the case in *ozena*; and, again, the discharge is only occasional, is determined by the position of the head, and is simply purulent, whereas in *ozena* the discharge is constant, and mixed with offensive crusts from the nasal cavities. Again, the dull ache, varied occasionally by acute pain, is apt to be referred to the teeth alone, and the most careful examination may fail to detect any special tenderness in any one tooth. Hence, after exhausting the usual routine remedies for neuralgia, I have known wholesale extraction of useful teeth undertaken with no benefit, unless it should fortunately happen that the tooth which has perforated the antrum should be extracted early, when the discharge of pus at once clears up the nature of the case.

A still more serious result may ensue if the neuralgia should, as it often does, take the form of frontal headache, and thus lead the surgeon to suppose that the discharge comes from the frontal sinus. I have twice been consulted in cases in which enterprising surgeons had proposed to trephine the frontal sinus, regardless of the serious injury to the patient's good looks, for chronic discharge which I proved to be solely due to suppuration in the antrum.

The more ordinary consequence, however, of an unrecognised empyema of the antrum is the damage done to the digestive organs by the constant swallowing of purulent fluid during sleep. Under these circumstances, the patient is always ailing, is unable to take food in the morning, and may be reduced to a state of great prostration even dangerous to life. The usual remedies for indigestion are likely to be of little service so long as the purulent drain continues.

In exceptional cases the pus, not finding an exit, distends the antrum, causing partial absorption of the walls, and thus both bulging out the cheek and thrusting up the floor of the orbit. Under these circumstances, the affection is readily recognised by the peculiar crackling which is perceived when the thinned bone is pressed upon, and the matter, if not evacuated, will shortly find a way out for itself, either by the side of the teeth, through the front wall of the antrum, or through the floor of the orbit; in either of which cases considerable necrosis and ultimate scar are likely to be the consequences. The possibility of both antra being affected either simultaneously or consecutively must not be overlooked.

The elevation of the floor of the orbit already described may simply displace the eyeball and render it temporarily blind, as in a case recorded by Mr. J. Smith, of Leeds (*Lancet*, February 14th, 1857), or it may lead to permanent amaurosis—a point to which Mr. Salter called especial attention in the *Medico-Chirurgical Transactions* for 1862.

The treatment of suppuration of the antrum consists, in the first place, in the extraction of all decayed teeth or stumps in the affected jaw, and with this object in view those teeth which are apparently sound should be tested by a sharp knock with some metal instrument, when, if tender, they should be extracted. If the cause of the mischief be removed in time, the inflammation will subside under fomentation and the application of a leech to the gum; but if matter has formed, it must be evacuated without delay. If the extraction of a tooth is followed by the flow of pus, the enlargement of the aperture in the socket by the introduction of a trocar is at once the readiest and simplest mode of evacuating the matter; but if all the teeth are

apparently sound, it will be advisable to perforate the alveolus above the gum with a trocar, gimlet, or strong pair of scissors, and similar treatment would be required in the rare case of suppuration occurring after loss of the teeth in old people. If it be determined to sacrifice a tooth, the first molar is to be preferred for extraction, both on account of the depth of its socket and also because, as mentioned by Salter, it is more liable to decay than the other teeth. In puncturing through the socket of a tooth with a trocar, it is well to gauge the depth to which the instrument may safely go with the fingers of the hand which grasps it, lest injury should be unwittingly inflicted on the orbital plate by the trocar entering unexpectedly, or a trocar with a stop may be employed if preferred.

After considerable experience of both methods, I prefer the puncture above the alveolus, except when a tooth obviously requires extraction, because I find that the aperture is less liable to close up than when made through the alveolus, and because food is less likely to find its way into the antrum. It is necessary, however, not to direct the trocar quite horizontally, but a little upwards, lest in a case of highly-arched palate the floor of the antrum should be injured, as I have known on one occasion, but then fortunately with no permanent damage, except the exfoliation of a minute portion of the palate.

Whatever method may be adopted for emptying the antrum, it is important that the cavity should be thoroughly cleansed by the forcible injection of warm water until it runs freely from the nostril. For this purpose an ordinary glass syringe is quite insufficient, but I have satisfactorily employed an ordinary Eustachian catheter for the purpose, to which an india-rubber injecting bottle is adapted. After a time, and with a little instruction, patients can learn to dispense with the syringe by forcing a mouthful of water through the antrum by the action of the buccinator muscles. After thoroughly cleansing, some detergent and slightly astringent lotion should be injected to restore the healthy condition of the mucous membrane, and for this purpose weak solutions of permanganate of potash or sulphate of zinc answer admirably; but these cases are exceedingly tedious, as a rule, and take many months for their cure. If the perforation has been made through the socket of a tooth, care must be taken that particles of food do not gain admission to the antrum, and this may be accomplished by plugging the hole with cotton-wool, or, as suggested by Salter, by fitting a metal plate to the mouth with a small tube to fill the aperture, which can be corked at pleasure, and will serve as a pipe for injection.

Ordinarily the pus is readily evacuated through the nostril, but I have seen large masses of offensive inspissated pus block up the opening into the nose and require very forcible and repeated syringing for their removal, and the same thing applies to clots of blood, which occasionally give trouble. A still more serious event is when a mass of inspissated pus gives rise to symptoms closely resembling those of a tumour of the upper jaw, and without producing that absorption which gives rise to the crackling characteristic of the presence of fluid. The following case of this kind occurred in my own practice, and the late Mr. Mason published a very similar one. A woman, aged 43, was admitted under my care, complaining of pain and swelling of the left side of the face. There was an ill-defined swelling over the region of the left upper jaw, and the angle of the mouth on that side was drawn downwards. The swelling was both hard and tender; the skin over it appeared unaffected. In the mouth there was a tense, elastic, and tender swelling over the left half of the hard palate, displacing the alveolar process downwards. Slight discharge oozed from a small opening in the mucous membrane opposite the last upper molar tooth, the swelling being softer about this spot than elsewhere. The left nostril was blocked, its external wall being pushed inwards, and the patient complained of some discharge from it. The neighbouring lymphatic glands were not enlarged, and, with the exception of occasional pain in the tumour, the patient suffered no inconvenience, her general health being excellent.

She had noticed the swelling for about two years, and its commencement was attributed to exposure to cold. At times the swelling increased, and became more troublesome, especially after prolonged overwork. No history of syphilis could be obtained, and her family history was good.

Believing that I had to deal with a solid tumour of the jaw, I made an incision through the upper lip in the median line, prolonging it into the nostril of the affected side. The alveolus and hard palate having been divided with saw and bone-forceps, a way was made into the latter, and a pulsatious offensive mass, about the size of a hen's egg, was turned out with the finger. On microscopical examination this was found to consist of fatty debris, granular pus-cells, and acicular crystals. As the larger portion of the left half of the hard palate was partially loosened and absorbed, it was removed with the

forceps. The cavity of the wound was stuffed with a strip of lint, and the patient made an uninterruptedly good recovery.

The possible subdivision of the floor of the antrum by bony septa, already described, must be borne in mind in operating upon this cavity, and especially if there is reason to suspect the presence of any foreign body which may be keeping up irritation. In his paper already referred to, Mr. Cattlin narrates the case of the fang of a tooth lodging in one of these subdivisions, from which it was extracted with difficulty.

Hydrops Antri, or "dropsy of the antrum," is an old name (which should, I think, be abandoned) for a disease which has long been recognised, though, within the last few years, opinions have changed as to the exact pathology of the affection. The history of these cases is one of gradual, painless dilatation of the upper jaw, until its outer wall becomes so thin as to crackle like parchment upon pressure being made, or at certain points being so absorbed that fluctuation is readily perceptible. Occasionally the other walls of the jaw yield, though more slowly, to the persistent pressure, the palate becoming flattened, and the nostril blocked by the bulging of the internal wall. On the extraction of a molar tooth and perforation through its socket, as described under the previous section, or more frequently by an incision through the osseo-membranous wall of the cyst, a quantity of clear or yellowish serous fluid is evacuated, which frequently contains flakes of cholesterine floating in it. After the evacuation of the fluid the swelling ordinarily subsides, the maxilla resuming its normal relations, and the opening closing.

The old explanation of these phenomena was that the aperture between the antrum and the nostril having become accidentally obstructed, the mucous secretion, which was presumed to be constantly taking place within the cavity, was thought to be imprisoned, and, by its gradual accumulation, to produce the symptoms which have been described. Following up this idea, we find surgeons, and among others Jourdain, of Paris (1765), who very accurately described the affection, recommending the restoration of the nasal orifice by probing—a useless operation, still described in many foreign manuals of operative surgery. Bordenave, in his *Observations on Diseases of the Maxillary Sinus* (Sydenham Society's translation, 1848), gives full details of this method of probing and injecting, but, after showing that there is great difficulty and uncertainty in finding the natural

Fig. 6.

orifice, remarks that "there are very few cases in which the employment of injections through the natural openings, in the manner above described, would effect a complete cure." It is certain, however, that some of these cases, and very probably all of them, originate in the growth of a cyst or cysts within the antrum, or more commonly in the wall of the antrum, which either grow to such a size as to be mistaken for the cavity of the antrum when opened, or break into the antrum by absorption of the cyst-wall, so that on subsequent examination no evidence of cyst-formation can be discovered. This explanation is, as pointed out by Coleman, supported by the fact that in these cases of so-called *hydrops antri* the contained fluid in no respect resembles ordinary mucus, but is invariably a clear, more or less yellow, fluid, frequently containing cholesterine in considerable quantity. In these respects it closely resembles that found in well-marked cases of cystic growth, which have been examined in various stages of development.

A remarkable case of distension of the antrum is narrated by Sir William Fergusson, and I am able to show you the preparation, which is preserved in the King's College Museum. It was taken many years ago from a subject in the dissecting room, and from the person of an old woman. The tumour, which was of very large size, had burst shortly before death, leaving the remarkable deformity shown in Fig. 6, which is due to the complete absorption of the front wall of the antrum and its collapse, by which a prominent horizontal ridge of bone, formed by the upper wall of the antrum, has been left immediately below the orbit. The preparation shows great distension of the antrum, the diameter of which varies in different parts from two to two and a half inches, and the bony wall is so thinned out as to resemble parchment. The gums are edentulous. There is no communication between the nose or mouth and the cavity, which is lined with a membrane covered with laminated deposit. Whether this was originally a case of cystic growth, or a chronic abscess, it is impossible now to decide, but it is, so far as I am aware, a unique *post-mortem* specimen of this distension.

M. Giraldès would appear to have been the first author upon the subject of cysts of the antrum, and his thesis gained the Montyon Prize in 1853; but Mr. W. Adams may fairly claim priority of investigation, as shown by specimens preserved in St. Thomas's Museum—as indeed is acknowledged by M. Giraldès.

Mr. Adams's specimens, from one of which the drawing shown was made, show each a cyst of oval outline, attached to the inner wall of the antrum, and measuring rather more than an inch and three-quarters of an inch respectively in their long diameters. These, of course, are too small to have produced any symptoms during life. The specimens given by M. Giraldès, in his *Recherches sur les Kystes Muqueux du Sinus Maxillaire*, from one of which the illustration (Fig. 7) is taken

Fig. 7.

show very varying degrees of cystic growth in the mucous membrane of the antrum. In one instance there is a single cyst at the floor of the antrum, into which an opening has been made, whilst in the others the cysts are very numerous and of very variable sizes, depending, apparently, upon a cystic degeneration of the entire mucous membrane. M. Giraldès explains the formation of these cysts as being due to the dilatation of the glandular follicles of the mucous membrane, and urges that the ordinary operation of tapping the antrum would be useless in such cases, but that it would be necessary to open up the antrum so as to get at the seat of the disease. Fortunately these numerous cysts appear to be of slower growth than the single cysts, for it would be impossible to extirpate such numbers as are here seen (Fig. 7) without removing the entire jaw.

The contents of these cysts appear to be at first clear fluid, but of a viscid nature; when more fully developed the fluid becomes flaky, from the presence of cholesterine, and occasionally assumes a greenish tint; it may also become purulent, and Maisonneuve has recorded a case where pressure on the cheek produced a flow of butter-like fluid from the nose in a young woman who, for a year, had suffered from a tumour of the right upper jaw, which had been pronounced malignant, the face being enlarged and the nostril obstructed. Here puncture from the nostril, combined with pressure and injections, effected a cure, and the case must be considered as one of cyst of the antrum, but whether a mucous cyst, the contents of which had undergone solidification, or a separate formation, must remain doubtful.

Treatment.—The treatment of cystic disease of the jaw is generally sufficiently simple. The bony wall being most commonly, to some extent, absorbed, it is only necessary to incise the distended membrane and evacuate the fluid. The finger then passes readily into the cyst,

and can examine its interior, searching for any growth or tooth which may be lodged within. With curved scissors the opening can then be enlarged by cutting away the membranous wall sufficiently to allow a free passage for any discharge. The use of a simple stimulating lotion with a syringe is then all that is required to effect a cure, which, though slow, is permanent. I have treated a considerable number of cases of cyst of the jaw in this manner, and with uniformly good results.

Broca recommends to remove the membrane covering the inner wall of the cyst, and gives a case in which Nélaton discovered a plate of bony tissue derived from a malformed tooth on the inner aspect of a cyst, but this is in most cases a quite unnecessary complication of what is usually a very simple matter.

Polypus of the Antrum.—This is not a common affection, though by no means so very rare as stated by Paget. Luschka has investigated the subject, and found polypi five times in sixty subjects, some being two centimètres in length. He gives a drawing, showing a large number of these polypoid growths in an antrum, which he considers to be hypertrophies of the submucous connective tissue, covered with mucous membrane. Billroth also describes a good example of large polypus of the antrum with a long pedicle, and regards it as a very rare affection; there is a good specimen in University College Museum (No. 658).

These polypi are closely allied apparently to the small cystic growths in the mucous membrane of the antrum, described by Giraudeau. Both affections consist essentially in hypertrophy of some elements of the mucous and submucous tissues. When the connective or areolar tissue predominates, the fleshy polypus is produced; when the glandular element is especially affected we have the cystic form produced. Intermediately, when the fibrous element is very loose and we have some glandular hypertrophy, the semi-gelatinous polypus is produced, which closely resembles the nasal polypus.

Polypi of the antrum are well supplied with blood-vessels, and bleed freely when interfered with. In some instances they appear to have a malignant character, or at least are the forerunners of malignant disease occurring in the antrum and jaw. Vidal de Cassis, who totally denies the existence of any true polypoid growths in the antrum, says that what have been mistaken for them most frequently are colloid tumours of the periosteum, but believes that many of the examples are cases of cystic growth. Syme, also, following the example of John Bell, maintains that polypi of the antrum always intrude from the nose, and are never developed in the antrum itself.

Sir James Paget has put on record (*Clinical Soc. Trans.*, xii) a case of polypus of the antrum in which a constant flow of clear watery fluid from the nose was the only symptom. At the *post-mortem* examination "the floor of the antrum was covered with two broad-based convex polypoid growths, deep clear yellow, with the fluid infiltrated in their tender tissue, and covered with exceedingly thin, smooth membrane traversed by branching blood-vessels. They were of rounded shape, about two-thirds of an inch in diameter and half an inch in depth; they looked like very thin-walled cysts, but were formed of very fine membranous or filamentous tissue, infiltrated with serum."

Cysts in connection with the Teeth may be classed under two heads: first, cysts connected with the roots of fully developed teeth; and, secondly, cysts connected with imperfectly developed teeth, to which the term "dentigerous cysts" has been applied in modern times. Both kinds may occur in either jaw, and, in the case of the upper jaw, may be confounded with collections of fluid in the antrum, or may secondarily involve that cavity.

Cysts of small size in connection with the fangs of permanent teeth are frequently found on their extraction, but give rise to no symptoms demanding surgical interference, though sometimes they cause pain from pressure on the dental nerves. Occasionally, however, they grow to a large size, in which case they produce absorption of the containing alveolus, and give rise to a prominent swelling. They lie beneath the periosteum of the fang, and hence have been named by Magitôt periosteal cysts. The contained fluid is rich in cholesteroline.

Three specimens of cysts connected with the fangs of teeth, for which I was indebted to Mr. Holborow King, are now in the Museum of the College of Surgeons (2161). Two of them (Figs. 9, 10) are quite small (one being remarkable for the length of its pedicle); the third (Fig. 8), is of the size of a hazel-nut, and was torn in extraction. The contents of the cyst were found, on microscopic examination, to consist of degenerating pus; their walls were formed of fibrous and granulation tissues, and they had no epithelial lining. This would confirm the view of Mr. Tomes that the morbid process is probably identical with that resulting in the formation of alveolar abscess, but, being less acute, a serous cyst is formed instead of a suppurating sac. In

the Museum of the College of Surgeons is another specimen of a vascular thick-walled cyst, attached to one side of the fang of an incisor tooth (2161A).

Fig. 8.

Fig. 9.

Fig. 10.

Large cysts, which produce more or less absorption of the outer wall of the maxilla, are, in my experience, very common consequences of the retention of diseased teeth, but seem to give surprisingly little inconvenience to the patients, even when of large size and producing considerable deformity of the face. They are commonly confounded with cystic degeneration of the antrum.

Treatment.—An incision into the cyst evacuates a dark-coloured clear fluid, unless inflammation should have been excited, when the contents become purulent. It is advisable to cut away the thin outer wall of the cyst freely with scissors, or, if necessary, with bone-forceps, so that the cavity may granulate up. If an incision only is made, the edges are apt to fall together and re-unite with a reproduction of the fluid, unless an india-rubber drainage-tube is inserted, which can be attached by a thread to a neighbouring tooth.

Single Cysts in the lower jaw, as in the upper, may originate in connection with the fully developed teeth, and, as in the case of dentigerous cysts, may give rise to the suspicion of a more severe affection.

According to Broca, the great majority of cysts of the jaws have their origin in tooth-follicles. These are shut sacs, but they do not enclose a true cavity, for the space between the wall and the outer surface of the dental papilla is occupied by the enamel-organ, an organised body, but very soft and gelatinous, apt to disappear under morbid influences, and thus leaving in the follicle a cavity ready to be transformed into a cyst. Dental cysts may originate in the follicles of the first or second dentition, or in the follicles of supernumerary teeth. Their contents are ordinarily clear fluid, sometimes bloody, occasionally filamentous or gelatinous, and still more rarely they contain a sebaceous matter like mastic, composed almost entirely of epithelium.

But periosteal cysts occur in the lower jaw without any apparent immediate connection with the teeth, though very possibly some irritation connected with these organs may have been the original cause of the mischief. The patient finds that he has a slowly-growing tumour of the jaw, which is painless, and gives him no trouble except from the deformity. The outer plate yields ordinarily to the pressure of the growing cyst, and thus a prominent smooth tumour is formed, over which the skin is freely movable. When the bony wall is sufficiently attenuated, the peculiar crackling already described may be produced on pressure; and, if the disease is still unchecked, the bone becomes entirely absorbed, and nothing but a membranous cyst, with particles of osseous matter imbedded in it, remains. Of this a remarkable specimen from a woman aged 45 is to be seen in St. George's Hospital Museum (II. 150). The cyst is for the most part single, and contains merely fluid, which may be clear or more or less coloured.

(To be concluded.)

HYPNOTISM IN SWITZERLAND.—The Health Committee of the Canton of Vaud has forbidden any public exhibitions of hypnotism, magnetism, or somnambulism. Even medical men must obtain permission before making scientific experiments on those subjects.

HOME FOR FEMALE INEBRIATES.—The number of persons admitted into St. James's Home for Female Inebriates, Kennington Park, during the past year was 90, making a total number of 168; of these 55 had left unsatisfactorily, and 35 after a stay of twelve months and more. Of these 29 were doing well, while 4 had returned to the Home.

NEW HYGIENIC JOURNAL IN RUSSIA.—The first number of a new Russian medical periodical, called *Meditsinskaya Beseda* (*Medical Talk*), has just appeared. The journal, which will deal with medical and hygienic subjects in a popular manner, is published at Voronej, and will come out twice a week. The editor and publisher is Dr. A. Kh. Sabinin.