out that his description refers to the rarer cases in which obstruction of the opening into the nostril has taken place, and not the more ordinary form of purulent nasal charge.

Hunter's description has been followed by most systematic writers of the present day, and I must confess to having reproduced it in the second edition of my work on *The Diseases of the Jaws*, published in 1872. I gradually became aware, however, that suppuration of the antrum was not necessarily preceded by any inflammatory symptoms, and I published a paper on the subject in the *Medical Examiner* of December 21st, 1876, from which I will quote a passage:—

The more common course of events is 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. Given a patient who complains of a purulent discharge from the nostril, with occasionally a disagreeable smell, and the case is too apt to be put down as one of ozæna, and treated by nasal douches, snuffs, etc.

These views were reproduced in the third edition of my work published in 1884, and also in the course of lectures "On Certain Diseases of the Jaws," which I had the honour to deliver in this College in 1887. They seem, however, to have attracted little attention. Ziem, Stoerk, and Mikulicz, who wrote upon this subject in 1886, are generally credited with originating the views which I have held and taught for many years.

Ziem appears to have himself suffered from empyema of the antrum, and describes his own illness most graphically in his paper. In 1877 he commenced to suffer from a fetid unilateral nasal discharge. Various remedies were applied to the nasal mucous membrane, but these, as well as internal medication and a stay of two years in Egypt, failed to produce any improvement. In 1883 the discharge became so profuse, and the stench so marked, that the necessity of giving up his practice became more and more urgent. He now decided to have the antrum opened as the first step in a thorough search for the source of the suppuration. The surgeon whom he requested to perform the operation was very unwilling to undertake it, because none of the recognised signs of empyema were present. When, however, the cavity was opened and washed out, a large quantity of pus came away, and finally a cure was effected.

The diagnosis of pus in the antrum is by no means always easy. The method of examination, recommended by Fränkel in 1887, is useful and simple. The nose having been thoroughly cleansed and it having been ascertained by inspection that the nostril corresponding to the suspected antrum is quite free from secretion, the patient is told to lie down across a chair or on a sofa, supporting himself with both hands on the floor and holding the head down with the affected side uppermost. After remaining in this position for half a minute he is to sit up without either blowing his nose or inspiring through it. The speculum now having been reintroduced pus will be seen in greater or lesser quantity in the middle meatus if the discharge really comes from the antrum.

TRANSILLUMINATION.

In 1889 Heryng, of Warsaw, proposed to effect the diagnosis of fluid in one antrum by illuminating the bones of the face by an incandescent lamp introduced into the patient's mouth. Mr. Nathaniel Stevenson was good enough to make a series of experiments upon himself and others in my presence to establish the truth of Heryng's statement, that darkness on one side of an illuminated face might be taken as probably symptomatic of empyema. But the conclusion we came to was that the thickness of the bone varies so greatly in different individuals, as Heryng himself has noticed, that the test proposed was not very reliable.

TREATMENT OF EMPYEMA OF THE ANTRUM.

The symptoms of, usually, one-sided periodical discharge of pus, which is not offensive or only slightly so and which is apt to flow when the patient is recumbent with the affected side uppermost, ought to direct the surgeon's attention to the antrum, for that empyema of the antrum is much more common than usually supposed cannot be doubted. Some years back I was consulted by a lady who had been under treatment for some months for a chronic discharge from the nostril, for which she had undergone one scraping operation without benefit. The discharge continuing it was suggested that the frontal sinus must be the seat of the disease, and it was proposed to trephine the sinus with a view of clearing up the question. As the patient was both young and good-looking her friends not unnaturally took alarm at such a serious pro-

posal as opening up the frontal sinus, and I was consulted. I came to the conclusion that in all probability the antrum contained pus, and I advised that a puncture should be made into it before any more serious operation was undertaken. This was accordingly done, a quantity of offensive pus was washed out and the patient rapidly regained her health.

When a carious molar tooth is present it had better be extracted, and a puncture made through one of the outer sockets; but if there is no tooth requiring extraction I prefer to puncture above the alveolus in the canine region, and I have seen no harm follow the proceeding. Whichever method is employed, the thorough washing out of the cavity forms an essential part of the treatment, and this can readily be effected through an ordinary Eustachian catheter fitted with an india rubber syringe. Whether a permanent silver tube should be fitted by a dentist, and secured by a plate to the neighbouring teeth, must depend very much upon the patient. If he can introduce the Eustachian catheter readily, and wash out the cavity easily, there is no occasion for a tube, but if, as often happens, the opening through the alveolus tends to close, and the patient is constantly in difficulties, then it is better, I think, to have a tube fitted, care being taken that it is only just long enough to reach the floor of the antrum, and not to go beyond it. This can be fitted with a plug to prevent the accidental passage of food into the cavity.

REFLEX NASAL NEUROSES.

Within the last few years a new importance has been given to nasal disorders by the reputed discovery that many obscure nervous affections are nasal reflexes, or dependent upon some abnormality of the nasal cavity. That some forms of asthma, and particularly the so-called hay asthma, may depend upon irritation of the nasal mucous membrane has long been known; but it is only since Hack's paper in 1882 that various and distant phenomena have been connected with the nose. Hack makes these nasal reflexes cover a sufficiently large field, namely, gastralgia and dyspepsia, cardiac palpitation, salivation, trigeminal neuralgia, cephalalgia, migraine, scotoma, ciliary neuralgia, photophobia, vertigo, and agoraphobia; while his followers give examples of epilepsy, neurasthenia, and nocturnal incontinence. Even exophthalmic goitre has been thought to be sometimes connected with nasal obstruction, and Professor Hack considered this obscure disease to be a reflex phenomenon due to "permanent irritation of certain peripheral terminal apparatus of the sympathetic nerve, which are expanded in the erectile tissues of the nose."

It must, however, in fairness be stated that amongst specialists themselves there has been, from the time when Hack's doctrines were promulgated, considerable scepticism concerning the widespread influence attributed by him and his followers to nasal affections.

THE PATHOLOGY AND TREATMENT

OF

SUPPURATIVE DISEASES OF THE EAR.

Being an abstract of the Harveian Lectures delivered before the Harveian Society of London.

By G. P. FIELD, M.R.C.S.,

Aural Surgeon to St. Mary's Hospital and Dean of the Medical School.

LECTURE II.—FACIAL PARALYSIS.

Any condition interfering with the free flow from the tympanum of pus there generated may be productive of the serious complication facial paralysis. We have already seen how, in an acute attack of otorrhœa, an unyielding membrane may be its passive cause. I need hardly say that when facial paralysis occurs from suppurative middle ear disease, degeneration of muscle soon sets in, to be followed, if the affection continues long enough, by distinct wasting; so much might, indeed, be inferred from the fact that the neuritis is peripheral. Correlated with and on the same side as the facial paralysis is loss of taste, not of sensation, over the gustatory part of the tongue—a phenomenon not always noted, but of interest physiologically, in that it proves conclusively that the gustatory fibres come from the chorda tympani. These

Dr. Gowers has traced from Meckel's ganglion along the vidian and the great superficial petrosal nerves to the geniculate ganglion of the facial.

TREATMENT OF OTORRHOEA WITH PERFORATION.

When the accumulation of pus from the meatus is cleared away and the parts kept constantly clean, a recently perforated membrane, as a rule, heals well. When there is a thick discharge it should be removed at least three times a day. Oftentimes deafness is due to deposit on the membrane, fenestræ, or ossicula, or to swelling of the mucous surface of the drumhead, and the thorough washing of the tympanum with antiseptics is of great advantage. This may in some instances be effected by the use of an intratympanic syringe introduced through the perforation; the inflation of the tympanum by Valsalva's or Politzer's method should then be resorted to. As Hinton long since observed, it is desirable sometimes to touch the edges of the perforation with silver nitrate. In the treatment of chronic cases of perforation, highly stimulating lotions are often employed month after month without any change, and the ear, in consequence, becomes excoriated and painful. The adoption of a milder application may be all that is requisite to effect a cure.

The immediate relief of pain is of prime importance. To this end free leeching and counterirritation behind the mastoid, with equal parts of tincture of iodine and blistering fluid, may be employed. Cold compresses, frequently changed, may sometimes be useful, as Weber-Liel has shown, in place of leeching. Glycerine of carbolic acid poured into the meatus is a useful anodyne, and of the value of antipyrin taken internally I have already had occasion to speak. In the acute catarrh of young children—of which one sign is refusal to rest the head on the affected side—poultices should be avoided, as they only promote suppuration; pain is best relieved by frequent fomentation of the external meatus with water. Mild purgation and the use of Politzer's bag are also of assistance. Many an earache might be completely prevented by timely politizerisation, as it renders the Eustachian tube pervious, and equalises the pressure on the drumhead. In children it acts well, without any accompanying act of deglutition. Until pain has subsided warm water should be poured into the ear, and syringing and the use of stimulating applications should be shunned. Afterwards weak and soothing lotions, such as solution of acetate of lead and tincture of opium, may be resorted to. Perchloride of iron and silver nitrate are unsuitable for acute cases. Powdered boracic acid, or occasionally alum, may be very efficacious, but the insufflation of powders is not to be recommended except in chronic cases where there is a large perforation. Strong lotions are applicable only in old-standing cases of otorrhœa. The stoppage of discharge through their use when perforation has but recently occurred, or when pain is still present, may be productive of meningitis or mastoid abscess, the edges of the perforation being stimulated to close before cessation of discharge into the tympanum.

In chronic cases of otorrhœa, as we have seen, rectified spirit may be of signal service. Dr. W. B. Johnson¹ recommends hydrogen peroxide—a 15-volume solution is the strongest required—as a non-toxic germicide, one and a-half times stronger than mercury bichloride, in catarrhal and suppurative otitis and in mastoiditis after incision. It acts by evolving nascent oxygen, and its effervescence during decomposition effects the excretion of products of healthy action. Causing the disintegration and removal of carious, and promoting the growth of living bony tissue, it obviates the necessity of scraping a diseased mastoid if applied thereto.

ECZEMA, IMPETIGO, AND BOILS OF THE EXTERNAL MEATUS.

Trötsch's observation that there is no justification anatomically for speaking of catarrh of the external meatus holds perfectly true, except as regards the occurrence of acute moist eczema. This disease, in one phase, may appear between the ear and the head, but a variety much less amenable to treatment is that met with within and around the meatus, and is originated by the patient's scratching of the ear to alleviate irritation caused by some chronic discharge. For

its successful treatment arrest of the discharge from the internal meatus is manifestly a requisite. Careful cleansing of the meatus and the application of a small quantity of dilute nitrate of mercury ointment—preferably first melted—are remedies generally efficacious. Other ointments, or vaseline alone, may be better tolerated, or lotions (for example, a solution of chloral hydrate) may prove yet more successful. In chronic cases the application of oil to remove scabs, and then of tar lotion (Wright's liquor carbonis detergens 3j to 3iv of water) is usually effective.

Contagious impetigo, the result of inoculating with staphylococci, is characterised by a thick and purulent discharge, which, with scabs formed in the meatus, sometimes obstructs the passage of sound. The exhibition of tonics and bread poultices, and carbolic lotion for the ear, to be followed, if needful, by applications of calamine ointment, are useful remedies.

Staphylococcus pyogenes, var. *albus*, is the organism usually present in the pus of boils in the external auditory meatus. Foul air, as I have shown, and the employment of aural applications in a putrefactive condition are among the causes of boils. The occurrence of furunculosis as an epidemic points very clearly to its parasitic origin, and this again accounts for the beneficial effects of alcoholic solution of boracic acid in its treatment after the flow of pus has begun. The relief of pain due to tension and the resolution of the boil may be effected by a free upward incision.

One of the possible results of otitis or eczema affecting the external auditory meatus, especially in damp and impure atmospheres, is the appearance there of some one of the species of *aspergillus*, generally *A. niger*. This is best combated by the injection into the ear of alcohol in warm water.

NEW GROWTHS.

Among the new growths in the meatus resulting from suppurative otitis are spongy exostoses (osteomata). These may be preceded by polypus, are usually pedunculated, and have the appearance in microscopic section of newly formed bone. They can easily be removed with dental stump forceps. The true ivory exostoses of the ear I do not now propose to deal with except in so far as they are connected as an effect or cause with aural suppuration. Their origin seems to be in some mechanical irritation, one source of which I long since showed to be in all probability the ingress of salt water into the ear. I was led to this conclusion after having operated on four gentlemen with double ivory exostoses, who were in the habit of bathing together daily in the sea in the south of Ireland. It is when the growth of an exostosis threatens to prevent the escape of pus from the ear that its removal is absolutely necessary, even though there should be no very appreciable loss of hearing from the occlusion of the meatus. The true ivory exostosis may be safely drilled with the dental engine. I have treated over one hundred cases by this means, and I have seen no reason to swerve from the opinion that it is superior to all others for the penetration of these excessively hard tumours. At times ivory exostoses give rise to danger by exerting mutual pressure and so causing painful suppuration, and they then require prompt treatment. One patient, sent to me by Mr. Swanwick, of West Hartlepool, suffered from increasingly alarming and frequent epileptiform fits, so that for some months he was afraid to lie down at night, being apprehensive of a seizure. His condition was apparently due to the retention of secretion in the right ear, which was almost completely blocked by an exostosis. After I had drilled through the growth, the patient recovered his hearing and had no repetition of the fits.

DR. A. J. SHEPHERD, of Usk, M.R.C.S.Eng., died somewhat suddenly on November 27th. He was about seventy-eight years of age, and was the oldest medical practitioner in the town, where he was greatly respected. He was medical officer of Usk under the Local Board, and district medical officer under the Pontypool Board of Guardians.

PRESENTATION.—In the Miners' Hall, Leadgate, on Tuesday, Dr. W. Allen was presented with a silver tea and coffee service and a purse of gold in recognition of his public and professional service during his eight years' residence in Leadgate,

¹ *Proc. Amer. Med. Assoc.*, 1892; *Journ. of Laryngology, Rhinology, and Otolaryngology*, No. 10, 1892.