adopted in the recent formation of the British Laryngological Association, especially in the manner of choosing office-bearers, would, I think, in this case, prove satisfactory. I trust, gentlemen, that at this meeting you may take the initiatory steps which will lead at no distant period to the formation of a British Otological Society. By the publication of the transactions of such a society our Continental and American brethren would have a better opportunity of knowing and appreciating the work done in Britain, while our influence with the profession in our own country would be greatly enhanced. In this connection I might just, in a word, make the suggestion that it would be well if there were an English editor of the *Archives of Otology*, in the contributions to which it would also be very desirable that British otologists should take a larger share.

While, gentlemen, the advance and improvement in the knowledge and treatment of diseases of the ear should be our first aim, it is our duty to see to it that medical practitioners, and, through them, the public shall benefit by the improved knowledge. As Mr. Jonathan Hutchinson fitly expresses it, "In the early stage of any department of knowledge it is almost a matter of necessity that it should be in the hands of a few. But it is the highest privilege of those who devote themselves to the reclaiming of new spots of territory to hand them over to the commonwealth to prove that they are now cultivated and worthy of annexation." A vast number of those who suffer from ear disease can never come under the direct treatment of surgeons specially devoted to the practice of aural surgery. It is therefore of the utmost importance to the community that every medical man, before entering upon practice, should be acquainted with the chief and most approved methods of examination and treatment, and should be familiar with the main pathological conditions affecting the organ of hearing. We cannot conceal the fact that the great majority of men begin the practice of their profession with neither practical nor theoretical knowledge of the diseases of the ear, to the grievous injury of the public. Students have the impression, evidently justified by experience, that while they may have to undergo thorough examination in regard to their knowledge of the anatomy and physiology of the ear, it is superfluous, for the purposes of examination, to know anything of the diseases of that organ. Most of us who undertake to lecture or give clinical instruction upon ear disease know how this impression affects the numbers and regularity of attendance of those who come to our classes. If no change for the better ensues, large numbers of men will continue to enter upon the practice of the medical profession unable to cope with the simplest diseases of the ear, until either attendance upon a course on diseases of the ear is made compulsory, or until the medical-examining boards decide that these diseases shall be no longer ignored in the professional examinations for degrees. I quite acknowledge the difficulties of the situation. I quite recognise that students are already overburdened with subjects of study and with examinations, and that the licensing bodies are naturally unwilling to add still further to the burden. But if, on account of the shortness of the curriculum and of the magnitude of the work which has to be done, something must be omitted, I would submit that, in justice to the public, the omission should not be that of the knowledge and treatment of an important organ of the body. Will the public prefer that its doctors should have a knowledge, meagre as it usually is, of botany, zoology, or chemistry, if such knowledge is at the expense of their inability to treat diseases of the eye, the ear, or any other important organ of the body? Whatever fresh arrangement be decided upon by the examining boards, it is not, I think, unreasonable to insist that every student, without exception, before receiving the legal qualification to practise medicine and surgery, should be competent to examine the ear intelligently and to deal with the important and common diseases of that organ. If this matter were submitted to the public there can be no two opinions as to what the decision would be. That practitioners should possess this knowledge is now rendered all the more necessary by the improvements in the methods of treatment of recent years, and especially by the development of the operative treatment of the intra-cranial complications. These complications are, I am more and more convinced, much more frequent than is generally supposed, and now that surgical treatment may save such patients, how supremely important it is that the general practitioner should promptly distinguish their true nature, and resort in time to the improved methods of surgery. At the meeting in Ryde seven years ago, a resolution was proposed and adopted unanimously by this Section of the British

Medical Association, strongly recommending the compulsory examination of students upon ear diseases. So far as I am aware the representations made at that time to the proper authorities produced no result. It may be worthy of consideration by the gentlemen here present whether, after the lapse of seven years, a second effort in the same direction should not be made. The present time, when the acquirements of medical students are being keenly debated, might be favourable to renewed action on our part. It is for you to decide.

Gentlemen, I shall not detain you further. A large and varied programme of work lies before us. Three most interesting and important subjects have been selected for discussion. May this, the first meeting of otologists in Scotland, be signalised by good and useful work and by increased interest in the Otological Section of the British Medical Association.

OPERATIONS ON THE MASTOID PROCESS.

Read in the Section of Otology at the Annual Meeting of the British Medical Association, held in Glasgow, August, 1888.

By P. McBRIDE, M.D., F.R.C.P.E., F.R.S.E.,
Surgeon to the Ear and Throat Department, Edinburgh Royal Infirmary.

It would serve no good purpose to discuss the history of operative attacks upon the mastoid region, which is, no doubt, familiar to all those present; nor do I propose to consider the pathology of mastoid inflammation further than the strictly practical aspect of the subject requires.

In many modern works on ear disease we find a tendency to classify inflammatory conditions of the mastoid under two headings, namely: (1) Periostitis confined to the outer surface; and (2) ostitis within the pneumatic space or spaces.

Pathologically, no doubt this subdivision is justified; but it seems open to doubt whether, from a clinical point of view, it can be maintained. It is true that those rare cases of primary periostitis, unassociated with any suppurative process within the ear, and of inflammation the result of disease confined to the external meatus, can be diagnosed clinically as well as pathologically to be due to inflammation confined to the periosteum.

In the comparatively common cases, however, in which acute or chronic suppuration of the tympanum spreads to the region behind the ear, I hold that we are only entitled to speak of mastoid inflammation, and that usually we cannot further define its limits; I venture to doubt, however, whether the lesion is, in such instances, often confined to the periosteum, or even to the layer of bone immediately beneath it.

With these preliminaries disposed of, I should like to ask and attempt to answer the question: "Of what therapeutic value is incision of the soft parts down to the bone, before pus has formed in cases of acute or chronic middle-ear suppuration complicated by mastoid inflammation?" It seems to me that in most cases—more especially in instances of mastoid inflammation due to examples of chronic middle-ear suppuration—this operation is useful (1) as a palliative of pain; (2) as being of the nature of an exploration of the condition of the outer layer of bone. In mastoid inflammation arising in acute tympanic inflammation where the discharge is still sweet it may possibly do more, for here the danger to be feared is extension of inflammation to the intracranial structures, and the depletion resulting from the incision is undoubtedly useful; but the same result can be arrived at by free leeching. On the other hand, Wilde's incision can do little for a patient whose mastoid antrum and cells are filled with granulations, carious debris, decomposing pus, and epithelium. When I make an incision behind the auricle, then the object I have in view is: (1) to palliate pain; (2) to let out pus if it be present; (3) to save the outer layer of the mastoid process from injury; (4) to explore, that is to find out, whether there is any fistulous opening which would indicate or facilitate perforation of the bone. I am strongly of opinion that Wilde's incision is not a life-saving operation, and am therefore inclined to delay its application longer than, for example, Roosa, who writes: "It is only when the symptoms are not severe, although positively existing, that a little delay, that is, of a few hours, may be admissible for the use of leeches, etc." Cold applications, leeching, iodine, the injection of weak boracic lotion through the Eustachian catheter, and instil-

¹ *Diseases of the Ear*, 6th edition, p. 455.

lation of a solvent solution of soda into the meatus in chronic cases, should certainly have a trial before the more active remedy is resorted to. It may not be amiss to refer very briefly to two points in connection with the treatment of suppuration of the middle ear, with perforation of the drum membrane, namely (1) the use of small tubes introduced through a perforated drum membrane, for the purpose of breaking up inspissated secretion by means of a stream of fluid; (2) the use of powders as a cause of mastoid disease. With regard to the first, I cannot say that the use of Hartmann's apparatus has, in my hands, proved serviceable. When the perforation is small it is difficult to use, and when, on the other hand, the orifice is large, it has seemed to me that constantly applied instillations of an alkaline solvent promise better results.

With regard to the question of insufflated powders as a cause of pus retention—a subject which has recently given rise to somewhat acrimonious discussion in German otological circles—I do not hesitate to say that I am more chary now than formerly of recommending this treatment in cases where the perforation is small, for I have met with more than one example where its use was followed by mastoid inflammation. I may fairly be met with the reply that *post hoc* proves nothing; but, with regard to these cases, I have never been able to divest myself, rightly or wrongly, of the idea that, while it was certainly *post*, it was also *propter insufflationem*.

Before concluding my remarks on Wilde's incision, I should like it to be understood that, in a case of mastoid inflammation, after a delay varying from two days to a week, and after other remedies have failed, I have no hesitation in adopting this method of treatment; but I always do so with the idea of perforating the bone itself, should such an almost immediate amelioration of symptoms set in. I am, therefore, at one with Politzer when he advises the incision to be made near the attachment of the auricle, so that it may be utilised for the more serious proceeding, should this be found necessary.

With regard to the operation of opening into the mastoid process, I have, of course, like most of those present, studied the most recent writings on the subject in the works of Schwartz, Politzer, Gruber, and Bezold; but it seems to me that in a paper read at a meeting such as this one ought to avoid, so far as possible, literary references, and adhere to personal observation. I may, however, to avoid misconception, at once state that of those cases in which mastoid abscesses have burst through the inner surface of the cortex and led to burrowing of pus beneath the muscles of the neck I have had no experience.

The indications for opening the mastoid antrum seem to me to be present in almost every case of chronic middle-ear suppuration (excepting in cases of perforation of Shrapnell's membrane), in which we have head symptoms threatened, and in which milder measures have failed, the urgency of the indication being directly proportionate to the danger of the patient. In both acute and chronic cases the operation should be performed when tension cannot be relieved by other means, and when to allow it to continue would be a grave risk.

Some time since I had occasion to collect a number of cases in which middle-ear suppuration had proved fatal, owing to bad complications, and I found that in the great majority both the tympanic and mastoid antra were involved in the suppurative process; hence my belief that opening the mastoid should not be long delayed when danger threatens, excepting, as already stated, in cases in which Shrapnell's membrane is perforated, while the lower part of the tympanic cavity does not show evidence of disease. In such cases perhaps, under certain circumstances, and assuming, as is often the case, that the patient is in no condition to brook the delay, etc., of removing the malleus and membrane, it may be better to proceed at once to open the cranial cavity just above and in front of the osseous meatus, provided we have fair grounds for suspecting that there is already a cerebral abscess. Cases of chronic suppuration threatening to end fatally are often brought to hospital when matters have considerably developed, and then of course the surgeon must be guided by general indications, whether he shall open the mastoid or cranial cavity, or whether indeed any operation is justifiable, in patients suffering from chronic suppuration who can be watched. I am inclined to think that opening the mastoid antrum should be performed when there is great pain, facial paralysis, with or without rigors, optic neuritis and symptoms of meningeal irritation, whether or not there be tenderness over the mastoid, and I would further venture to suggest that in such cases the most important

symptom is pain, and that the indication is commonly urgent, exactly in proportion to its severity. It may be argued that, if we have distinct evidence of involvement of the labyrinth, or of caries of the inner tympanic wall, the surgical proceeding proposed is likely to be useless; but observe that even the most probable cause of these complications is tension *plus* putrefaction, and by no other known method can we get such perfect drainage and irrigation of the tympanum as by opening the antrum. Besides, it must always be remembered that I only advocate the operation after other known means have been tried and found wanting. There are certain cases of obstinate otorrhoea associated with the presence of polypoid growths which yield in my experience only to perforation of the mastoid; but I must admit that, so far, I have always hesitated to perform or recommend the major operation until pain and threatened head symptoms demanded it urgently. The most characteristic of such cases are those where a polypoid growth springs from the posterior wall of the meatus. Such a tumour will almost invariably be found to have an aperture in its centre, and if a bent probe be introduced, it passes towards the mastoid process, and bare bone may be felt. Sometimes however an apparently true aural polypus keeps recurring, in spite of removal and in spite of caustics, only disappearing after the antrum has been opened.

In most of such cases, no doubt it is the free drainage that removes the cause of these growths, which are probably the result of a mechanical irritant. It has happened to me, however, to operate upon a densely sclerosed mastoid, of ivory-like hardness, in a patient who seemed to be already suffering from meningitis. This patient had been for some time under my observation, on account of chronic middle-ear suppuration, associated with which was a polypoid growth from the posterior wall of the meatus, perforated in its centre by a canal leading towards the mastoid. I have, unfortunately, no notes and write from memory; to the best of my recollection, however, there was no dead bone to be felt with the probe, and the case did well for a time, and then disappeared from treatment. After an interval, however, I was asked by Dr. Carmichael to see her, and both he and I agreed that the pain, mastoid swelling, delirium, etc., made almost any attempt at relief justifiable. The meatus was now filled with a polypoid mass, which was in great part removed; this failing to give relief, the mastoid was opened. I made the incision behind the ear, close to the auricle, and, to get more ready access, made, contrary to my custom, another at right angles to its upper extremity. It is needless to go over the steps of the operation. Suffice it to say that, after chiselling parallel to the meatus through bone of ivory-like structure for nearly an inch, the operation was suddenly cut short by the wound filling again and again with dark venous blood. I had evidently opened at the lateral sinus, and therefore abandoned further attempts to drain the tympanum. The hæmorrhage was easily checked by lint dipped in carbolic oil, and did not recur to any appreciable extent after removing the plug, which was done, if I remember right, about eight hours after the operation. Syringing antiseptic fluids into the wound produced giddiness, but no flow from the meatus, neither could any fluid injected into the meatus be made to flow from the wound. The patient, however, did well, although after her ear symptoms were relieved, she contracted a pneumonia—whether or not connected with a clot in the lateral sinus, Dr. Carmichael and I were unable to determine. The special points of interest, however, from an otological point of view, were:

1. That the case did well without any drainage from, or even opening at, the mastoid antrum.

2. The granulation, or rather so much of it as remained, disappeared never to recur again.

As to the first point, it may be said that there never was any retained pus in the mastoid antrum; but the great swelling and infiltration of the post-auricular tissues, the tenderness and threatened meningitis, negatived this view; so did the presence of the granulation and fistula leading towards the mastoid from the meatus. I regret that, owing to the necessity for an immediate operation at the patient's home, no ophthalmoscopic examination was made, although we are now aware that many cases recover in which the ophthalmoscope has shown changes in the disc.

With regard to the spontaneous disappearance of so much of the growth in the meatus as remained after the bulk of it was shaved off, and the cessation of the otorrhoea which soon followed, I am quite at a loss for an explanation. Of course, such platitudes as counter-irritation and the production of a trophic change, are

always at command. With regard to the beneficial effect of the operation on the head symptoms, I am, however, inclined to attribute importance to the bleeding from the lateral sinus.

As to the method of opening the mastoid, I am strongly of opinion that it should be done as close to the meatus as possible, and, by working towards the antrum, on the accepted anatomical data—that is, using either *spina supra meatum* or the upper wall of the meatus as a guide to the highest point of the osseous opening—by means of a hammer and gouge. Indeed, I cannot but think that trephines and borers are hardly justifiable. That a measure of success attends their use seems to me to show that, in the majority of cases, the layer of solid bone which has to be penetrated is not deep. My chief objection to their use is that, if the lateral sinus be wounded, the danger is not detected immediately, as in cases where the gouge is used, and irreparable mischief may result.

I have already occupied too much time, although I have endeavoured to avoid anatomical and operative details which are familiar to all present. In conclusion, I may just mention that in those cases where the operation is undertaken to relieve the effects of chronic middle-ear suppuration, as it usually is, I utterly fail to understand the insistence of certain otologists on antiseptic precautions. That antiseptic washes should be used goes without saying; but to carefully render the skin antiseptic before making a wound over the surface of which putrid secretion is destined to pass seems to me, to say the least, superfluous; unless, indeed, the operator wishes in every case to provide against possible ills from opening into the cranial cavity.

In the majority of these cases—especially when they are not treated in a general hospital, where various microbes may be supposed to be collected together, and ready for an attack on any open wound—I am inclined to apply as little dressing as possible, and to have the wound syringed with warm boracic lotion every hour or two, the fluid being made to pass both from the meatus to the wound and *vice versa*. As all who have any experience in this operation are aware, this through current cannot always be produced immediately after the operation, probably owing to reactive swelling. One of the greatest difficulties in after-treatment is to keep the channel leading to the antrum open. Equally well-known is the fact that the wound often tends to fill with granulations, which require to be scraped away. For drainage purposes I prefer to use a lead tube, as it is more easily introduced when the channel has become narrowed; but, on the other hand, it also is more difficult to keep comfortably in its place.

As the cause which necessitates these mastoid operations and which so often endangers life in chronic middle-ear suppuration is the inspissation and subsequent putrefaction of pus, together with the tension so produced, my mind has for some time past been exercised by the question, whether a better means of cleansing the recesses of the middle ear than we at present command could not be found. It has occurred to me to use for this purpose the digestive ferments. I hope to discuss this subject at length on a future occasion, but may be permitted now to mention that trypsin and papayotin in solution seem to me most likely to prove suitable. The former I have already employed (in the form of Benger's liquor pancreaticus mixed with sodæ bicarb. to secure alkalinity), and it acted most efficiently and painlessly in the case of a boy whose tympanum was filled with a choleostomatous mass. Such experiments must of course be conducted with care; but on general grounds we are entitled to assume that trypsin is likely to act strongly on most if not all dead tissues and to spare living structures. If by its means we are enabled to break up hardened masses of pus, cholesteatin, and epithelium, and, perhaps also, dead bone, a distinct advance in treatment will be thus achieved.

SUPERANNUATION.—Mr. Joseph R. Donald, F.R.C.S.Eng., late medical officer for the Lower Holloway district of the parish of St. Mary, Islington, has obtained a superannuation allowance of £77 16s. 1d. per annum.

GEORGE BERNARD HOFFMEISTER, M.A., M.B.Cantab., B.Sc.Lond., M.R.C.S.Eng., has been associated with his father (Sir William Hoffmeister) and brother, as Surgeon at Osborne, as well as to the Royal Yacht Squadron, Cowes.

BEQUEST.—By the will of an Ayrshire farmer, Mr. Peter Connor, Ayr County Hospital benefits to the extent of £200, the Glasgow Asylum for the Blind £100, and the Glasgow Asylum for the Deaf and Dumb £150.

A CASE OF DEEP CELLULITIS OF THE NECK WITH PARTIAL PARALYSIS OF RIGHT ARM FOLLOWING ACUTE OTITIS MEDIA CAUSED BY A BLOW.

Read in the Section of Otolaryngology at the Annual Meeting of the British Medical Association, held in Glasgow, August, 1888.

By CHRISTOPHER LEWIS, M.D.,

Assistant-Surgeon Ear and Throat Hospital, Birmingham.

THIS case, presenting as it does points of unusual interest, is I think worthy of recording before the members of this Section.

I was called in consultation by Dr. MacMunn, of Wolverhampton, in January last, to see a strumous, delicate boy, aged 13, with the following history: some fourteen days prior to my visit the lad had received a box on the ear at school—a fact not brought before the attendant's notice. He complained of sore throat and occasional earache; in a few days these slight symptoms rapidly developed into a more serious condition, for the temperature ran up to 102°, delirium came on at night, obstinate vomiting and pain in the head. These symptoms became more pronounced, particularly the delirium; deafness became marked, and the temperature ranged between 102° and 104°.

He was seen in consultation by Sir Walter Foster, who was inclined to the belief that it was probably a case of cerebro-spinal meningitis, so allied were the symptoms to this disease; indeed, with no appreciable discharge from the ear and the cerebral symptoms so pronounced, some meningeal irritation was the most natural conclusion to draw in a case so obscure.

About the ninth or tenth day the true nature of the disease showed itself by a swelling and redness over the apex of the mastoid, and the cerebral symptoms, which had been gradually improving for a few days, now almost disappeared. The mastoid puffiness subsided, only to be followed by a deep-seated inflammation of the neck, which rapidly assumed an alarming size. It was at this stage of the disease that I saw him. I found a slight muco-purulent exudation in the external meatus of the right side, which was generally congested and tender to touch, but no inflammatory thickening. The tympanic membrane had a boggy appearance, its lustre had gone and the pyramid of light was obliterated; there was, however, no perforation.

The hearing distance with Politzer's acoumeter was barely one inch, and the conduction over the mastoid was distinctly impaired. The temperature was 102.2°; the patient was emaciated and complained of violent pains in the neck, shooting up the scalp and around the ear. Antipyrin had been given by Dr. MacMunn; the temperature was by this means kept under, and it further aided in modifying the pain.

The whole inflammatory mischief was now centred in the neck, where an enormous swelling had developed, as hard as a board. This induration extended to some distance beyond the edge of the sterno-mastoid posteriorly, anteriorly to the median line of the neck, inferiorly on a level with the clavicle, and superiorly in a line with the floor of the meatus. There was some difficulty in swallowing, and the breathing was slightly laboured. Singularly enough there was no history of rigors, nor was there the least tendency to pointing, the pain, however, was so great and the constitutional disturbance so grave that it was a matter for serious consideration whether some attempt should be made at once to relieve the pressure. We decided, however, to wait a day or so. On my next visit, as the symptoms did not appear to subside, it was decided to make an incision, although no fluctuation could be detected. I chose a point a few inches above the clavicle, and, dividing the skin and superficial fascia, I groped about with a grooved probe until I at last struck upon a caseous mass. The wound was now enlarged, and after the caseous substance had reached the surface there was some discharge of pus. As the hæmorrhage was rather profuse the wound had to be plugged firmly with strips of lint. The pus welled up freely during the night, and the following morning there was a decided improvement in the patient's condition, and from this time virtually the whole symptoms began rapidly to subside. Dr. MacMunn made a counter opening later on. It was at this stage that some diffi-