thrombosis. Both forms grow worse if the centres of infection in the organ of hearing, and still more in the cranial cavity, are not removed early, or if the conditions favourable to absorption are not suppressed. The progress of either form often depends on the time at which absorption of infective material commenced.

8. Pyæmia without thrombosis has, as a rule, a favourable termination after suitable treatment—often, indeed, without any treatment. Pyæmia with thrombosis almost always ends in death, but a certain number of cases can be saved by operation.

9. It is often difficult to choose the right moment at which to operate in these fatal complications, especially in cases of general infection. When we can wait without danger to the patient, it is well not to hurry, but rather to watch and make sure of the diagnosis. Threatening symptoms, on the other hand, always demand energetic surgical intervention.

BRITISH MEDICAL ASSOCIATION'S MEETING,

Montreal.

September 1st, 2nd, and 3rd.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.

Dr. GREVILLE MACDONALD (Lond.), *President.*

(*Specially reported by W. PERMEWAN, M.D., F.R.C.S.*)

DISCUSSION ON TURBINOTOMY.

Opened by GREVILLE MACDONALD, M.D., President of the Section.

Gentlemen,—Removal of larger or smaller portions of the turbinated bodies has been practised more or less by us specialists ever since, I imagine, we first encountered those cases where the operation would obviously cure the patient of whatever symptoms might be attributable to such hypertrophy. But yet it is only quite lately that the word "turbinotomy" has become one of frequent use. And this indication of an enlarging interest in the subject inclines one to ask the questions, first, whether such operations are now performed in cases where formerly milder measures appeared to suffice; secondly, whether our patients are more expeditiously cured, and whether there is any possibility of too great an operative zeal resulting in actual harm to the patient.

I am excluding from my remarks all operations on the middle turbinal, seeing that it is not usual to admit this structure when using the word "turbinotomy," and also because it would lead us into regions too vast to be even prospected in the time at our disposal.

Resection of the inferior turbinal in part may be required (1) for the relief of obstruction to respiration; (2) for the relief of the various neuroses; and (3) for the relief of a very troublesome and rather uncommon form of catarrh.

For such affections or symptoms, removal of those large cauliflower, corrugated, or muriform masses, occupying more especially the anterior and posterior extremities of the bone, has been among the earlier triumphs

of rhinology. For the grosser of such hypertrophies, the incandescent or cold snare have always been the chief methods adopted for operation ; while the smaller are sometimes sufficiently reduced, if not eradicated, with the electro-cautery point.

There are cases where specialists of not very wide experience may fail to give all the relief they had hoped for by such methods. This generally arises from the fact that they overlook the large masses often concealed in the concavity of the overhanging bone. We sometimes see enormous masses in this region which can be shelled out, so to speak, with a probe, and either cut off with scissors or removed piecemeal with the snare. The latter is often preferable on account of the relatively small amount of hæmorrhage it entails. I am somewhat anxious to emphasize this concealment of the much-hypertrophied tissue for the sake of recording my experience that in all such cases—and I have had my share of them—a cure can be effected without interfering with the bone ; and I suspect it is in such cases, where the real difficulty is overlooked, that the danger may arise of considering it necessary to remove large portions or the whole of the inferior spongy bone.

Hypertrophy of the erectile tissue, moreover, has appeared to me to be more often associated with asthma than are other affections of the nose. And, correspondingly, the prognosis of hay fever and paroxysmal sneezing is better where the objective trouble is inferior turbinated hypertrophy than any other disease. So that for this reason alone it is incumbent on us to inquire into every method advocated for the relief of the obstruction in the inferior meatus.

But there are undoubtedly cases where the snaring or cauterizing of the mucous membrane is not sufficient to ensure the desired relief. In such, respiration through the fossæ is not necessarily obstructed, although, of course, it may be, and the specialist's attention is often drawn to the condition only by the accumulation of ropy mucus or muco-pus in the inferior meatus, which the patient experiences the greatest difficulty in removing from the nose by the ordinary methods. He is constantly wiping the nose, being unable to blow the accumulations into the handkerchief. The mucus, in fact, is imprisoned in the concavity of the inferior turbinal, as well as in the portion of the inferior meatus internal to the turbinal, by the relatively large size of the overhanging bony structure. The free border of the spongy bone may lie almost or quite in contact with the floor of the nose, and in a few cases we see adhesion of its anterior part to the floor beneath. This may result in the formation of a pocket with or without a small opening in its anterior portion. Into such a pocket the patient is constantly forcing the accumulations of mucus in his endeavours to clear the nose, the result being that he is never free.

In most of such cases, I believe, the fault lies in a structural malformation rather than a pathological condition. Just as in the many and extraordinary malformations of the septum with which we have so often to deal, the fault appears to have originated in a sort of error of co-ordination in the relative extent to which the septum and the vertical diameter of its containing chamber have arranged for their individual extension, so the inferior turbinal appears to have attained a size which would have

been suitable only in a nasal fossa with a greater vertical capacity. But I have never seen any case where the bony structure appeared to be too large in the posterior regions of the fossæ, any more than deviations or hypertrophies of the septum are to be found in the regions brought into view with the post-rhinal mirror.

In these cases the only treatment that can be considered satisfactory is the paring off from the free border of the bone of as much of its substance as will secure a free passage of air and mucus. This can usually be attained with scissors, or the combined use of scissors and snare as practised by Dundas Grant. But it is only the anterior portions that ever need such treatment in my experience; and I have never seen any case where it was necessary to do more than this. I have never been tempted to remove large portions of the inferior turbinal, beyond the masses of hypertrophy with which we are all so familiar. And although I have heard the views of those who advocate the larger operations on the inferior turbinal for the relief of obstruction to respiration, or for the removal of certain neuroses, yet while amply convinced of the feasibility of such operations and of the relief they may afford; while even admitting that no appreciable harm may result; yet let me repeat, I have for my part not seen the cases where the desired relief could not be acquired by milder measures. The great hæmorrhage, and the frequent necessity for plugging, render the operation graver than almost any other in the nose. And we have yet to see whether, in the course of a few more years, we shall not encounter in these patients definite evidence of chronic inflammation of the larynx, etc., resulting from the removal of what may be justly described as the most important organ of the nose.

In a series of experiments¹ made some years ago by myself, more especially with a view of ascertaining the degree of moisture and temperature of air after passing through the nasal fossæ, among other things I was able to show that the amount of moisture exhaled was diminished approximately to one-third or less after the application of cocaine, and the collapse of the inferior spongy body. Although this was only what one would expect, it adds weight to an impression pretty generally held that to the inferior turbinated body must be ascribed the most important function of the nose. Hence one may say that to remove this structure *in toto*, for the sake of restoring nasal respiration, must be paradoxical in the extreme, seeing that, from the physiological point of view, little or nothing can be gained thereby.

For a last word, let me repeat that although it is frequently necessary to remove hypertrophied portions of the mucous membrane from both posterior and anterior extremities of the inferior turbinal, I have never yet seen a case where one could dream of gaining anything by the total ablation of this important structure.

Dr. LINCOLN (New York) was agreed as to the advisability of removing as little of the bone as possible. When something more was required than galvano-cautery, ignipuncture, or the snaring of hypertrophied

¹ "On the Respiratory Functions of the Nose and their Relations to certain Pathological Conditions." 1889.

masses, he employed the surgical trephine; or in other cases he dissected off the mucous membrane, and cut off the edge of the bone with bone scissors. He did not recommend the knifeshare, as he thought it an inaccurate instrument.

Dr. BRYSON DELAVAN (New York) was of opinion that the use of the so-called "spokeshave" was quite inadmissible in nasal surgery; we already had more accurate and safer methods, and he would like to hear the ultimate history of cases of complete removal. The desideratum was the maximum of relief with the minimum of destruction.

Mr. CARMALT JONES contributed some remarks on the after effects of turbinotomy. It had been done first to relieve tinnitus aurium, and that symptom had been relieved in sixty per cent. Mouth breathing had been cured, the sense of smell improved, and anæmia had disappeared. In children inability to suck had been cured. There was always hæmorrhage, but it was generally easily controlled, and secondary hæmorrhage was rare. Suppuration in the ear occurred rarely. No death had followed the operation.

Mr. LENNOX BROWNE thought that it was wiser to treat the cases for which turbinotomy was advocated by milder means, and in children especially he would never perform it. He suggested that many of the cases of catarrh for which it was performed were really cases of Tornwaldt's disease. He emphasized the fact that spurs or septal deviations were present in most cases of hypertrophic rhinitis, and required treatment.

Dr. DALY (Pittsburg) had removed turbinates in children with the happiest results, but agreed that it was rarely required. It was necessary to remove so much of the turbinates as would secure free breathing—any more was wrong.

Dr. CHARLES WARDEN was of opinion that attention to the septum would often obviate the necessity of operating on the turbinal bodies.

Dr. PERMEWAN, like Drs. Delavan and MacDonald, objected to the word "spokeshave." It suggested operating on inanimate structures—an idea which dominated many rhinologists. He thought the complete operation was very rarely required, and was pleased to see the conservative spirit in nasal surgery more marked than at Bristol in 1894.

DISCUSSION ON THE SIGNIFICANCE OF LARYNGEAL PARALYSIS.

This was opened by Dr. DALY (Pittsburg), who said that paralysis of the laryngeal muscles might be due to lesions in the brain, the nerve nuclei or the nerve trunks, or to hysteria. There had been shown to be a cortical centre in the frontal operculum, apparently better differentiated on the right than on the left side. Cortical paralyzes were rare, but depended on hæmorrhage, softening, or inflammation. Nuclear paralysis occurred mostly in chronic degeneration of the nervous centres. Trunk paralysis was much more common than the others, and it was due to pressure on or injury to the nerves, or to a neuritis—*i.e.*, the neuritis caused by diphtheria. Hysterical paralysis was often bilateral, but it might be unilateral, and might be combined with contracture of opponents. The question as to the cause of abductor paralysis was still unsettled, but he was inclined to agree with the view of Bosworth that, though pressure on the recurrent nerve

might cause it, there is also present in these cases some pathological condition in the medulla.

Mr. LENNOX BROWNE remarked that diphtherial paralysis was much more common in adults than in children. In right recurrent paralysis, as Mandl had indicated, there was generally apical mischief, pulmonary or pleural. As to hysterical aphonia, he thought it was often a premonition of structural change in the brain.

Dr. SHURLEY (Detroit) said that the fact had been established that there were two centres in the medulla and brain respectively, one presiding over the automatic, the other over the voluntary movement of the larynx. As to so-called hysterical paralysis, the diagnosis and the prognosis was often most perplexing, and such cases were really often due to actual brain disease.

Dr. DELAVAN (New York) said that in right recurrent paralysis apical disease could seldom be demonstrated by physical examination, but was often seen *post mortem*. He had reported two cases of right recurrent paralysis, apparently caused by intralaryngeal diphtheria.

Dr. PERMEWAN was of opinion that the most frequent cause of organic laryngeal paralysis was syphilis, either from the direct effect of gummatous deposit, or by its inducing nuclear or neuritic disease. Bilateral paralysis was generally due to central disease, but he had seen a case due to pressure on both recurrences. He believed in the existence of hysterical paralysis, but it was important to distinguish these cases from those in which aphonia was only one symptom of complete paralysis.

DISCUSSION ON THE ULTIMATE RESULTS OF OPERATIONS ON THE MASTOID IN SUPPURATIVE EAR DISEASE.

This was opened by Dr. BULLER (Montreal), who said that there were two classes of cases requiring operation on the mastoid.

First, cases of purulent infiltration, occurring generally in the course of acute purulent disease of the middle ear, and more often in adults than in children, without actual death of the bone.

Secondly, cases of more chronic character, in which there was also caries or necrosis of more or less of the temporal bone.

The first class of cases invariably, in his experience, did well after operation, and hearing often completely recovered. The second class were more uncertain in result: it depended on the extent and amount of bone disease, and in operating it was most important to remove the whole of the diseased bone, care being taken not to injure important structures, of which the chief was the facial nerve. Of these cases the most unfavourable were those due to strumous disease. He emphasized the fact that mastoid operations, far from being of a trivial character, often required the greatest surgical skill for their thorough performance.

Dr. A. H. BUCK (New York) divided cases into acute and chronic. The former nearly all did well. Prognosis in the latter depended on the thoroughness with which all diseased bone was removed. Bone of a high degree of vascularity, and in which there was stasis, should be removed, and granulation tissue in the pneumatic cells showed that the structure

of them was diseased. It was important to have a large enough field of operation and a good light.

Dr. CLARENCE BLAKE said that the same rule obtained in mastoid operation as in all other surgical procedures—namely, to remove all inflamed tissue which is presumably incompetent of recovery. He often secured primary union of the external wound by allowing the cavity to fill with blood-clot and suturing the wound.

Dr. WARD COUSINS said that the object of these operations was to remove diseased tissues and provide drainage, and the removal of large portions of the cortex of the mastoid was often a good procedure. He had never operated on a case in which he considered it advisable to close immediately the mastoid wound.

Dr. GRAHAM BACON remarked that temperature did not always fall immediately after operation ; but one need not be discouraged by that. He believed that intracranial complication would be often found if carefully looked for.

Mr. HUGH E. JONES confined his remarks to chronic cases, and he had always performed the Stacke-Schwartz operation. No fatal result had occurred : facial paralysis had occurred four times, but two of these recovered completely. To avoid injuring the facial nerve, it was very important to have free opening and a good light. As regards hearing, the majority had been definitely and some greatly improved, though the improvement sometimes disappeared as the wound cicatrized. Pain was always relieved, and the discharge had in most cases practically stopped. It was not to be expected, however, or desired, that a cavity lined with mucous membrane should become entirely dry.

Papers were read on the following subjects :—

A Contribution to the Study of the Anatomy of the Fronto-Ethmoidal Region. By T. H. BRYAN (Washington).

The author described the fronto-ethmoidal cells which lie between the frontal sinus and the ethmoidal cells proper, and which are often affected in disease of the frontal sinus. The relation also of the infundibulum to the maxillary antrum was of much importance. Instead of terminating in the meatus, the infundibulum in many cases opened right in the foramen of the antrum, and thus inflammatory products were directed into the antrum from the frontal sinus.

The Relation of Nasal Disease to Pulmonary Tuberculosis. By FLETCHER INGALS (Chicago).

This was an elaborate statistical inquiry based on more than fourteen thousand cases. The results seemed to show that instead of predisposing to pulmonary tuberculosis, nasal catarrh, if it has any influence, appears to prevent it. This antagonism was not surprising in view of the fact of the occurrence of hyperæmic conditions in nasal disease, and of profound anæmia in tuberculosis. The only possible exception may be found in atrophic rhinitis, though in this disease the occurrence of tuberculosis may only be a coincident effect of the general lowering of nutrition and health.

The Physiological and Pathological Relations between the Nose and the Sexual Apparatus. By Prof. J. N. MACKENZIE (Baltimore).

This relation was shown physiologically by the occurrence of nasal symptoms synchronously with menstruation, the occurrence of vicarious nasal menstruation, the nasal phenomena which accompany sexual excitement, and the occasional dependence of genito-urinary irritation on affections of the nasal passages. Pathologically it is shown by the aggravation of nasal affections during menstrual periods, the production of nasal catarrh by excessive sexual indulgence and by masturbation, and the occurrence of cases of nasal disease which resist treatment till co-existing disease of the generative organs has been cured.

The paper was illustrated by a wealth of classical learning which it is impossible to reproduce.

The Correction of Nasal Deformities by Subcutaneous Operations. By JOHN O. ROE (Rochester, New York).

The author pointed out that the great object to attain in operating on nasal deformities was to restore symmetry. To do this and to avoid external wounds it was best to operate from the interior of the nose. It was necessary to secure complete antisepsis, to study the plan of the operation with great care, and to follow a painstaking course of after-treatment. Illustrations of many excellent results were shown.

Recent Progress in the Surgical Treatment of Malignant Disease of the Larynx. By BRYSON DELAVAN (New York).

After a review of the recent work of Sendziak, Semon, Butlin, and others, the author proceeded to discuss many points of the highest importance.

The early diagnosis of malignancy was essential, but was difficult. Microscopical appearances were sometimes misleading, as was also evidence derived from the position of the growth and the degree of mobility of the cords.

The question of preliminary tracheotomy was one of great moment. The author concluded that it was necessary, and, from various considerations, should be done not less than ten days before the major operation. In this way there was less shock, the patient got used to the tracheotomy tube before the serious operation on the larynx, and the thyrotomy was rendered easier. So, too, there was less risk of septic pneumonia, and the patient's condition improved after the tracheotomy, relieving him, as it did, from dyspnoea and imperfect aëration of the blood. The operation ought not to be undertaken except by an operator skilled in surgery, as it would otherwise fall into discredit.

Chronic Interarytenoid Laryngitis. By PRICE-BROWN (Toronto).

The author described five cases of chronic laryngitis in which the swelling was limited to the commissure. He raised the question as to whether they were a distinct type of disease, or whether they were to be classed as pachydermia on the one hand, and tubercular laryngitis on the other.

A Case of Foreign Body (Metallic Shoehorn) removed from the Larynx by Thyrotomy. By C. H. KNIGHT (New York).

This was a report of a case in which attempts had been unsuccessfully made to remove the foreign body by the aid of laryngoscopy, and by Kirstein's method of autoscopy. Thyrotomy was done six weeks after the impaction of the shoehorn—which caused no symptoms but aphonia—and the foreign body removed. Aphonia lasted some weeks after the operation, but eventually quite disappeared. Only the lower half of the thyroid cartilage was divided, together with three rings of the trachea.

Acute Syphilitic Stenosis of the Larynx; Intubation; Recovery. By J. O'DWYER.

In a patient with acute œdema in the course of tertiary syphilis, O'Dwyer inserted a large intubation tube seven-eighths of an inch in diameter at the head, and allowed it to remain for ten days, when the obstructive symptoms quite disappeared. Intubation was more difficult in the adult than the child, but it may be done in some cases by the aid of the mirror. In many cases of phlegmonous inflammation the mouth could not be opened wide enough to allow the introduction of the mirror.

The Non-Operative Treatment of Chronic Suppurative Disease of the Antrum and Vault of the Tympanum. By ALBERT H. BUCK (New York).

While agreeing in the necessity of mastoid operations in many cases, there were still many in which a patient course of antiseptic treatment was sufficient, especially in private cases. This treatment consisted in removal of all *débris*, and in the careful disinfection of the tympanum by injection of hydrogen peroxide. Solutions of this drug both acted chemically, and also, by effervescing in contact with the decomposing material, mechanically removed the secretions.

The Operative Treatment of Mastoid Disease. By CLARENCE J. BLAKE (Boston).

The author gave the result of thirty-six consecutive cases of mastoid operation during three months' service at the Massachusetts Eye and Ear Infirmary. He classed them under five heads:—

1. Those which healed by first intention, the walls of the mastoid being left intact and the cavity allowed to fill with blood. There were five of these, all acute and all in adults, and they all completely recovered.

2. Eighteen cases which healed slowly by granulation, the walls of the mastoid being left intact. Ten acute cases did well, and of eight chronic cases four were well three months after operating, and four were still under treatment.

3. Nine cases in which the dura mater was exposed. Six acute and three chronic. Of the acute cases one died of meningitis, and one of measles; one was well in three weeks and one in five, and two were at present convalescent in the out-patient department. Three chronic cases were still under treatment.

4. Three cases of extra-dural abscess, all of which were discharged well within six weeks of the operation.

5. Two cases of cerebral abscess, both of which recovered.

A Case of Mastoid Disease with Sinus Thrombosis; Evacuation of Sinus and Ligature of Internal Jugular Vein; Recovery. By F. BULLER (Montreal).

This was a report of a typical case, which recovered quickly after operation.

Phosphor Necrosis of the Temporal Bone. By H. D. WURDEMAN (Milwaukee).

A man, working in a match factory, contracted necrosis of the jaw; later on there was pain in the mastoid, and a sinus was found in the posterior wall of the meatus. The mastoid was operated on, but two years afterwards the caries still persisted, and great sclerosis of bone had taken place. There seemed to be no doubt of the causation in this case.

Some Points in Anatomy which have a Practical Bearing upon Operations on the Temporal Bone in Diseases of the Ear. By Dr. MORSE (Boston).

This paper, illustrated by specimens, photographs, and diagrams, gave a comparative account of the dangers of the Schwartze and Stacke operations respectively. It was pointed out that in the Stacke operation there was risk of injuring the lateral sinus, the facial nerve, the stapes, tendon of the stapedius muscle, and the horizontal semicircular canal. The Schwartze method was therefore to be preferred where possible, but in some cases the groove of the sinus came so far forward that there was absolutely no antrum, and in these the Schwartze operation was impossible.

Eucaine as a Local Anæsthetic in the Surgery of the Throat, Nose, and Ear. By W. JOBSON HORNE and MACLEOD YEARSLEY.

The authors found that eucaine was a satisfactory and safe substitute for cocaine. For examinations, a four per cent. solution was enough; and for operations, an eight per cent. to ten per cent. It must be applied directly after wiping away all mucus and *débris*. Anæsthesia lasted fifteen to twenty minutes, and there were never any toxic effects from the drug.

AUSTRIAN OTOLOGICAL SOCIETY.

Second Annual Meeting of Austrian Otolologists, Vienna, June 27th and 28th, 1897.
(*"Monatschrift für Ohrenheilkunde,"* July, 1897.)

(Continued from page 565.)

(Translated and abridged by Dr. DUNDAS GRANT.)

President—Prof. ADAM POLITZER.

Dr. MARCZEL FALTA. *Atresia of the Eustachian Tube.*

After referring to the cases of complete closure of the Eustachian tube described in literature, Dr. Falta narrated a case under his own observation.