to me for diagnosis and treatment by Mr. Sanderson, L.D.S., and as it involved the floor of the right nasal fossa, and possibly the inner wall of the maxillary sinus, the case may be of some interest to the rhinologist.

SOCIETIES' PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Meeting at Liverpool, 1912.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

JOHN MIDDLEMASS HUNT, M.B., *President*.

Abstract Report by MR. HAROLD KISCH.

(*Continued from p.* 88.)

Discussion on the Treatment of Chronic Suppurative Ethmoiditis.

II.—**H. Lambert Lack, M.D., F.R.C.S.** (Lecturer and Surgeon to Throat Department, London Hospital).—Suppuration in the ethmoidal cells is almost always accompanied by polypus, and frequently by suppuration in other accessory sinuses; also orbital or other external complications may be present.

Piecemeal Operations.—The methods of piecemeal operations through the nose under general anæsthesia I need hardly discuss, as I consider them both inadequate and dangerous. They belong to the older days of rhinology, before surgical experience had been brought to bear upon the subject, when the rhinologist was still too timid to employ general anæsthesia in operations involving bleeding in the nose, and was afraid of touching the ethmoidal region unless he had the patient sitting upright and could "see" exactly what he was doing. These "operations" required constant repetition; weekly or almost daily treatment, extending over two or three years, was necessary to produce even a "half cure." Patients would rarely submit to this, and the few who did were usually reduced to a condition of profound neurasthenia. Fewer still would admit that their nasal symptoms were improved, whatever might be the view of their enthusiastic physician. I am speaking only of extensive disease; when only one cell, such as the cell in the anterior end of the middle turbinate, is involved, a trivial operation with local anæsthesia is sufficient, but then only a single sitting is required.

Ethmoidal Curettement.—This operation still appears the best for most cases of ethmoidal suppuration. When there is extensive ethmoidal disease, and possibly also suppuration in other accessory sinuses, the operation which I have described as "ethmoidal curetting" should be carried out. It is well to pack the nose half to three quarters of an hour before the operation with a weak solution of cocaine and adrenalin, as it permits a better view of the parts, and the danger of reactionary hæmorrhage appears to be remote. A general anæsthetic should be given, and the patient should lie on his right side with the head slightly raised and

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turned to face the operator, who sits on a stool by the side of the operating table and uses a reflected light, as in ordinary rhinoscopy.

If there is any suspicion of antrum suppuration the first step should be to explore that cavity, and if pus is obtained it is best to deal with it at once. In these cases I consider a radical operation on the antrum is necessary, and therefore proceed to remove the anterior end of the inferior turbinate and the whole inner wall of the antrum. The attention is then turned to the ethmoidal region. Any large polypi should be removed with forceps, Luc's forceps being probably the best, and the middle turbinate, if present, clipped away with Grünwald's forceps. Directly this has been done and the ethmoidal cell region exposed, the ring knife should be introduced. The curette should be introduced gently with the blunt edge of the ring towards the septum, and passed as far upwards and backwards as possible without using force. The blade is then sharply dragged horizontally forwards along the ethmoidal region with the sharp edge directed *outwards* towards the orbit. On no account should the cutting edge of the blade be turned upwards towards the cribriform plate. The scraping is continued rapidly and with a fair amount of force until all friable tissue is removed. A great deal of polypoid mucous membrane and bony *débris* is usually scraped away, and almost the whole of the lateral body of the ethmoid can be thus removed. Often it will be found that a large communication has been made into the upper part of the antrum, and frequently the inner wall of the orbit has been broken down and the orbital periosteum exposed.

As regards the ultimate condition of the nose, the results of the operation are excellent. The removal of such an extensive portion of the bones and mucous membrane rarely gives rise to any ultimate inconvenience to the patient. The upper portion of the nose becomes lined with a healthy white scar-membrane, and only occasionally is there any undue dryness or crusting in the nose or post-nasal space. So far from destroying the olfactory sense, the patient often regains the power of taste and smell, which he may have lost for years. In all cases the result is not so successful as this. There may be a continuance of suppuration or some remains of polypoid degeneration. Subsequent trimming away of tags under cocaine anæsthesia has been necessary. It must be borne in mind that a continuance of the suppuration may mean disease in other sinuses. The clearing away of the ethmoidal cells facilitates the diagnosis of this, for when the antrum has been explored and the ethmoidal region thoroughly curetted, pus coming down from high up in the front of the nose can only come from the frontal sinus, whilst pus at the back of the nose must come from the sphenoidal sinus, the ostium of which has been freely exposed to view by the removal of the middle turbinate and the posterior ethmoidal cells. In this connection one must also remember that the antrum, even if healthy before the operation, may become infected at or soon afterwards. In other cases where the disease has been very extensive and the operation for one reason or another not carried out so thoroughly as it might have been, a *partial success* may be obtained, and the patient's symptoms, such as pain, headache, and the sense of nasal obstruction, may be relieved, although the appearance of the nose may be anything but satisfactory. Lastly, there may be *adhesions*. These are due to injury of the septum during the performance of the operation, and they may usually be avoided by care at the operation and in the after-treatment. The use of cocaine and adrenalin, as above described, diminishes this risk. *The dangers of the operation* I wish to consider fully.

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(1) *Mortality.*—In my own practice, in over 300 cases I have had one death. This was due to neglect of the precautions which I have above emphasised. The case was one of chronic ethmoidal suppuration associated with asthma; the patient took the anæsthetic badly, was somewhat congested, and bled freely, so that it was impossible to see what was done. The middle turbinate and ethmoid seemed unusually dense, and the curette produced very little effect. Too much force was used, and the blade of the instrument was turned upwards. The patient developed meningitis, and died a week later. In the reports which I have had from eleven different operators, eight state that they have had no deaths; the other three report six deaths. From a study of the details I should say most of the deaths were avoidable. Two cases, both young girls, did well until the fifth day. They were in wards which were unusually septic at the time, and one was dressed by a house-surgeon suffering from a septic throat. Two of the others were old people over sixty, their noses were widely distended with polypi, and they had had growths removed for over thirty years. One of these cases apparently died from traumatism, a cribriform plate which was very brittle being fractured; the other died of sepsis. All the deaths were due to meningitis; I have heard of no death from any other cause. In considering these results, it must be borne in mind that the operation is a serious one, but it should only be carried out to cure an undoubtedly serious and incapacitating disease, and therefore some risk is justifiable. Also remember that these statistics date from the earliest days of the operation before any experience had been gained, and whilst some surgeons considered it an absolutely safe procedure and therefore neglected the precautions which we now know to be necessary. With regard to age, I used to confine the operation to patients under forty years, and would still hesitate to operate on people over fifty. Between forty and fifty each case may be judged on its merits; there can be no hard and fast age limit. As age increases the ethmoid becomes more brittle, and there is more danger of fracture of the cribriform plate, and the patient is less able to stand the loss of blood, the shock of the operation, and the complications arising from blood entering the air-passages.

With these precautions I think the risk could be reduced to less than 5 per 1000; it would certainly not be a tenth of the mortality of operations on the frontal sinus. There is no alternative method giving anything like such good results with so small risk.

(2) *Septic Troubles.*—In some of my early cases there was considerable fever two or three days after the operation. This rise of temperature almost certainly arose from packing the nose. For many years I have given up this practice, and the after-treatment has consisted in gently irrigating the nose daily with a mild, unirritating lotion, such as warm boric acid solution. Since then I have had no trouble with fever. Some advocate the use of vaccines preparatory to the operation, and think the absence of fever subsequently may be traced to this. These views are open to discussion: I am not convinced of their correctness, and would not, with our present knowledge, advocate vaccine treatment.

(3) *Hæmorrhage.*—Bleeding is often profuse at the time, but rapidly ceases. Only once or twice has it been necessary to pack the nose for this reason. Should the bleeding really be severe and not yield to simple remedies, such as the application of cold to the face, then the nose must be packed, and I would recommend the introduction of strips of gauze into the ethmoidal region. These should be removed twelve to twenty-four hours later, and not replaced unless again required.

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(4) *Orbital Complications.*—When the orbital plate has been removed or fractured and the periosteum exposed, there may follow some effusion into the orbit or a severe "black eye" may be produced, occasionally with some pain or impaired mobility of the globe. In two cases where ethmoidal disease was associated with antrum suppuration an abscess formed in the lower eyelid. All the other cases of "black eye" have passed off in a few days without subsequent trouble.

(5) In one case privately reported to me and published in my book, and in another published by Robinson, of Brisbane, optic neuritis and blindness have followed the operation. It seemed doubtful if the operation itself was the direct cause of the trouble; in one case the operator ascribed it to the rapid loss of blood.

Finally, the *various external operations* and their indications. The latter depend upon the complications that are present. When there is definite evidence that the case is complicated by frontal sinus suppuration with such symptoms as render an operation on the frontal sinus advisable, then the ethmoid may be treated at the same time and through the same incision. The skin wound is extended a little lower down and the bone freely cut away to expose the infundibular region when the anterior ethmoidal cells come into view and may be freely cut away or curetted. The ring knife again seems to me the safest and most effective instrument to use, and it may be inserted through the wound and guided by the finger in the nose, or *vice versâ*. It is hardly correct to state that it is possible even by this method to see what is being done. The bleeding and the small external opening render the view obtained of little use.

Watson-Williams's operation on the frontal sinus gives an excellent approach to the anterior ethmoidal region. Although I have little experience of this method in cases of suppuration I have often performed it in malignant disease, and can testify to the excellent way in which the ethmoidal region is exposed. By this operation, more than by any other with which I am acquainted, can the ethmoidal region be brought into view and a thorough dissection made right through from front to back; even the sphenoidal sinus could be opened if necessary.

An external operation should also be performed when any orbital complications are present. When there is fistula, abscess, or any swelling in the orbit, possibly or probably of ethmoidal origin, it is safer to operate through the orbit than to attempt an operation through the nose. The incision is made around the inner angle of the orbit, similar to the incision for the frontal sinus, but a little lower, and carried down to the bone. The periosteum over the inner wall of the orbit is separated from the lachrymal plate, and the sinus or abscess is thus exposed and traced to its origin. The ethmoidal cells are thus freely opened up as far back as necessary. The operation must be completed by making a free communication between the orbit and the nose, so that the subsequent drainage can be carried out from the nose. Orbital drainage alone must never be relied on.

The results of these external operations are exceedingly good. So far I have had no deaths nor any serious complication, but they are more serious than ethmoidal curettement. They involve more disturbance to the contents of the orbit, more shock, and a more prolonged convalescence. I certainly would not recommend them as the routine method of operation in chronic ethmoidal suppuration, but would reserve them for cases in which orbital or other complications are present.

With reference to *non-operative methods*, a very few words will suffice. Vaccine therapy is the only treatment which has been recently brought

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forward as an alternative to operation. I regard the treatment as useless. My experience has been limited to cases in which an operation has failed to give a wholly successful result. When, after the cavities have been opened up—and in this connection I may speak of antrum and sphenoidal as well as ethmoidal suppuration—a purulent or muco-purulent discharge has persisted, I have referred the patients to various pathologists in order that cultures may be made of the organisms present and vaccines prepared. As in all these cases reasonably free drainage had been established, they might be looked on as very favourable for vaccine treatment, yet I cannot honestly say that in any single case have I seen definite improvement, although the treatment has been continued for months, even years.

Lastly, it has also been recommended that the patient be prepared for operation by a course of vaccine treatment, but if the vaccine cannot cure a case in which there is but a little remaining discharge, it is not likely to do much good where no drainage has been established. I doubt if it would diminish the risk of operation, but upon this point other views may be held.

Personally, I should prefer to rely on carrying out these operations under the most favourable hygienic circumstances, and with full antiseptic precautions; and after the operation, wherever possible, the patient should be sent into fresh, pure air to recuperate. There is no doubt that all cases of nasal polypus and suppuration heal much more rapidly if they can be sent into fresh, especially seaside air, than they do in the dirty wet atmosphere of a town.

Dr. William Ballenger (Chicago) said he would not defend his technique other than to say that in his hands it had proved eminently satisfactory. The speaker recognised that there were cases requiring only partial operation, but he would deal with the more complete methods. He was led to his method by noting that there were three attachments of the ethmoid—sphenoidal, cranial, and orbital—and that after making cranial and orbital incisions, the ethmoid could be removed *en masse*. Good drainage gave the best results, and avoided bad sequelæ, and he had noticed that when he operated upon the old lines of partial removal there was considerable swelling and obstruction to drainage afterwards, but since he had adopted the more radical method this had never occurred. He had had only one death since he adopted his radical method, and that was due to meningitis, which had evidently been present before operation, and then became acute. Emphysema of the orbit had twice occurred, and disappeared in twenty-four hours. He had never had orbital abscess or cellulitis, or any other complication of any moment. It was important not to pack. Anterior or posterior ethmoidal arteries did not give any trouble, but a branch of the middle meningeal might do so. He operated under local anæsthesia, allowed the patients to wait a little for possible hæmorrhage, and then sent them home, and he had done over 200 cases without being called to check hæmorrhage. The after-treatment was done at his office. It consisted of a pledget soaked in a 10 per cent. aqueous solution of ichthyol and placed for twenty minutes in the region operated upon. It was then removed, and the patient went home. He was doubtful as to the value of vaccine treatment.

Dr. Mosher (New York) said: The anterior boundary of the ethmoidal labyrinth is made by the internal angular process of the frontal bone and the posterior surface of the ascending process of the superior maxilla. The labyrinth cannot be entered effectively unless the curette is carried outward behind the ascending process of the superior maxilla toward the lacrymal bone. Removing the anterior end of the middle

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turbinate and curetting upward and not outward does not open the labyrinth to any extent. The internal angular process of the frontal bone makes two thirds, or the whole of the bony ring, which is the first part of the naso-frontal duct. The best guide to the duct is the posterior surface of ascending process of the superior maxilla. In a large number of cases the naso-frontal duct is not a tubular canal, but consists rather of a bony ring at the beginning and then becomes a triangular antro-posterior slit. This is more like an ethmoidal cell or an irregular meatus than a duct. The naso-frontal duct tends to run from without inward and to come into relationship with the anterior end of the extreme upper parts of the middle turbinate. When the drainage canal has the cell form, the anterior end of the middle turbinate makes its inner boundary. The duct, therefore, is reached most easily through the nose and through the anterior end of middle turbinate in line with the superior turbinate. A curette introduced at this point and carried outward toward the lacrymal bone and then withdrawn a little and carried straight downward and backward enters the anterior part of the labyrinth behind the ascending process of the superior maxilla and breaks down the cells through which the naso-frontal duct runs, destroying both the cells and the duct. Very little curetting is required to convert the anterior part of the labyrinth into a single cavity. In the roof of the chamber secured by these manipulations, and usually in the anterior outer angle, the opening of the naso-frontal duct is placed. The posterior half of the labyrinth is entered by piercing the attachment of the middle turbinate and by curetting still further backward, using all the while the outer side of the middle turbinate as a guide. If the head of the patient is held level, the middle turbinate guides the curette into the posterior ethmoidal cell. Often the posterior half of the labyrinth is a large cavity made up of only one or two cells. When the curette brings up against the back wall of the labyrinth, the remaining part of the middle turbinate and the lower half of the superior turbinate are removed. Then the posterior part of the superior turbinate is taken away flush with the front face of the sphenoidal sinus. The operator now recognises the inner part of the front face of the sphenoidal sinus, which is free in the nasal cavity, and the outer part, which has a common wall with the posterior ethmoidal cell. The posterior upper outer angle of the posterior ethmoidal cell is dangerous to curette or to probe. In this locality it is of the utmost importance that the operator should be sure of his landmarks. He orientates himself by finding the superior rim of the choana and by differentiating the free face of the sphenoidal sinus by proceeding upward from the rim of the choana close to the septum. Having made out the extent of the free face of the sinus, the width of the common wall between the sphenoidal sinus and the posterior ethmoidal cell is determined. The dividing line between the two parts into which the anterior face of the sphenoidal sinus is directed is made by the obliquely vertical attachment of the superior turbinate. The commonest mistake made by the operator is to get lost in the posterior ethmoidal cell. This comes about by curetting too high and too far outward, and by considering the posterior wall of the posterior ethmoidal cell as the whole of the front face of the sphenoidal sinus instead of the outer half of it. This mistake, f persisted in, will carry his instrument into the brain. Insufficient removal of the posterior part of the superior turbinate, and allowing the head of the patient to become tipped upward, are the chief causes of this confusion. After the landmarks of the front face of the sphenoidal sinus have been cleared and recognised the sinus is entered near the septum, if possible

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through the ostium, and the whole of the anterior wall is removed. The mishaps of the operation are entering the orbit through the lacrymal bone and entering the posterior part of the anterior fossa of the cranial cavity at the apex of the orbit. The first accident is trivial, the second is fatal.

Dr. WATSON-WILLIAMS (Bristol) was convinced that ethmoiditis and resulting polypus formation was an infective process. The process was not primary affection of the bone, but of the mucosa, and the polypi were probably the result of a localised obstruction of lymphatic vessels, leading to an ever-increasing localised œdematous infiltration. Once an ethmoiditis became established as a chronic pathological process, operative procedures to ensure free drainage were essential to a cure. Personally he preferred cutting forceps to the curette, moderately large for the lower ethmoidal cells, but small and very light for opening up the higher cells, whether posterior or anterior, and particularly for the infundibular. He went very cautiously here. Moreover, he avoided too free a removal of the vertical plate of the middle turbinated body. Only under exceptional circumstances were external operations necessary, except when the ethmoidal disease was complicated by frontal sinus involvement, and it was often possible to free the fronto-nasal duct sufficiently to allow of lavage and drainage. As regards the use of vaccines, his experience had not encouraged the belief that they would avoid the necessity for operation, however desirable they might be after operation. But in sinusitis due to, or associated with, streptococcic infection, he thought the previous injection of full doses of anti-streptococcic serum tended to prevent septic infective processes due to the operation itself.

Mr. HERBERT TILLEY (London) thought that all would agree that the principle underlying the treatment of chronic ethmoid inflammation was removal of the main disease and the establishment of free and permanent drainage. Opinions only differed as to the best method of carrying out the latter. Prof. Hajek preferred, as a general rule, to proceed slowly, with great thoroughness and minute attention to detail, and since the majority of his patients were nurtured in discipline, he attained his goal, and no one would dispute how excellent were the results. In England, however, both the patient and the surgeon preferred to get rid of the trouble as quickly as possible, and few of the ordinary English patients would tolerate numerous sittings for the gradual removal of ethmoidal disease and the time involved in the treatment. Hence the speaker preferred Dr. Lack's method namely, a preliminary application of cocaine and adrenalin to the affected region, followed by a general anæsthetic. The diseased ethmoidal cells could be quickly removed; hæmorrhage could be checked by strips of gauze moistened in hydrogen peroxide solution or adrenalin. He preferred ethmoidal forceps to the curette, but that did not affect the principle of the operation. Much information could be gained as to the progress one was making during the operation by insertion of the little finger, and one assumed that the surgeon would be wearing rubber gloves. Soft or diseased structures felt very different from the hard, resistant, normal ethmoidal cells. When very free access was desired the speaker would prefer to enter the nasal cavity under the upper lip, and remove the ascending process of the superior maxilla (Denker's method) rather than to make an external opening. The first method gave admirable access to the ethmoidal mass and left no visible scar. When chronic ethmoidal suppuration was combined with frontal sinus suppuration, he thought that

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it was daily becoming more feasible to relieve and cure these cases by intra-nasal operation, that is, removal of the diseased ethmoidal cells, enlargement of the fronto-nasal canal, followed by irrigation and ultimate destruction of the degenerate portion of the lining mucous membrane of the frontal sinus by the use of strong solutions of silver nitrate.

Mr. Jobson Horne (London) thought the title of the discussion might lead to a misconception. For their own purposes the title was useful, inasmuch as it defined the scope of the discussion, but in the minds of others it might create the impression that chronic suppurative ethmoiditis was an entity. It was quite evident from the opening papers that the sphenoidal or the frontal sinus, or both, were not uncommonly involved. It was as well, therefore, not only on anatomical and developmental, but also on clinical grounds, to regard the frontal and sphenoidal sinuses as more highly developed parts of the ethmoidal labyrinth. He urged the use of X rays in the investigation of the extent of the disease and of the presence or absence as well as of the size and situation of the larger cells. With such anatomical vagaries it was impossible to define any routine treatment; one had to treat the individual case. He had not been convinced by the arguments put forward in favour of extreme measures being immediately adopted. Personally he was opposed to operations in the nasal regions which were not carried out under ocular inspection.

Mr. Westmacott (Manchester) always used the method of operation by the intra-nasal route described by Dr. Hajek, and never in any chronic disease had it been necessary to do the external operation. He used general anæsthesia, and removed the whole middle turbinal, and then broke down the septa of the labyrinth with the hook and punch forceps. The nose was packed with gauze steeped in liquor hamamelidis (B.P.) for one to four or five hours, and then removed without renewal. Daily lavage and applications of protargol-argyrol, or iodine tincture, and occasionally pure carbolic acid. He would like to know how Dr. Hajek dealt with obstruction by the septum; further, could he explain the occurrence of a neuralgia in the nasal process of the superior maxilla which was occasionally met with? It was very persistent. He agreed with Mr. Tilley that the usual British patient would not have patience for slow methods. He had also found the sense of smell return after operation and not in others. Why was this? Was it ascending degeneration of the nerve or mechanical pressure causing death of the nerve? In other cases, even with complete filling of the nasal cavity with hypertrophies, there was no anosmia.

Dr. Bronner (Bradford) was in favour of using large flat forceps, removing as many of the diseased cells as possible under direct examination, and to try and get permanent free drainage. Lack's operation was useful in some cases, especially when the patient could not afford the time to be examined and treated frequently. It was not fair to describe it as the operation of the future.

Dr. William Hill remarked that there were probably few present who had performed a considerable number of ethmoidal operations of magnitude who could claim a clean record as regards mortality. Dr. Lack had not shirked this question of slight and perhaps unavoidable risk. He was, however, not quite able to follow Dr. Lack's line of reasoning when he advised that patients over fifty with ethmoidal disease should be left severely alone as far as any extensive exenteration was concerned, holding that surgical measures in such cases were literally "surgical interference," and more dangerous than the neglected disease.

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Seeing that fatal complications were usually due to stirring up an infected area with resulting septic meningitis, and not to shock and excessive bleeding, which two latter might be urged as a contra-indication to operation in those past middle age, he doubted if the slight mortality from intra-cranial septic infection would be found any greater in the old than in the young. As far as he could gather, the danger of subsequent fatal septic meningitis bore no relation to the magnitude of the operation or to the microbic findings. One of his hospital patients had died from diffuse meningitis after so slight an operation as removal of the anterior extremity of the middle turbinal. It was true that there were two other unexpected deaths from sepsis in the same ward during the same week. His (the speaker's) remarks concerning the apparent want of proportion between the magnitude of the operation and the risk of fatal intra-cranial sepsis were not intended to apply to operative mishaps where the cranial cavity was accidentally opened up. He had heard much of the danger of injuring the cribriform plate; as a matter of fact, that structure was protected by its high position above the extremely narrow highest meatus and was extremely difficult to get at if fairly large-sized forceps and curettes were used, and this was an argument against the small cutting forceps advocated by Dr. Watson-Williams. Although he (the speaker) usually relied on the method of operating favoured by Dr. Lack, yet he admitted that since he had watched Dr. Watson-Williams perform his osteoplastic operation he realised that that procedure was the ideal one to employ in sinusitis in which there was not only extensive ethmoidal disease, but also involvement of the frontal and sphenoidal sinuses. By no other method that he knew of could such an extensive exenteration of the diseased sinuses be accomplished. It appeared to him much easier by Watson-Williams's operation to avoid getting out of bounds—for example, entering the orbit or cranial cavity. As to Dr. Ballenger's method, the drawback to an operation performed from behind forwards was that it was a blind method, and its successful performance depended on the sense of touch and accurate direction; moreover, in using a single instrument, cutting not only vertically but also transversely, it had to be borne in mind that, whilst the posterior cells were wide transversely, the anterior ones were often extremely narrow, and there was risk of opening the orbital cavity. It was true this was not often followed by serious results if the periosteum were intact. Dr. Mosher's modification of the intra-nasal method of first perforating the infundibulum and upper anterior ethmoidal cells high up above the region of the *agger nasi* instead of the usual method of first entering the bulla (Killian) seemed to possess the theoretical advantages he claimed for it on anatomical grounds, and he (Dr. Hill) was glad to hear that Dr. Mosher had found no great difficulties in successfully putting it into practice. Their object, no doubt, should be to open up as many as possible infected cells which were accessible, but when Dr. Ballenger and others used the expression, "complete ethmoidal exenteration," they were certainly claiming too much for operations performed through the nose; for the upper ethmoid cells in some instances formed a quite inaccessible labyrinth in the base of the skull, exceptionally permeating the wings of the sphenoid. He had seen a specimen where the most outlying cell was quite 2 in. distant from the nasal cavity. This was the reason why even a very extensive exenteration often resulted in relief rather than cure, and it was rather surprising that their necessarily incomplete operations afforded so much relief as they usually did.

Prof. HAJEK, in reply, stated that, of course, opinions varied, but

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he adhered firmly to the principle of seeing everything. He advocated no definite method of operation, for most ethmoids differed; but he believed in removing middle turbinate, and then diagnosed as to extent of trouble, and then the extent of his operative procedure depended upon the extent of the disease. Dr. Ballenger did not desire to defend his technique, but his experience had taught him that the better the drainage the less the danger of secondary trouble.

PROCEEDINGS OF THE SCOTTISH OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

Meeting in the Royal Infirmary, Edinburgh, November 30, 1912.

DR. J. S. FRASER *in the Chair.*

Reported by DR. W. S. SYME.

The Pathological Changes in Various Stages and Types of Labyrinthine Suppuration.—J. S. Fraser, M.B.—Dr. Fraser gave a lantern demonstration, showing serous labyrinthitis, fibrino-purulent labyrinthitis, purulent labyrinthitis (manifest), purulent labyrinthitis (latent), healed labyrinthitis (with compensation).

Malignant Stricture of the Œsophagus; Removal of the Disease by External Operation; Patient shown.—J. S. Fraser, M.B.—Female, aged forty-nine, had complained of difficulty in swallowing for four years. This had gradually increased. Fluids could be swallowed readily. She had no pain. There was no bleeding. She was getting thinner. Laryngoscopy showed slight swelling of the arytænoid region.

Œsophagoscopy revealed a cauliflower-like growth of pinkish appearance in the hypo-pharynx immediately above the mouth of the œsophagus. A piece of the tissue was removed and a report of papilloma was given. The clinical appearances, however, made a diagnosis of malignancy highly probable. Mr. J. W. Struthers, on October 21, performed œsophagectomy at Leith Hospital, removing about an inch and a half of cervical œsophagus. This area contained a large circular ulcer which had strictured the tube; no glands could be seen or felt. The lower cut end of the œsophagus was stitched to the skin incision, and the patient was fed in this way.

Malignant Stricture of the Œsophagus: Removal of the Disease by External Operation.—A. Logan Turner, M.D.—Female, aged thirty-seven, was referred for examination by Mr. Wallace in November, 1910. She complained of difficulty in swallowing, first noticed eleven months before. She dated her symptoms as arising after a fish-bone had stuck in her throat for three days. Difficulty in swallowing solid food was first noticed, and it became necessary to have the food finely minced. Swallowing was accompanied by pain located to a spot behind the larynx. Examination of the upper air-passages revealed nothing abnormal. Œsophagoscopy, under local anæsthesia,

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