I have to say that Lieut. A. B. Gordon, R.A.M.C., M.D., F.R.C.S.E., for whose able assistance in this case I am greatly indebted, was from the beginning in favour of exploring the right mastoid first. This plan, however, was not adopted, and the operator explored the left mastoid on the ground that the changes of middle ear disease on that side were obviously further advanced.

SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Held in Atlantic City, New Jersey, May 25-27, 1914.

(*Continued from p.* 261.)

Leucoplakia Buccalis and Lingualis.—Robert Levy (Denver).—This paper is intended to review the bibliography from 1902 to the present time, and to offer a critical analysis of opposing views.

The author presents a case as a text. The patient had been under his observation continuously for seven years, during which time the case passed through the various changes incident to leucoplakia. Large papillomatous masses developed, and a diagnosis of carcinoma was at one time made, resulting in the extirpation of the lower jaw. Subsequent papilloma and leucoplakia again occurring, doubt was thrown upon the diagnosis of malignancy.

Microphotographs showing the development of papilloma as well as the histology of leucoplakia are presented. The author discusses names, definitions and varieties, etiology, pathology, the frequency of cancer; pathological manifestations indicating the development of carcinoma, clinical manifestations indicating cancer and treatment.

The author arrives at the following conclusions:

(1) Leucoplakia is of special interest because of its doubtful ætiology and because of the dispute regarding the question of degeneration into epithelioma.

(2) The case reported shows the uncertainty of the diagnosis of malignancy. The most definite clinical appearance cannot always be relied upon.

(3) Leucoplakia is a generic term. Excluding syphilitic lesions, it may be considered a pathological entity.

(4) The views of writers who attempt to show the degeneration into cancer are not tenable in the light of our present understanding of the genesis of cancer. Degeneration of existing cells into cancer cells does not take place. A cancer is such from the beginning, and is not caused, only influenced in its development, by irritative lesions.

(5) Our understanding of leucoplakia has been confused by attempts to describe a "precancerous stage," or to establish the theory of its "degeneration" into a malignant growth. Leucoplakia may, however, be looked upon as a warning.

(6) Certain clinical manifestations may arise which, though not positive, are sufficient to arouse the suspicion of malignancy.

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(7) The results of treatment are unsatisfactory. Fulguration offers considerable encouragement.

Dr. JOHN F. BARNHILL: During the past year I have had one case of this nature. The patient, a woman thirty-two years of age, had formerly lived in Indiana, but because of tuberculosis had moved to Florida, where she had been living for four or five years. When she came to consult me she had this condition, as diagnosed by a number of physicians, pathologists, bacteriologists, general practitioners, and laryngologists. She also had tonsillitis. She would not allow operation because of the tuberculosis. She had been treated by means of X-rays, washes, etc. The mouth got absolutely well, and the patient is much better generally.

Dr. THOMAS HUBBARD: I have had three cases of this kind. I had a good deal of difficulty in establishing the diagnosis between this and pemphigus. In one case the patient had pemphigus, but the lesions in the throat were not typical pemphigus lesions, and had the case not gone on to typical pemphigus of the skin, the diagnosis would not have been cleared up. In another case this condition occurred in a man who had syphilis. He was a heavy smoker. The third patient was also a heavy smoker. He smoked from twenty to thirty cigars a day. After one week's cessation of smoking there was a complete disappearance of the lesion. These were typical leucoplakia lesions.

Dr. E. FLETCHER INGALS: About thirty years ago I reported a case of leucoplakia treated with the cautery, with cure. The lesion was not more than a centimeter in diameter.

Dr. EMIL MAYER: I think leucoplakia is practically always the forerunner of malignant disease. I have under my observation at the present time a patient who, fifteen years ago, showed the first signs of leucoplakia. Within the year he has developed epithelioma. I have seen a number of such cases.

Dr. CHARLES W. RICHARDSON: The cases which I have seen have usually been so extensive that any of the operative measures suggested here or elsewhere would be entirely out of place. In the last case which I had, not only the whole dorsal surface of the tongue, but the buccal cavity as well, was involved. The man had the most intense pain. He has since died. In all probability it would have developed into malignant disease. In some of the cases the dorsum of the tongue, the surface of the hard palate, the under surface of the tongue, and the buccal walls were involved.

Dr. D. BRYSON DELAVAN: Most of the cases which I have seen have become malignant. Any irritative course of treatment is particularly contraindicated. Elimination of the source of irritation, as in tobacco smoking, will result in improvement. In view of the malignant tendency of this condition, it would seem that radium would offer advantages not likely to be realised by the older forms of treatment. Some cases have been subjected to this treatment and have improved under it. I do not know of a case, however—the matter being a recent one—in which a cure is said to have been effected.

Dr. LEVY (closing the discussion): The case cited by Dr. Barnhill, of tuberculosis, might have been a case of leucoplakia suffering with tuberculosis. I have never seen a case of leucoplakia caused by tuberculosis, nor do I see how this could be determined. If it were due to tuberculosis, it was certainly remarkable. The fact that it got well is evidence that it was not leucoplakia. Various other skin diseases have been mentioned in this connection. Dr. Ingals went over the subject very thoroughly in

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his paper, which was one of the most satisfactory papers ever written concerning this condition. The question of leucoplakia always terminating in cancer is, of course, an important one. In the full text of the paper will be found many views for and against. The case I reported is an unusual one in view of the extent of the lesion. Other cases quite as extensive have not developed malignancy. It is not necessary for the case to terminate in cancer. The lower jaw, the parotid gland, and the surrounding structures were all removed, yet it was not cancer, as proved by the subsequent history of the case. If we wait long enough we may find cancer developing in the patient who had leucoplakia. Given a case of leucoplakia, however, it is not necessary that it will terminate in cancer. In cancer cases, undoubtedly, it is often possible, by going back far enough, sometimes as far as forty years, to find that the patient had leucoplakia. While cancer may be antedated by leucoplakia in many instances, it is not proved that all cases of leucoplakia will terminate in cancer. Leucoplakia of the tongue is reported by some writers as being more likely than that of other localities to terminate in cancer.

Hyperplastic Sphenoiditis and its Clinical Relations to the Second, Third, Fourth, Fifth, Sixth and Vidian Nerves and Nasal Ganglion.—Greenfield Sluder.—The writer spoke of the body of the sphenoid independent of what cell occupied it, and mentioned the close relations of the above-enumerated nerve trunks to its bony wall, and that the size of the cavernous sinus, rather than that of the sphenoid cell, was what determined some of those relationships. He spoke of the striking difference, clinically, between the nerves in the canals—maxillary and mandibular branches of the fifth and Vidian compared to the third, fourth and sixth, which run through the wide gap of the sphenoidal fissure, the former being a clinical question infinitely more often than the latter. The diagnosis was made from bone removed from the anterior part of the sphenoid sinus of 156 cases by Dr. Jonathan Wright, whose microscopic findings corresponded almost uniformly with cases clinically. The slow-growing bone increase had for its clinical history longstanding pain and often very slow progressive loss of vision, sometimes only a segment of the optic nerve being involved, the cases of violent headache and rapid loss of vision showing acute osteitis engrafted on the chronic process. The bone sometimes showed periostitis, and sometimes the mucous membrane was normal. The argument was that the clinical picture in the chronic cases arose from narrowing of the bony canals in the process of the hyperplastic bone changes, and that the optic nerve was thereby compressed in the optic canal, producing disc swelling with loss of vision. That the recurrent pain in the second division of the fifth and Vidian—usually diagnosed migraine—was explained also by narrowing of their confines. In many of the cases these headaches preceded the optic nerve troubles by many years. He attempted to explain this on the score of drainage, the lower part of the sinus usually being bathed in a small amount of thin secretion, whereas the optic and the upper part were not so. He thought the hyperplastic lesion rendered the district more vulnerable, and cited that small areas here become inflamed from unrecognisable origin, and according to their position were more or less disastrous. In the upper outer anterior aspect of the sinus, loss of vision occurred; and in the lower outer and lower middle parts great pain of maxillary and Vidian distribution, respectively. He raised the question, how lesions of this kind could be bettered by removal of bone for drainage. He did not believe that the primary blood-letting of the surgery explained it, and

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cited a case in argument thereof. He stated that a similar lesion in the anterior nose, where very easily visible, was subject to recessions of longer and shorter duration, and that the condition was apparently helped by judicious surgery. The degree of hyperplasia of the plica septi seemed to be an index of the hyperplastic process in the sphenoid, whereas the degree of hyperplasia of the posterior tip of the middle turbinate seemed an index of a similar condition in the post-ethmoid.

Headaches Due to Non-suppurative Intranasal Conditions.—**George C. Stout** (Philadelphia.)— Headaches of nasal origin, in which suppurative conditions are positively eliminated by macroscopic examination, transillumination, the X ray, etc., have not occupied a prominent place in our literature heretofore. But, while these headaches are found in a relatively small percentage of the cases who consult the specialist, they are of sufficiently frequent occurrence, and severe enough in their result upon the nervous and mental condition and general health of the patients, to warrant their being considered as a group by themselves.

The pain varies from occasional attacks of moderate degree to frequent seizures of intense agony. It is commonly referred to an area back of a triangle formed by the glabella, the outer canthus of the eye, and the anterior nasal spine. It may also affect the teeth, the neighbourhood of the Eustachian tubes, or ears, sometimes extending down to the shoulder. It is usually unilateral, but may be bilateral, or occur on both sides alternately. It is not increased by the use of the eyes, though sharp, shooting pains through the eyes are often present. When the pain has existed for a long period the effect upon the patient is deplorable; his general health is undermined, and his mental condition profoundly depressed.

Owing to the very slight departure from normal of the rhinoscopic picture, these cases frequently pass through many skilful hands before the true cause of the pain is recognised. A thorough routine examination of the middle turbinate fossæ should, therefore, be made in all doubtful cases. All the more common causes of headache must be eliminated, such as neurasthenia, eye strain, febrile conditions, syphilis, malaria, digestive disturbances, rheumatism, etc. The absence of pus and the condition of the eye ground should be ascertained. The general appearance of the lower portion of the nose may be normal, but upon further examination it will be found that, while the middle turbinate itself may be of normal size and colouring, its cavity is narrow and compressed either by the lesser upper (or counter) deviation of the septum, or by a bilateral thickening of the upper portion of the septum, or by a split septum due to injury. Careful exsanguination of the inferior turbinates and their immediate surroundings only should accurately determine the point of contact. The exsanguination alone may so relieve the existing headache as to prove the chief localising factor of the cause of the pain.

Treatment should be directed to the middle turbinate itself, and should consist, first, in frequent applications of cocaine, adrenalin and astringents; and, second, as a last resort, the extirpation of a part, or the whole, of the middle turbinate. While the good results of the local applications may be only temporary, the operative procedure usually effects a complete cure of the pain.

Dr. Cornelius G. Coakley: I have been discouraged by the migraine type of cases described by Dr. Sluder. I have, however, seen numbers of these patients, sent by ophthalmologists, with varying

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conditions. In all cases there is a question whether there has been any disease in the posterior sphenoidal and ethmoidal sinuses. None of these cases present typical signs of suppurative disease. Radiographs show nothing, the sinuses always appearing perfectly normal. In most of these cases the ophthalmologist, and also the rhinologist, have gone through all the tests, excluding all the usual causes of the disease to be found in the eye. The statements which have come to me have usually been that the cause of the trouble cannot be found in the nose, and that the ætiology cannot be determined. The majority are not likely to get better without some aid. I have probed the sphenoidal sinus—which can be comparatively easily done—and have examined that portion of the sphenoidal mucous membrane which can be reached with the probe, finding it relatively normal. At the request of the ophthalmologist I have removed the middle turbinate, made a large opening in the sphenoid, and have found normal membrane. I have been astonished at the improvement in most of these cases, although the vision has been bad for two or three weeks, followed by complete recovery. I have tried to use the Holmes pharyngoscope as described by Dr. Sluder, but I do not see how he gets into the sphenoid so as to make the use of the Holmes pharyngoscope possible. I have been able to examine a little of the roof and floor, some of the posterior wall, and a little of the anterior surface. The great difficulty with all sphenoidal operations is that the orifice becomes very much contracted, so that in the course of six or eight weeks the opening is no larger than normal, and sometimes smaller. If the essayist will tell us how to make an opening that will remain, I will be obliged to him. Referring to Dr. Stout's paper, I wish merely to say that pressure against the anterior wall does give rise to these symptoms.

Dr. JOHN F. BARNHILL: We see cases over and over, such as Dr. Stout describes, in which removal of the anterior turbinate relieves the condition. Removal of tissue in the nose with no clear indication for doing so is to be deprecated. The matter of dianosis is of the greatest importance. X-ray and blood examinations should be made, but patients will often not allow it. My greatest source of information has been from the University clinic, where we have advantage of all the channels from which information comes. Sometimes when all the lines of investigation have been followed—X-ray, ophthalmological, and blood examination—we find appendicitis. I recall three instances of that kind. We may take a line here from our friends the surgeons in the far north-west. Nose cases are going to them to-day, as well as all other classes of cases, because of the tremendous reputation they have for examining patients in every way with the one cost. When we examine them and have all the other examinations made it amounts to hundreds of dollars. Very often the trouble is not in the nose at all.

Dr. HANAU W. LOEB: The merit of Dr. Sluder's paper rests in the determining of trouble in the sphenoid cavity when no pus is present, and discovering the relation of this trouble to the cranial nerves. This is a good deal to find out in a few years. Dr. Stout's paper is also important. There are two or three points which will establish the diagnosis in these headaches—headaches in which I operate upon the middle turbinate. They are uniform in character; they attack one side of the nose, one part of the head; they last a more or less definite number of hours, then disappear; they almost invariably appear in the morning and disappear in the evening. As a rule, I refuse to operate

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unless cocaine relieves them, and unless there is some marked process present. It is sometimes the case that I am surprised to find the amount of pathological process going on when there is no pus. Whether the cause is circulatory or not, I do not know. We have been able to do an immense amount of work in relieving the patient where the anterior turbinate is involved, but we have not been able to do much where the posterior sinuses are involved. Dr. Sluder's work is important in this regard.

Dr. GEORGE A. LELAND: Not the large amount of pressure, but the continuous pressure, explains some of these cases. This may be illustrated by pressing upon the skin of the hand. It requires only a short time to cause considerable pain, which may not be felt so long as the pressure is exerted, but manifests itself as soon as the pressure is removed. We have the same condition in the nose. There is a certain amount of soft tissue covering the cartilage. I have seen cases in which a little spicule of bone, sticking out from the septum and pressing upon the second turbinate, will cause pain when, during menstruation, there is an increase of pressure, or when the patient eats too much or drinks too much; and with this increased pressure there is the headache which comes under similar conditions.

Dr. WILLIAM E. CASSELBERRY: I can confirm the observations as to the total absence of pus at times. If pus in the quantity described by Dr. Coakley is considered as an indication of the presence or absence of suppurative sinusitis, I am in accord; but in other cases smaller amounts of pus may occur in one or another of the sinuses, not shown by X-ray examination. But, *ad seriatim*, taking the antrum, the sphenoid, the ethmoids, I have been able to discover an appreciable quantity of pus, or muco-pus, which amounts to the same thing. I am under the conviction that in most of these cases there is a suppurative condition which is at the bottom of the hyperplasia complained of.

Dr. JAMES E. LOGAN: I recall one case, in which the headache came periodically in the morning, stopping in the evening. The young man suffered from very extreme headache, beginning about nine o'clock in the morning and stopping about four in the afternoon. He had been operated upon for removal of a portion of the middle turbinate. The headache persisted—naso-frontal headache. I removed the rest of the middle turbinate and opened the duct, thinking pus was there. Very little pus was found. The patient suffered continuously with the headache, which gradually came later in the morning and remained later in the afternoon. Finally, by suction, I got secretion from the naso-frontal duct. This was sent to the pathologist, and it took forty-eight hours to get a culture, which showed a very faint mixed infection, with staphylococcus aureus and streptococcus. An autogenous vaccine was made from this, three injections of which were given, and the patient got well. The same course was followed in another case, and the patient was given relief. Nothing else had given relief. Such cases would seem to indicate, as Dr. Casselberry has just suggested, that the pus is there and can be found if we look for it.

Dr. EMIL MAYER: The amount of pus may be very small in these cases. I recall, in this connection, an experience at Mount Sinai Hospital. The patient, a young man, who had acromegaly, presented a history of persistent headaches. He had high temperature, muttering delirium, and choked disc, and as a result examination of his nose was exceedingly difficult, and required skilful dodging. I succeeded, however, in getting a little pus, but said I thought very little could be done

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for him. The attending physician thought operation was all that could be done, and so I removed the anterior portion of the ethmoid. In twenty-four hours the headache and delirium had cleared up. Some of those in consultation thought I operated at a time when the man was in some sort of a crisis. I do not think so. I introduced a probe into the sphenoid and had an X-ray taken. The result was a perfectly clear picture of the probe in the sphenoid, and all then agreed that I was right.

Dr. Otto T. Freer: Even very extreme conditions, where there is a sharp crest or ridge very far back in the nose, so rarely cause headache that I have become very sceptical of pressure headaches in general. The whole question is one of reflex. Where we try to remove the effect by the use of cocaine, we are just as much in the dark as we were before. This is, in fact, an open door for all sorts of experimental operations. The patient may be told that it is entirely experimental, the septum is resected, the patient is no better, and still he blames the doctor, no matter how plainly he has tried to impress that the operation is purely experimental. I agree with Dr. Casselberry about concealed suppuration, but I wish he had been a little more specific as to his method of exploring the sinus. Exploring the sinus through the natural opening is not always satisfactory. I recall a case in which the thin roof of the antrum had been perforated by the cannula, the injecting fluid injected into the orbit, and the eye put out. I do not regard washing out the antrum through the natural opening as an entirely safe procedure. The frontal sinus is still more difficult for diagnostic washing. It is sometimes by no means a trifle. In one case which I recall the patient fell over in a convulsion. The fluid could not get out through the small opening, and there was intracranial pressure. One thing that gives an indication of concealed infection is the complaint by the patient of a discharge running back into the throat. A perfectly healthy sphenoid and infundibular region usually does not go with diseased ethmoid. Something must be there to give us a hint. The nerve most often affected, in my experience, is the anterior ethmoidal, which is a very sensitive nerve, as Killian has shown.

Dr. Casselberry, continuing the discussion: In a recent issue of the London Journal of Laryngology, Rhinology and Otology,[1] Brown-Kelly, of Glasgow, records no less than thirty cases of bad results from exploratory puncture by the penetration of the antrum. The one Dr. Freer mentions is the first I have heard of in an attempt to irrigate the antrum through the natural opening. When he puts in the cannula and penetrates the orbital plate he is not irrigating through the natural opening. The cannula with which I irrigate through the natural opening is very thin, reasonably thicker where I hold it, having more than a right angle turn at the bend. Properly introduced, it will serve for the irrigation of the antrum through the natural opening, which can be accomplished safely in the majority of instances. The stopcocks must be arranged and the air pressure regulated. Not more than ten pounds pressure should be used to begin with, otherwise harm will be done. This is run up as the operation proceeds. The same thing is true of all the other sinuses.

Dr. J. Gordon Wilson: Dr. Sluder's paper is extremely interesting and suggestive. It does not mean that there may not be disease of the sinuses without suppuration. That depends, of course, upon what we mean by "without suppuration." There may be hyperplasia of any sinus

[1] See Journ. of Laryngol., Rhinol., and Otol., vol. xxix, p. 556.

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without any suppuration at all. Some years ago I did some work in the way of putting capsules into the sinus, having introduced into these capsules different forms of bacteria. The capsules were so arranged that the bacteria would not come out, but their toxines would. There was hyperplasia in these cases. I used drugs for these experiments, some of which were kept going for several weeks. I have often wondered how infection passes along these nerve trunks. I suggest, as quite possible, that there may be absorption of the toxins from the lymphatics into these nerve trunks.

Dr. SLUDER, closing the discussion: Answering Dr. Coakley's question about the method of operating: The outlet and the sinus itself must be large enough to permit of the use of the pharyngoscope. I use a right-angled knife. The posterior part of the cribriform plate and the posterior and uppermost aspect of the olfactory plate are approached, the sphenoid sinus or one of the misplaced ethmoidal cells being punctured by such a stroke. As soon as the cell is punctured the stroke is directed downward, forward and inward. The septum is cut down to the floor of the sphenoid. The knife is then introduced carefully along the cribriform plate. Again the uppermost posterior aspect of the olfactory plate is approached. The knife is then turned at an angle of 45°, and downward and outward. This, on the cadaver, has been proved to throw the posterior ethmoidal labyrinth pretty thoroughly open every time. By means of the pharyngoscope it is found that there are two very satisfactory openings into the posterior ethmoidal cell, and sometimes the sphenoidal. Sometimes it is possible to get it all out in that way. Dr. Wright has one such specimen, measuring a half inch in diameter. Dr. Coakley spoke of being unable to get good observation with the pharyngoscope. I always operate under cocaine. I uniformly refuse to operate upon these patients except under cocaine. I give them scopolamine first. The primary stroke is sufficient to produce enough shock, and at the same time to prevent the wound from bleeding. With the pharyngoscope close at hand it can be passed in. The patient may faint; let him faint. The wound for a time does not bleed. I have some cases in which the opening stayed open for five or six years. I have never seen membranous closure, as suggested by Dr. Bryan, but I have seen bony closure, as suggested by Dr. Coakley. Dr. Loeb spoke of congestion in the sinus, which he thought more responsible than the vacuum of which I spoke. Politzerisation will stop the trouble. The congestion is the result of the vacuum. I have tried vaccines repeatedly, as suggested by Dr. Logan, but have not got the results. Dr. Mayer spoke of crises and the use of ergot. In my text I brought out, partly as a matter of speculation, that there is in some canals a considerable pad of fat; in the optic canal there is exceedingly little. If this hyperplastic process narrows the canal, and this pressure is maintained for a considerable time, Nature's shock absorber is used up. Sometimes a trifling indigestion will start up the trouble, just as sometimes a trifling thing will diminish the vision. If ergot is given when there is this congestion, it will contract the tissues and relieve the headache.

(*To be continued.*)

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