explanation, that death was due to the adrenalin setting up fibrillation of the cardiac muscle, is vitiated by the fact that chloroform itself is said to induce fibrillation at times, and to cause death by doing so. And when it is remembered how frequently adrenalin is employed during surgical operations under chloroform without any apparent ill effects, one feels even less inclined to adopt the opinion that it is particularly dangerous to employ adrenalin under these conditions.

A survey of the whole question, then, in all its bearings, leads us to the conclusion that the case against adrenalin is, for the present, not proven. Further investigation on the part of the pharmacologist is needed before the reliance of the operating surgeon upon the safety of adrenalin can be broken. At the same time, the latter cannot avoid being influenced by the warnings which have been given, to the extent of keeping a weather-eye open to the possibility of trouble arising from this source. The natural tendency, no doubt, will be to limit the application of adrenalin to mucous surfaces and to subcutaneous tissues, and to avoid the intravenous administration of the drug. The last-mentioned method is, of course, only adopted in combatting shock, and we possess, in pituitrin, for example, an agent which seems to be almost, if not quite, as powerful a remedy for this disturbance as adrenalin is, without, as far as we know, any of the reputed dangers of the latter substance.

D. M.

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SOCIETIES' PROCEEDINGS.

ROYAL SOCIETY OF MEDICINE—LARYNGOLOGICAL SECTION.

November 5, 1915.

President: DR. J. W. BOND.

Case of Bullet entering below Right Mastoid and emerging at Left Orbit.—Major Perry Goldsmith, C.A.M.C. (Toronto).—Lance-Corporal S——, aged thirty-four. On April 3, at St. Julien, patient

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was standing with his back to the parapet when a bullet entered below the right mastoid and emerged at the inner angle of the left orbit. He was unconscious from April 23 to June 9. He has a hazy remembrance of having heard the nurse say, "Nothing was being done, as the man could not live." He gradually improved, however, and on August 30, before being sent back to Canada, he visited friends in the North of England. While there he suddenly developed left hemiplegia. He rapidly improved and entered Moore Barracks Hospital at Shorncliffe, and he came under my care. The notes made on October 9 are as follows: Small sinus at the inner canthus of left eye discharging pus. Complete right facial paralysis. Well-defined weakness of the left arm and leg, especially extensors and flexors, with wasting of muscles of left arm and leg. Sensory functions undisturbed. He is unable to balance himself on his feet and walks like a drunken man. Right ear quite deaf. Heart and lungs normal. Left arm: Humerus fractured at the middle third on the same day as other injury; good union and good alignment. Bullet still in the triceps muscle.

Present condition: Facial paralysis unimproved. Deafness obstructive in type. Right middle turbinal and ethmoid partially destroyed. Right sphenoid contains muco-pus. Yellow pus high up in the right nostril, probably coming from frontal sinus, which I was unable to irrigate. Right antrum negative; pus in the left infundibulum; left antrum contains foul pus. I was unable to get into the left frontal sinus wound as the inner canthus has been closed for some weeks.

Ophthalmoscopic examination: Right eye—large retinal detachment, and practically blind; when he blows his nose he feels as if something moves behind the right eyeball. Left eye—vision badly impaired, due to large detachment. There is also sensory disturbance over the right cheek-bone.

In civil life this soldier was a physician practising in Ontario, and enlisted as a private in the First Canadian Contingent.

I should like to hear opinions as to the desirability of operating on the infected sinuses. I am not sure how intimately the intra-ocular metabolism is related to that of the accessory sinuses, but the work of Ziem shows it is very intimate. If the clearing out of the sinuses will lessen the liability to further retinal detachment later, I will do it, but I do not want to do anything which will make the condition worse; the man's condition is very pitiable already, as he is blind in one eye and has an extensive detachment of the retina in the other.

Traumatic Paralysis of the Vocal Cord.—Major Perry Goldsmith, C.A.M.C.—Corporal T——, 3rd Battalion, First Canadian Contingent, aged thirty-two. Paralysis of left vocal cord, traumatic. Shrapnel wound in neck on April 22, followed by immediate loss of voice and spitting of blood; scar 2 in. external, and 1 in. above sterno-clavicular joint; was unconscious for about an hour, and hoarse when he came to; forty-eight hours afterwards shrapnel was removed. Subsequently a great deal of muco-pus and blood expectorated. Voice very rough; a little talking tires it. The recurrent laryngeal nerve was severed rather low down. Before the war such cases were rarely seen except after operations on the thyroid gland. Laryngoscopic examination: Fixation of left vocal cord; right cord compensating by over-action. If the head is well thrown back and he drinks anything it causes spasms of coughing.

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Dr. Watson-Williams: After a considerable experience of infected sphenoidal sinuses (and I have operated on several hundred patients), particularly cases in which the optic nerve tract has been distinctly involved, I should have no hesitation in opening the sinuses in the first case and establishing drainage. If this be supplemented by lavage and appropriate treatment, it promises improvement in the retinal condition and arrest of the sinus disease. I have never seen any untoward results from that course in regard to the visual or colour fields, and where these are contracted it often results in restoration to the normal.

Dr. Dundas Grant: I agree that the advice tendered by Dr. Watson-Williams is the wisest and safest for this patient. With regard to anastomosis of the facial nerve, there are fine descriptions of it in many books, but reports of end-results are very sparse. I would like to know from those who have seen the results of such anastomoses whether they have been satisfactory.

Dr. Jobson Horne: The question in the second case is as to whether anything can be done to improve the voice. Similar cases in men from the Front have come under my notice, and in the light of these I think that the region should be examined with the X rays, to make sure there is no cause of pressure, such as the presence of a shrapnel splinter, on the recurrent laryngeal nerve. If nothing is seen, I am opposed to any exploratory operation. Experience shows that in such cases time is a healer.

Mr. Tilley: I agree with Dr. Horne's advice. I have seen two cases of palsy of the recurrent nerve from neck wounds; apart from this lesion the patients are well. The wounds have healed, and the X rays do not reveal any foreign body in the neck. My advice is to leave matters alone, because one does not know whether the nerve is cut or only bruised; in the latter event, time may show a recovery; and in such cases, even if the cord remained paralysed in the adducted position, the voice becomes quite good owing to a compensatory action of the other vocal cord.

Dr. Peters: With regard to the patient with nasal trouble, in a somewhat similar case, but in which the bone was not so interfered with, I took out the middle of the nose and did a modified Roux's operation. The nose in this case was a very long one, and the procedure gave a very good result, enabling the nasal passages to be opened. With regard to Major Goldsmith's sinus case, it is extraordinary to see how the infection seems to have developed through the sphenoidal region and to have imitated, to some extent, the paralysis which is so common after cerebro-spinal meningitis, though I do not know that the meningococcus is present in this case. The infection, probably streptococcal or by some other non-thrombosing coccus, has found its way through the sphenoidal region. There has been active mischief, and I recommend draining. In the laryngeal case it is most difficult to know how much of the paralysis is due to shock and how much to actual nerve damage. In one case I saw, in which the paralysis was evidently due to shock, the cord had been in a position of abduction spasm, and the condition varied from day to day.

Encapsulated Tumour removed from Region of Left Tonsil, Soft Palate, etc.—J. W. Bond.—Patient, aged sixty, was found by a dentist to have a growth at the back of his mouth. The fauces were two-thirds obstructed by a mass on the left, projecting from between the pillars of the fauces, upwards into nasopharynx, downwards to base of tongue, forwards to mid-line of ramus. The posterior border could

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not be reached behind, and, externally, it presented between the angle of jaw and the mastoid. As a whole it was smooth, hard in parts, with defined border, and slightly movable. Operation, five days later, by exposing surface of growth in fauces, no splitting of cheek being found necessary. It seemed especially attached far back, internal to the mastoid process. A preliminary laryngotomy was performed. The pathological report is of a roughly lobulated, encapsulated mass, weighing 51 grm., and measuring 6·5 cm. by 4·75 cm.: "On section it is composed of alveoli and strings of cells enclosed in a stroma of fibrous tissue, with myxomatous and cartilaginous areas. Its general structure is that of an endothelioma, such as would arise in the palate or in a salivary gland. We do not think it is strictly a tonsillar tumour."

Tumour of Palate.—George Badgerow.—Male, aged thirty-eight. The tumour has been slowly increasing in size; there is slight difficulty in swallowing and speaking. The swelling obscures the faucial arch and projects forward on the base of the tongue, lying more to the right of the middle line.

The PRESIDENT: I regard Mr. Badgerow's case as an adenoma, and I think it can be readily removed by enucleation.

Dr. DONELAN: I reported a similar case to the Section several years ago. Endotheliomata in that region, the so-called "potato tumours" of Jonathan Hutchinson, are supposed to originate from the carotid body, and might, as in this case, be present in the pharynx. I would like to know whether the President found anything in his dissection which supports that view. The reference to an attachment inside the mastoid would seem to show that it does not hold in all cases. In my own case the tumour had a more distinct relation to the carotid, and, growing outwards, ultimately involved the skin. A general surgeon was consulted at an early stage, but as it even then involved all the great vessels it was considered inoperable.

Mr. O'MALLEY: I have recently seen two practically identical cases. The first was sent from France as a peritonsillar abscess, which had been opened on two or three occasions and nothing found in it. I enucleated the mass, which was absolutely encapsulated, between the mucous membrane at the front and the mucous membrane at the back, in the soft palate tissue. I had a section made of it, and one pathologist reported it as sarcoma; that was previous to my operation. Since then I have taken portions to two authorities, who regard it as adenoma. In the second case I saw, I did not hesitate to attempt enucleation. It shelled out easily, and healed up as well as a wound could. Perhaps, under the circumstances, I shall not be able to see the patient long enough to know whether there will be a recurrence, but I do not anticipate such an event.

The PRESIDENT (in reply): I think the tumour I removed came from the base of the skull. With difficulty I reached the back of it from the mouth, and was able to remove it after stringing it with fishing-line and pulling with gland forceps, twisting one way and the other, and also using a raspatory. For several weeks after the operation the patient complained much of giddiness when he stooped, but that has passed off, and he is now increasing in weight at the rate of 1 lb. per week.

Intrinsic Cancer of the Larynx, One Year after Operation by Laryngo-fissure.—Sir StClair Thomson.—This gentleman, aged seventy, was shown to the Section on November 6, 1914, before opera-

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tion,[1] and again on December 4, 1914, after the operation of laryngo-fissure on November 12.

It will be remembered that doubt was thrown on the diagnosis by some members at the first meeting, as the cord was mobile and no portion had been examined under the microscope. A section of the growth removed at the operation was shown before the Section on February 5, 1915, and was reported on by Prof. Shattock to be an early squamous-celled carcinoma. It will also be remembered that the microscopic examination of the growth removed by laryngo-fissure on November 12 suggested that the growth had spread right up to the line of excision in the posterior subglottic region, A second laryngo-fissure was therefore performed on November 20, and the patient was shown to the Section a fortnight later. The case is shown for the following reasons: (1) The diagnosis was made in the absence of any microscopic report and in a case where the cord preserved its mobility. (2) Although the patient had reached the age of three-score years and ten, he was able to support two operations for laryngo-fissure within ten days of one another. (3) He has passed the first, *i. e.* the important, year of probation without any suspicion of recurrence. (4) He has a good strong voice and enjoys excellent health.

The PRESIDENT: It seems to be a very successful case; on the whole, one expects these cases to be successful, as the operation performed has become a regular and standard one, and that fact does credit to the various past presidents of the Section. To me the particular case is not so interesting as the difficulties of operation, and I would like to know from Sir StClair Thomson what he finds to be the chief difficulties. My own difficulty consists chiefly in seeing properly the area of operation.

Mr. HERBERT TILLEY: I note the words, "He has passed the first—*i. e.* the important—year of probation without any suspicion of recurrence." I think one should be very careful in these cases, because there is a feeling abroad that if there be no recurrence in the first year, one is warranted in speaking of the case as cured. Here is a photograph of a recurrence nine years after the primary operation, this recurrence causing death from re-growth in the other cord, ending in sudden suffocation. I have had another patient, originally under the care of Sir Felix Semon, who suffered from recurrence thirteen years after removal of carcinoma. Two months ago I saw a third case on whom I operated seven years ago; he came because his voice was not so good, and a recurrence of typical epithelioma was seen, for which half the larynx was removed. Last week I saw a fourth case, which was shown at this Section two years ago, and there is now a granular-looking recurrence. The time has come for revision of the view that absence of recurrence for a year is tantamount to cure. With regard to the operation, my custom is to use a strong headlight, which overcomes all the difficulty of which the President has spoken.

Dr. JOBSON HORNE: As one who threw doubt on the diagnosis of the case when it was first shown to the Section, I still feel, from a clinical point of view, that it must have been a very early case indeed of epithelioma. The early diagnosis strengthens, of course, a favourable prognosis. With regard to the control of hæmorrhage and the movement of the parts during the operation, some years ago I adopted the use of cocaine. A pledget of cotton wool soaked with a 10 per cent. solution of cocaine is placed within the larynx immediately after the thyroid

[1] See JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. xxx, pp. 133, 161.

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cartilage has been opened. That causes much blanching of the area of operation, but bleeding from a small vessel in the arytænoid region at times give trouble. Cocaine, in my opinion, is preferable to adrenalin.

Dr. DUNDAS GRANT: I think it important, in order to get a good view, to make a clean section between the vocal cords, at the anterior part of the larynx. I have seen a very experienced surgeon get only a confused and difficult view after opening the thyroid cartilage from without. I make the incision from within outwards, passing the bistoury from the thyroid notch inwards and downwards, afterwards cutting outwards. That cannot be done very well if the cartilages are already ossified, but much the same effect is produced by using Waggett's forceps for splitting the thyroid cartilage. The occurrence of hæmorrhage is another difficulty, this taking place after the cutting away of the cord; I have used the galvano-cautery in these cases, even the Paquelin, and that seems to be excellent also in preventing recurrence; its use is strongly insisted on by many American operators. The only objection to the cautery seems to be that the voice is not quite so good afterwards as if it had not been used. We feel indebted to the exhibitor for having had the coolness to do a second operation; it was much better than anxiously waiting to see what would happen.

The PRESIDENT: I think some of the cases of recurrence are really due to inoculation of diseased cells. It is well known that these cells cannot live outside the body.

Sir STCLAIR THOMSON (in reply): I cut off the patient's tobacco and alcohol for a week before the operation, have the mouth purified, and any tooth stumps extracted. I am also very particular whom I have as anæsthetist, so that there is no risk of air-starvation. An hour before operation I inject the skin with eudrenine, which renders the area practically bloodless until the trachea is reached. Then I stab the trachea with a hypodermic syringe containing 15 drops of $2\frac{1}{2}$ per cent. cocaine. That makes tracheotomies as peaceful a performance as opening mastoids. After this stabbing of the trachea with the local anæsthetic, I wait ten minutes; then the sudden rush of air which follows the introduction of the tracheotomy cannula does not cause the reflex cough which so often splashes the operator and surroundings. After splitting the larynx I put in a pledget of wool soaked with cocaine and adrenalin. The removal of the growth is done by submucous resection. I try to raise the vocal cord with its tumour by dissecting up the perichondrium, so as to leave the inner surface of the thyroid cartilage bare. Years ago, before submucous resection came in, hæmorrhage was a great trouble, but that does not now come on until the undermined growth is removed. Then I divide above and below, leaving the worst until the last, namely, separation round the arytænoid. Here there are many muscles and attachments, and a little vessel which sometimes spouts. That can be pinched for a short time with pressure forceps. I agree as to the difficulty of seeing properly in these cases; quite apart from the light, one only gets an oblique view, and the thyroid wings cannot be forcibly separated. I have tried to overcome that difficulty by semi-dislocating the larynx on the spinal column. With regard to recurrences, I think our views may be summed up by saying that if a case comes back with disease within a year, it is incomplete removal; if it comes back after that time, it is recurrence. It is the first year which is the anxious time, and especially the first three months. Recurrences at the long periods mentioned by Mr. Tilley are a matter which the Cancer Research may well take up, because the recurrence of disease is not always at the original area. I have had a case in which the recur-

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rence was at the base of the tongue on the opposite side; yet there is but little direct lymphatic connection between the two sites, namely, the right cord and the opposite lingual tonsil. This morning I suffered one of my disappointments—a patient on whom I did laryngo-fissure followed by a complete laryngectomy six years ago. It was one of my show cases; the patient wore a Von Brun's instrument, and spoke well. Now there is a very hard gland attached to the carotid, and I feel sure it is malignant; yet there has been no recurrence in his throat meanwhile. I agree with Dr. Grant's remarks as to cutting from within outward. If there is ossification, I use a saw. I use Waggett's shears, which have been considerably improved by Dr. Irwin Moore.

Congenital Fistula of the Nose.—Hunter Tod.—Male adult. At birth a small opening was noticed at the lower part of the bridge of the nose. As long as the patient can remember, a slight secretion could be squeezed out on pressure. During the last two or three years an inflammatory swelling has occurred intermittently over the bridge of the nose which appears to be due to retention of the secretion. Opinions are invited with regard to treatment.

Dr. KELSON: I have had two similar cases: one a girl, whom I showed in 1904, whose photograph I now exhibit. Both the cases were very obstinate, and both were operated upon several times. One finally healed, but the other disappeared from my view. I expect Mr. Tod will find some difficulty in this case. Fortunately his patient is a man, to whom the question of after-appearance is not so vital as to a female.

Mr. ROSE: I have had one such case. Before I saw the patient for the first time, the external opening had been closed by a previous operation. A cyst had formed, converting the end of the nose into what looked like a red cherry. On opening the cyst, pus and clear glairy fluid exuded. The pressure of the cyst had caused absorption of part of the nasal bones and a considerable area of the triangular cartilage. I tried several times to destroy the lining of the cyst: it could not be dissected out without removing a considerable part of the external skin of the nose. It was scraped on several occasions and various caustics were applied, but when the opening was allowed to close, the swelling returned and burst or had to be opened. The most recent efforts have taken the form of electrical treatment—rather powerful ionisation. Recently I heard that the fistula is now closed and that there is no sign of recurrence. To rely upon scraping is, in my experience, unfavourable.

Mr. HUNTER TOD (in reply): I brought the case because I foresaw difficulties. I consider this is a true congenital cyst of the nose, owing to lack of fusion of the globular processes with the fronto-nasal process. The patient complained bitterly because his nose swelled up at intervals and was unsightly. I told the patient that operation probably would be successful, but might be a failure, and therefore the patient should himself decide whether he would submit to it or not. I am indebted to Mr. Rose for his opinion.

Malignant Papillomatous Growth of Left Inferior Turbinate and Ethmoidal Region.—Hunter Tod.—Mrs. L——, aged sixty-two, was first seen in January, 1911, complaining of left nasal obstruction and epistaxis. On examination, the left side of the nose was found to be occupied by a soft, papillomatous growth, attached by a broad

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base to the inferior turbinate. The growth was removed, but recurred in three months. It was then removed again. Microscopical examination of portions of the growth on each occasion proved it to be a proliferating papilloma.

In December, 1911,[1] the patient was shown to this section by Mr. E. W. Bain. There was an interesting discussion with regard to the nature of the growth, it being considered of rare occurrence. A portion of the growth was then sent to the Morbid Growths Committee, who subsequently reported as follows: "All agree that it shows the structure of an innocent papilloma."

Shortly afterwards the patient ceased attending the hospital, and only returned in October, 1914, complaining of pain over the left side of the face. Intra-nasal examination showed the left side to be filled with the growth, which appeared more friable and hæmorrhagic than when seen two years previously. There was also much purulent discharge. The antrum was dark on transillumination and was punctured through the inferior meatus of the nose. A small quantity of pus was washed out. A portion of the growth was removed and sent to the pathologist for microscopical examination. His report was "papillary columnar and polygonal-celled carcinoma of mucosa of inferior turbinate."

The patient was admitted into the hospital and operated upon on October 29, 1914. The external carotid was first tied in the neck. An incision was made from the level of the inner canthus of the left eye and continued downwards along the junction of nose and cheek, curving round the ala nasi until it entered the lower margin of the nostril. On the soft parts being retracted and well separated, a clear view of the interior of the nose could be obtained. The anterior alveolar and nasal portion of the superior maxilla was removed, exposing the growth, which could be seen to have pushed the nasal wall of the antrum outwards, so that the antrum itself was quite a small cavity and was filled with pus. An attempt was made to shell out the growth, but it was too friable and had to be removed piecemeal. The whole of the antro-nasal wall, including the inferior turbinate and ethmoidal region, was completely removed and the sphenoidal cavity curetted. At the end of the operation the interior of the nose appeared as a large smooth cavity. Owing to the tying of the external carotid, there was very little bleeding. The external wound was sutured and the nasal cavity plugged with strips of gauze smeared with sterilised oil, which were removed two days later. The patient made an uninterrupted recovery.

In March, 1915, some granulations appeared in the sphenoidal and post-ethmoidal regions. A microscopical section of a portion removed showed "solid trabecular columnar and polygonal-celled carcinoma of the mucosa." The patient was admitted to the hospital. The area of growth was removed by means of curetting and punch forceps. A tube of radium was then applied directly to this area and left within the nose for twenty-four hours.

On October 5, 1915 (one month ago), a few granulations appeared at the margin of the sphenoidal opening. As a precautionary measure, a tube of radium was again applied locally for twelve hours and the granulations subsequently disappeared. The nasal cavity now appears quite free from growth, the only inconvenience being that owing to the size of the cavity it becomes lined with crusts if the patient is at all

[1] Journ. of Laryngol., Rhinol., and Otol., vol. xxvii, p. 160.

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neglectful with regard to keeping it thoroughly clean. Microscopic sections are shown.

The PRESIDENT: Here again the question of recurrence due to inoculation occurs. The result seems to be very good.

Mr. ROSE: I regard the specimen as of unusual interest, and I am glad it has been brought forward. I have had two similar cases, but have lost sight of them. A recurrence occurred in each case, and the growth was removed, and as long as the patients were kept under observation there was no further recurrence. If anything further happens in this case I hope Mr. Tod will report it.

Dr. PEGLER: The original specimen shown by Mr. Bain is now in the Museum of the Royal College of Surgeons, and is highly interesting as an example of what was then considered to be an unusually large papilloma. A microscopic section of it is in the cabinet, and I hope Mr. Tod will forward a section of the present growth, which, if malignant, makes a comparison of the two a point of special interest.

Mr. HUNTER TOD (in reply): Since the case was put on the agenda, Dr. Turnbull, Pathologist at the London Hospital, has again examined the section very carefully, and is not now so certain that the case is a true carcinoma. He now reports as follows: "The specimens show a villous, fibro-epithelial, transitional celled growth. The proof of malignancy in such a growth depends upon invasion of the subjacent tissues by the epithelium; of this there is no evidence except in one spot in specimen 1. The formation of atypical cells in the epithelium is, however, so frequently the precursor or accompaniment of invasion that the appearances in specimens 1 and 3 justify, I think, a diagnosis of malignant tendency." Though the diagnosis was that the growth was of malignant tendency, I think the operation which has been performed is the correct one. I should like the Morbid Growths Committee to express an opinion about the growth, as I regard it as an important case.

Chronic Suppuration of the Left Frontal Ethmoidal and Maxillary Sinuses.—J. L. Irwin Moore.—This case, a female, now aged fifty-four, was shown at the Section meeting on May 5, 1911,[1] to illustrate the satisfactory results of a complete Killian operation on the left frontal sinus. An intranasal operation had also been performed at the same time on the left maxillary antrum. Previously to the operation patient had suffered for eight years from severe pain over the left frontal sinus shooting down the face and neck, with constant discharge of pus from the left naris. She used six handkerchiefs a day.

When operated upon in March, 1911, the left frontal sinus was full of pus and degenerated mucous membrane. A complete Killian operation was performed, and it was necessary to remove the roof of the orbit in order to obliterate the sinus. The ethmoid cells, which were extensively diseased, were removed together with many polypi and much degenerated mucosa from the left maxillary antrum.

When shown in May, 1911, the left frontal sinus was completely obliterated, there had been no nasal discharge since the operation, all headache had disappeared, and the patient's health had greatly improved.

Patient is now suffering from atrophic rhinitis of the left nasal fossa with great pain over the left maxillary antrum extending to the ear and side of neck. Three months after operation the left nasal fossa again began to secrete pus in considerable quantity, which appeared to come

[1] JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. xxvi, p. 355.

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from the maxillary antrum. A Caldwell-Luc operation was therefore performed on this left antrum and some unhealthy polypoid mucosa removed. Improvement followed for six months till June, 1912, when the discharge of pus again became considerable, accompanied by crusts. The pain over cheek became more severe. Examination of the pus showed the presence of the Friedländer bacillus. Two months' treatment by vaccine diminished both the discharge and pain for six months, patient at this time using only one handkerchief a day.

In January, 1913, discharge again increased, and became more atrophic in character, with fishy smell, accompanied by exacerbations of pain. Vaccine treatment for six months resulted again in great improvement, there being scarcely any discharge, the patient "hardly knowing what it was to use a handkerchief."

In consequence of intense infra-orbital neuralgia from June to October, 1913, the left maxillary antrum was reopened through the canine fossa, and the bony canal surrounding the infra-orbital nerve was partially removed, with great relief of pain.

From January to June, 1914, discharge again increased. A three-months' course of vaccine gave no result. Since this date the discharge and pain have continued with only slight variation from day to day, and no treatment gives any relief.

Although troubled with this atrophic condition and severe pain, patient's health is much better than when first seen in 1911. Any suggestions as to treatment would be most acceptable.

Mr. TILLEY: I have had one or two cases of sinus suppuration in which the radical operations were performed and the sinuses cured, but afterwards the patients had typical atrophic rhinitis with crusts. I cannot explain the reason for this. If Dr. Moore can cure the headache accompanying atrophic rhinitis—a very common symptom—he will earn my thanks.

Mr. O'MALLEY: I recently operated upon a case in which the antrum had previously been opened and had closed. Though the opening is now patent, the patient still complains of pain in the cheek. There is nothing the matter with the frontal sinus in this case, and I wondered what was the explanation. I have looked up a dry skull, and have seen that an ethmoidal cell passes as far out as the infra-orbital canal, and there seems no reason why structures in that canal should not be involved, just as sphenoidal sinus disease involves the optic nerve. In doing an extensive frontal sinus operation it is very difficult to approach that region unless one proceeds upwards from the antrum under the floor of the orbit. I do not think the recurrence in Dr. Moore's case can be due to atrophic rhinitis, which is a continuous and not an intermittent affection, and there is probably a cell under the floor of the orbit which from time to time causes these recurrences, implicating the infra-orbital nerve.

Dr. PEGLER: I consider it a mistake to call this condition "atrophic rhinitis," the true pathology of which is so little known. These traumatic cases should be distinguished from the idiopathic disease. Few authorities will agree that the local pain is due to neuritis, but most will have found that the headache in atrophic conditions can be much relieved by careful lavage; at least, that is my own experience.

Dr. DAN MCKENZIE: In my experience, cases of the kind are not uncommon. There is a drying up in the process of getting well, and what is called atrophic rhinitis occurs. If Dr. Moore were to leave this case alone without further treatment I think it would get well. There comes a time in such cases when, as far as intranasal operating is con-

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cerned, discretion is the better part of valour. The pain I consider to be due to neuritis, which will also disappear in time.

Dr. MOORE: I consider that the condition is due to atrophic rhinitis. I cannot find any ethmoid cells to account for the discharge, for they were thoroughly removed at the time of the original operation. There is no doubt that the frontal sinus cannot account for it, for this was completely obliterated. No sphenoid sinus can be found; this was apparently obliterated at the same time as the ethmoid cells. The patient washes out her nose daily, but is much troubled at times with large atrophic scabs in the post-nasal space. She is anxious to be relieved of this, also of the pain. I ask for suggestions as to further treatment.

A Nasopharyngeal Polypus (Choanal Polypus) originating in the Right Maxillary Antrum.—J. L. Irwin Moore.—The patient, a male, aged forty-two, was shown at the meeting on May 7, 1915. He had a growth in the right maxillary antrum extending through the middle meatus into the nasopharynx, where a dependent portion could be seen. Following the introduction of the radium emanation tube on April 20 into the maxillary antrum, the swelling over the outer antral wall, which involved a portion of the soft parts, gradually subsided. A fœtid purulent discharge followed from the naris and the opening in the canine fossa.

On June 15 patient complained of a recurrence—during the previous five days—of the brawny swelling over the right maxillary antrum, accompanied by marked œdema of the right lower eyelid.

On June 24 under chloroform an attempt was made to pass a wire snare through the right naris in order to encircle the post-nasal dependent portion of the growth, with a view to evulsion. From a post-rhinoscopic examination this appeared to be quite simple, but it was found to be impossible on account of the growth obstructing the choana and being firmly attached to the choanal margin. No forceps would pass along the naris past the growth, the aperture only admitting instruments the size of the snare tube. With the patient's head in the dependent position, the protruding post-nasal extension of the growth was removed piecemeal through the mouth by means of Luc's forceps, guided by the index finger of the left hand in the nasopharynx. This portion of the growth was of a hard consistence and firmly attached to the choanal margin and the spheno-ethmoidal recess, and it had absorbed a portion of the posterior edge of the vomer. The removal of the intra-nasal portion of the growth was carried out in a similar way by the forceps. The opening into the maxillary antrum through the canine fossa was next enlarged, and the antral portion of the growth, which filled nearly the entire cavity, was found to be soft and necrosed. This was removed, together with the antro-nasal wall, which had been partially absorbed by the growth. The turbinals and ethmoidal cells had also been absorbed, so that the operation converted the left nasal fossa into one large cavity. There was no post-operative hæmorrhage and no packing was required. The patient made a speedy recovery and left the hospital in a week.

The case is interesting in that (1) it confirms the view that the maxillary antrum may be the seat of origin of these nasopharyngeal polypi (choanal polypi). (2) It shows that these polypi are subject to inflammatory changes, and may cause extensive adhesions and absorption of bone, *e.g.* in this case there were found necrosis and absorption of portions of the outer antral wall involving skin of the

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cheek, nasal wall, sphenoidal sinus, ethmoidal cells, and vomer. (3) The rapid removal of such a growth with the forceps makes the bleeding negligible. (4) The dependent position of the head does away with the danger and risk of blood being drawn into the larynx, and hence avoids the necessity of a preliminary tracheotomy. (5) The growth could not have been removed *en masse* by evulsion with forceps or snare. By these three routes it was possible to remove piecemeal the whole of a very extensive growth, so that more formidable procedures—*e. g.* Moure's or Rouge's external operations—were unnecessary.

The skiagrams by Dr. Finzi show both maxillary antra to be somewhat opaque, the right more so than the left. This is well seen in the oblique views. The right sphenoidal sinus is very opaque, and also the ethmoidal cells on the right side. The photograph of patient taken before operation shows the marked swelling over the right maxillary antrum. Microscopic sections of the growth are shown.

Report by Professor S. G. Shattock.—(*A*) *From the maxillary antrum.*—The pedicle: This consists of loose, connective tissue, of an open feltwork of slightly wavy fibrils, fairly well provided with proper cells. That the material is not a mere coagulum appears from the fact that the fibrils are arranged more or less in intersecting bundles, and so present the usual differences according as the bundles are divided longitudinally or transversely, and the cells exhibit corresponding variations in form. The vessels are comparatively few and of inconsiderable size; the hyaline condition of their walls may be ascribed to the imbibition of fluid, the open character of the fibrous tissue being indicative of an œdematous infiltration.

(*B*) *From the nasal cavity.*—This exhibits the typical structure of a soft fibroma, and consists of loosely arranged wavy fibres, amongst which there is a fair abundance of proper lamellar cells. The investing epithelium is in places intact.

(*C*) *From the nasopharynx.*—This portion of the tumour consists of a particularly open feltwork of very delicate fibres arising from coarser strands of connective tissue, the appearances being attributable to œdema of a connective tissue basis, arising probably from pressure constriction. The proper lamellar cells are relatively few, but their nuclei are well stained. Polymorphonuclear leucocytes and plasma cells occur in the meshes. The vessels are filled with normal blood; here and there the tissue is necrotic.[1] The investing epithelium is in places intact. The histological diagnosis of the neoplasm is a soft fibroma in which œdema has occurred.

The PRESIDENT: I consider that in many of these cases there is no necessity to think of doing a laryngotomy or tracheotomy. It is unusual for these growths to involve the skin of the cheek. I have never seen a choanal polypus do so; such involvement is seen oftener in the case of sarcoma.

Final Notes on a Case of Malignant Stricture of the Œsophagus, situated ¾ in. above the Sternal Notch.—J. L. Irwin Moore.—Shown at the Section meetings on November 6, 1914, and May 7, 1915, to illustrate the benefits of Dr. William Hill's styletted oro-œsophago-gastric feeding-tube. The patient was so comfortable with the tube that he could not be persuaded to return and have a new one inserted. A few days

[1] In the necrotic tissue specially prepared sections show the presence of short streptococci and fusiform Gram negative bacilli (Dr. Eastes' Laboratory of Pathology and Public Health).

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after the last report on the case the tube became blocked, and all attempts to unblock it failed; it was therefore removed. The rubber was found to have perished, the tube had been flattened by the pressure of the growth, and the wire stylet broken and corroded. Three days later the patient came to town, but it was found impossible to insert another tube through the stricture, nor could even the smallest bougie be passed. Gastrostomy was therefore performed two days later, but the patient only survived eighteen days.

This case is interesting in showing that: (1) A patient suffering from malignant stricture of the œsophagus, which would only admit a small catheter, may be kept alive for eight months and satisfactorily fed on semi-solid foods, *per vias naturales*, by means of this tube passed through the stricture with the aid of the œsophagoscope. The loss of weight was slow, being only 1 st. 8 lb. during the eight months, compared with 2 st. 9 lb. during the two months preceding the intubation.

(2) The operation of gastrostomy, which would otherwise have been necessary when the patient was first seen in September, 1914, was postponed for eight months, during which time he was able to lead a cheerful life, enjoy his food, attend to his business as a traveller, and lay by some money for his family.

(3) As Dr. Hill points out, the tube has a gradual mechanical dilating effect on a stricture. In this case, after insertion for a few days, the patient was able to swallow liquids and even semi-solid foods alongside the tube. After the tube had been inserted for seven weeks and then removed, he was able to swallow food without any tube for nine days. Again, the copious secretion of saliva and mucus, which in these cases causes such distress to the patient, was greatly reduced and relieved by this method of intubation.

(4) The tube should not be left *in situ* too long before a fresh one is inserted. A change every three months appears to be advisable.

Bullet Wounds of Face and Neck.—W. Stuart-Low.—*Case* I. A soldier who was wounded on June 1, 1915, at the battle of Ypres by a bullet which entered over the right side of the nasal bridge, passing through the right maxillary antrum, the roof of the mouth, the tongue, and the left ramus of the lower jaw, and out at the left side of the larynx. The jaw was fractured, and having been very skilfully wired by Dr. James, has united firmly. The right antrum was quite dark on transillumination for some weeks, no doubt due to a blood-clot, but it is now clearer.

Case II.—A soldier wounded in Flanders by a bullet which entered on the right side of the neck and passed out on the left side. It must have injured the larynx, as he now has a web occupying nearly half the glottis and greatly impairing his respiration and vocalisation. An expression of opinion as to the best method of removing this membrane is desired.

Notes of the case.—While kneeling and firing in a trench during a charge he felt a sudden pain in the right side of his neck, which he at first thought was nothing but a blow from a flying piece of earth or stone. Shortly after he felt the blood trickling down the neck, and found that he was speechless, being unable to reply to the questions asked by his corporal. Stretcher-bearers found him, and applied a first-aid dressing, and he was able to walk back about four miles to the casualty station, where his wound was more carefully examined. The bullet wound of entrance was found to be in the neck, about $2\frac{1}{2}$ in. below

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the right ear, passing through just anterior to the border of the sterno-mastoid muscle, probably through the larynx, and emerging from the neck on the other side at a slightly lower level. At the casualty station he was inoculated with anti-tetanic serum soon after admission, but on the second day it was necessary to perform a tracheotomy. He was kept in the hospital in France for about a month, and then sent over to Fort Pitt Military Hospital. Shortly before leaving France the tracheotomy tube was removed. He was admitted at the Central London Throat, Nose, and Ear Hospital on October 19, 1915.

The PRESIDENT: I consider that these are extremely difficult cases, and that some operation will be needed. My choice would be laryngo-fissure.

Dr. PETERS: I think the second case should be left alone. Probably the web will thin out considerably, and if, later, removal become necessary, it will then be a simple matter.

Dr. DAN MCKENZIE: I think diathermy will get rid of the web.

Paralysis of Left Vocal Cord from Bullet Wound of Neck.—Dan McKenzie.—The patient, an officer, received his wound in May of this year in Gallipoli. Immediately after receiving it he became aware that he could only speak in a whisper. The wound healed up in three weeks and the voice has returned, so that he can now converse comfortably, although shouting soon tires it. Laryngoscopy shows the left cord to be paralysed.

There are two questions of interest in the case. First, the cause of the paralysis. The bullet (from a rifle) entered the neck in the middle line behind, opposite the fourth cervical vertebra (as nearly as I can make out), and emerged in front at the anterior border of the sternomastoid, at a spot midway between the upper edge of the thyroid cartilage and the hyoid bone. At this level obviously it must have been the left vagus itself which was severed, and that without any apparent injury either to the carotid vessels, to the internal jugular vein, or to the sympathetic cord. The pulse is normal in rate and rhythm.

The second question was put to me by the patient. In civil life he is a barrister, and he is anxious to know whether, when he returns to ordinary life, he will be able to use his voice in court. In other words, what is the prognosis as regards the strength of the voice after the onset of paralysis of one vocal cord?

It has been proposed that the vagus should be cut down upon and re-united.

The PRESIDENT: I think an exploratory operation is needed in order to see if the vagus has been cut across. Where there is possibly only bruising and suspension of function, perhaps for a long time, that is the first course to think of before deciding on further measures.

Closure of Nasal Fistula by Grafting over a Displaced Middle Turbinal.—Andrew Wylie.—Patient was injured by a bullet which entered near the outer angle of the eye and made its exit by tearing through the right nasal bone, leaving a large opening. Several operations were performed to close this opening without success. I cut the middle turbinal at the posterior end and pushed it upwards into the opening, leaving a small part attached. The outside was covered by a skin graft from the arm. This plan proved a complete success.

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Shrapnel Wound of Nose and Cheek.—L. H. Pegler.—The patient is a soldier, aged twenty, who received the injury last June. The fragment passed across the face from behind forwards, throwing down a flap of tissue below the right lower evelid and passing through the nose, carrying away much of the central part. Plastic operations have been performed at a provincial military hospital. The sight of the right eye is lost. Both ears were suppurating when the patient came to London; this has now ceased. The right nasal fossa is obstructed, but the patient refuses any operation.

The PRESIDENT: I think improvement can be brought about by forcible dilatation under an anæsthetic and making some cuts, a plug being passed daily, as has been done in some cases of congenital syphilis.

Dr. PEGLER (in reply): Two or three plastic operations have been done by the surgeons at Netley, a flap having been turned in from the cheek, but the patient pleaded that he was tired of operations, and positively refused even the restoration of free nasal breathing, which I was anxious to give him, and for which he had been sent to hospital.

Empyema of Right Frontal Sinus.—L. H. Pegler.—The patient is a soldier, aged twenty, with suppuration of anterior ethmoidal cells and frontal sinus on the right side of twelve months' duration. It had been obscured by an extreme vomerine deflection of the septum. The disease was not diagnosed till sub-mucous resection had been performed, though some discharge had been noticed by the patient. The pain complained of around and over the right eye is slight. The principal subjective symptom is giddiness. Patient is subject to fainting fits on slight provocation. Irrigation brings away a formed mass of purulent material about the size of the right frontal sinus space. The right antrum is not involved. A skiagram is shown.

The PRESIDENT: I should be inclined to make a larger opening into the frontal sinus, and with washing out and drainage, improvement ought to follow.

Postscript by Dr. Pegler.—The fronto-nasal canal has, since exhibition, been enlarged by Dr. P. Watson-Williams' method, and the patient has thereby been enabled to wash out his sinus himself with corresponding benefit, though some discharge continues.

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(*Continued from Vol. XXX, p.* 496.)

Recurrent Lymphomata of the Laryngo-pharynx—Presence of Streptococcus Hæmolyticus in the Growths Excised and in an Associated Spheno-ethmoidal Discharge—Autogenous Vaccination—Arrest of Recurrence—Recovery.—W. E. Casselberry.—A causal relationship between nasal sinus disease and tonsillar and other lymphoid enlargements of a certain type, prone to affect parts

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