SOCIETIES' PROCEEDINGS.

ROYAL SOCIETY OF MEDICINE—LARYNGOLOGICAL SECTION.

May 7, 1915.

Dr. William Hill, *President, in the Chair.*

Civil Cases.

Malignant Tumour at Base of Tongue almost dispersed by Radium.—William Hill.—Male, aged fifty-five; growth, size of a walnut, ulcerating posteriorly and with secondary involvement beneath the left angle of the jaw; left side of tongue fixed; occasional hæmorrhage; salivation; dysphagia; constant pain; insomnia. Insertion in two places of small, hollow, needle-like emanation apparatus of platinum 0·3 mm. thick, containing an initial charge equivalent to 40 mg. of RaBr., for twenty hours altogether. All symptoms have disappeared, and the tumour is so reduced that it might be easily overlooked on superficial examination. The secondary involvement will be dealt with before the date of meeting by an external application of screened radium salt. A water-colour drawing made by the patient, an artist by profession, of the original appearance with the mouth open was exhibited.

Case for Diagnosis.—W. M. Mollison.—G. B——, aged seventy-two, was sent to Guy's Hospital in November, 1914; he then had the appearance on the anterior pillars of fauces that he has now. The Wassermann reaction is negative, and, in spite of administration of mercury and potassium iodide, no change has taken place. The patient complains of pain on swallowing, severe at times.

Bent Nose straightened by Submucous Rotation of the Cartilaginous Septum.—Dundas Grant.—The nose pointed so far to the left as to be extremely conspicuous. The convexity of the deflection of the septum caused considerable obstruction of the right nasal passage. The nasal bones proper and the osseous septum were comparatively symmetrical.

The incision was made as for the submucous resection, but very close to the tip and on the side opposite to that to which the nose pointed. The cartilage was very carefully cleared, and was incised well forward. Killian's original plough was cautiously used so as to cut as much as possible of the curved cartilage, including the lower corner which pointed to the left. The wedge-shaped portion was cut as close as possible to the perpendicular plate and to the vomer, but not to the farthest extent, backwards, so as to leave a slight attachment posteriorly. It was then seized with flat forceps and rotated on its antero-posterior axis through half a circle in the direction contrary to the hands of a watch, so that the upper edge was to the right, and then downward to "six o'clock," where it was for the moment a little over-twisted. The part that originally pointed to the left now pointed to the right, and the lowest

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part was now uppermost. Any "spring," therefore, tended to incline the cartilage to the right side. The incision was carefully sewn up, and well-vaselined plugs of cotton-wool were inserted.

The plugs were retained for two days and were then removed. The incision was uniting, and there was no tendency for the cartilage to push it open. The septum was then in a good position, and it appears to have healed well and adhered in its new position. The soft parts had still a slight cant to the left, being somewhat redundant on the right side and somewhat diminished on the left. The appearance of the nose was, however, so satisfactory that surgical interference was not further called for, and the lady did not feel inclined to be troubled even with the pads of a nose-machine. She applied strapping to fix the nose to the right side for a time.

N.B.—Dr. Grant thinks that, if he had a similar case to deal with again, he would make the incision on the side towards which the nose pointed, so that the spring of the cartilage should not exercise pressure on the sutured incision.

Nasopharyngeal Fibroma removed through the Mouth without any Preliminary Operation.—Irwin Moore.—This patient, a boy, aged sixteen, one of triplets, was shown at the last meeting of this Section on March 5. The growth was in an early stage and apparently similar to that exhibited by Mr. E. D. Davis on February 5 last. The chief symptoms were that six months ago he had to give up singing in a choir on account of difficulty in breathing and choking attacks at night. Occasionally streaks of bloods were coughed up, but there had been no spontaneous hæmorrhage. Marked heaviness and sleepiness, with great difficulty in getting him up in the mornings. He was supposed to be suffering from adenoids.

The growth and its attachments could not be seen from the anterior nares on account of a marked deviation of the septum with hypertrophic rhinitis. Resection of the septum was therefore performed a week previously. In removing the growth no preliminary operation of laryngotomy was performed, and the division of the palate was avoided. The anæsthetic was first given through Kuhn's oro-tracheal intubation apparatus, but it was found unnecessary and in the way. The hanging-head position, together with the free nasal channels, proved all that was necessary to keep the trachea free from blood. The soft palate was tied out of the way by a piece of soft rubber tubing passed through the nose and mouth. The growth was attacked and removed through the mouth. It was found to be sessile and attached by a broad fibrous base to the basi-sphenoid and occipital bones, with a prolongation extended, and firmly attached to the spheno-ethmoidal recess of the left naris. Great difficulty was experienced in detaching this root—nor was it possible to grasp and remove the growth by means of the usual post-nasal forceps until the root was fully detached. The manner in which the growth avoided the grasp of the forceps was very remarkable; its growth was very vascular, blood pouring out of the mouth and nose to an alarming extent during the later stages of the operation, but it ceased on detachment of the nasal prolongation.

Report by Dr. Fletcher on Section of Growth.—"The specimen was an irregularly rounded mass, of a red colour from extravasated blood, and of a hard consistency. It measured $1\frac{1}{2}$ in. by $1\frac{1}{4}$ in. in its longest diameter and 1 in. in its shortest. Sections have been taken from two different parts of it for histological examination. A few minute spicules of bone

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were present (too small to be seen by the naked eye), and these unfortunately 'scored' the razor and prevented a *perfect* section being obtained. The growth is composed throughout of a dense fibrous tissue very rich in small and compressed spindle-shaped nuclei. In many places, however, the nuclei are stellate and suggest a tendency to myxomatous degeneration. The tumour is also extremely rich in large thin-walled blood-vessels quite devoid of a muscle coat. The edge of the tumour is well-defined, but presents here and there some little tags which suggest that possibly it has been enucleated from a capsule. Moreover, small areas in which some shrunken mucous glands are present support this view. I describe the growth as a vascular fibroma, but the possibility that it may be a fibrosarcoma cannot be excluded; indeed, the opinion has been expressed that it is a fibrosarcoma."

Growth in Maxillary Sinus extending into Nasopharynx.—Irwin Moore.—Male, aged forty-two, attended hospital on March 5, under Dr. Cathcart, who very kindly transferred the case to me. He complained of difficulty in breathing through the nose during the past twelve months, with considerable amount of watery discharge sometimes mixed with pus, occasionally slightly bloody on blowing nose. There is a history of syphilis twenty-five years ago.

On examination a large, irregular growth was seen originating from the right side of the nasopharynx, nearly filling that cavity, and extending through the right choana and middle meatus into the right maxillary sinus. A considerable amount of pus was seen in right fossa issuing from under the middle turbinal. A brawny swelling over the outer wall of the sinus involved a portion of the soft parts. The right maxillary sinus, on transillumination, was found to be very dark, and on being punctured the needle could be felt entering growth, and attempts to wash out failed. There was no bleeding on withdrawal of the needle. The swelling over the cheek increased considerably during the three following days.

Skiagrams show both antra somewhat opaque, but the right more so than the left, especially in the oblique views. The right sphenoidal sinus is very opaque, and also the ethmoid cells on the right side; these data being obtained by a comparison of the lateral with the anterior views.

On April 20 an opening was made through the canine fossa, and the antrum was found to be occupied by a growth extending across and filling the upper two thirds of the cavity, from the intranasal to the outer wall, which was necrosed, and infiltrating the cheek. Pieces removed from the growth for microscopical examination were of a soft consistence. There was little bleeding. A radium tube of 85 mg. strength and 1 mm. silver screening was inserted well into the growth and left *in situ* for twenty-four hours. There was very slight reaction and no rise of temperature.

Report by Dr. Fletcher on Section of Growth.—"This specimen is composed of organised fibrous tissue, not very rich in nuclei. It is somewhat œdematous, and is also infiltrated with small round cells, a fair proportion of which are polymorphonuclear leucocytes. Another feature is the presence of several blood-vessels which have thickened and hyaline walls; in my opinion the tissue is not neoplastic, but of a chronic inflammatory nature (? tertiary syphilitic). I cannot see any evidence that it is a sarcoma." Wassermann reaction is negative.

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Further Notes on a Case of Malignant Stricture of the Œsophagus.[1]**—Irwin Moore.**—The patient, a male, aged fifty-nine, formerly weighed 17 st. 7 lb. When first seen on September 18 he weighed 14 st. 12 lb., having lost 2 st. 9 lb. When shown before this Section on November 6 the tube through which he had been able to take 9 pints of food daily had been in position for seven weeks, and the patient had gained 6 lb. The tube was removed on that date, but required re-insertion nine days later on account of temporary obstruction. During this period patient was able to swallow milk, beef-tea, and bread and milk with very little difficulty. The original tube has now been *in situ* nearly six months.

The patient writes a cheerful letter, and reports as follows: "The tube is giving every satisfaction. I am still taking about 8 pints of food daily, consisting of beef-tea, junkets, light-boiled eggs, custard, Benger's food. I look well, but I feel a little weak at times, and cannot stand much fatigue."

Recurrent Columnar-celled Carcinoma of the Antrum.—W. Stuart-Low.—A man who has been shown previously on two occasions after operations two years ago on the left maxillary antrum for the removal of a columnar-celled epithelioma. There was a recurrence six months after the first operation, and a very thorough second operation was performed eighteen months ago. The growth has now recurred in the ethmoidal region, and the cavity of the orbit has become invaded. Diathermic puncture has been applied with good results in diminishing the size of the mass in the nasal cavity.

Microscopic Specimen and Pathological Report by Dr. Wyatt Wingrave. —"The growth is of the columnar or 'palisade' cell type, merging into the alveolar, most of the cells resembling the normal surface epithelium of the region, but devoid of cilia. They are arranged on a fimbriated and branching framework of fibrovascular tissue which forms the stroma. It therefore consists of epi- and meso-blastic elements suggestive of adenoma. In some parts the cells only form a single layer, but for the most part they are closely packed, the villous type changing to the alveolar and original features lost. Many of the nuclei exhibit hetero-mitotic division. The tumour therefore presents a striking resemblance to malignant polypus, or tubular epithelioma of the lower bowel, and to villous growths of the bladder and uterus. When differentially stained by muci-carmine or Pappenheim, heteroplastic characters are well shown. While normal and adenomatous tissues show mucigen granules and 'chalice cells,' their neoplasm shows none. Structure is therefore imitated, but not function. This type of neoplasm is by no means rare in the nose, for it has constituted 40 per cent. of malignant cases in that region, but it is very rare as a primary growth in the pharynx and larynx. In the mouth it has not been recorded. It is usually associated with, or may start from, the region of the ostium maxillare. Growth is rapid, consistence is very soft and brittle, it bleeds freely, and although locally malignant is but rarely found as a secondary deposit in glands. The true significance of the tumour is difficult to establish when a small fragment only is supplied for examination, therefore an adequate mass is usually necessary for diagnostic purposes."

New Growth in Post-nasal Space.—Frederick Spicer.—Female, aged seventy, married. Patient was brought to hospital on February 9

[1] See JOURN. OF LARYNGOL., RHINOL., AND OTOL., March, 1915, p. 129.

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last, complaining of inability to breathe through the nose, deafness, and rapid wasting. She was very feeble, had to be assisted in walking, and was breathing through open mouth, from which saliva was dribbling. A quantity of fœtid muco-pus was being continually discharged from the nostrils. She appeared seriously ill.

On examination, the nasal fossæ were found to be blocked with prolongations of a growth situated in the post-nasal space. The growth was easily seen from the mouth by lifting up the soft palate. It was greyish in colour, and the surface rough and cauliflower-like in appearance, growing from the vault, not particularly hard, and bleeding on examination.

Under simple cleansing treatment a great improvement in her condition took place and the size of the tumour diminished.

Pathological Report (Dr. Leathem).—"Section shows lymphoid tissue covered with squamous epithelium."

Halfpenny embedded in Œsophagus.—W. H. Jewell.—Child, aged twenty-two months. There was a history of its having swallowed a coin ten days before admission to hospital. Death occurred on the thirteenth day after the accident, with perforations of the right and left sides of the gullet. There was occasional sickness after food during the first five days, but afterwards there was no return of food. No dyspnœa. The œsophagoscope was passed with the aid of the fluorescent screen, and the coin located just below the sterno-clavicular articulation embedded in the posterior wall of the œsophagus. The circumference of the coin and four-fifths of its anterior surface was covered with mucous membrane, making it impossible to apply forceps or hook or to dislocate it from its bed.

Pharyngeal Fistula in an old Man after Operation on Abscess in the Neck.—W. Douglas Harmer.—Male, aged eighty, admitted to St. Bartholomew's Hospital under the care of Mr. H. W. Wilson. On March 17 operation for the removal of the prostate. This was well tolerated, and the patient made good progress until April 10, when the left side of the neck suddenly became inflamed and a swelling appeared, apparently connected with a gland. Four days later a definite abscess had formed and was incised. On April 24 paralysis of the soft palate, with regurgitation of fluid through the nose, was first noticed. Soon afterwards it was found that, when taking his meals, food passed from the mouth through the wound in the neck, and as the abscess was not draining well, the opening in the neck was enlarged on April 28. There are now two clean-cut openings in the pharynx: (1) in the middle of the left tonsil; (2) near its upper pole. The wound in the neck and the supra-pubic incision are both healing very sluggishly.

Warfare Injuries and Neuroses.

The PRESIDENT suggested the grouping of subjects and cases for discussion as follows: (1) Introductory paper by Majors Milligan and Westmacott; (2) functional cases; (3) injuries of the upper face, involving the palate, nose, and sinuses, and injuries of the lower face, involving the mouth, fauces, mandibular and submandibular regions; (4) injuries of the neck, involving the lower pharynx, larynx, trachea, and gullet.

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Introductory Paper by Major Sir William Milligan, M.D., and Major F. H. Westmacott, F.R.C.S.[1]

Group I.—Functional Cases.

Functional Aphonia (one including Functional Deafness) following the Bursting of a Shell in close Proximity to the Patient.—Herbert Tilley.—The first case was that of a man near whom a shell had burst on November 5, and from this time he had been aphonic till December 11. The second case had been buried by a "Jack Johnson" for four hours, and when he was dug out his voice had gone and he was also deaf. He remained thus for three months, and was sent into the hospital. In neither patient could any other disease be found, and inquiry showed that the voice was strong before the accidents. The first got well in response to a moderate intra-laryngeal faradic shock. But in the case of the second, even a strong faradic shock did not restore phonation. As the patient refused to open his mouth, the laryngeal electrode was passed through the left nasal cavity into the larynx and the current passed until the resulting spasm induced marked cyanosis. On removal of the electrode the patient's voice returned, and he spoke for the first time for three months. The hearing also was restored. These faculties have not since been lost, but his general condition may be described as that of profound neurasthenia.

Gunshot Wound of the Neck with Laryngeal Symptoms for Diagnosis and Opinions as to Treatment.—Coubro Potter.—Male, aged twenty-four, came suffering from complete aphonia. On September 14, 1914, at Plassy, he was hit over the head with a rifle, causing concussion of the brain. He was sent home to hospital, recovered, and returned to the front, where, during a night attack on February 17, 1915, he was shot in the neck. The bullet entered 1½ in. below the lobe of left ear and came out about 2 in. from symphysis menti on right side. The patient intimates that from this date he could not speak. Previous history good.

On examination I found that the patient had left-sided paralysis of the cervical branches of his facial nerve, producing drooping of the angle of the mouth. He also had left unilateral paralysis of the hypoglossal nerve, which caused deviation and twisting of the tongue. Laryngoscopic examination was very difficult at first, owing to overhanging of the epiglottis and the nervousness of the patient. The true vocal cords did not approximate on phonation, nor did they move during breathing, but the arytænoids approximated during phonation. Subsequent examination gave a very much better view of the vocal cords, and at times the cords during phonation gave the impression of a certain range of movement. Nothing else of importance was noted except a slight amount of anæsthesia of the left side of the soft palate.

The PRESIDENT said that in Dr. Coubro Potter's case there were definite organic lesions of the hypoglossal nerve, the facial, and the superior laryngeal; and he was rather inclined to favour the view that the man's aphonia was also traumatic and not purely functional. A further report would be desirable at the next meeting.

Functional Aphonia.—J. F. O'Malley.—Six cases of this condition have come under my care, all having occurred in the trenches. In four

[1] See JOURN. OF LARYNGOL., RHINOL., AND OTOL., August, 1915, p. 297.

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the voice returned on asking the patient to phonate with the laryngeal mirror *in situ* for the purpose of examination, and a mild application of the faradic current was effective in the other two.

Functional Aphonia.—H. L. Whale.—No. 11,335: Sudden aphonia in trenches without any injury. Perfect movement of cords, but in adduction he ceases to expire. Sudden recovery from neurosis in twenty-four hours.

Discussion on Functional Cases.

Sir Felix Semon desired to make brief reference to the case shown by Dr. Coubro Potter, which appeared to him to be extremely interesting and obscure. He was far from saying anything dogmatic about it, and only gave his impressions. He believed it to be a functional case, and for the following reasons: First, the entrance wound was very close to the left pneumogastric nerve, and the wound of exit was on the opposite side very much more in front. There was, however, no isolated paralysis of the left vocal cords. After a good deal of coaxing, the patient would haltingly say a few words in a whispering voice, a fact which was very suspicious, because if a man were merely aphonic from an organic lesion he would answer in a whispering voice questions put to him, but he would unhesitatingly answer. He did not by any means wish to say that the patient was malingering, but even now—though some months had elapsed since the injury—he gave a sort of stupefied response, as if unable to fully grasp what was being said to him. With this delayed response there was uncertainty in his movements. When he (Sir Felix Semon) examined the pharyngeal reflexes and asked the patient to lift his finger on the side touched, there was always a definite delay in the response. But the decisive factor in his belief was that there was *equally defective* movement in *both* vocal cords. If there had been actual injury to the left pneumogastric nerve, he would have expected to see complete paralysis of the left cord, or defective movement of it, in marked contrast to the condition on the other side. When there was an attempt to phonate, members would agree that the cords almost touched in the midline. Those facts, together with the general psychical attitude of the man, induced him to regard the case as functional.

Sir StClair Thomson said a striking feature of modern warfare was the number of functional cases which were freely reported and met with all over the country. In the old Laryngological Society, after the Boer War, someone showed a case of functional aphonia, and it was looked upon almost as a curiosity in a man; and that case was freely quoted, and he even mentioned it in his book. At the King's Sanatorium, at Midhurst, part of which was being given up to soldiers, the war would bring a large harvest of cases of tuberculosis amongst soldiers. Among the cases there now were three hearty-looking Grenadier Guardsmen, who were brought for his inspection as cases of tuberculosis of the larynx; each had functional aphonia, and the interesting point was that they had phthisis in the lungs. It was well to be warned, and not dismiss these cases of aphonia as merely functional; they must be examined for tubercular disease. One of these cases had functional dysphagia. They had been wounded in the retreat, and one had nourished himself with slops for four months, and talked in a very low whisper all the time. The functional aphonia was cured by suggestion.

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Sir WILLIAM MILLIGAN said that on examining the case under discussion he had made up his mind it was functional; it was similar to a number of cases which he had been seeing for months. He agreed with Sir Felix Semon as to the man's slowness of response, which was an important, though not necessarily a diagnostic, factor. He could remember three cases in which there was a previous history of laryngitis, and where there were the remains of catarrhal laryngitis at the same time as this condition of so-called functional aphonia existed. He also supported Sir StClair Thomson's warning about not overlooking any tubercular element. He had only seen one example of this class of case with undoubted tubercle of both vocal cords, and a suspicion of chest tuberculosis. The functional element might well be engrafted on an organic basis.

Mr. TILLEY said that with regard to Dr. Potter's case, he was convinced that it was a functional loss of voice, because the patient was able to adduct the cord when saying "E."

Mr. W. D. HARMER said he had seen several cases of this kind at the 1st London General Hospital. Two impressed him considerably; one was that of a Guardsman who was sent to France, and arrived near to the firing line, and then seemed to have been thoroughly scared. He developed functional aphonia, and was sent home. The other man was wounded just beneath the jaw by a bullet which passed from one side of the neck to the other, and he came back wearing a tracheotomy tube, which was soon removed. He had no paralysis of any nerves, and the wound healed rapidly. Both cases were treated with the greatest care, and for long periods, but without improvement of the voice.

Dr. DUNDAS GRANT wished to draw attention to the important remarks of Dr. Moure, of Bordeaux, who had had a large field for the study of the disorders arising from warfare. Dr. Moure said that "the men most often affected by bad weather or by the noise at the Front had almost always old auricular trouble, or present nasal or nasopharyngeal disability." This had also been very striking in the few cases which had come under Dr. Grant's own notice. He had under his care a young lieutenant with extreme neurotic disturbance and dreams amounting to most formidable nightmare. He had enlarged tonsils and a mass of adenoids. As soon as they were removed he improved with great rapidity. Another case was one of extreme deafness, but that was not in order to discuss here. When he was at Bordeaux he saw several cases of suddenly acquired deaf mutism, which seemed to answer to no other treatment except re-education. Some of them reacted very quickly to the slightest stimulation, but others had too profound a disturbance of the synapses. A gentleman was most patiently carrying out this re-education in Bordeaux, and Dr. Grant thought such treatment might be necessary in this country.

Mr. STUART-LOW said that he had had a number of cases of loss of voice in soldiers, most of whom were about to be sent to the Front, but others had experienced this after being in the trenches. In nearly every instance there were anatomical disturbances in the nose and throat—deviated septum, enlarged tonsils, adenoids, etc.—and on these being operated upon the voice soon recovered. Mr. Stuart-Low had always made it a feature of his teaching that electric treatment should not be undertaken in functional aphonia until gross obstructive conditions in the nose and throat had been removed by operation.

Mr. E. D. DAVIS said that two out of six cases he had seen were the subjects of functional aphonia grafted on to acute laryngitis, about which

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there could be no doubt. The aphonia persisted. In another type of case there was paralysis of the arytænoideus, and this seemed to be the most difficult to cure.

Dr. P. Watson-Williams said it was very important to differentiate between true functional cases and those which were pseudo-functional and really due to organic mischief and weakness. A typical case, showing the influence of the nose condition on the larynx, was that of a soldier who for ten weeks had "functional" aphonia, and was brought to the speaker in consultation with a view to intra-laryngeal faradisation. He explored the man's antrum, and found he had a latent antral infection with tenacious purulent secretion. This was washed out, and within two days the "functional" aphonia had disappeared. Many cases suspected to be purely functional, but which on investigation were found to be associated with incipient pulmonary tuberculosis, came into the same category.

The President expressed his agreement with Dr. Watson-Williams's remarks. Care should be exercised as to labelling as functional a condition which was a sequel of an organic lesion; there might be some arthritis or myositis remaining. These cases came up *apropos* the war, and it was irresistible not to think of two elements: one was shock, fright and concussion due to the war, and the other was malingering. These elements must be borne in mind in almost every case.

Dr. Coubro Potter, in reply, expressed his gratitude to members for giving their opinion on his case. Though he had examined the man a good number of times, he was still unable to make up his mind as to whether it was functional or organic. At first he thought there was injury to one of the nerves, possibly the superior laryngeal; but that day he certainly moved his cords better and showed his larynx better too. But that might be because the many examinations had taught him to make his best effort.

Group II.—Injuries of Neck involving Larynx, Trachea, etc.

Laryngeal Stenosis following a Bayonet Wound treated by Intubation.—E. D. Davis.—Private J——, who was wounded in the shoulder, received a second bayonet thrust in the larynx on October 13, 1914, and was taken prisoner. The lower third of the thyroid cartilage was apparently destroyed, and the Germans inserted a large tracheotomy tube on December 4.

When seen at Millbank on March 3, 1915, he was wearing a large curved cannula inserted through the larynx with an upward extension of $\frac{3}{4}$ in. (the cannula is shown). He could neither speak nor breathe through the mouth. He had to write everything down to make himself understood.

At an operation on March 5 a high tracheotomy was performed and the thyroid cartilage was exposed. The cannula was removed and its extension was found to be buried in scar tissue. The cavity of the larynx was discovered by passing an intubation tube from above. The alæ of the thyroid cartilage were separated by $\frac{1}{2}$ in. of scar tissue at least $\frac{1}{4}$ in. thick. A large gap about 1 in. wide existed between the larynx and the upper end of the trachea, in which the posterior wall of the trachea and larynx alone remained. A rubber drainage-tube was inserted from the tracheotomy tube below to the orifice of the larynx above, and the wound closed as far as possible, with the exception of the gap produced

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by the old cannula. The rubber tube was replaced later on by the intubation tube fixed by the midwifery forceps clip through the lower tracheotomy wound. The intubation tube and clip were described by Mr. Barwell in the *Lancet* on January 2, 1915 (a pattern is shown).

When the drainage tube was in position no difficulty was experienced in swallowing, but after the insertion of the intubation tube the fluids made the patient cough.

The patient, who speaks well in a loud whisper, and the various tubes, were shown.

Paralysis of the Left Vocal Cord.—J. F. O'Malley.—Case 1.—Private D——, aged twenty-three, returned from France in December, 1914, with slight shrapnel wounds of neck and head. On February 26, 1915, he came under my care with a history of having recently rejoined his unit, and being compelled during a route march to fall out, owing to dyspnœa, after walking a mile. He was voiceless for a fortnight following the injury, but speech returned and appeared to be quite normal since then. The healed scar of the skin wound in the neck was situated slightly to the left of the middle line, and opposite the upper border of the cricoid cartilage. The left vocal cord and arytænoid were immobile in the cadaveric position, indicating left recurrent laryngeal paralysis. The X-ray plate shows a piece of shrapnel which traversed the larynx and presumably injured the left recurrent laryngeal nerve. As dyspnœa is not a usual symptom of one-sided paralysis—although I have seen some cases in which it became marked on exertion—he was submitted to a very careful screen examination of the thorax by the X rays for a possible injury of the vagus or phrenic nerves, or other organic lesion. When at rest the heart-beats and vessels appeared normal, but the right half of the diaphragm moved sluggishly. He was then asked to run up and down the hospital corridor until a feeling of dyspnœa was forthcoming, and he was then re-examined by the X-ray screen. The heart still beat regularly but more rapidly, and the right half of diaphragm became active, both indicating stimulation, response, and full nerve control. The only unusual condition discovered was some enlargement of the bronchial glands. He has been invalided from the Army.

Case 2.—Private S——, aged twenty-seven. This case, although arising under conditions of warfare, cannot be strictly classed as a warfare injury, such as those due to shot or shell, but is one of some special interest, and is therefore included. He lost his voice in the trenches in France, and was invalided home. He had no previous attack, and had no cold at the time of onset. On examination his left vocal cord was found to be in the cadaveric position, and he could only speak in a whisper. There was no injury to account for the condition. An X-ray examination disclosed a small aneurysm of the aortic arch. The history of onset in this case is interesting in view of the fact that several cases of purely functional aphonia occur during the exciting stress of trench warfare. When contrasted with the previous case some noticeable points of difference arise in the symptoms. In both cases there was a lesion of the left recurrent nerve, followed by paralysis, the lesion being immediately followed by aphonia, which persists in the case of aneurysm but not in the case of injury, whilst the latter has, in addition, dyspnœa on exertion.

Traumatic Fixation of both Vocal Cords.—J. F. O'Malley.—Private V. W——. A shrapnel bullet entered at the lower border of the

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right inferior maxilla and traversed the neck from right to left; it was finally removed from the left supra-clavicular triangle. Aphonia was present from the date of injury. There was no history of hæmorrhage, dyspnœa, or dysphagia. On examination the cords were found to be slightly more adducted than in the cadaveric position, and this was observed on several occasions and was maintained throughout forced attempts at deep inspiration and phonation. No wound or adhesion was discovered in the larynx. This patient is now on furlough.

Injury to Larynx by a Horse's Kick.—W. Stuart-Low.—A driver in the Royal Field Artillery was kicked by a horse on the right side of the neck. At the time of the injury, and for some days after, he complained of pain in the larynx. He subsequently became very hoarse, and sometimes had great difficulty in speaking at all; this continued for a month, when he was sent to the hospital. The entrance to the larynx was found to be very congested and somewhat swollen, but felt quite soft when palpated with the finger through the mouth. The vocal cords were seen to be moved normally, but were very congested. Dry-cupping was applied over the crico-arytænoid and thyro-hyoid spaces on both sides of the larynx simultaneously. The vocal cords and entrance to the larynx could be seen in the laryngeal mirror to become quite pale, and the swelling lessened under the action of the suction. The voice at once improved, and, after a few applications, in the course of a few days returned to normal.

Shell Wound of Neck.—William Hill.—Private X——, who suffered from marked dysphonia, was seen on January 21 at Torquay Red Cross Hospital. A fragment of shell had passed transversely across the neck two months previously; wound at entrance and exit healed; thickening of alæ of thyroid cartilage and of soft tissues superficial to larynx. When first wounded he had coughed up blood. Mirror examination showed a tumour-like mass, mostly above and to the right of the anterior commissure, in the region of attachment of left ventricular band to the right ala of the thyroid cartilage; the latter had probably been fractured by the fragment in its passage transversely through the neck. A similar injury was reported at the February meeting of the Section by Mr. Buckland Jones.

Tracheal Obstruction due to long latent Cervical Abscess following Shrapnel Fragment Wound.—William Hill.—Captain S—— was wounded in October by a fragment of shell passing transversely through the neck. On arrival at Torquay about December 20 the wound of entry and exit had healed, but the patient had an up-and-down temperature and a recrudescence of pneumonia. There was evident narrowing of the trachea with expiratory stridor. When examined by Mr. Worthington on December 24 there was no laryngeal paralysis; though the tracheal narrowing caused stridor there was fair entry of air, and in view of the patient's weak and critical condition from pneumonia it was considered that tracheotomy would merely ensure a fatal result. The possibility of deep abscess either in the neck or in the mediastinum was considered, but there was no positive physical evidence of a cervical abscess. On January 20 I was asked to visit the patient, but before my arrival at Torquay a tracheotomy had to be hurriedly performed during the night by Dr. Payne for the relief of serious increase of dyspnœa. On incising the trachea a large intramural abscess (in the lateral wall of

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the trachea) under tension was struck; a Fuller's bivalve cannula was inserted. When I examined the patient two days later he was breathing easily through the cannula, but complained that it caused pain. I found that a Durham cannula was quite comfortably borne on account of its length being better adapted for a case in which the tissues of the neck superficial to the trachea were considerably tumefied. It was found that although the abscess had been evacuated, stridor returned on removing the cannula. The stridor, however, was now *inspiratory*, and on mirror examination there was seen well-marked abductor paralysis on the same side as the abscess; this latter was not observed when an examination was made by a laryngologist one month before. The patient's condition was not such as to warrant my making an endoscopic examination. [By coincidence this patient was shown at the meeting by Sir StClair Thomson, see below.]

Case of an Officer shot through the Larynx.—Sir StClair Thomson.—The injury resulted in complete stenosis, requiring tracheotomy. Restoration of the lumen of the larynx was effected. The patient is still under treatment with intubation tubes.

DISCUSSION ON INJURIES OF NECK INVOLVING LARYNX, TRACHEA, ETC.

The PRESIDENT, referring to this case, said he had previously seen the patient, and he thought the abscess was due to traumatic perichondritis and a necrosed tracheal cartilage, which was relieved directly tracheotomy was done. The abscess had been lying latent. The inflammatory thickening was now higher up than his notes led him to believe when he examined the case in January, and at that time there was no laryngeal paralysis, though there was now distinct loss of movement in one cord. In his other case the ala of the thyroid was fractured. A similar one was shown at a previous meeting by Mr. Buckland Jones, which, like this one, presented the appearance of a growth.

Sir STCLAIR THOMSON said he was not aware that the President had been connected with the case he (the speaker) had shown. These cases of stenosis of the larynx were very tiresome to treat. When this officer came, he had what seemed to be a web immediately below his vocal cords. One cord was more or less fixed, the other moved; but there was complete stenosis, and the patient breathed entirely through the tracheotomy tube. The history showed how the condition had spread up from the trachea into the larynx and subglottic tissue. It showed the wisdom of doing tracheotomy low down. High tracheotomy should be ruled out, except in cases of urgency. In this case there was a difficulty in finding a thoroughfare, but under direct laryngoscopy a passage was obtained. There was fair dilatation except at the last part. This dilatation was being attempted by long intubation tubes, suggested by Rogers, and used in this country by Barwell and E. D. Davis. As long as there was a tracheotomy tube in, the man bore his intubation tube quite well, but to dilate the last part the tracheotomy tube had to come out. He would be glad of suggestions as to whether the process could be persevered with, and as to methods of securing it by clamps, as described in the *Lancet* by Mr. Barwell early this year.

The PRESIDENT said that in this case he did not do the tracheotomy; it was done before he could get to Torquay. He could not say positively it was an intramural tracheal abscess. He gathered that Dr. Payne did

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not consider until he cut down that there was an abscess present in the trachea or elsewhere in the neck. He (Dr. Hill) imagined that the cartilage had necrosed, therefore it was likely that the cricoid was also involved in the abscess and in the perichondritis. The difficulties of making a diagnosis in such a case were very great without doing a tracheoscopic examination, and the patient's condition at the time contra-indicated that procedure.

Mr. HOPE said that apparently the reason the patient had the long tube out was that he began to get frightened; he wanted to cough, and thought that if he did he would cough the tube out; it was not that he had not enough air. He considered there was a difficulty in getting the clamps on. In the President's case it was a rubber tube, which kept the fibrous stricture open very well, and such might be of use to this patient.

Mr. HARMER said that he was now treating two similar cases with Schimmelbusch tubes, and both were doing well. The only difficulty was to get the upper segment of the right length, this requiring careful measurement in each case. The two portions were introduced separately, and afterwards fixed together by a screw. For cleaning it was only necessary to unscrew the cap and clean the outer part of the tube, as the inner portions were often free from mucus. The tubes were made of silver, and in some instances could be worn for a month without changing.

Dr. DUNDAS GRANT said that Thost, of Hamburg, had devised some ingenious plugs, which were adapted for introduction above the upper part of the tracheotomy tube; they were solid. He saw Dr. Moure using a very simple arrangement, namely, a thick piece of drainage-tube with a hole cut in the side, through which the tracheotomy tube was passed. The continuation upwards had the pliability of the india-rubber. Dr. Moure had five cases of laryngostomy since the war began. At the first stage of the operation he plugged with a "basket" of gauze, the whole smeared with oxide of zinc in vaseline 1 in 15. It was very easy to remove in two or three days, and later it was replaced by the tube above described. The softness of the rubber enabled the other part to be coaxed up into the larynx after the lower part was introduced with the tracheotomy cannula.

Dr. P. WATSON-WILLIAMS understood, from StClair Thomson's remarks, that in this case a high tracheotomy was performed, and asked why he recommended a low tracheotomy in such cases. A tracheotomy at the seat of the abscess seemed to favour drainage of the suppurating tissues, and rather helped manipulations in the constricted part of the larynx. His own experience was that vulcanite or metal instruments did not excite so much local reaction as india-rubber tubes, and he had not been favourably impressed with the use of rubber in inflammatory stenosis.

Mr. E. D. DAVIS said he had struggled with such a case at Millbank for two months. The man was wearing an intubation tube with Delavan's clip through a high tracheotomy. At first swallowing was difficult, because fluids entered the intubation tube. Since the tube was altered, the man swallowed much better. The clip was applied in the same way as midwifery forceps, first one blade, and then the other, through a large aural speculum. The man had had a huge German tracheotomy tube (shown) inserted into the larynx, and an extension tube projected upwards into the thyroid cartilage, but it went into scar tissue, not into the lumen of the larynx. The man could not then speak, but now he

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was wearing the intubation tube he spoke in a loud whisper, and was doing very well.

Mr. HOPE asked whether members would give their experiences with the large vulcanite intubation tubes. Several were sent down of enormous sizes, but on trying to use them the patients got perichondritis and fixation of the cord, with pain in the larynx.

The PRESIDENT said he had one such tube as Mr. Hope mentioned; but he lacked the courage to use it.

Sir STCLAIR THOMSON, replying to Dr. Watson-Williams, said this tracheotomy was excellently performed, and it was a low tracheotomy. This case showed the importance of doing a tracheotomy lower than was usual in all inflammatory conditions. When Dr. Hill saw it the larynx was clear, but when he (the speaker) saw it the cicatricial tissue was spreading up to below the cords. There was a great tendency for inflammatory tissue to contract in the subglottic region.

The PRESIDENT said the remarkable point about the case was that the abscess was latent for two or three months, and, when seen by Mr. Worthington, of Exeter, a month before the speaker saw him, the former said he concluded there was no definite evidence of abscess. The reason was that the tissues were so brawny after these wounds, even when they had healed up, and the patient being ill with pneumonia and looking as if he would not stand an operation, it was a difficult matter to advise exploring on the chance of finding a latent abscess. There was, however, such a latent abscess in this case, and the patient nearly died as the result of its not being diagnosed and dealt with more promptly.

Group III.—Injuries to the Vertex, Face, Jaws, Nasal Cavities, etc.

Bullet Wound in the Head.—J. F. O'Malley.—E. H——, a Belgian soldier, aged thirty. A bullet entered the vertex to the left of the middle line, about 1 in. in front of the surface marking for the fissure of Rolando, apparently traversing the left half of the brain and found exit from the skull by passing through the body of the sphenoid. It entered the nose by the roof of the left posterior nares, passed through the middle turbinate and inferior meatal floor, slightly injuring the inferior turbinate. It finally passed through the anterior part of the hard palate and floor of the mouth, the wound of exit being situated in the neck to the left of the symphysis menti and behind the horizontal ramus of the lower jaw. He came under my care several weeks after the injury and looked extremely blanched. There was a history of several recurrences of bleeding, which were at times immediately arrested by inserting gauze, soaked in adrenalin, for about 2 in. inside the left nasal fossa. At other times this packing was not effective, and slight oozing continued for hours. On examination, an adhesion of the left inferior turbinate to the meatal floor was seen, with a granulation area on the latter, which bled easily, but not profusely, when touched with a probe. On posterior rhinoscopy a ragged wound could be seen in the roof of the posterior nares, which I now believe was the source of much of the hæmorrhage. A post-nasal plug of gauze, squeezed out of adrenalin, was inserted against the posterior wound, and held in position by a stout silk thread passing through the nose, the latter being fixed externally to a piece of rubber tubing. This plug was left *in situ* for twenty-four hours. The bleeding ceased immediately and has not since recurred. His left

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antrum was dark on transillumination, and an X-ray examination showed opacity of this cavity together with that of the lower ethmoidal region (plate shown). The antrum was punctured and washed out, but the fluid returned quite clear. Organised blood-clot was probably the cause of the opacity. Lieut. Kiep, who examined his eyes, reported primary optic atrophy on the left side, with complete loss of vision. The bullet had apparently injured the optic nerve in its passage through the sphenoid. After the arrest of hæmorrhage he improved rapidly in colour and weight, and has now rejoined his regiment in the fighting line in Flanders.

Intranasal Adhesions.—J. F. O'Malley.—Case 1.—Lieut. M——. Some pieces of shrapnel entered below the patient's left eye, traversed the upper part of the left antrum, left and right nasal passages and septum, and lodged in the right pterygoid region, where they still remain. The left inferior turbinate had formed extensive adhesions to the septum, whilst a similar but less severe condition existed on the right side. The septum was markedly deviated to the left side, which, in my opinion, was a large factor in predisposing to the formation of the more extensive adhesion. I have noticed this influence in other cases also. On blowing the nose, he complained of air rushing into his left eye. The conjunctiva was injected. An X-ray examination showed opacity of the left antrum and destruction of the tip of the right coronoid process. The adhesions in the nasal fossa were divided, but rapidly re-formed on the left side, although rubber splints were used for six days. They were finally cured by means of a submucous resection. The antrum was punctured and found free from pus, organised blood-clot being the probable cause of the opacity to X rays and trans-illumination. The nose has healed perfectly, the eye symptoms have disappeared, and no further trouble is experienced in the lacrymal duct.

Case 2.—Lieut. P——. A bullet had entered the anterior half of the left eye and side of the nose, leaving a large stellate wound of exit below the inner canthus of the right eye. The latter was untouched, but the left eye was destroyed. As he reached hospital on the third day after injury, the intranasal œdema was still very marked and was allowed to subside, to ascertain the degree of permanent obstruction, before any attempt was made to look for or treat adhesions. After a fortnight the swelling subsided and the left passage was quite free, but an adhesion had formed in the right, above the inferior turbinate. This was removed by a punch forceps, which appears to me to be better than scissors in these cases, and there was no further trouble.

If no bones are displaced or no marked external deformity exists, calling for some immediate operative interference, I believe it to be sound practice to treat injuries of the nose on an expectant plan, although marked nasal obstruction may exist in the early stage. This obstruction is chiefly traumatic œdema, and will subside if no manipulations are permitted. I have had several cases of severe nasal injuries due to falls off horses and kicks from them in young soldiers learning to ride, and have come to the conclusion that the less interference in such injuries the better.

Bullet in Pterygoid Region of Skull.—Walter Howarth.—This case was not seen until eight weeks after the injury. At that time there was a purulent discharge from both nostrils with almost complete nasal

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obstruction and considerable swelling in the right parotid region. The chief disability was that the mouth could not be opened wider than 1 in., and that there was much pain in the region of the right temporo-maxillary joint. The point of entry of the bullet was in the cheek just above the left canine fossa. The left antrum was found to be disorganised and suppurating, and there were several adhesions between the outer wall of the nose and the septum. There was a ragged hole in the septum and in the nasal wall of the right antrum, which was also suppurating. At the first operation both antra were drained and several fragments of lead removed from the septum and right antrum; a large portion of the anterior wall of the right antrum was removed, but the bullet itself could not be reached by this route. The skiagram showed it as an horseshoe-shaped mass internal to the right temporo-maxillary joint and close up to the base of the skull. When the antral suppuration had subsided, the bullet was extracted by the external route. For this purpose a curved incision was made over the temporo-maxillary joint towards the external angular process, a portion of the zygoma was removed and the temporal muscle retracted forwards. The exploration was then continued through the sigmoid notch until the bullet was reached and removed. The conical point of the bullet was intact, but at the posterior end the casing was split and the lead mush-roomed out and bent round. Recovery was uninterrupted, and in a few weeks the power to open the jaws widely was regained.

Gunshot Wound through the Cartilaginous part of the Nose.—Sir StClair Thomson.—This injury led to almost complete occlusion; the airway was restored by submucous resection and division of adhesions.

Injury principally to Lower Face and Mandible.—H. L. Whale.—Special attention is drawn to a few remarkable cases.

No. 6801.—A man was shot through the neck in front of the sterno-mastoid, the bullet emerging on the opposite side of the face. It missed the internal carotid, although it tore the tonsil away.

No. 6317.—In another case, of which he showed the skiagram, the premaxilla was blown out, and now stuck out like a rabbit's jaw. It went back well, and stayed back, as shown by the second skiagram, taken after operation.

He had five cases of wounds from the nose down to the thyroid region, of varying severity.

One was open from the columella nasi to the thyroid. The lower part of the face and upper part of the neck were turned outwards like an open door, and the wound was large enough to admit the hand. The patient died in twelve days.

Another had a vertical wound from the inner canthus, through the antrum, into the mouth, so that it was possible to look directly into the spheno-maxillary fossa. It healed up, as most of them did after plastic operations.

In one case two incisor teeth were buried between the alveolus and the soft tissues of the chin. In another case a piece of jaw 3 in. long was turned completely round, so that the contained teeth pointed downwards.

In another case, which recovered with partial speech and fair swallowing-power, the jaw was so comminuted that both rami, from angle to angle, had to be removed.

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The following notes are a brief synopsis of the cases in order:

No. 978.—Bullet wound transversely through extreme posterior part of both antra. Practically no symptoms. Septum, ethmoid and sphenoid were all untouched owing to the slightly varying inclination of the vomer; this is only possible in certain skulls, not in all.

No. (?).—Vertical shrapnel wound from mouth to thyroid cartilage. Thirty-hour journey to base in train, during which time he fed himself through self-passed rubber tube. Recovery.

No. 7451.—Vertical shrapnel wound from mouth to hyoid bone. Extensive comminution of lower jaw. Plastic operation; drainage. Good result.

No. 298.—Both eyes destroyed by transverse shrapnel wound. Operation: Both ethmoids cleared out through double eyebrow incisions. Sent home well, but blind.

No. 6801.—Bullet wound: Entrance posterior border of left sterno-mastoid, 4 in. below lobule of ear; exit just above the angle of right lower jaw. Left tonsil partly torn away. Internal carotid artery untouched. Practically no symptoms.

No. 2473.—Shrapnel wound of left antrum; tetanus. Treatment: Subcutaneous injection of serum, large subcutaneous doses of 2 per cent. carbolic acid, and wound dressed with brine. Latent period was fourteen days. Recovery.

No. 7828.—Screw-top of time-fuse impacted in floor of nose, Removed by reflecting muco-periosteum from hard palate. Good healing.

No. 7746.—Shrapnel. Enormous gaping wound from columella nasi to thyroid cartilage; upper and lower jaws comminuted; recurrent hæmorrhage from left coronary artery. Fed through tube. Lived until the thirteenth day.

No. 6317.—Dislocation of premaxilla by bullet. Replaced (*vide* skiagram).

No. 5120.—Shrapnel wound of right antrum, making it possible to look directly into spheno-maxillary fossa. Plastic operation. Home with very ugly scar.

Discussion on Injuries to Head, Face, Nose, and Jaws.

Mr. Andrew Wylie remarked that neither Sir W. Milligan nor Major Westmacott had mentioned that the injuries incurred during the war were nearly always on the left side of the face, neck, and body. It had also been remarked that it was nearly always the left eye and the left limb (arm or leg) which were injured. This was explained by the position soldiers took to shoot or to use their bayonets, and nearly all the cases on the programme that day had had bullet wounds in the left side of the neck or face. Soldiers who had been shot in the right side had, as a rule, been retreating, and had naturally turned towards the right side.

Mr. O'Malley said he had only sent notes of his typical cases; he was sorry he could not send skiagrams. The point mentioned by Mr. Wylie had struck him also; all his own cases had been wounded on the left side of the face. With regard to bullets turning round, he had a very interesting case a few days ago, in which a bullet entered through the left ala and floor of the left side of the nose. He found a large wound between the hard and soft palate. X-ray examination showed the

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bullet lying transversely in front of the odontoid process. The interesting problem arose in this case as to whether the general surgeon should approach it through the neck, or should the nasal surgeon through the post-nasal route. In the end they did it in combination. An opening was made behind the sterno-mastoid, but it was the base of the bullet which was thus reached, and every time an attempt was made to free it, it seemed to move further away. He eventually delivered it by using his finger. The bullet was turned round as if it had entered sideways.

Dr. VINRACE desired to refer to a case which, though it occurred in civil practice, bore on the present discussion. A young lady was shot with a revolver pistol on the right side of the face, the bullet entering in front of the right external auditory meatus and emerging on the left side of the nose without causing any material damage. Healing took place in a very few days. A romantic aspect of the case was that after leaving the lady the bullet impinged the right shoulder of her lover, penetrated the cloth, passed down the lining of the coat, and was next morning brought by the gentleman in great triumph to the hospital.

Dr. DUNDAS GRANT said that at the hospital of "Val de Grâce," Paris, there were wards full of cases under this heading of the subject; they presented terrible disfigurements of nose, face, and jaw. With regard to the nose, he saw some of the stages of the operation practised by M. Morestin. The typical operation in some of the cases in which the nose was driven in and the nostrils turned up and looked forward, was to cut across just below the nasal bones and turn the upturned portion of nose downwards, leaving a large gap, which was stuffed with gauze. After a day or two india-rubber drains were put into the nostril, with weights attached to keep that portion of nose hanging down. M. Morestin then implanted a portion of cartilage from the eighth rib into the forehead, and in due course fashioned the upper part of the nose from the forehead, and brought it down on to the piece which he had originally detached. It was a combination of two previously described operations, and the result was a great improvement on the disfigurement which men would otherwise show. The passages of the nose were made quite free.

The PRESIDENT, in calling upon the authors of the opening paper to reply, said the experiences of members of the Section as set forth in the agenda, together with the subsequent discussions, would be of permanent instructional value for future guidance, and had been thoroughly justified.

Major WESTMACOTT, in reply, said the point made in the paper, that a bullet, if it were not doing harm, should be left *in situ*, had not been controverted. The patients under discussion were fortunate in not being septic when seen, as a rule. If any were septic, some peroxide of hydrogen and iodine had put them into a good condition to be dealt with by operative treatment. One case, which might have been mentioned in the paper, was that in which the whole of the maxilla was removed by a piece of shell, the lower jaw of the opposite side was also split at the symphysis and turned outwards, and the whole of the right cheek laid open. It had healed remarkably by trimming up and keeping clean. With regard to the functional question, their cases were purely functional ones, they were central rather than peripheral, and there was no ascertainable injury. In cases where there was injury to the cartilage of the larynx there was prolonged inflammation, during which time small pieces had necrosed away, but there was eventual healing.

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