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.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

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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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over which the discharge flows, is substantiated, to the extent at least that manifold extreme enlargements of isolated lymphoid glands of the laryngo-pharynx were found to have been excited and maintained in chronic form by infection with *Streptococcus hæmolyticus* derived from a spheno-ethmoidal discharge which contained the same organism. The fact is significant in connection with the modern conviction that rheumatoid, cardiac, and pyæmic diseases lead out from local foci of infection, as it shows the necessity of searching for the focus "higher up" than the tonsils, since tonsillar infection itself may be secondary to nasal sinus disease. It supports also the conviction that secondary infection is the cause of the gross hyperplasia of the follicles in the fossa of Rosenmüller, and of the lymphoid infiltration of the folds of tissue about the Eustachian tube, which are observed in connection with sinus discharge, and which lead to deafness by obstruction.

The term lymphoma is used synonymously with infectious lymphoid swelling. In size and shape they were not unlike clusters of large white grapes, ranged on each side of the laryngo-pharynx, where they filled the pyriform sinuses, overrode the arytænoids and encroached upon the lumen of the larynx. There were in all six separate and distinct growths arranged in three pairs. Each of the upper pair consisted of two lobes, one above, the other below the side of the epiglottis, and was attached to the pharyngo-epiglottic fold. The middle pair, somewhat smaller, was attached to the aryepiglottic folds, and the lower still smaller pair to the arytænoids; the latter suggests that other instances of slighter degrees of hyperplasia about the arytænoids, observed in sinus suppuration, and classed as chronic laryngitis, really represent secondary infection of the lymphoid glands by the sinus discharge which gravitates to that situation.

The faucial tonsils having been totally enucleated years before, would have caused the upper pair of lymphomata, only their upper lobes at first being visible, to have been mistaken for compensatory growths, were it not unprecedented for the isolated follicles in the laryngo-pharynx so late in life as fifty-four years of age, to develop spontaneously without definite cause into overgrowths so unusual in multiplicity, size and situation.

Meanwhile the microscopist reported: "A simple hyperplasia of lymphoid tissue corresponding to that of the tonsil. No evidence of malignancy." And the bacteriologist reported the presence in the tissue, in large numbers and almost pure culture, of *Streptococcus hæmolyticus*, the same organism which recently had caused endemics of severe acute infection of the throat and cervical lymphatic glands, and reported also that the spheno-ethmoidal discharge contained, among others, the same organism.

Nine months from the start the dyspnœa, choking spells, and impairment of voice required surgical relief, and all but the right one of the middle pair of growths were removed. But they soon re-developed, despite external exposures to the X rays.

It was in face of this discouraging prospect that hopes were centred upon autogenous vaccination. All other treatment was suspended, and despite the fact that one of the middle pair had not yet been removed surgically, it was now left to serve as a gauge by which to mark the efficacy of the vaccine. Its successful effect furnished practical confirmation of the infective origin of the growths. The result of the first dose was comparable only to that at which one marvelled in the early days of diphtheria antitoxin. The change commenced within twelve

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hours, with relief from irritation in the throat, and was marked within two days by a visible diminution in size of the lymphoma which had been let remain as a gauge, and of the large recurrent growth at the site of the first one removed. The further recession under bi-weekly doses was uninterrupted down to a practical and permanent disappearance of all the growths in about six weeks.

JOSEPH L. GOODALE: I am very much interested in this case, as I am reminded of one I saw several years ago, which I reported the following winter in Philadelphia, and which bears certain resemblances in this respect. A woman I was asked to see showed an enormous enlargement with induration of the left tonsil, the induration continuing behind the tonsil and without any sharp line of demarcation to the base of the tongue and down the vault to the larynx, rapidly increasing so that from the beginning of the symptoms to the time when I saw her it had produced actual dysphagia, and the question was whether we should do a tracheotomy or remove the growth, and in examination under ether the growth was found so extensive that we decided to let her come out. During the next week, although we had practically decided the condition was hopeless, we endeavoured to excite an autogenous vaccination by the injection of turpentine under the skin. That was perhaps the wrong thing to do. At the same time we gave her the *Staphylococcus aureus*. The result was that within three days she was able to swallow. Within a week she could breathe perfectly. This was in May; when I went away the last of June she had left the hospital, and examination showed nothing in the situation of the former growth. When I saw her again in the autumn the site of the growth was represented by a stellate cicatrix. She then disappeared from observation; I saw her last spring; she has been in perfect health, no difficulty of any sort, but at present there is not the slightest sign of lymphoid tissue in the tonsil fossa. It looks as though a complete and beautiful enucleation had been performed.

WILLIAM E. CASSELBERRY (in closing): The spheno-ethmoidal discharge during the course of the treatment diminished tenfold. It never was entirely eradicated, but it is now so slight in comparison that the patient esteems it as not one-tenth of its previous quantity. There has been no further treatment. With regard to the removal of the growths, the upper ones were done without a mirror, by extreme depression of the tongue with the patient's head directed upward, getting hold of the growth with a volsellum and pulling it up and getting the snare up. The fourth was done in much the same manner, but under the mirror. Grasped first with the volsellum under laryngoscopic observation, and then the snare put over it, also with laryngoscopy. The patient started to gag, the mirror was removed, and under traction the snare was drawn home. The others were simple enough to do without traction under laryngoscopic observation.

Radium in Papilloma of the Larynx in Adults.—F. E. Hopkins (Springfield, Mass.).—Dr. Clark's paper, read before the Association in 1905, brought out very clearly the tendency to spontaneous disappearance of papilloma of the larynx in children when the age of active growth has passed; but the tendency toward recurrence is more persistent, and is a more desperate one in the adult. Radium has been applied directly to the larynx in no great number of cases as yet, but with some positive cures reported. More than a single application may be necessary, and burns from too long exposure with consequent adhesions and contractions

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are possible. Caution is advised as to the length of exposure when a powerful tube is used, and a necessity for more than one application is to be borne in mind.

HENRY L. SWAIN: Dr. Abbe stated in New Haven recently, in speaking of the treatment of tumours by radium, that he had one case without recurrence after five years. It has occurred to me since I have been using suspension laryngoscopy, that we have in it an admirable method of exposing these papillomata over long periods to radium. The patient is hung up with an anæsthetic, and kept so comfortably for so long a period that we can radiate them at our pleasure. Dr. Mayer exhibited patients under suspension laryngoscopy. The other day I had a case hung up for over an hour with insufflation anæsthesia through the nose, breathing perfectly and without any after-discomfort.

D. BRYSON DELAVAN: Radium is especially applicable to superficial growths, and papillomata of the larynx are very frequently of this class, and should be susceptible to relief from the use of radium. Without some such help as suspension laryngoscopy, it is practically impossible to make an exposure of the radium for sufficient time to answer the purpose. I have had under observation for six or seven years a little girl, a case of Dr. Abbe's, whom I began to treat with him when she was about five years of age. I refer to the case, not because it has been an inveterate case of papilloma, but because the radium has not been as effective in this instance as in almost every other case I have seen, and I would particularly refer to one result—not of the radium treatment, but one which has followed in the case perhaps from influences due to the growth itself—that is, the distinct contraction, especially of the epiglottis; a contraction so marked as to be quite unusual. There still remains a large mass of papillomatous tissue at the base of the epiglottis, and the child is still able to breathe most of the time through the mouth, but is occasionally forced to resort to the laryngeal opening, which is kept packed. The contractures which have arisen are worthy of attention.

FREDERICK E. HOPKINS (in closing): I think I may fairly say that my conversation with Dr. Abbe makes me feel one can speak much more positively about the efficacy of radium than I felt warranted in stating from my own experience in my one case. He has used it for fully ten years, and has many cases of undoubted cure. The woman referred to, who was treated so long, has since died, but she lived for three years after the application of radium, dying with pneumonia, I believe, and during that period of three years she breathed comfortably, with no recurrence of the growth.

Septic Infection of Parotid Glands.—F. E. Hopkins.—Structure and anatomic relations account for the prominent symptoms attending great swelling of the parotid gland. Each intra-lobular duct is a branch of a subdivision of the main duct, so that if a septic infection results in closure of these ducts, drainage is impossible, and dissection of the gland becomes necessary. Many important vessels and nerves, including the facial, traverse or originate within the substance of the gland, making dissection difficult and dangerous. The gland lies in contact with internal jugular vein and internal carotid artery, and the pneumogastric, glossopharyngeal, and hypoglossal nerves; and pressure of the distended gland causes corresponding functional disturbance. Sugges-

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tions for treatment are early probing of Steno's duct and efforts to reduce inflammation, which, failing, dissection of gland becomes necessary.

A Case of Bilateral Blindness and One of Unilateral Scintillating Scotoma Cured by Operations on the Ethmoid Cells.—Hanau W. Loeb.—Case 1 was that of a boy who was practically blind, the vision being reduced to $\frac{1}{1\,9\,2}$ on the right side and $\frac{3}{1\,2\,0}$ on the left side. The sight had been gradually failing for three weeks. This was accompanied by severe supraorbital headache. Exenteration of both ethmoids was followed by complete restoration of vision within one week, improvement being gradual from the time of operation.

Case 2 was that of a girl, sixteen years of age, who had been suffering for two years from daily attacks of severe left-sided headache, with what she described as flashes appearing in her left eye. These attacks lasted for about five minutes, coming on without any apparent regularity during the day, and without any cause ascertainable on the patient. Exenteration of the left ethmoid resulted in complete cure, the patient having suffered only a mild attack on the day of the operation.

Dr. Loeb thinks that these cases, in which the ethmoid and not the sphenoid was at fault, may confirm his investigations on the anatomy of this region, to the effect that under ordinary circumstances the optic nerve is in close relation with the ethmoid labyrinth only at the postero-external angle of the last posterior cell. Where this relation exists, there is only the slightest possibility of any danger to the optic nerve in suppuration confined to the ethmoid cells. But when the last posterior ethmoid cell replaces the sphenoid, the optic nerve runs close to and along the external wall of this ethmoid cell (as in two out of thirty specimens studied), and the vulnerability of the nerve is correspondingly heightened in view of the greatly increased portion exposed.

Dr. Joseph H. Bryan: In my experience it is the posterior ethmoid cells which are most at fault at the juncture of the sphenoid, or the posterior ethmoid cell acting on the optic nerve as it comes through the canal. These cases where the wall between the sinus and the orbital cavity is very thin, naturally may be due to some pressure effect, but when distantly situated, with considerable bone between the cavity and the nerve, it is rather difficult to explain, unless due to toxins, and it is my belief that there is some transmission of the septic matter to the nerve tissues which bring about these changes.

Dr. John H. Barnhill: In a study of this question I came across a specimen which was unique. I could well believe that anything could happen to the optic nerve in a case of ethmoiditis posterior in such an instance. The specimen shows that the whole optic canal runs entirely through one of the posterior ethmoidal cells much as would a sewer drain run through the ground. It is attached at the base of the cell, and three-quarters of the circumference of that osseous tube runs directly through. It seems incredible, looking at the very thin bone which surrounds the bones throughout this half inch in length, that if this cell were filled with pus and the drainage impeded, such an eye would not be affected in some way, as Dr. Loeb has explained.

Dr. B. Alexander Randall: I have seen a good many of these cases, some of them of great interest; but all of these where the scotoma was scintillating, I have seen to be distinctly toxic in type and not dependent on anatomic relations. I have seen the blindness and fixed scotoma quite marked, with marked swelling of the optic nerve.

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Dr. Hanau W. Loeb (St. Louis), in closing: Ethmoid disease is more common than sphenoid disease, and when the latter sinus is affected the ethmoid is also, especially in the acute conditions. I found in these anatomic studies that the last posterior ethmoidal cell at its postero-external angle came the nearest to the optic nerve. Knowing, as we do, that the orifice of that is low down and almost always empty of pus, with that slight relation it would not affect the nerve to any considerable extent, even if it is possible for the nerve to be affected by nearness. However, in two cases out of the thirty specimens, this nerve, instead of having that relation on account of the ethmoid cells being pushed back over the sphenoid, ran along the posterior ethmoid cell and along its lower portion, and was in a far more vulnerable position than before. Onodi has ascribed to the toxic condition the cause of optic troubles, or to the veins. Toxic conditions can act more accurately under these conditions than when distant. The anatomic relations of these structures have shown that this condition obtains.

Too Optimistic Rhinology.—B. Alexander Randall (Philadelphia).—Important, often essential, as is rhinology to laryngology and otology, it is often inadequate, and must be supplemented by strictly ear treatment in ear cases, where exhaustive diagnosis may show other conditions, such as nerve deafness, outweighing the catarrhal phases. The aurist sees many cases harmed rather than helped by rhinologic treatment alone. "It is a narrow and distant view of the ear that is gained with the throat mirror only." The catarrhal process originating in the nose and naso-pharynx may be impossible to cure unless these be put in order; but may progress unchecked, or at least persist, despite the best work here. Deafness sometimes clears up after adenoid removal; but "signing the pledge will not cure a hobnail liver."

Intrinsic Cancer of the Larynx; Complete Excision Apparently Effected by Endolaryngeal Operation.—Sir StClair Thomson (London).—The treatment of intrinsic cancer of the larynx by laryngo-fissure is remarkably satisfactory. The writer never lost a patient by operation, and 80 per cent. have remained free from recurrence; similar results were secured by Semon and Butlin. Thomson records his first case of endolaryngeal cancer that he has treated in a woman, aged fifty-three, hoarse for eight months. The right vocal cord, from the anterior commissure back to the vocal process, was replaced by a reddish cauli-flower growth, interfering somewhat with the movement of the cord. Under cocaine, with a large Mackenzie forceps and the indirect method, as large a piece of the cord as possible was evulsed. It proved to be epithelioma. Some time later anæsthesia was induced by intravenous infusion of ether and hedonal. Laryngo-fissure; removal of the right cord ventricular band with their perichrondrin, together with the vocal process of the arytænoid cartilage. Examination of this mass showed no evidence of epithelioma, indicating that the entire diseased mass had been removed at the first operation.

This writer concludes:

(1) Cancer of the vocal cords in the early stages is strictly limited and very slowly progressive.

(2) Diagnosis is based chiefly on inspection of the larynx. Where the growth is superficial and not infiltrating it can be confirmed by microscopic examination.

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(3) The growth may be completely removed endolaryngeally, even when it occupies the entire length of a vocal cord.

(4) Laryngo-fissure is the operation of choice in all cases of endolaryngeal cancer, is not a dangerous operation, and offers the best prospects, because the disease remains superficial and limited for a time, and finally there is a lasting cure in 80 per cent. of the cases. The value of indirect laryngoscopy is strongly insisted upon as being far gentler than the direct method, and it is hoped that the rising generation of throat surgeons will continue to practise the indirect method.

The anæsthesia given in the case cited, while perfectly ideal from the operator's point of view, gave much anxiety subsequently, as it was difficult to rouse her for twenty-four hours after. In recent cases he has returned to chloroform.

Dr. CHARLES W. RICHARDSON: The laryngo-fissure claims to have its origin from Dr. Sanger of Berlin, but the first I heard to mention that manner of removal of laryngeal growth was Dr. J. Solis-Cohen. Whether he is the originator of it he can tell us. One case which I have had is now five or six years without any recurrence. Most of my others have had recurrence, but, singular to say, only one of recurrence *in situ*. There were secondary developments in other portions of the body to which they have succumbed. I have had two this winter—one that I operated on in the latter part of November or December—and as I had to go down quite far into the cricothyroid membrane in order to insure absolute removal into normal tissue, there has resulted some stenosis. This has been intensified by the fact that I had a hæmorrhage at the end of operation; not a very severe one, but a persistent oozing in the lower corner between the arytænoid and the lateral wall of the thyroid cartilage requiring opening up of the wound and watching of the hæmorrhage for some little time. As a last resort, I had to use chromic acid, which also produced considerable softening and necrosis of the left wing of the thyroid cartilage, which no doubt has produced this stenosis. He is wearing an intubation tube, and is perfectly comfortable without any recurrence, but is so distressed at his inability to get rid of the tube that he has gone to consult some of my colleagues at Johns Hopkins. The second case of this year was identical with the first, and there was an identical hæmorrhage which was controlled much earlier than in the first case. After I had controlled the hæmorrhage and waited about half an hour, I returned to the man to see if he was perfectly safe to leave, and I found that he did not seem to recognise me, or show any interest in anything. In picking up his hand to feel his pulse I noticed the left arm was apparently inactive, and testing further I found the left arm and leg both inactive; the right side was free! Three or four days later he died from his hemiplegia; no *post-mortem* was obtained. He was a man of seventy years, and probably this was a natural sequence in such a case. All of my cases I have operated on without primary tracheotomy, simply laryngo-fissure according to the technique suggested by Cohen, splitting the larynx and making the muco-perichondrial separation so far back as the growth extends in every direction and cutting off the mass.

Dr. J. SOLIS-COHEN (Philadelphia): I have done a number of these operations and have never seen a recurrence. I learned to split the larynx from our old member, Ephraim Cutter. I saw him in Boston take out a large epithelioma in 1867. This man lived for twenty-five years and died of apoplexy. My operation differs a little from his. I cut down, make the incision through the perichondrium all around the growth,

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and then with a blunt elevator lift the parts up. Then with a curved serrated scissors the whole mass is taken up, perichondrium, mucous membrane, and growth, and the growth itself is not touched at all with any instrument. I have done preliminary tracheotomy in my earlier operations, but I have done one or two cases without. I prefer preliminary tracheotomy because I think it is well to get the patient accustomed to the use of a tube in case this becomes necessary later. All my operations were performed under chloroform. I heartily endorse the conclusions that have been presented in the paper, both as to the ease with which certain classes of growth are removed by intra-laryngoscopic method, and the conclusions that have been arrived at by the writer. Hæmorrhage has been insignificant in my cases.

Dr. Emil Mayer: As a new contribution to the question of anæsthesia I would like to call attention to the anæsthesia proposed by Gwathmey of the injection of ether into the intestinal canal, producing a perfect anæsthesia, the excess being drawn off after the operation. This is still in its infancy, but is very well spoken of, and it may be possible that in this we have a newer method of producing anæsthesia, avoiding the necessity of a preliminary tracheotomy, and operating under ether.

Dr. D. Bryson Delavan: Again, I am proud and happy to know that America is still in the lead, but as to the subject of thyrotomy it is necessary to mention the name of Clinton Wagner, whose cases in the eighties show a comprehension of the subject and success in relation to it which is deserving of recognition to-day. With regard to the recurrence of malignant disease in these cases after operation, it is quite true that recurrence is unusual, yet I have seen several cases in which it has taken place. There is one case in particular, of primary epithelioma of the epiglottis, in which the disease was apparently far and widely removed, in which the patient lived for nine years without recurrence, then it took place and he succumbed. The fact that recurrence does not take place in many cases cannot insure the patient against it. It seems possible to me that where it should take place is in the cases that have not been appreciated as of the severe type, or else that the operation has not been thoroughly performed, but in the main the experience has been such as that stated in the paper and by Dr. Cohen.

Dr. T. Passmore Berens (New York City): I wish to lend emphasis by referring to this case of Sir StClair Thomson. He said he had removed his growth entire by the indirect method. In a case that I reported about six or seven years ago, at the same time Dr. Richardson had his, I also removed the cancer entire by the indirect method. There was so much induration following the operation that I did a laryngo-fissure and hemilaryngectomy, removing the whole wing of the thyroid. The growth I found during the laryngo-fissure proved to be simply inflammatory. The cancer itself was removed by the indirect method. The man has made a perfect recovery. A patient should be prepared for operation by being taught to lie on his stomach, well over toward the side of the bed, with his elbow on a chair, and taught to swallow upward, This has added greatly to the comfort of the patients, and, I believe, also to the quickness of their recovery.

Dr. Greenfield Sluder: I would like to add a final word in the form of a plea for the indirect method. I personally regret exceedingly to hear it spoken of as a lost art.

Dr. Harman Smith: I think we are indebted to StClair Thomson

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for giving us the history of this peculiar and interesting case. It is not always that our foreign confrères are willing to submit to our consideration and discussion their most important and unique cases. This is a comparatively young woman, removal by the indirect method, although an accident, being complete in its character, recurrence of a granuloma, which to the majority of us would simulate a recurrence of the growth, his absolute faith in the pathologist that it had been removed thoroughly, not losing his head and removing the large mass which recurred, all these points seem factors that stand out prominently in the history of this case.

Dr. JOHN E. MCKENTY (New York): It seems to me, so far as my experience goes, that in small unilateral growths of the larynx laryngo-fissure is sufficient, but where the growth is at all progressive or extensive, or growing fast, I am in favour of removing, not only the growth, but the cartilage underlying it, either taking a wide section out of the larynx or doing a hemilaryngectomy. I do the tracheotomy and the hemilaryngectomy at the same time, and in that way may probably be going against the experience of others, as it is generally considered better to do the tracheotomy first; but if done through a small incision just above the suprasternal notch, and the laryngectomy through an incision which does not connect with the fissure below, there is not much trouble. Another point, to prevent inhalation pneumonia, is that after doing the hemilaryngectomy I pack the trachea tight down upon the tube with vaselined gauze impregnated with bismuth, then I use a small drain into the larynx brought out at the lower corner of the laryngo-fissure wound. In that way the larynx is drained of secretion, and this secretion is prevented from getting into the lung and causing pneumonia. I do not believe the position in bed is sufficient to prevent this when the larynx is closed after hemilaryngectomy. The drainage is removed from the larynx in two days, and the gauze packed down on the tube is removed also, and the intubation tube taken out four days after the operation. I have had four cases prior to the two recent ones, of which I will not speak, in which the patients made excellent recoveries, and have been able to talk in a loud whisper. I think we ought to be very proud of the fact that Dr. Solis-Cohen has opened the way of doing laryngo-fissure, and has given us this excellent operation in cancer of the larynx. Anything that will avoid total laryngectomy is a godsend. I saw in a clinic abroad two years ago thirteen total laryngectomies, and the patients were, in many instances in a pitiful condition. The operations were all successful so far as the immediate result was concerned—the Gluck operation was done—but the pathetic condition of the patients struck me that life would hardly be worth living after a total laryngectomy, and if we can get results by an early operation, such as Solis-Cohen and Sir StClair Thomson have told us of, we will be very glad to adopt these methods instead of the more radical ones.

(*To be continued*).

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