the layer of fibrous tissue found in the corresponding situation on each of the symmetrical bodies removed from the otherwise healthy knee-joints of a young man by Mr. Holden, quoted by Mr. Howard Marsh.⁶ It can scarcely be supposed that this tissue would have been formed upon a surface separated by necrosis from the articular end of a bone. This remarkable case is to some extent paralleled and probably elucidated by that reported in the *American Journal of Medical Sciences*, October, 1848, in which two oval flat bodies weighing, one 283 grains, and the other 257 grains, and measuring $2\frac{1}{8}$ inches by $1\frac{1}{8}$ and $\frac{3}{4}$ in thickness, and the other $2\frac{3}{8}$ inches by $1\frac{1}{8}$ and $\frac{3}{8}$ in thickness, were removed from the knees of a man, aged 43, who recovered from the operations and was able to walk with perfect ease. That these bodies were of synovial origin is rendered probable from the statement that he had swelling and severe pain in the knees when he was 17; and three years afterwards he found a movable body just above the right patella, and, after a short interval, a similar body in the left knee. A cast of these bodies in the College of Surgeons' Museum shows them to have been uneven on the surface.

In the case carefully described and figured by Klein,⁷ where two bodies, each composed of a layer of cartilage and a layer of bone, occupied a fossa in the outer part of the internal condyle of the femur, the idea of their having been separated from the articular surface is negatived, first, by there being two bodies; secondly, by one of the bodies still retaining its connection with the synovial membrane, thus indicating its origin; and, thirdly, by the cartilaginous coverings extending over the smooth edges of the loose bodies, upon their applied surfaces beyond the deeper level of the surrounding articular cartilage. This last point—the extension of the cartilaginous covering in a smooth manner over the edge of the loose body on to its applied surface, between that surface and the bony surface of the cavity of the condyle—may, I think, be taken as a proof, in any case, that the loose body has not been separated from the articular surface either by necrosis or direct force, but that it has been formed independently, and that, by friction and pressure upon the condyle, it has rubbed a cavity in it, and has been more or less completely deprived of its cartilaginous covering on one side. If this test be applied, it will, I think, be found to indicate the improbability of detachment by necrosis in most, if not all, of the instances with regard to which that view has been entertained. It does so in the cases just mentioned, as well as in the second case represented by Mr. Teale in the *JOURNAL*, May, 26th, p. 1109 (which specimen I have had the opportunity of seeing), where there were two loose bodies, one of which retains attachment to synovial membrane; and another loose body in the same specimen shows well the usual effects of rubbing on one side. It does so in the instance represented by Cruveilhier,⁸ and often quoted as an example of a loose body detached from the articular surface. It does so, as far as I can judge, in the case of the loose body (No. 947 or 647) in the College of Surgeons, referred to by Mr. Howard Marsh, which also looks as if there were some remnants of cartilage upon its bony, or applied, surface. In the specimen in St. George's Museum (III, 140), which has been elsewhere referred to, the loose body is not apparent; but the cavity which it occupied in the condyle is in the situation into which, as I have before said, bodies formed into the adjacent part of the synovial membrane are liable to intrude themselves.

Mr. Bernard Pitts showed me a specimen in St. Thomas's Museum, in which from the under part of a condyle of the femur, in each of two knee-joints of the same person, a flake of cartilage, about a quarter of an inch in diameter, appears to be in process of separation, and its flocculent deeper surface is still connected by threads to the fossa in the cartilage from which it is being detached. The patient was under 30, but the effects of rheumatic arthritis are shown in the extension of the articular margin, and in a slight villosity of the synovial membrane, also in fibrous or velvety degeneration of the articular cartilages, especially in the neighbourhood of one of the separating fragments; and it seems probable that the separation of these fragments was being brought about by a modification of that change in the cartilages which is so common in rheumatoid disease. This view derives confirmation from the presence of cartilaginous bodies, such as I have mentioned, in the synovial membrane. In what number these existed,

and whether any of them were pendulous in the joint, is not now apparent.

The conclusions, then, at which I arrive are:

First: Although I am not aware of any instance in which a portion of articular has been detached by a blow, yet in two cases (Simon's and Teale's) this appears to have resulted from a violent wrench. In each case the loose body so formed was removed by operation.

Secondly: In none of the instances that I have read of, in which the formation of a loose body has been attributed to necrosis, does the evidence of such process appear to me to be satisfactory. The resemblance in structure of certain of these bodies to articular bone and cartilage as an argument in favour of that view, and it was perhaps the strongest, is, in a great measure, set aside by the discovery that this resemblance exists, also, in loose bodies formed in the ordinary way, namely, by synovial outgrowth; these being found in microscopical characters and general features much to resemble portions of articular bone and cartilage. They may, however, be distinguished by one or more of the following features. 1. The presence in greater or less amount of fibro-cartilaginous or fibroid, as well as cartilaginous tissue in the body. 2. The imperfect denudation of the bone upon the rubbed down, or applied, surface of the body, so that remnants of cartilaginous or fibro-cartilaginous or fibroid tissue are found there. 3. The varying thickness of the cartilaginous covering, which in some parts may exceed that of normal articular cartilage, and its extension over the rounded edge of the body, to a greater or less extent, upon the circumference of its applied surface. 4. The knotty outline of the osseous nucleus and the imperfection of its bone-formation. 5. The size of the loose body being greater than that of the cavity in the condyles, so that it rises above the level of the surrounding articular cartilage. The presence of any one of these features renders a derivation from the articular surface very improbable; and the combination of two or more of them renders it almost impossible.

THE TREATMENT OF PHARYNGEAL CATARRH.

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ACUTE catarrh of the naso-pharynx is usually associated with a similar condition in the nose or lower pharynx, and therefore the general treatment will be the same as for the latter, though local treatment for the space is indicated. The most prominent symptoms to be alleviated are increased secretion, which is exceedingly troublesome, especially at night, preventing sleep from dropping down into the pharynx; ear complications, if they exist; and, from swelling and hypersecretion, more or less obstruction to the breathing, especially so if the nose be implicated. The troublesome secretion may be conveniently removed with a tepid three-quarter per cent. solution of common salt, ammonium chloride, or sodium bicarbonate, or with a 2 to 4 per cent. solution of borax or boracic acid injected through the nose with a two or three ounce india-rubber ball-syringe. The head is held slightly backwards, the ball-syringe gently compressed, and, when the patient feels the fluid at the back of the nose, he throws his head forwards and allows it to run out at both nostrils. In the same manner the solution may be poured from a spoon or other suitable vessel. If the head be held forwards, the syringe must be more firmly compressed, in order to force the fluid through and out at the other nostril. After syringing, the nose should not be blown for at least a quarter of an hour, to avoid the risk of the fluid being driven into the ear and setting up inflammation.

Another method, which I introduced some time ago, and from which I have obtained good results, is the employment of a solution of from 15 to 20 per cent. of menthol in olive oil. This fluid is poured from a spoon or injected with a fine syringe through each nostril, the head being held well back, so that the fluid passes into the back of the throat and bathes the pharynx. Half a drachm of a 20 per cent. solution, injected through each nostril, is the amount I generally employ. Besides exerting an anti-catarrhal and anæsthetic effect, menthol has the power of stopping a purulent or muco-purulent secretion. The flow of watery mucus which is induced washes out the muco-purulent secretion, the use of the pocket-handkerchief therefore being necessitated

⁶ *St. Bartholomew's Hospital Reports*, vol. iv, p. 256; and this *JOURNAL*, April 14th.

⁷ *Virchow's Archiv*, xxix, 190.

⁸ *Anatomie Pathologique*, livraison 9, Pl. 6, Fig. 3, and copied by Bardeleben, *Chirurgie*, ii, 637, Fig. 87.

afterwards. In doing this the patient will feel the vapour being driven up the Eustachian tubes; and this, indeed, will be beneficial, especially if an ear complication be present or threatened. The fluid, coming in contact with the nose and lower pharynx, either or both of which are usually associated in the inflammation, exerts its beneficial influence in these situations. The same medicament may be carried into the naso-pharynx by means of a brush; and, if tubal or middle-ear complications exist, the brush laden with the substance should first be applied to the sides over the Eustachian orifices, and then to the other parts of the space. By this treatment the heavy headaches and the dry feeling and pain in the upper part of the pharynx are relieved, and I have more than once seen an acute suppurative inflammation of the tympanum, which has had its origin from catarrh of this space, thus cut short in its career. The powder described for the chronic form of the disease may also with advantage be insufflated into the naso-pharynx in the acute stage, or pinches of the same may be taken into the nostrils and drawn back into the throat.

When we consider the continuity of the lining membrane of the Eustachian tubes with that of the naso-pharynx, and that even the application of a catheter to the Eustachian orifice causes congestion of the drumhead, it is not to be wondered at that a catarrh of this space often spreads to, or affects, the tubes and middle ears. Nay, how often do we see it affect a neighbourhood still more remote—namely, the external auditory meatus—where a blockage of the cerumen often occurs, due to its increased secretion and to evaporation of its watery constituents through the hyperæmia occasioned! In some cases the inflammation spreads to the middle ear and sets up acute catarrh or a suppurative inflammation, while in others the tube or only its orifice may be affected. When once the middle ears and tubes have been involved there is usually a predisposition to their being re-attacked in a subsequent inflammation. In these cases I have found iodised steam also to be of the greatest value. Thirty minims of equal parts of tincture of iodine and acetic ether are placed in a pint of steaming water, and the steam inhaled for ten or fifteen minutes, the vapour every now and then during the inhalation being driven up the tubes by the Valsalvian method of inflating the ears. It is of the utmost importance to pay strict attention to any ear complication that may arise, as these repeated catarrhs lay the foundation of insidiously progressive chronic change; and this is the more likely to occur in persons of less robust constitutions. After the acute stage is over, the patient should be Politized for a short period; or, if the air do not enter freely by this method, the Eustachian catheter should be employed. By this means the tubes will be opened up, the tympanum ventilated, and the hypersecretion dispersed, thus removing conditions which favour a slowly advancing catarrhal process.

According to Wendt, an acute catarrh of the naso-pharynx is nearly always present in croup, diphtheria, erysipelas, and several of the exanthemata; and as there is a special proclivity for an acute catarrh of this space to pass over into the chronic form, the convalescence from these diseases would be with advantage spent by the sea-side, as I have seen this condition completely disappear from such a change, especially in individuals of debilitated constitutions, but without material impairment of the digestive and assimilative organs.

An acute inflammation of the pharynx may be general or localised to different parts. The tonsils, one or both, are very frequently affected, and may be the principal condition that calls for treatment in the attack. The inflammation may only attack the superficial parts of the mucous membrane, forming a simple catarrh, or, on the other hand, it may involve the deeper tissues (phlegmonous pharyngitis), giving rise to more local and constitutional disturbance, and requiring more energetic treatment. In the January number of the *Edinburgh Medical Journal*, I pointed out the great benefit I had been deriving from the use of menthol in acute catarrhal pharyngitis. A 25 per cent. solution of it in olive-oil, or, preferably, vaseline oil, should be copiously applied to the parts and will be found to relieve the pain and dysphagia, and shorten the duration of the attack. (The Chesebrough Company send out a semifluid preparation, "vaseline oil," which is a powerful solvent of menthol, and being free from taste, neutral in reaction, and possessing the mollifying virtues and prolonged contact-action of vaseline, I prefer to use it in all cases where menthol is used as a pigment. This substance becomes perfectly fluid at a temperature of about 70° F., and is practically solid below 48°. All solutions of menthol in this solvent below 33 per cent. at ordinary house-temperatures in winter may be easily applied with a brush.) When the deeper

parts of the pharynx are involved the pigment should be applied deeply with a bent brush, and if the catarrh has spread to the larynx, trachea, or bronchi, indolaryngeal injections of the same medicament (15 to 30 minims of a 15 per cent. solution in olive oil) may with advantage be employed. In the more superficial attacks of inflammation, astringent lozenges—for example, catechu, tannin, or rhatany—will often be found sufficient; as also painting the throat with a pigment of equal parts of glycerine of tannin and glycerine of borax, or gargling deeply with a drachm of the same in a small glass of water.

Schech recommends chlorate of potash in follicular ulceration. Chlorate of potash should not be prescribed in supersaturated solution, as the excess of chlorate, though in fine powder when sent out, rapidly assumes the crystalline form when subjected to a varying temperature. This is due to part of the powder being taken into solution when the temperature rises, and being precipitated in the form of crystals when the temperature falls, and to the fact also that, on a further increase of temperature, the finely levigated salt is again attacked in preference to the crystals last formed. Mr. J. Rutherford Hill, who pointed this out, suggests that chlorate of potash be prescribed in the form of powders, from which gargles could be extemporised by the patient himself as occasion demanded (*Pharmaceutical Journal*, January 26th, 1884). If the ulcerations, follicular or otherwise, persist after the attack is over, they may be made to heal more rapidly by the careful application of a strong solution of nitrate of silver, or the medicament may be applied in the solid form. Tannin, borax, and chlorate of potash are also useful when the secretion is excessive. B. Fraenkel recommends the use of quinine in doses of at least fifteen grains every twelve hours for adults, and less for children, especially in tonsillitis lacunaris; and by this treatment the symptoms, according to the same author, usually disappear with a critical sweat in from twenty-four to thirty-six hours. One should be careful, however, to proceed cautiously with this drug in children, and where ear complications exist, as the experiments on animals by Hammond and observations on the human subject by Roosa show that congestion, and possibly further changes, occur in the ear on taking large doses of quinine. In lacunal tonsillitis, the patient should be isolated, not only on account of the probable contagious character of the disease, but also on account of the fact that diphtheria can, for a time at least, manifest itself as such.

Fluids should be frequently sipped, especially when gargles are not employed, to prevent the secretion from drying on the pharynx, and increasing the disagreeable feeling in the throat. In the milder forms, wet compresses around the neck will give relief; while in the severer forms of the inflammation, ice to suck and iced applications to the neck are more effectual. When there is pain in the joints or muscles, salicin or salicylate of soda should be administered, and in cases of high fever antipyretics—for example, antifebrine; but if the presence of any of the exanthemata—for example, scarlet fever and measles—which are often associated with ear inflammation, be suspected, the use of quinine as an antipyretic is here contra-indicated.

The catarrhal inflammation may take on a phlegmonous character, or the latter may occur primarily in a person predisposed to phlegmon; or, again, it may occur during some of the exanthemata, from injury, etc. The tonsils (phlegmonous tonsillitis, or in common parlance, the deep form of the inflammation), peritonsillar connective tissue (peritonsillitis), and soft palate are the most frequent sites of this inflammation. Guaiac, prescribed by M. Mackenzie in the form of lozenges, has a specific action on this form of inflammation. B. Fraenkel administers it as an abortive agent in simple angina and in tonsillitis lacunaris "as soon as the phlegmonous redness in the neighbourhood of the palatal arch and the characteristic pain in swallowing point to the transition to peritonsillitis." A few lozenges—those of the Throat Hospital Pharmacopœia are the best—may be taken one after the other till the pain is relieved. Guaiac probably exerts a local as well as a constitutional effect. Sucking ice and iced applications about the neck relieve the pain and mitigate the inflammation, while gargling with warm solutions, inhalations, and hot poultices around the neck promote suppuration. Painting the pharynx with a strong solution of menthol is also valuable in the deep as well as in the more superficial forms of the inflammation, especially in the case of the tonsils. If suppuration has occurred the site of the abscess should be determined by the palpating finger, or by means of a probe, and this will be found in the case of peritonsillitis mostly

through the anterior pillar, though it sometimes points through the posterior pillar, causing bulging in this situation. The abscess is opened by means of a pharyngeal bistoury, and when it points through the anterior pillar the bistoury is made to enter on its upper and inner side, about one-third of an inch deep, and carried downwards and slightly outwards for about a half to three-quarters of an inch. If there be a great amount of pus present the abscess should be opened carefully, and the patient be made to hold the head forwards directly the incision has been made, so as to allow the pus to escape through the mouth, and prevent its entrance into the larynx. If pus be present and not reached on the first incision, renewed incision or incisions should be made till it is evacuated, otherwise the agonising pain, which suddenly disappears with the evacuation of the pus, will be only slightly and temporarily relieved. Even if no pus be present scarifications in the oedematous parts are indicated to relieve the pain and check the attack. Brushing the parts with a 20 per cent. solution of cocaine two or three minutes before incising greatly diminishes the pain of the operation. The abscess should be kept open for a short time by daily probing, and by the frequent use of warm gargles of glycerine of borax, tincture of myrrh, or Condy's fluid. Occasionally it happens that the patient is unable to open his mouth sufficiently wide to allow of such an incision, and in these cases B. Fraenkel recommends a puncture to be made in the velum in the neighbourhood of the anterior faucial pillar. The slight bleeding which ensues relieves the patient so much that he is now able to open his mouth sufficiently wide for the proper incisions to be made. Painting with anaesthetics—for example, menthol (Rosenberg) or cocaine, will only in a very slight degree effect the same thing, their anaesthetic action being entirely local and superficial, and having no effect on the infiltrated bucco-pharyngeal fascia, and the consequent pain behind the jaw, which is at once relieved by incisions. Abscesses occurring in the tonsils (tonsillitis abscedens) and closed crypts should be opened in the most prominent part, the symptoms being at once mitigated. If the patient be too nervous to allow incisions to be made, the suppuration should be hastened by medicated inhalations, warm gargles, and hot poultices, and the bursting of the abscess effected by emetics, or better still, by painting the throat with cocaine or menthol to relieve the pain, and enable the patient to eat when the pressure exerted during deglutition will cause rupture of the abscess if it be ripe. Tonsillotomy is indicated in those cases where both tonsils are simultaneously involved in a phlegmonous process if asphyxia be threatened. The larynx should be examined, as it is in this form of inflammation that oedema sometimes occurs at its upper part, in which cases, as also in bilateral peritonsillitis, tracheotomy should be performed if symptoms of asphyxia be present. If the patient be unable to swallow, or if the food find its way into the larynx, nourishment should be administered by the rectum. Abscesses occurring from the pus burrowing in various directions should be treated on general surgical principles.

Angina occurring during syphilis should be combated principally by constitutional treatment, but the dysphagia, if severe, may be relieved by a pigment of menthol, and mucous patches brushed with strong solutions of chromic acid or nitrate of silver, or touched with the solid form of the latter. E. H. Fenwick highly extols for this purpose lozenges made by Messrs. Christy and Co., containing papaine, $\frac{1}{2}$ gr.; cocaine, $\frac{1}{2}$ gr.; potass. bicarb., $\frac{1}{4}$ gr., the ulcerations beginning to skin over and heal after a few lozenges have been taken. The papaine may also be applied with a brush in the form of a paste. "Mix papaine with a small quantity of water so as to form a thin paste, add a little bicarbonate of potash, and brush ulcers with the same thrice daily."

The general treatment of these acute pharyngeal conditions consists in keeping the emunctories active, and the removal of any exciting cause, for example, sewer gas, etc. The diet should be light but nourishing. Rest in bed should be enjoined where any one of the exanthemata is threatened, or where there is high fever present. The administration of morphia in small and frequent doses is very effectual in controlling the circulation and mitigating the severity of the attack. When the inflammation assumes a somewhat sthenic form, with considerable fever and a pulse of high tension, aconite will be found useful, one or two minims of the tincture being given every half-hour till the pulse is softened. As there is sometimes a tendency for the acute to pass into the chronic form of the inflammation, the employment in the subacute stage of the iodine pigment formulated below is advisable. Against the recurrence of these attacks, the ob-

servance of a good hygiene must be enjoined, together with the prevention of undue exposure to cold and damp, especially of the feet. Chronic enlargement of the tonsils and thickening of other parts which predispose to exacerbations must be removed in the manner described under chronic inflammation.

The treatment of chronic naso-pharyngeal and concomitant middle ear catarrh should go hand in hand, the latter disease, in the majority of cases, being dependent on the former. It is by the careful treatment of the acute condition that we, to a great extent, prevent aural disease, and by the treatment of the chronic condition that we often materially aid in the improvement of the aural condition, and prevent its onward progress. The Eustachian tubes which are often found in a swollen condition, and not performing their proper function, should be catheterised, by which means the muscles acting on the tube are stimulated to action, and a massage to the orifice of the tube effected. Of late I have been employing menthol in those conditions where there is swelling and hypersecretion of the lining membrane of the tube, and have been doing so by three different methods, a 20 per cent. solution of the drug in olive oil being used in each case. First, in the form of vapour. A few minims of the solution are run or injected into a catheter, and then blown through and out at the other end, where any free fluid is wiped away. The catheter is now ready for introduction, and when *in situ* by blowing through it in the ordinary manner, a strong vapour of menthol is carried into the ear. By employing this medicated vapour in tubal and middle ear catarrh, I have achieved quicker and better results than by air alone. Secondly, after the employment of the Eustachian catheter, I inject from twenty to thirty minims of the solution through each nostril, the patient's head being held well back, so that the fluid runs into the throat, and then afterwards cause the patient several times to drive some of the menthol vapour through the tubes, by performing Valsalva's method of inflating the ears. The patient on whom I first practised this was suffering from attacks of a loud distressing tinnitus in both ears, with subjective pulsations in the left ear, and had been treated for two or three months in the ordinary manner with the Eustachian catheter, but with little or no improvement. By the time the patient again presented herself (three days after the application) the distressing tinnitus had entirely disappeared, and the pulsating tinnitus had somewhat diminished. The latter continuing, however, notwithstanding the removal of morbid changes in the neighbouring parts, (namely, hypertrophies of both inferior turbinated bodies, with the galvano-caustic point, large hypertrophy over anterior end of right middle turbinated body with galvano-caustic snare, and thickening of and granulations over lateral bands and granulations on upper surface of soft palate and sides of naso-pharynx with galvano-caustic point and chromic acid), and as there was a thickening of the lining membrane of the tube leading to a certain amount of stenosis, I resorted to the use of bougies (celluloid). The smaller bougies effected but little by way of improvement, but when a bougie of large size was introduced for a depth of two centimetres, and left in for about ten minutes, the pulsations entirely disappeared for a week. The use of bougies was continued twice weekly for a few weeks, the pulsations now being only occasionally and very indistinctly heard. Thirdly, a few minims of the solution are injected into the catheter while *in situ*, and then blown on into the tube with a Politzer's bag. If there be only a slight amount of swelling present the bag should not be too firmly compressed, and this, if we wish to localise the action of the fluid to the tube, should be especially observed after the application of large bougies, as fluids then very readily pass into the tympanum. I have, however, injected this solution right into the tympanum with imperforate membrane without any harm following. The first and third are the methods I now employ, and allow the patient at home to drive the vapour up the tubes for himself according to the second method when the visits are infrequent. The second method is also indicated when there is catarrh of the naso-pharynx present. For chronic thickening leading to Eustachian obstruction it is well to combine the employment of bougies (too little practised in this country) with the use of menthol, whereas for simple swelling the latter alone will suffice.

In chronic naso-pharyngeal catarrh associated with catarrh of the Eustachian tubes and middle ears, ammonium chloride vapour also answers well, especially in those cases where the patient is unable to allow the catheter to be passed frequently enough, and also in those cases where, during an exacerbation of the naso-pharyngeal catarrh, the hearing becomes worse. The vapour is

drawn into the mouth and expelled through the nose, while at intervals during one of the daily inhalations, which last about ten minutes, it is driven into the tympana by the Valsalva experiment. The vapour may be rendered more efficacious by dropping three to five minims of pine oil (*ol. pini. pumilionis ver.*) on to the sponge of Godfrey's new instrument, which is perhaps the best and most convenient form of ammonium chloride inhaler.

For swelling of the lining membrane of the Eustachian tube Politzer cauterises the mucous membrane of the naso-pharynx above, below, behind, and in front of the Eustachian orifice. A vulcanite catheter with small curve is introduced, containing a concealed wire, on to the end of which the cauterising agent has been fused, and when placed in the various situations the wire is pushed out at the other end, and the different places round the orifice thus cauterised.

For the removal of the hyper-secretion, which may be of the dry or moist form, and which is very troublesome in chronic naso-pharyngeal catarrh, injections through the nose may be employed, which not only for the time being remove the troublesome symptoms of hawking, etc., caused by its presence, but by the medicaments they hold in solution have a curative effect on the condition. At the same time the topical administration of other remedies to be hereafter described may be practised. Thus the method with the solutions described for removing hyper-secretion in the acute form of the disease with the ball syringe is very convenient in the chronic form also. The irrigator, English nasal douche, Weber's douche, or, when the surgeon employs it himself, the ordinary syringe, may be had recourse to when more force is required or a greater amount of fluid to be used, as in the case of adhesive crusts. (It is preferable, however, where adhesive crusts are present to use frequently an agent, for example, the snuff formulated below, which causes a flow of the natural secretions, and so brings about a softening of any inspissated secretion whereby its natural expulsion is facilitated). The stream should be directed straight backwards, and if there be an inequality in the divisions of the nose the fluid should be allowed to flow in through the narrower nostril. The head should be held slightly forwards and downwards, and the breathing carried on quietly through the mouth, any attempt at swallowing or speaking in the meantime being prohibited. The fluid used should not be simple water, as such has a disagreeable and somewhat irritating effect on the nasal mucous membrane. A 2 to 4 per cent. solution of boric acid (or borax) will cause a diminution in the hyper-secretion, though in the moist form of hyper-secretion it acts better insufflated as a powder. A solution of a few drops of tincture of iodine in water sufficient to make it light red in colour answers well in a scrofulous diathesis, and also where atrophy is present. Aceto-tartrate of aluminium, a drachm of a 50 per cent. solution in a pint of water, also is valuable, especially in cases of atrophy (Schäfer and Lange). Argilla acetica—10 per cent. solution—according to Politzer has proved efficacious in a few cases where a whole series of other drugs has failed.

The daily insufflation into the naso-pharynx of the following powder in catarrh of this space is a valuable application: *R* Menthol (in fine powder) ʒss; ammon. chlor. ʒjss; P. acid. boric. ʒj; *M.* Pinches of the same may be taken frequently into the nose in the form of snuff, and drawn back into the throat, this method being especially indicated where there is atrophic rhinitis (*ozæna*) also present.² After insufflation of this powder the patient experiences an unusual amount of freedom in breathing from removal of secretion and from subsidence of erectile swelling of the spongy tissue over the posterior ends of the inferior turbinated bodies, which latter is frequently associated with this condition. Iodoform (*B. Fraenkel*) aceto-tartrate of aluminium (Schäfer and Lange) are also useful, especially in atrophy. Twenty-five to 50 per cent. of either may, if desired, be combined with the above-mentioned powder, or the iodoform may be used pure. According to *B. Fraenkel* iodoform restores new vigour to the atrophic membrane, rendering it more succulent, and causing a diminution in the formation of crusts; and its action extends over a considerable time, as in the naso-pharynx it is not subjected to movements which displace it. The use of an oily solution of menthol (20 per cent.) injected or poured through the nostrils and allowed to run into the throat is also serviceable, and the patient may be allowed to perform this for himself.

Nitrate of silver—a half per cent. solution—in the form of a spray, is an excellent remedy for this affection. A von Troeltsch's spray is used for the purpose, the nozzle of the instrument being

in turn introduced into each nostril past the anterior third—the reactionary part according to Urbanschitsch—and only enough fluid is sprayed till the metallic taste of the silver is felt in the mouth. The application should be made daily, or at least every second day, for a few weeks, and the strength of the solution may, if tolerated, be gradually increased to one or one and a half per cent.

Brushing the naso-pharynx daily, or every second day, with the iodine pigment, formulated below, will also be found to be of great service.

Thickenings on the vault and posterior wall of the naso-pharynx may be removed with the naso-pharyngeal curette (see woodcut); while granulations may be destroyed by chromic acid or, preferably, by the galvano-caustic point. The posterior ends of the turbinated bodies are frequently hypertrophied in this affection; and when so the hypertrophy should be destroyed. In such cases I usually operate from the naso-pharynx, and cause the patient to brush his throat frequently with a menthol pigment for a week or a fortnight before the operation. The frequent brushing causes the pharynx to become tolerant and allow of the passage of instruments into the naso-pharynx without contractions of the soft palate. The operation may be still further facilitated by brushing the naso-pharynx with a 20 per cent. solution of cocaine. The patient then depresses his own tongue with a Türk's speculum, and, under the guidance of the post-nasal mirror, the burner is conducted and the desired points cauterised. If the posterior end of either inferior turbinated is to be operated on the patient should be made to take a deep inspiration through the nose just at the moment the burner is being placed on it, and this will usually be found to secure a deeper and better view, on account of depression of the soft palate. Occasionally, however, it happens that the throat does not so easily acquire sufficient tolerance to allow instruments to be passed into the naso-pharynx; or, again, the naso-pharyngeal space may be very small. In such cases a piece of fine thin india-rubber tubing may be advantageously employed. The tubing is passed through one nostril to the back of the throat, then brought out at the mouth and the two ends tied round the canine tooth of the opposite side. By this means it is caused to run obliquely across the upper surface of the soft palate, which is drawn forwards fairly equally from the posterior wall, thus allowing any part of the naso-pharynx to be operated on with equal facility. Any twisting in the tube, caused by the "worming" process through the nose, should be undone before it is tied, so as to allow it to lie flat on the upper surface of the soft palate. If the patient be very sensitive two or three drops of a solution of cocaine may be injected through the nose and allowed to run back on the upper surface of the soft palate previous to passing the tube. For this purpose the use of a palate hook may also be had recourse to, but this requires the aid of an assistant. For operating on the naso-pharynx and posterior ends of the turbinated bodies Schroetter's burners are by far the best, and render the operation a fairly easy one. They are covered with vulcanite, and besides conducting less heat back from point and irritating the mucous membrane less than the ordinary burners, they are not pliable, and the point of the instrument can therefore be placed on any desired spot without the shape of the instrument being in any way altered. The precision with which one can work by this method gives it a great advantage over operations from the front. In operating with the galvano-caustic point by anterior rhinoscopy any hypertrophy on the front part of the inferior turbinated body must be first destroyed, and the hypertrophy on its posterior end thus arrived at by a mining sort of process. When the galvano-caustic snare is employed the end of the loop should be bent outwards, and when *in situ* the current is turned on for a few seconds before closing it, according to the method laid down by Felix Semon. The tissue is in this manner grooved by the heated wire, and when traction is now made the loop is prevented from slipping off. When hypertrophy of the posterior end of the middle turbinated co-exists with hypertrophy of its under surface it can often be conveniently removed by means of the galvano-caustic snare from the front, the loop of the snare used for the purpose being a fairly large one. When the nose is permeable enough swellings or granulations in the naso-pharynx may, if desired, be cauterised with the galvano-caustic point, or caustics carried on the end of a probe through a Zaufal's nasal speculum, this method being oftener employed by aurists. The bursa pharyngea, according to Tornwaldt, is sometimes diseased, being cystic or the seat of a localised catarrh, and emitting a stale-smelling, mostly purulent, secretion, capable of

² Vide January number, *Edinburgh Medical Journal*.

being traced to the orifice of the bursa, from which it extends down the posterior wall of the pharynx in the form of an adherent streak. Throat irritation, sometimes of a distressing character, is thereby induced, while catarrh of the neighbouring parts and even reflex neuroses may be attendant upon the condition. When such is found to exist the cyst should be destroyed by caustics, preferably by division with the galvano-caustic knife, and in the more frequent cases of mere catarrh by the introduction of the galvano-caustic point into the bursal cavity.

As the naso-pharynx forms a good lodgment for any irritant particles, a dusty and contaminated atmosphere should be avoided, especially by those who have a catarrh of this space. If so exposed, however, the employment of some form of medicated nasal injection at night should be had recourse to, as on account of the anatomical conditions of this space little means is afforded for the natural expulsion of any foreign matter there located. Snuffing and the puffing of smoke back through the nose should be prohibited. Tonics and a change to the seaside will also effect much.

For the removal of "adenoid vegetations"—a disease the importance and prevalence of which was brought before the notice of the profession by Wilhelm Meyer—many instruments have been introduced. When the hyperplasia is of small degree the exhibition of tonics, for example, iron, iodine, etc., may be had recourse to, with the hope of causing some involution of the process. Pieces of the vegetations, when soft and few in number, may be torn away with the finger-nail, and it is always well when posterior rhinoscopy is inconvenient or impossible to make a preliminary examination with the finger to determine the amount and the principal site of the growths before performing any operation. Some employ an artificial finger-nail of steel, but such is not to be recommended. The employment of caustics or the galvano-caustic point is a slow and tedious process. When the vegetations project into the posterior choanae, and can be seen by anterior rhinoscopy, they may be removed with a snare through the nose. The cold snare suffices, as the growths are then usually soft and easily torn away. This is the least painful process, and by its repetition we may often re-establish breathing through the nose. The instruments which I prefer to operate with are A. Hartmann's curette, Gottstein's knife, or the curette (Fig. 1) which I have

Fig. 1. One-fourth the actual size. The fenestra is larger and more oval than here indicated.

constructed on the same principle as the latter, with special adaptation to the naso-pharyngeal space. This instrument is introduced into the mouth, passed up behind the soft palate, and then by depressing the handle the end is made to touch the septum nasi. When in this position it is pushed up to the vault of the naso-pharynx in the median line, the end being kept well forward, and by raising the handle at the same time and pushing backwards and then downwards, the vegetations are pared off from the vault and posterior wall. A fair amount of pressure should be communicated with the instrument during the operation, as the success to a great extent depends on this. Like Gottstein's knife, this curette is so constructed as to be free from danger to the Eustachian tubes, and nothing but hypertrophied tissue is brought away. It may also be used for all degrees of hyperplasia. The operation is performed with the greatest ease, and only lasts a few seconds. Only one size of the instrument is necessary, as in the case of a large naso-pharynx the movement above described may be gone through to a little on each side of the median line. A larger size of it, however, may, if required, be had from the makers (Gardner, of Edinburgh, and Mathieu, of Paris). Directly the operation has been performed the patient should be made to bend the head forward, and spit out the vegetations and blood into a basin. The bleeding, which should come from the nose as well as the mouth, soon ceases spontaneously, though at the same time the patient may be given ice to suck, or ordered to take an ice-cream after the operation. Sometimes the hypertrophy thus removed is in one piece, and resembles an enlarged tonsil. Should the patient complain of a choking sensation, or a feeling of a foreign body in the throat, the pharynx should be inspected for loose pieces of tissue hanging down, which occasionally occurs when the vegetations are very tough and the instrument is blunt. When such occurs the piece is caught hold of with an ordinary pair of forceps and removed.

A Hartmann's curette is introduced through the mouth into the naso-pharynx, and the vegetations scraped away by a lateral movement of the instrument from each side towards the middle line. This instrument, like that of Lange, which it somewhat resembles, has the advantage of removing vegetations from the lateral wall when they exist in this situation. The appearance, however, of vegetations springing from the sides of the naso-pharynx is, according to Trautmann, deceptive, their point of origin being at the roof of the space. With this instrument the operation is more painful than with the former, but it is, however, very efficient in its action. Only one operation is usually necessary with any of these three instruments if it be thoroughly performed, and the surface left is more even than after the employment of forceps. With the post-nasal forceps without chloroform one generally requires to have several sittings, though the operation is not very painful. The instrument with closed blades is introduced through the mouth into the naso-pharynx, pressed against the vegetations, when the blades are opened and closed. In this manner the vegetations are torn or cut away from any desired part.

There are many varieties of forceps, Löwenberg's or Woakes's modification of it and Schech's being mostly used in this country. After the use of this instrument, Schech advises that the walls of the pharynx operated on be pared down with a ring knife, while Hooper uses the ball of the finger and the finger nail for this purpose. Other instruments, such as Just's spoon or Trautmann's modification of it, Meyer's ring knife, etc., have their respective advocates. It is well to enjoin rest in bed for a day after the operation, and, if necessary, to combat any feverish symptoms with iced applications to the head, ice to suck, etc.

A co-existing suppurative middle-ear catarrh should, of course, be treated simultaneously; but the use of the air douche, if indicated, should be suspended till the wound caused by the operation is healed. To relieve the pain of the operation, a few drops of a from 10 to 20 per cent. solution of cocaine may be injected through each nostril, the head being held back in an almost horizontal position for a minute or two; or the solution (20 per cent.) may be carried into the naso-pharynx by means of a brush. With the instrument I employ the administration of chloroform or ether is quite unnecessary, though there are some operators who frequently employ these anesthetics. Thus Hooper, of Boston,² records a series of 104 cases of children ranging from twenty months to fourteen years of age, in whom the operation was successfully performed, in each case at one sitting, under the influence of ether. The instrument used in these cases was the post-nasal forceps, and the growths were considerable in amount. In the event of the coexistence of "adenoid vegetations" and hypertrophied tonsils, which sometimes occurs, the extent of the hypertrophy and the severity of the symptoms caused by either should be taken into account in determining the operation first to be performed.

The treatment of chronic pharyngitis depends on the presence or absence of much hyperplasia. When hyperplasia to any extent is present, the use of the galvano-cautery (to be afterwards described) should be resorted to. For simple chronic pharyngitis with swelling or diffuse but only superficial thickening, as also when pain, paræsthesia, or hyperæsthesia coexist, I use the following pigment: R Menthol Zss ; camphore Zss ; iodi gr. vi: ol. vaselini ad Zi . M . The camphor may be replaced by thymol (gr. xv to gr. xxx) or chloral hydrate (gr. xxx), each forming an elegant preparation for application with a brush. The pigment should be applied once or twice daily; but if the amount of iodine is increased—which may be done up to half a drachm to the ounce—the applications should be less frequent. When hypersecretion is present, daily and systematic gargling will be of much service. The fluid—salt and water, or otherwise medicated—is taken into the mouth, the head thrown back, and the movements of swallowing gone through, but without swallowing the fluid. If there be hypersecretion of the naso-pharynx also, the fluid may, after the gargling exercise, be expelled through the nose, which can by practice be effected by closing the mouth and suddenly throwing the head forwards. For fetid or stinking pharyngitis the menthol-thymol formula will be found especially applicable, while a thorough change to the seaside, tonics, etc., should be insisted upon. When the tonsils are only slightly or superficially enlarged the iodine pigment formulated above may be employed; but when the hypertrophy is more extensive, especially when it occurs in children, and when frequent attacks of

² Boston Medical and Surgical Journal, March 15th, 1888.

acute inflammation are induced, or when respiration through the nose is interfered with, the voice altered in its resonance, deglutition rendered difficult, or the hearing involved, they should be removed. The best instrument for their removal is the guillotine, and the best variety of it I know of is one I introduced into this country, and modified in several particulars (Fig. 2). This

Fig. 2. One-third the actual size.

instrument is extremely simple, and yet very efficient and easily worked. A fork precedes the blade, and, entering the tonsil, drags it from its bed. The tonsil, thus being put on the stretch, is far more easily excised by the after-coming blade, which, moreover, has its cutting power increased by being hollow-ground. The fork is a clever adaptation by Reiner of a principle first suggested by Velpeau, while some of the other parts of the instrument are similar to Physick's instrument. When the handle is pulled back into the position ready for use, the fork lies close against the instrument, and is thus entirely removed from the possibility of doing harm. The instrument is then introduced transversely, with the flat surface downwards, and the tonsil got well into the aperture at its end, so that the fork may get sufficient grip of it. This latter precaution may be easily effected by pressing outwards with the instrument, and should be specially observed if the tonsil be not much enlarged. The blade is now pushed home with the thumb, and the operation completed. The instrument, according to my modification, is made by Gardner, of Edinburgh. A smaller size of it may be had from the maker, and will be found more convenient in very young children, though I have always been successful in removing tonsils from the youngest patients with the ordinary-sized instrument, one of the modifications being specially adapted for this purpose. Also, in those rare cases where the tonsil is so excessively enlarged that it cannot be drawn by the fork wholly through the aperture, at the end its removal may be effected by two applications of the instrument.

I have still further modified Mackenzie's modification of Physick's guillotine by causing the blade to be made hollow-ground, and inserting into the slit at the end of the ring a soft metallic substance against which the blade cuts. By this means its efficiency is greatly increased, and those who already possess this instrument may have it modified as above, by Gardner, of Edinburgh. The removal of the tonsils by means of the bistoury can only be properly effected without chloroform in those patients who can "hold" sufficiently well, and the operation by this procedure is more difficult, painful, and in ordinary hands less complete, than with the above described tonsillotome. When, however, the tonsil is irregularly and only very slightly thickened in the transverse diameter, the volsella with the galvano-caustic snare, or preferably the bistoury, may be used. The galvano-caustic snare gives more pain than ordinary cutting instruments. The bistoury may also be preferred where there is extensive calcification of the tonsil, and for those who prefer this method for their removal, the following observations may be of use. The tonsil is seized with a volsella and pulled inwards towards the median line, while it is excised from above downwards with a blunt-pointed bistoury, by a sawing movement, care being taken to avoid cutting the pillars of the fauces. When it is cut about two-thirds through the traction exerted on it by the volsella should be upwards as well as inwards, so as to bring the lower part of the tonsil well up into view and away from the tongue and faucial pillars, and render its more complete removal easy. This precaution, if observed, will lessen the risk of cutting away the lower part of the faucial pillars, and at the same time the lower and often somewhat obscured part of the tonsil will be effectually removed. With a view also to avoid cutting the tongue, the bistoury at this stage of the process may be placed below the tonsil, and the remaining portion cut from below upwards. Where the tonsils are soft or riddled with abscesses, they may on an emergency be torn away with the finger, forefinger preferably placed above and behind the tonsil, and pieces remaining may be caught hold of and twisted off by forceps (Borelli). The bleeding, on gargling with cold water, usually ceases within a few minutes after any of these cutting operations, but if there be continued

oozing afterwards, sucking ice or application of styptics, for example, perchloride of iron, and, according to M. Mackenzie, sipping a half drachm of the tanno-gallic fluid of the Throat Hospital pharmacopoeia at intervals, will arrest the hæmorrhage. Dr. Felix Semon³ has recorded two cases of serious hæmorrhage, met with for the first time in an experience of several hundred cases of tonsillotomy, and which resisted the above-mentioned methods of arresting hæmorrhage. In one case the bleeding was parenchymatous, and digital pressure here also only made matters worse. The patient was then put to bed and kept absolutely quiet, when the hæmorrhage spontaneously ceased, about two and a half hours after the operation. In the other case the hæmorrhage was arterial, probably from an abnormally large branch of the tonsillar artery, and was arrested by direct digital pressure to the bleeding point. In neither case was the hæmophillic diathesis present, but both were adults; the former 23, the latter 46 years of age; which, together with the fact that most of the other cases of serious hæmorrhage lately reported have occurred in adults, seems to show that hæmorrhage is due to vascular changes in the glands, as such is more likely to be present in adults than in children. In both these cases Mackenzie's tonsillotome was the instrument employed for their removal.

To relieve the pain and dysphagia which follow for a few days after the operation I have found great relief given by painting the throat with a 20 to 30 per cent. solution of menthol in vaseline oil. For this purpose also M. Mackenzie recommends marsh-mallow lozenges, which form a coating over the wounded surface. When patients refuse excision of the tonsils or in the hæmophillic diathesis, or, according to Semon, where the tonsils—however large and however productive of serious consequences—are entirely concealed behind, or only little projecting beyond, the palatal arches, searing the surface of the tonsil with a flat galvano-caustic burner may with advantage be employed; but if there be much tonsillar tissue to be destroyed, a pointed burner may be used, and made to enter the substance of the tonsil also. Some employ Paquelin's thermo-cautery for this purpose. The operation generally requires to be performed several times, and is therefore rather tedious. Cicatricial tissue is deposited in the site of the eschar, and, as such, is more resistant than ordinary mucous membrane covering the tonsil.

For the treatment of granular pharyngitis the galvano-caustic point (Michel) is the most efficacious, each granulation being in turn destroyed with a burner having a small knob at its end; but if they are crowded together the burner may be slowly drawn over them. Chromic acid (Hering) also acts well for this purpose, but the cauterising effect of this agent is more superficial than that of the galvano-cautery, and the application often requires to be repeated. For this purpose chromic acid is best applied in the form of a bead fused on to the roughened end of a probe. The end of the probe is put into the flame of a spirit lamp for a few seconds, till it is sufficiently heated for crystals of chromic acid to adhere to it, and with which it is then brought into contact. The probe with the crystals adhering to it is then reintroduced into the flame, held there till the crystals begin to melt, and then manipulated so as to form a bead on the end of the probe. The bead so made should be of a reddish-brown colour. If the colour be otherwise, the chromic acid has been destroyed from overheating and is useless. After its employment a gargle should be employed to wash away the excess of the acid used. A solution of bicarbonate of soda neutralises the free acid, and, if much pain be complained of, should be employed as the gargling agent. Nitrate of silver is less effective than chromic acid, and may also be used fused on to the end of a probe. These operations may with great advantage be followed up by the employment of the menthol-iodine pigment. The administration of tonics and a complete change will be found to exert a favourable influence on granular pharyngitis; while any exciting cause, either local or general, should be particularly sought for, and if possible removed.

Hypertrophy of lateral folds is best treated with the galvano-caustic point, which should be thoroughly applied. Any form of suitable burner answers the purpose, but, whatever form of burner be used, care should be taken that the conductors of the burner are well insulated and kept separate up to its point, otherwise the current is expended before it reaches the end of the instrument. When the battery is somewhat exhausted, or in the case of a weak battery, only thin and finely-pointed burners—for example, a piece of platinum wire bent on itself—can be satisfac-

³ St. Thomas's Hospital Reports for 1882 and 1883.

torily heated; but care should be taken not to burn too deeply with these fine-pointed instruments, as hæmorrhage may be produced. In diffuse hypertrophy I resort to tapping all over the affected part with a fine burner, the part afterwards presenting a number of small white eschars. The soft palate may be conveniently pushed out of the way with a laryngeal mirror, etc., when its movements impede the operation, or when the higher parts of the pharynx are to be cauterised. Certainly nothing, in my opinion, is so effectual and attended with such gratifying results as the galvano-cautery. Schech sometimes excises the lateral bands with a knife when they are hard and thickened.

There is generally a certain amount of reaction after these operations, and the more so the more extensive the operation. It is always well, therefore, to enjoin rest in bed the same day, and, if the operation has been fairly extensive, to give one or two doses of morphine afterwards. Subsequent pain or inflammation may be relieved by sucking ice and the application of 25 to 30 per cent. of menthol in vaseline oil.

Uvulotomy may be practised when the uvula is hypertrophied and elongated, and giving rise to a constant but ineffectual swallowing, tickling and irritation in the throat; and also in those extremely rare cases where, owing to its being sucked into the larynx during sleep, attacks of suffocation are induced. The end of the uvula is seized with a pair of forceps, put slightly on the stretch, and a small but sufficient portion removed with scissors or bistoury. Sometimes there is considerable subsequent angina, which may be combated by sucking ice and the application of a pigment of menthol. This operation, however, is often abused, and in doubtful cases of throat irritation and hacking cough, other possible causes of these symptoms should be first excluded.

In the employment of cocaine for the removal of pain in pharyngeal operations, it is best to use the drug in a fairly concentrated solution—for example, 20 per cent. The brush should not be overlaid with it, as an unnecessary amount increases the risk of producing some of the disagreeable symptoms which cocaine, when concentrated, may produce. Thus I have frequently seen attacks of retching, vomiting, faintness, with copious sweating, and in a few cases syncope, and have recourse to strophanthus, with spirits of ether or sal volatile, when I see symptoms of faintness coming on. It is better rather to make two or three applications of a very small amount of the solution, and to rub it well into the surface to be operated on, as so doing materially aids the substance in producing anæsthesia. The surface application of a less than 15 per cent. solution of cocaine is not very effectual for operative procedures. Merck's hydrochlorate of cocaine is the most reliable preparation I have used.

In treating catarrh of the pharynx it is important to secure the integrity of the nose and naso-pharyngeal space, so as to ensure respiration through the normal channel and prevent the external air from coming into direct contact with the throat. Excessive smoking, the taking of strong spirituous liquors and highly-seasoned and irritating food, and the overstraining of the voice, especially in the open air, should be avoided. A good hygiene also should be enjoined, especially when ear complications are present. Daily sponging or bathing with tepid water in winter and cold in summer (salt water preferably), followed by rubbing with coarse towels, materially assists in the treatment by hardening the skin and rendering the pharynx less liable to attacks of inflammation. The administration of saline purgatives will be found useful in plethoric individuals. In short, all exciting causes should, if possible, be removed, while any constitutional dyscrasia or any diseased system will call for special treatment.

BEQUESTS AND DONATIONS—The trustees of the late Mr. George Sturge have given £200 (additional) to the Charing Cross Hospital, £200 (additional) to University College Hospital, and £100 to the Metropolitan Convalescent Institution.—The Corporation of the City of London have voted 100 guineas (additional) to the Royal Hospital for Women and Children.—The Mercers' Company have given 100 guineas (second time) to the Convalescent Home at Felixstowe.—The Grocers' Company have given £100 (additional) to the Royal Free Hospital.—The Norfolk and Norwich Eye Infirmary has received £100 under the will of Lord Ramsey.

CHLORAL POISONING.—Mr. Frederick Thomas Welham, a veterinary surgeon, aged 41, practising at Brentwood, has met his death from an overdose of chloral, taken, it is supposed, for the purpose of inducing sleep. Becoming conscious of what he had done, he asked for water and oil, the administration of which caused him to vomit, but death ensued in a few minutes.

REMARKS ON INTUBATION OF THE LARYNX.

Read in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, held in Glasgow, August, 1888.

By F. E. WAXHAM, M.D.,

Professor of Otolaryngology, Rhinology, and Laryngology in the College of Physicians and Surgeons of Chicago.

Not long since, I received an invitation from your Secretary inviting me to be present at this meeting, and to take part in the discussion on diphtheria. I wish to say that I fully appreciate the high honour implied by the invitation.

As the time for discussion is necessarily so limited, I hope I may be pardoned if I simply allude to the surgical treatment of the disease.

When during the course of an attack of diphtheria the larynx becomes involved, when the loud stridor of croup is heard, when the voice becomes lost and the dyspnoea urgent, when it becomes evident that death must occur from suffocation unless relief is promptly given, then it becomes an important question to decide as to whether we shall recommend tubage of the larynx or tracheotomy.

Fig. 1.

Fig. 4.

Fig. 2.

Fig. 3.

Intubation of the larynx, for which we owe a debt of gratitude to Dr. O'Dwyer, of New York, is a new operation now in its infancy, and only recently has the most important objection to the operation been overcome, the difficulty of swallowing.

The instruments consist of a gag (Fig. 1), an introducer (Fig. 2), an extractor (Fig. 3), and five tubes of different sizes (Fig. 4).