

a threat to the life of the patient, and it was necessary to look the case in the face and deal with it. The commonest tissue in the pharynx was lymphatic tissue, and a great proportion of that was furnished by the tonsil. In perhaps 70 per cent. of the affections of the pharynx the fault was in the tonsils, and while that was the case with inflammatory affections, a large proportion of the tumours in that region were of the lymphatics. Bearing that in mind, was one justified, when the growths reached a certain size, in operating upon them? He sympathized with the gentleman referred to by Dr. Grant who refused to operate on a particular case, for whatever one did in a case of extensive sarcoma of the tonsil one did not remove the whole of the trouble. He came to the conclusion that it was futile to operate on a large growth of the tonsil or a large lympho-sarcoma of the pharynx. When he saw Mr. Browne's case he said he would hesitate to undertake it himself, and so he would, unless he were prepared to do any operation that might be required. It was very necessary to record and note every case which assisted surgeons in dealing with those tumours. Every case fully recorded would assist surgeons to act when they encountered similar ones. The general pathology of tumours of the pharynx was a most interesting subject.

The PRESIDENT proposed a hearty vote of thanks to Dr. Woods for coming all the way from Dublin to contribute such a valuable opening to the discussion. This was heartily carried.

BRITISH MEDICAL ASSOCIATION.

Annual Meeting, Cheltenham, July 30, 31, and August 1, 2, 1901.

SECTION OF LARYNGOLOGY AND OTOTOLOGY.

(Continued from p. 508.)

President: T. MARK HOWELL, F.R.C.S. EDIN.

A DISCUSSION ON

The Local Treatment of Tuberculosis of the Larynx

was opened by Dr. MIDDLEMASS HUNT (Liverpool), Dr. BARCLAY J. BARON (Bristol), and Mr. RICHARD LAKE (London).

Dr. MIDDLEMASS HUNT said: It was no doubt the fact of the British Tuberculosis Congress being held in London this year, together with the renewed activity in the fight against tubercular

disease that the past year has witnessed, which suggested the subject of to-day's discussion. I find, too, that it is eleven years since the treatment of laryngeal phthisis was discussed by this section of the Association. In 1890, when a similar discussion took place at the Birmingham meeting, the epoch-making work of Heryng on "The Curability of Laryngeal Phthisis" had not long been published, and English laryngologists were making their earliest tentative experiments in the surgical treatment of this disease. In the eleven years which have elapsed since then, our experience in this direction has grown enormously, and we are now able to pass judgment on the value of those methods of active treatment which were then only beginning to be employed in this country.

But there is yet another reason why the present time is appropriate for such a discussion. There has been noticeable of late, especially among our American colleagues, a tendency to return to the "bad old times" of therapeutic nihilism in regard to this disease, which prevailed before 1880. This seems to me utterly unjustifiable. I admit that all the bright hopes with which the writings of Krause and Heryng inspired us have not been realized, but a great and permanent advance in the treatment of a desperate disease has been made, and we must not go back. Though the number of complete and lasting cures is still admittedly very small, it is no exaggeration to say that thousands of lives have been prolonged, and an incalculable amount of suffering averted, as a result of the work which has been done in this field.

I regret the complete absence of novelty in what I have to bring before you to-day. I have no new method of treatment, nor even a new drug to commend to you. I have simply prepared a brief statement of the principles and methods of treatment which I employ in my own practice, and which are probably identical with those followed by the great majority of the members of this section.

In every case of laryngeal phthisis coming under my care, I try to determine whether it is one for curative or for palliative treatment. This is not always easy to do. At times cases of limited disease, in which we expect a cure, go to the bad; while in others, extensive ulcerations, which appear hopeless, will heal up and the disease become arrested for long periods.

Curative treatment, as I understand the term, is essentially surgical. It means the removal of all diseased tissues by cutting instruments, or their destruction by caustics, such as lactic or chromic acid.

Palliative treatment includes all antiseptic and local anæsthetic

applications, and is only occasionally surgical, as when the necessity arises to relieve dyspnœa or severe dysphagia.

The cases suited for curative treatment are those of limited disease, preferably situated intra-laryngeally and of a hypertrophic form indicating local resistance; cases in which the lung disease is slight in amount, and either stationary or only very slowly progressing, the general health and appetite being good, the patient being free from fever, and of a courageous and hopeful temperament.

Whenever we have extensive ulceration or infiltration, especially with much œdema or perichondritis, where there is high fever, loss of appetite, advancing lung disease, or evidence of the patient being deeply stricken, our treatment must be strictly palliative.

For carrying out curative treatment, I employ the curette, cutting forceps, and lactic acid. Which of these agents we choose for a particular case will depend on the nature of the lesion to be dealt with and on its situation. In my opinion, neither lactic acid nor any other application will remove infiltration covered by unbroken mucous membrane. Wherever we have well-defined, or at least limited infiltration without ulceration, a mass of granulations, or a distinct tumour formation, the first step must be the thorough removal of the diseased tissue by the curette, followed by an application of lactic acid. These operations are often extremely difficult—far more so than the removal of simple growths, on account of the great irritability of the pharynx in this disease—and are apt to be very painful when performed on parts at the entrance to the larynx. With the simple curette, hæmorrhage is trifling, but once or twice I have seen it rather free after using the cutting forceps.

I have never performed the extensive operations advocated by Schmidt, Krause, and Heryng, and in this country by Lake, but have confined my use of the curette and forceps to cases of limited disease, where there appeared to be a reasonable probability of removing the whole diseased tissues by operation.

Other methods of dealing with tubercular infiltrations, such as scarification with the rubbing in of lactic acid, or the submucous injection of creasote, iodoform emulsion, lactic acid, chloride of zinc, etc., have now been almost entirely abandoned as unsatisfactory in their results.

In the great majority of the cases we meet with, ulceration is already present. If it is superficial and not too extensive, especially when situated on the cords, ventricular bands, or posterior wall, lactic acid alone will usually secure healing. I believe it is still the

best application we possess for treating tubercular laryngitis in the stage of ulceration. I am aware that a recent American writer has spoken of the lactic acid treatment as "antiquated and barbarous," but the only substitute this writer offers us is an emulsion of menthol and orthoform, which, however valuable for palliative treatment, is utterly useless to obtain healing of ulceration or to destroy infiltrations.

There is still some difference of opinion as to how to use lactic acid. We must remember it is not as an antiseptic, but as a destructive agent that we employ it in laryngeal phthisis. It is of little use, therefore, to employ solutions of less than 50 per cent., and we should rapidly go on to pure acid. We should not worry the larynx by frequent applications, but having thoroughly rubbed into the ulcerated surface a strong solution, wait till the slough clears off—in a week or a fortnight—before renewing our application. In this way three or four applications will usually bring about cicatrization. We occasionally meet with cases in which these strong solutions are not well borne, and must then use weaker ones of 20 to 30 per cent., but such cases are very rare in my experience.

In the case of deep granulating ulcers of limited extent the lactic acid should be energetically applied in the same manner, but it will often hasten healing if we first thoroughly curette the ulcerated surface.

Unfortunately, a large number of the cases we meet with, especially among our hospital patients, only admit of palliative treatment. The extent of the disease and the state of the general health prevent any hope of eradicating or even arresting the disease, but still we can do much to relieve their sufferings. We know that an untreated case of laryngeal phthisis goes more rapidly bad, and with more suffering to the patient, than a treated one. The inflammatory oedema, often the cause of dyspnoea and dysphagia, we know to be due to secondary infection by streptococci and staphylococci. This secondary infection may be prevented, or at least held in check, by the use of antiseptics, such as menthol, carbolic acid, iodoform, etc., applied by brushings, sprays, injections, or inhalations. Nearly all these drugs have at some time been recommended to procure the healing of tubercular ulceration of the larynx, but it is doubtful if any merely antiseptic application will bring about cicatrization of a tuberculous ulcer.

A difficult question, and one which must largely be left to individual experience, is to what extent we may use surgical means in the palliative treatment of this disease. The incision of an

inflammatory œdema of the arytenoid or epiglottis, which was first practised by the English physician, Marcet, is a rational surgical procedure which will often relieve dysphagia, and is not followed by ulceration, as was at one time feared on purely theoretical grounds.

That the punching out of a painful ulcer on the edge of the epiglottis or over an arytenoid is often the most effective way of relieving the terrible dysphagia there is no doubt, and I employ this method where the condition of the patient permits, if lactic acid alone does not give the necessary relief; but I am opposed to performing these painful operations in advanced and hopeless cases, where we can at least mitigate the sufferings of the patient by the use of local and general anæsthetics. It is in such cases that Freudenthal's emulsion will be found of value.

With regard to external surgical treatment, tracheotomy will occasionally be required to relieve dyspnoea, though, as Schmidt, its most strenuous advocate in this disease, admits, much less frequently now than formerly. The improved intra-laryngeal treatment has lessened the necessity for it.

As a curative measure it has now been replaced by thyrotomy in those cases where the laryngeal disease from its extent or situation cannot be completely removed by intra-laryngeal operation, there being very little or no disease of the lungs present, and the general health being good.

That a partial laryngectomy might be a justifiable operation in certain rare circumstances, such as severe one-sided laryngeal disease with a good general state of health and absence of disease of the lungs, we may admit, but the conditions which justify general external operation in tuberculosis of the larynx are so extremely rarely met with that they need hardly be considered in a discussion in the local treatment of that disease.

Dr. BARCLAY J. BARON said: Before proceeding with the subject of our discussion, I think we may profitably ask ourselves a question as to the extent to which laryngeal tuberculosis can be looked upon as curable. The day has gone by when we need debate as to whether it is curable, but it is open to us to hold divergent opinions as to the extent to which it is curable. No doubt the optimism which arose after it was clearly demonstrated that certain surgical measures were able to cope with the disease was not quite justifiable, and has not been realized; but we now say with the experience of very numerous cases having been treated that in a certain small proportion of cases we are able really to cure the

larynx, spite of the well-known fact that recurrence is so apt to take place. Where we do succeed to our entire satisfaction, we only do so where we deal with the patient in whose lungs we are able to bring about a healed cicatricial fibroid condition. We can, therefore, only look for cure where we have a favourable pulmonary and constitutional state, and only in a small proportion of all such cases where lung and larynx are both attacked.

Local treatment alone will not, I believe, suffice to effect a cure, and it must always go hand in hand with general treatment. I have seen complete healing of tubercular ulceration of the larynx where the open-air treatment was thoroughly carried out, lungs and larynx healing *pari passu*, and where the local treatment was of the simplest character. I have never seen local treatment alone do this. The aim of local treatment is threefold. First to attack and destroy by direct surgical and topical medical treatment the bacilli. Second, by giving rest to the affected organ and by protecting its tissues from irritation and inflammation, to restore the natural resistance to disease which, if attacked by bacilli, they have largely lost, and so indirectly destroy the bacilli; also to help tissues not yet attacked to retain their health, and so prevent spread of the mischief. Thirdly, in cases where we are unable to do much in either of these directions, to ameliorate symptoms of which the most important is dysphagia. The most definite results of local treatment are seen where ulceration has taken place, and where it is legitimate and right to vigorously attack, by instruments and powerful remedies topically applied, the diseased surface and necrosed structures. It is very difficult to say what amount of good we are doing by the application of local measures in the pre-ulcerative stage of the disease, when we know that our remedies must usually reach the affected parts by roundabout channels.

In the early stage of the disease, where we are dealing with a laryngeal inflammation, and where the infiltration, if any be present, is so slight as to make it very difficult to diagnose the condition from a simple laryngitis, our treatment should be of the mildest possible character. It should merely consist in giving such instructions to the patient as will give rest to the organ, and in every way should be that suitable for a simple laryngitis.

In the next stage of infiltration, speaking generally, we must shield the larynx from all irritation; for example, avoidance of too much voice use, irritating articles of food and drink, tobacco smoking, the inhalation of irritating chemical substances and of dust, as in various manufactures, handling vegetables, hides, etc.

The use of soothing and antiseptic substances inhaled—*c.g.*,

benzoin, creosote, menthol, etc., or sprays of menthol and guaiacol, or intratracheal injections of the same—is beneficial. Naturally drugs that stop tickling, purposeless cough, especially codeia, cocaine, menthol, antipyrin, etc., in pastille or lozenge are of value.

Submucous injections of cocaine, guaiacol, lactic acid, perchloride of mercury, etc., have been recommended during this stage; but I do not approve of this, as I do not believe that we can thereby directly act on the bacilli, nor do I think that we can practise this method without the obvious risk of increasing or setting up inflammation, which makes the tissue less resistant to bacillary invasion. The use of lactic acid applied to the unbroken infiltrated mucous membrane has been recommended, and I have tried it, but I have not seen it sufficiently useful to induce me to continue it.

Some specialists have removed cartilages—*e.g.*, arytenoids and even the epiglottis—in this stage. I have no personal experience of these severe measures, but I must confess to a feeling of great dissatisfaction with my present methods, and I should like to know from those who have done this if they consider surgical interference admissible in the pre-ulcerative stage as it is after ulceration has taken place.

For the dysphagia, which is so often a symptom when the epiglottis is infiltrated, I know of no remedy of recent invention equal to cocaine or eucaine, and I find that the addition of sulphate of soda to hydrochloride of cocaine, as recommended by Wingrave, much increases the analgesic property of that drug, and so enables us to use effectually a solution of weaker percentage strength. It is a matter of indifference how we apply the drug—by spray, swabbing, or in a pastille; I have not found orthoform or any other drug so good as these.

It is in the third or ulcerated stage of the disease that local treatment is most definitely valuable, because the application of surgical methods has enabled us to do a good deal to ameliorate the suffering, if not rid the patient of the disease. Although this is an advanced stage of the disease, I do not feel so helpless in treatment as I do in the preceding pre-ulcerative condition.

Our evident task is to destroy bacilli, and set up a healthy healing action in ulcerated and necrosed structures by so doing. Seeing that morbid processes are surely and slowly destroying the tissues, it is reasonable to act with energy, and the published results of the removal of the diseased arytenoids and even the epiglottis go far to induce us to perform these operations more frequently than has hitherto been done. Personally, I usually curette the

ulcerated surfaces, and afterwards thoroughly and accurately rub in lactic acid. I think that we ought to begin with 50 per cent. solution, and as rapidly as possible go on to full strength. This should be repeated after an interval of seven to ten days. I do not believe in using weak solutions daily, as we get practically no good effect at all from them. I have often seen a distinctly anæsthetic effect follow this treatment, presumably from the eschar protecting the nerves exposed by ulceration. I have never seen serious inflammatory œdematous swelling follow its use, although we ought always to bear in mind the possibility of its occurrence, and guard against it by enjoining on the patient rest of the voice for a few days. A great many other substances have been recommended to attain the same end, but I have not found any of them so thoroughly satisfactory as lactic acid.

I have recently seen a case of extensive tubercular ulceration very successfully treated by Dr. McCall by the daily insufflation of resorcin (1 part) and orthoform (2 parts); and whilst one cannot come to any conclusion in tuberculosis unless a fair number of cases have been treated, what I saw will induce me to give this method a trial.

What are the contra-indications to surgical interference? Firstly and principally, advanced and progressing tuberculosis of the lung, with high temperature, night-sweats, and emaciation. Secondly, acute inflammation of the larynx, especially perichondritis. I have had serious shortening of life occur in a case of advanced pulmonary phthisis after curettement of the epiglottis and rubbing in of lactic acid, due to the pain and worry of the operation, and after it, where, in fact, so far from diminishing the dysphagia, it increased it, and the patient rapidly deteriorated. We ought, therefore, carefully to select our cases, and only operate on those which give fair promise of cure, always keeping in mind the general condition of the patient. For the relief of pain, cocaine, eucaine, menthol, etc., are all of value; but orthoform, insufflated on to the ulcers, or used as an emulsion by means of a spray, is most satisfactory. The anæsthesia is much longer, and the drug is practically not poisonous. I use guaiacol with menthol in a spray of oily solution and as an intratracheal injection, but I am very sceptical as to its value as an antiseptic, an analgesic, or a germicide when used in weak solution.

Lastly, ought we to practise tracheotomy in these cases more than we do in order to give physiological rest to the diseased inflamed organ? We know how beneficial it often is in malignant disease and in syphilitic perichondritis, where there is encroach-

ment on the lumen of the glottis, and so difficulty of respiration. Is it so in tuberculosis? I have no personal views to lay before you, but from what I read it is disappointing.

Mr. LAKE said: I propose to confine my remarks entirely to the question of the operative treatment of laryngeal tuberculosis. The indications, or contra-indications, for operative treatment which we shall have to discuss must be considered as applying expressly to the use of scraping and cutting instruments. We may preface the consideration of this subject with a brief summary of the contra-indications, as enunciated by Heryng: * “Advanced pulmonary phthisis, with hectic and wasting; diffuse miliary tubercle of the larynx; all cachectic conditions; severe stenosis of the larynx, caused by inflammatory swelling; in nervous and timid patients, and especially in those whose condition promises little hope of recovery.” I desire to take this opportunity of apologizing to Dr. Heryng for having attributed to him a too universal application of operative methods. †

Indications for Operation.—I would state at the outset that, taking all cases of laryngeal phthisis, from the very slightest lesion that can be demonstrated to be tuberculous to the most grave, not more than 15 per cent. of them require cutting operation, or can be more improved by this means beyond what can be otherwise obtained.

Let us now consider those conditions which indicate or contra-indicate the use of operative measures, and guide us in the selection of the form of treatment we are about to employ. The first point that should be considered is the state of the lungs, for of all factors influencing our decisions this is the chief; the relative acuteness of the disease, its extent, its rate of progress, and the tendency to cavity formation, are among the points to which one's attention should be particularly directed as having a direct and important bearing on the subject; thus, with regard to the lung, general miliary tuberculosis and rapidly-extending disease are contra-indications. On the contrary, a tendency for the disease to become stationary, to be limited in extent, or chronic, point towards our being able to obtain a good result in the throat, and correspondingly the fewer indications there are of lung mischief, the better our prognosis and the bolder should be our operative measures.

In the Matter of General Local Conditions.—Should the pharynx, palate, or base of the tongue, be involved in the pathological

* *Journal of Laryngology*, 1895.

† “Laryngeal Phthisis,” Lake, 1901.

process, the less that is done surgically, with a view of cure, the better. This naturally does not include surgical operations for the relief of pain.

From the temperature-chart much information is derived. A steady, temperature should usually be considered an essential indication before undertaking curative treatment. Like all general statements, this is liable to exceptions, those exceptions being where, from a careful observation of the patient and a frequent examination of the patient's lungs, there is reason to believe that the rises of temperature are chiefly or entirely due to the laryngeal infection. Exceedingly irregular temperatures, or a regular temperature, where daily the rise exceeds $100\cdot5^{\circ}$, should make one hesitate before operating, unless for the relief of pain or dyspnoea; that is to say, palliative operations are not contra-indicated, whilst curative are.

Whilst on the subject of temperature, there is another point which has engaged my attention during the last few months with a view of bringing forward to-day something, however small, which had escaped the attention of previous observers—this is, the effect of operation on the patient's temperature.

TABLE SHOWING AFTER-EFFECT OF OPERATIONS ON THE LARYNX ON THE TEMPERATURE—RESULT.

No. of Cases.	Negative.	Post-operative Rise.
35	31	4*

In the table it will be seen that we have a list of 35 cases operated on in which the effect of operation on the temperature-chart has been noted, and in only 4 of these cases was there any subsequent rise of temperature; and, from a careful observation of these cases, I would suggest that the post-operative rise is not usually due to the effect of the operation, but frequently due to neurotic influences. I, however, consider these rises in temperature as indications for a temporary postponement of further operative measures on the ground that everything which tends to raise the temperature of a tuberculous patient should be avoided as hurtful and likely to cause more harm generally than operation would do good locally.

Passing on to the local conditions, one finds that cases which offer us but little hope even of relief are acute miliary tuberculosis of the larynx, but to my mind there is no other condition of the

* 1. Ablation of epiglottis, rise lasted six days. 2. Small piece punched out of epiglottis ($101\cdot6^{\circ}$). 3. Arytenoid, operations. 4. Curettement of ventricular band.

larynx in this disease which should of itself prohibit operative interference; that is to say, it is from the general considerations that we find our contra-indications, and not from the state of the larynx.

Finally, the relief of pain, dysphagia, or dyspnœa, whether constant or caused by speaking, swallowing, or exertion, are invariably indications for operation when other means have failed to give relief. Remedial measures have been already amply discussed by my colleagues, Middlemass Hunt and Barclay Baron. It is for the relief of dysphagia, and particularly in this connection alone, that removal of the epiglottis finds its justification. Severe involvement of the epiglottis almost invariably ends fatally, but its removal, to the greatest extent possible, is justifiable from the immense relief from dysphagia obtained by this means alone. Life is also undoubtedly prolonged by this procedure, judging by my cases, to the extent of one or two months, and the patient's general mental condition is ameliorated.

Operative Treatment.—In considering the various forms of operative treatment, I would take as the mildest form of operative interference the submucous injection of fluids, and would premise that all fluids so injected have the same action on the tissues; that is to say, whether the medium be of an oily nature, with an essential oil as its active principle, an acid, or an acid mineral salt, the effect is the same: first, it causes a local hyperæmia, and ultimately a submucous contraction by organization and contraction of the small-celled infiltration. This treatment, as everyone is aware, was largely introduced into England by Watson Williams, and has since been brought very much to the fore by Chappell of New York. I cannot speak from personal knowledge of the effect of the submucous injection of guaiacol or creosote, but these drugs have the reputation of causing at times too violent a reaction. My own injections have been confined to 5 per cent. solutions of chloride of zinc.

In making the mucous injections, the needle should be fairly deeply buried, and should only be introduced where the tissue is deep and the possibility of swelling exists. It seems to me that it has its chief use in subglottic thickening or swelling and ulceration of the ventricular band, especially the two former, when due to perichondrial inflammation. These injections should never be made where the tissue is shallow and the possibility for swelling does not exist; otherwise extensive sloughing will occur.

Of the various forms of syringe, it does not appear to me that any one can claim marked superiority over the others.

Incision and Scarification.—Moritz Schmidt is the ablest exponent of this form of treatment, and his results are most gratifying, showing, out of a total of 300 cases, 16 cures and 23 improvements. Scarification and incision are, of course, chiefly indicated in œdematous swelling of the arytenoids and of the ventricular bands.

Galvano-puncture has many indications in common with sub-mucous injection, but is also capable of use in places where the tissue is shallow, and Watson Williams has recently depicted a larynx in which an extensive subglottic infiltration was relieved by this means, and the galvano-cautery point may be used also to the surface, especially in the subglottic region, to large or flat swellings which do not lend themselves to removal by the forceps.

Removal of the epiglottis by the galvano-cautery snare has proved, in my hands, very useful and quite painless. I have three times removed the major part of the organ; in the small jar which I send round are two of these specimens. Its use, however, is confined to the removal of this organ, and, as far as I can see, is not likely to find that use extended to other regions. I had the erroneous idea that my case was the first reported, but Solis Cohen and Hajek* had each reported the entire removal of the epiglottis for tuberculous laryngitis.

It is to Heryng and Krause that laryngeal curettes and punch forceps owe their origin. The curettes find their chief use in the removal of granulomata and exuberant granulations from the region of the processus vocales, in scraping away granulation tissue from the base of ulcers in the ventricular bands and on the lower aspect of the epiglottis; also less frequently they may be used for ulcers on other parts, the true chords and interarytanoid region, but, speaking generally, ulcers on the true chords do not, in my opinion, require curettement.

The use of the punch forceps is confined to swellings, or swellings with ulceration, more especially on the posterior half of the larynx, which includes the interarytenoid region, the arytenoid eminences, and aryepiglottic folds, together with great hypertrophies of the ventricular bands. Not unnaturally, the forceps which bear my name are those which I prefer, but equally good results can be obtained by the use of Heryng or Krause's double curettes.

Operations of this class are never painful, appear seldom to have any bad local after-effects, and are very rarely followed by pain on deglutition. At each sitting as much should be removed

* *Journal of Laryngology*, p. 461, 1894.

as can be tolerated by the patient. The amount of local anæsthetic required—whether it be eucaine, or cocaine, or a mixture of the two—for these operations is extremely small, and should be used as much to abolish sensibility in the epiglottis and base of the tongue and surrounding parts as in the larynx itself, and my experience leads me not to delay at all after the painting, especially if these operations require to be frequently repeated, as there appears to be in tuberculous patients a peculiar tendency to the establishment of an intolerance of eucaine and cocaine.

Tracheotomy as a curative measure in tuberculous laryngitis should never be employed. In cases of laryngeal stenosis in which syphilis is superadded to the tuberculous disease it is, however, most valuable. Laryngo-fissure would at first sight appear the ideal treatment for primary infection of the larynx, but the risk of the case not being primary, and the consequent exposure of so large a cut surface to the malign influence of the tubercle bacilli, quite counteracts the possible advantages, though there are cases on record. Dr. Wood's case may be, of course, an exception, and one we shall listen to with interest.

After all operations the same line of treatment is indicated. The patient may continue his ordinary course of treatment, whether that be open-air or not. Even removal of the epiglottis does not necessitate any special alteration in the temperature, provided this be not below 60° F. The moment the operation is completed the parts should be freely rubbed with that antiseptic preferred by the operator. For my part, this is usually the 5 or 7 per cent. formalin, and if the removal of tissue is from the ventricular bands or epiglottis, equal parts of orthoform and amyloform are insufflated, to be repeated when necessary. The larynx is also painted, and the insufflation repeated every morning. The patient is usually told not to talk or move about for half an hour after the operation, but that is the only restriction placed on his actions.

In conclusion, I believe that the wider one's experience of this disease the less frequently will one operate, but the more freely will one operate when one does operate. At the North London Hospital for Consumption, since the introduction of the open-air treatment, despite the addition of forty beds since I was first connected with the institution, the cases on which I operate are now far fewer. This may of course be, and is, partly due to the fact that the cases selected for open-air treatment are early, and not often cases of miliary tuberculosis. It is necessary that one should buy one's own experience, and no one can by reading alone avoid

operating on cases which, were his judgment more matured, he would have left alone.

Dr. ANTHONY MCCALL (Bournemouth) said the case Dr. Baron had kindly referred to was shown by him at the last meeting of the British Laryngological Society. It presented the appearance of what one might call a cured case of advanced disease—clear white scars in the anterior and posterior commissures, accurate approximation of the cords on phonation, and only slight swelling in the interarytenoid space. This result was gained by the use of resorcin and orthoform in varying proportions from one-third to two-thirds, insufflated every alternate day.

He had considerable experience with this treatment, and could speak highly of it in cases where there was ulceration with granulations; in short, in those cases where curetting is usually done.

In the flat superficial ulceration, such as were commonly met with in the epiglottis, orthoform, alone, or in combination with, bismuth, morphia or cocaine, answers better. Dr. Baron, he said, had remarked that local conditions sometimes improve without local treatment, and no doubt that is so; on the other hand, there are the cases in which the general condition has improved and the throat condition has got worse. Dr. McCall had never met a patient who was not pleased at the relief experienced by suitable intralaryngeal treatment.

Dr. JOBSON HORNE (London) said it would be difficult to overrate the importance of the subject. It would also be difficult to overstate the frequency with which it had been discussed. But it would be still more difficult to draw any precise conclusions from what had been published as to the lines of treatment to be followed.

The surgical treatment of the disease had its limitations, and within these limitations he considered it had undoubtedly been beneficial. The extreme surgical measures which had been advocated by some could not be regarded as remedial; at their best they were only mechanical means of overcoming physical difficulties which comparatively seldom occurred. Too much stress could not be laid upon the important pathological fact, which he himself had observed, that by the time the larynx is so extensively involved in the disease as to require surgical treatment cavitation is already established in the lung, so that in treating the larynx for tuberculosis we were dealing with but a part of a diseased respiratory tract, and the need for general treatment must not be lost sight of.

In the more chronic forms of the disease, in which thickening

of the mucous membrane occurred without ulceration, Dr. Horne considered it was irrational to cause a breach of surface by curettes or cutting forceps. The hyperplasia and the accompanying fibrosis constituted a protective action of the epithelium, which was to be hoped for and encouraged, as being a process of arrest of the disease which surgery could not assist.

He noted that no mention had been made of tuberculin. This he had found of service in cases in which there had been destruction of tissue; it seemed to render localized ulcers in the larynx more amenable to surgical treatment.

Dr. P. WATSON WILLIAMS (Bristol) said: It was very rare indeed that tuberculous disease was confined to the larynx, and it must be conceded that, doubtful as the prognosis must always be, even in the more favourable cases of pulmonary tuberculosis, the outlook was always rendered graver by the occurrence of laryngeal tuberculosis; hence it was absolutely essential that in determining the measures that are desirable in treating the larynx we should have due regard to the general condition of the patient, and in his experience the percentage of cases of laryngeal tuberculosis that could be cured was small.

He entirely agreed with the statement of Dr. Middlemass Hunt that successful local treatment was practically limited to those cases in which the tuberculous deposit was localized. In such cases he had obtained a number of very successful results, and these he would subdivide into: (*a*) Those in which there had been a tuberculous neoplasm, either a mammillated or papillary hypertrophy, or the most distinct but much more rarely-defined neoplasm. (*b*) Those in which there had been localized deposit with ulceration.

When a defined neoplasm or an ulcerating deposit existed, he found that removal of the deposit, with subsequent application of lactic acid, afforded, in cases otherwise suitable, very satisfactory results. When a localized tuberculous infiltration was present, but with no breach of surface, he thought it was very desirable to avoid curettement if possible. For these he had used submucous injections with satisfactory results in some cases.

He injected 1 or 2 minims of a 20 per cent. guaiacol, or of a 1 in 1,000 solution of biniodide of mercury. The injection caused temporary increased local inflammation, which, however, soon subsided, and was followed by relief of pain, and, after the injections had been repeated several times, by a diminution or disappearance of the deposits.

In some of the cases in which he had used submucous injec-

tions, subsequently more superficial ulceration had led him to curette and apply lactic acid.

Two points he desired to emphasize, viz.: First, the necessity of all general therapeutic measures and the extreme value of what he preferred to call, not open-air treatment, but sanatorium treatment; and, secondly, the immense importance of prolonged rest of the larynx. He did not think it was enough to enjoin a patient not to speak; they should not be allowed to whisper.

Dr. STCLAIR THOMSON (London) thought the subject had been admirably presented, but that the net result was disappointing. The surgical treatment of laryngeal tuberculosis had been before them for more than eleven years, and when they remembered the large opportunities for studying the disease, the enthusiasm of those who had investigated it, and the amount of literature devoted to it, the cases of cure were few and far between. Two statements had been made in the opening papers which he thought should be fully discussed before going out to the profession with the endorsement of the Section. One was to the effect that local curative treatment was essentially surgical; but he held that strict rest of the arytenoid joint was essentially a form of local treatment, as it was in tuberculosis of the knee or hip-joint. The second statement was that untreated cases go more rapidly downhill than treated cases. It of course might be objected, and rightly, too, that it depended on who carried out the local treatment; but while he had seen many cases rendered worse by local interference, he felt sure that others could support him in saying that cases did heal without any local surgical measures.

While the openers had covered almost the whole subject, they left the Section without a plain statement of the results. Although a very different affection, he thought they might ask for the statistics of radical cure, as they had for malignant disease of the larynx. When he said "cured," he meant that the tuberculosis of the lungs was also arrested, for it was unsatisfactory to the patient and not enhancing the position of their profession if we found that the pulmonary phthisis brought the patient to the grave, and all they could put on their case-papers was "died cured of tuberculous laryngitis."

In case Dr. Hunt should number him amongst the nihilists, he would say that he was very hopeful of progress in the treatment of tubercular laryngitis, but that progress was not to be expected with cases in the third stage of the affection, but in the making of an early diagnosis of the disease in an incipient form. When this was made sanatoria treatment should be carried out, together with

strict rest of the voice, and such symptomatic treatment as was indicated. The necessity for rest of the voice, and the paucity of cases in which local surgical treatment was called for, were supported by pathological observation. He regretted that Dr. Horne had not referred to his own studies, which showed that the ventricle of Morgagni was a frequent focus of infection. Mr. Lake had stated in his book that the interarytenoid region was attacked twice as often as the vocal cords, and three times as often as the epiglottis. Again, Fowler made fifty consecutive autopsies, and found that the arytenoid joint was always affected. These results supported the plea which had already been made for voice rest.

With palliative remedies they were well supplied, and excellent results were obtainable; but except in a few cases in early stages and favourable subjects, local surgical treatment was rarely called for, and seldom crowned with complete and lasting success.

Dr. ROBERT WOODS (Dublin) showed an instrument which he had devised for applying lactic acid to the larynx. It was shaped like a Schrötter's dilator, having round its lower end a circular wick to hold the acid. Under ordinary circumstances the patient's breath is stopped by the brush or swab, and the duration of the application, therefore, very limited. The object of the instrument is to get over this difficulty and enable a prolonged application to be made to the larynx without interference with the patient's respiration. When the instrument lies in the larynx the wick lies against the ulcerated surfaces, and the patient at the same time breathes through the centre of the tube. The application is therefore much more prolonged, and the intimacy with which the drug gets to the tissues proportionately greater. The instrument is of metal, and can be boiled. It is made by Mayer and Meltzer.

Dr. DE HAVILLAND HALL (London) was able to speak of the miserable condition of patients suffering from laryngeal tuberculosis in the days preceding the introduction of local treatment; he could therefore affirm that much benefit had resulted from local treatment, notably in the relief of pain, dysphagia and irritable cough. He had employed local treatment in a somewhat cautious manner; he had not used the curette in cases in which the mucous surface was unbroken, but had confined local treatment to cases of ulceration. He also alluded to a case of very extensive ulceration of the larynx, accompanied by sloughing of part of the epiglottis, in which the energetic use of lactic had brought about healing, though he had continued the treatment rather in deference to the wishes of the patient's friend than with any great hope of obtaining a cure. This case emphasized the importance of continuing treatment even

in apparently hopeless cases. He advocated the employment of weak solutions of lactic acid to commence with—*e.g.*, 25 to 30 per cent.; these can be gradually increased to 50 or 60 per cent., or the pure acid. He laid great stress on the thorough cocainization of the larynx previous to the use of lactic acid. He mentioned a severe case in which the patient had got well under absolute rest in the open air with the use of a spray of cocain and resorcin, followed by orthoform.

Dr. PERMEWAN (Manchester) thought the time had come for each man to state clearly and exactly, first, the methods he employs, and, secondly, the results of those methods. It was useless to talk vaguely of surgical treatment unless one defined clearly what one meant by it. For his own part, Dr. Permewan had never used thyrotomy, nor had he used cutting operations within the larynx. His experience had been limited to (1) palliatives — *e.g.*, morphia insufflations; (2) lactic acid; (3) curetting by Heryng's curettes. As to results, he had found most cases improved, some made worse, and a few cases cured. The favourable cases, he thought, were those of localized ulceration or outgrowth. The unfavourable ones were those in which there was general infiltration or much swelling.

Apart from surgical interference, rest was of great importance; but he did not go to the length of insisting on the avoidance of even whispering. It was important to avoid loud speaking, and in particular to soothe an irritable cough. As regards the meaning of the word "cure," he did not think we ought, as suggested by StClair Thomson, to include in that word the arrest of disease on the lung. It was enough for our present purpose to limit that expression to the arrest of disease in the larynx.

Dr. DONELAN desired to support the views of Drs. de Havilland Hall and Permewan. At one time he considered the use of lactic acid indispensable in every case, but there were other drugs which could be recommended as useful. For some years he had also employed guaiacol in the form of pigments, sprays, and submucous injections, and had introduced a special form of aseptic laryngeal syringe for the last-mentioned purpose.

Further experience, especially of those cases which were practically under constant observation in hospital and private practice, had convinced him that in the majority, and certainly in all cases in which the ulcers are still superficial and in which there is little infiltration, the use of lactic acid or of submucous injections, except at the commencement of treatment, may be dispensed with as causing unnecessary suffering. He had found the submucous

injections most useful in subglottic thickening ulcers on the ventricular bands and in the case of the obstinate ulcers that occur in the interarytenoid fold. In other cases he had discontinued the use of submucous injections. He had come to the conclusion that in the larynx more than elsewhere nature tends to limit the progress of the disease, and that while more severe measures may perhaps be deemed applicable as a forlorn hope in desperate cases, in others nature needs little more than the help of rest and cleanliness.

It should be the duty of the physician to see that, as far as he is concerned, every case should be an early case, and frequent examination of the larynx, especially if there is much cough and expectoration with plentiful bacilli, is to be recommended. Even where there is yet no sign of invasion of the larynx it is a good plan to regularly spray it with an antiseptic solution as a prophylactic.

When the larynx has been attacked he had made it a practice to supply each case with a writing-pad and pencil, not so much with a view to inculcate absolute silence as to impress on the patient the necessity of giving the parts as much rest as possible. Cleanliness is best attained by spraying the larynx with an antiseptic solution as often as possible, especially in the morning, after the usually more severe cough and expectoration, as well as after meals. Patients soon acquired the power of spraying their own larynges, or when they were too weak an intelligent nurse could do so. The medical attendant should after similar cleansing apply lactic acid, resorcin in orthoform, or guaiacol in paroline. Dr. Donelan said he began with lactic acid, and after a few days used guaiacol, according to Chappell's formula, as he found the flavour of gualtheria was liked by most patients. It was wonderful to observe the good effects of even a few days' persistent treatment of this sort, especially in the early cases and in those who had previously suffered from the most intense dysphagia. It was not enough to apply the lactic acid, guaiacol; or other favourite antiseptic once or twice a week; it must at first be applied once or twice, or more often in the day if necessary. What was needed was the persistent maintenance of the effect produced by the cleansing and stimulation of a part which, owing to its rich vascularization, was better provided with the means of self-healing, notwithstanding the concurrent anæmia, than any other part of the body, but which was constantly exposed to reinfection from the lungs. Such treatment was unfortunately not generally at the disposal of poor patients, but he hoped the time was not far

distant when these cases would all be gathered into institutions where the early invasion of the larynx could be checked.

With regard to the results as regards cure, he had no cures to report if cure meant the complete recovery of the patient. Every case had ended fatally from the pulmonary or intestinal complications. As regards local cure, he had several cases in which the larynx had become healthy, and remained so for several months until death took place from other causes. Amongst these he particularly desired to refer to the first case in which he had employed submucous injections. The injections were used only during the first two weeks of treatment, but the good effect was maintained during a period of nearly four months, when the patient died of the pulmonary disease. This case was referred to at the meeting of the Laryngological Society of London, at which Dr. Donelan's submucous syringe was exhibited, and the healthy state of the larynx up to the time of death was verified by a former President of the Society.

He did not propose to discuss the various operative measures which had been suggested, as in his experience, when what appeared to be considered the indication for such interference was present, the most humane thing to do was to make the patient as comfortable as possible while life remained, and to avoid operations.

Mr. MILLIGAN said that he had had no experience of the heroic surgical measures which some surgeons advocated in the treatment of laryngeal tuberculosis. The cases which had come under his notice he had treated by such measures as curetting, rubbing in of lactic acid, and the employment of various antiseptic remedies. He did not regard radical surgical measures as likely to lead to any very permanent results, as it had to be remembered that in almost all cases of laryngeal tuberculosis there was concomitant disease within the lung, which would naturally reinfect the larynx. He had had one case in which he had performed a thyrotomy for laryngeal tuberculosis. The patient had very marked laryngeal disease and very slight disease of the lung. The result was not very gratifying, although the patient was alive and moving about, but since the operation the disease in the lung had slightly increased. This of course might not be due in any way to the operation. He wished to endorse what Dr. de Havilland Hall had suggested—that at a meeting of the Laryngological Society definite statements and definite statistics should be brought forward, so as to give them a basis upon which to form opinions as to the value or otherwise of the various methods of treatment.

Dr. BRONNER said that his own experience of laryngeal tubercu-

losis had been comparatively small, but in the cases which had come under his care he had had good results from formalin as a spray or pigment. He thought orthoform deserved to be more extensively used, as it was non-toxic, and patients could apply it themselves.

Dr. N. C. HARING (Manchester) said: The natural course of laryngeal tuberculosis, like that of tuberculous affections in any part of the body, was an intermittent one, presenting stages of rapid progress and arrest; and it was due to this intermittent progress of the disease that it became difficult to assess the exact value of any particular line of treatment.

Where the tuberculous deposit existed in circumscribed masses or in the papillomatous form, there was no doubt that total excision of such diseased portions, where practicable, was of benefit to the patient; but, bearing in mind the fact that the whole process was a struggle of bacillary invasion against the resistance of the tissues, any line of treatment which will further weaken this resistance was to be deprecated. Puncturing, scraping, and the introduction of irritants was more likely to do harm than any good. Our main reliance must be upon the general treatment of the patient, and only a secondary value given to local treatment. Still, orthoform for dysphagia, reduction of cough by sedatives, intralaryngeal injections of mild antiseptics, such as menthol, etc., were not to be neglected.

The laryngeal affection did not always run a course *pari passu* with the pulmonary condition.

Mr. C. A. PARKER (London) thought that the larynx should be cocainized before applying a lactic acid, not only with the object of allaying pain—as pointed out by Dr. de Havilland Hall—but also so as to be able to apply the acid with greater exactitude, and especially with the object of avoiding bruising. The larynx being anæsthetized, it was Mr. Parker's habit to apply at once pure lactic acid. He did not think there was any fear of too great an inflammatory reaction—in fact, the difficulty often was to get sufficient reaction, and if lactic acid failed in this respect, he recommended the application of pure chromic acid. He had found this very useful in cases which did not improve with lactic acid.

As regards cases suitable for operation, he thought the question as to whether the whole disease could be removed was important. He divided cases into four different classes: (1) Local tumours; (2) ulceration with limited œdema; (3) extensive œdema with little ulceration; and (4) extensive ulceration and œdema. It was doubtful whether local tumours should be operated upon, but

seeing that sooner or later they generally broke down and caused a rapid extension of the disease, it was advisable to remove them in such cases in which it was possible to get the whole tumour away. Ulceration with localized œdema were the picked cases for operation. Scraping and the application of lactic acid gave satisfactory results. Mr. Parker could think of three cases in which patients had remained cured for over three years. In extensive œdema with little ulceration the less that was done locally the better for the patient, and in the final stage of extensive œdema and ulceration the treatment must be purely palliative.

Dr. Milligan had suggested the difficulties caused by reinfection of the larynx from the lungs. Mr. Parker thought that occasionally a healthy lung or a quiescent lung might be reinfected from the larynx, and consequently attention to the larynx was important.

Dr. G. C. WILKIN narrated a case of laryngeal phthisis in the early stage, in which the arytenoids were swollen and the false cords thickened; it was treated first by insufflation of morphia. This failed to relieve the distressing and almost incessant cough. Menthol then was insufflated, at first in small quantities, now in large, for two years or more. This insufflation had invariably given relief, and speaking from a general practitioner's point should, he thought, be much more generally adopted.

The PRESIDENT remarked that it was obvious that general treatment should be carried on with the local treatment of laryngeal tuberculosis, and he did not suppose that anyone would expect to cure the disease in the larynx whilst active changes were present in the chest.

With regard to the relief of pain, he had obtained great relief by the insufflation of morphia or heroin mixed with sufficient bismuth or starch to make a vehicle. Sedative applied in this manner had a local rather than a general effect, and comparatively large doses were in consequence well borne.

There was a very simple method of relieving odynphagia which deserved to be better known. It was applicable in the disease under discussion as well as in scarlet fever, measles, diphtheria, or any other affection attended with painful swallowing. The method was as follows: Place the palm of each hand with the fingers pointing upwards over the ears on the corresponding side, and then make very firm pressure whilst the patient was swallowing. The greater the pressure the greater the relief to the pain. It was best to stand behind the patient whilst making the pressure.

Dr. MIDDLEMASS HUNT, in replying, did not agree with Dr. Thomson that the discussion on this subject was so unsatisfactory.

They could often relieve suffering, and so prolong life. He recalled several cases of cure, one a very bad one, last treated twelve years ago, in which there was complete arrest, in a man in whom both testicles had been removed for tubercle, so that there was no doubt of the diagnosis.

Dr. BARCLAY BARON, in his reply, agreed heartily with the various speakers in insisting on the value of rest. He laid great stress, up to the ulcerative stage, on avoidance of over-use of the voice, and also shielding the larynx from inhalation of irritating substances. The risk of this varies in different districts, according to the trades and manufactories carried on. He considered the idea of rest was not carried out if, along with enjoining absolute silence on the part of the patient, we stabbed the tissues deeply by means of a needle, as in submucous injections. In the pre-ulcerative stage we had to build up tissue resistance. An inflamed tissue, he pointed out, was a weakened one; it was therefore better not to run the risk of setting this up. Seeing how small was our chance of doing good by directly destroying bacteria, it was unwise to abrade the surface.

In reference to Dr. Baron's reply, Dr. DONELAN explained that he now rarely used submucous injections, having come to the same conclusions regarding them as Dr. Baron.

Mr. RICHARD LAKE thought one year's freedom might be considered cure. Limited swellings were, in his opinion, suitable for operation, even before there was any breach of surface.

PRACTICAL POINTS IN THE TREATMENT OF NASAL SUPPURATION, ESPECIALLY OF THE ACCESSORY SINUSES.

BY JOHN MACKIE, L.R.C.P. ED. (Nottingham).

THOUGH it may not be correct anatomically, it is perhaps more convenient clinically, to dissociate disease confined to the middle turbinal from disease of the ethmoid cells, and to connect it more with allied conditions about the lower turbinal.

Adopting this method, my list of 70 cases comes out as follows: Ethmoid: single, 19; double, 24—43; antrum, 11; frontal, 7; sphenoid, 9; middle turbinal, 14; lower turbinal, 6.

I have given polypi and ozena columns, which show polypi present in 31 out of 70 cases, and ozena in 9.