SOME POINTS IN THE DIAGNOSIS AND TREATMENT OF LARYNGEAL CANCER.

BEING AN INTRODUCTION TO A DISCUSSION HELD IN THE
MEDICAL SOCIETY ON JANUARY 28TH, 1907.

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MR. PRESIDENT AND GENTLEMEN,—When in 1881, on the occasion of the International Medical Congress of London, a discussion took place in the Subsection for Laryngology on Malignant Disease of the Larynx,¹ the outlook with regard to the treatment of this formidable disease appeared very dark indeed. Intralaryngeal operation had been universally abandoned on account of its want of success; thyrotomy had been completely given up after the anathema pronounced upon this operation for the cure of malignant disease of the larynx three years previously by Professor Paul von Bruns,² and the results of partial and of total extirpation of the larynx—operations then only recently introduced—had so far been anything but encouraging.

To-day, just about a quarter of a century after that discussion, I shall be able to unfold a very different tale before you. If, in accordance with the now general custom, we divide all cases of cancer of the larynx into two large groups—the extrinsic, which comprises those cases in which the disease starts from the epiglottis, the aryepiglottic folds, or the oesophageal aspect of the larynx, and the intrinsic, amongst which are included the cancers originating within the laryngeal cavity proper—it will be seen that nowadays the latter category, if only early enough diagnosed and thoroughly operated upon, gives a better chance for recovery and freedom from recurrence than cancer in almost any other part of the body, whilst the extrinsic variety, although vastly different from the intrinsic with regard to the extent of the operation, the mortality from the surgical interference itself, the prospect of recurrence, and the amenity of life afterwards, still shows distinct progress over the results obtained twenty-five years ago.

In a paper merely intended to serve as an introduction to a discussion it will, of course, be quite impossible to travel over the whole vast field of cancer of the larynx and to do full justice to the work of all those who have helped to bring about a better state of things. To-night I merely conceive it to be my duty to take stock, as it were, of the present state of the question and to dwell more particularly on some points concerning the diagnosis and treatment of cancer of the larynx on which no consensus of opinion has yet been obtained.³

Let me briefly repeat, then, what I stated in 1897,⁴ and what has recently been acknowledged by Professor Paul von Bruns,⁵ namely, that the improved state of matters is not so much due to the progress of our surgical technique, great and undeniable as this has been, as to the progress made with regard to the early diagnosis of malignant disease of the larynx.

If any one will take the trouble to look up the chapters devoted to cancer of the larynx in the textbooks of medicine, surgery, and laryngology published prior to 1888, he will find that the information given with regard to the symptomatology and the laryngoscopic signs of the early stages of malignant disease is extremely scanty, often inaccurate, and in not a few instances obviously more the result of theoretical construction than of actual observation. When, during the illness of the then German Crown Prince, the deplorable doctrine was promulgated that benign growths of the larynx showed a special proclivity to malignant degeneration after intralaryngeal instrumentation, I devoted, in the collective investigation which demolished that doctrine,⁶ a special chapter to the description of the early signs of malignant disease of the larynx. It is the less necessary for me to enumerate these signs to-night, as after a period of initial doubt and scepticism they are now generally acknowledged to be true and trustworthy, and have found their way into practically all modern textbooks. There is, however, one of them, the most important one, which has, as I know

from practical experience, given rise to an equally curious and serious misunderstanding, which ought to be corrected on an occasion of this character.

Amongst other laryngoscopic signs which ought already at an early period of the existence of the new growth to draw attention to the possibility of its being malignant, I stated that none was more important than defective mobility of the affected vocal cord. This defective mobility, I particularly emphasized, manifested itself in some cases early, in others at a later period. Although this description seems plain and unambiguous enough, the curious misconception has arisen in some quarters that if this sign was absent in an otherwise suspicious new growth, the contingency of malignancy could be excluded. It seems hardly necessary to say that this inversion of my statement is absolutely inadmissible. Nowadays one gets to see a good many cases of laryngeal cancer at a very early stage—that is, when an otherwise inexplicable hoarseness forms the only noticeable symptom, and at that time the infiltration of the mother soil need not be advanced enough to cause troubles of mobility; and, secondly, seeing that in the larynx, as in any other part of the body, some cancers for a long time are of a more surface character than others, and begin to infiltrate the tissue from which they spring only at a comparatively late period, it is, of course, quite inadmissible to exclude malignancy in an otherwise suspected laryngeal growth for no other reason than that the affected cord showed no signs of defective mobility when the case came under observation. However, to prevent any further misunderstanding, I now wish to formulate the rule as follows:

“If the vocal cord from which a suspected laryngeal growth springs shows at an early period of the disease a defect of mobility other than due to mechanical impaction of the growth in the glottis on phonation, this sign is almost pathognomonic for the malignant character of the tumour. If, however, this sign should yet be absent when the case comes under observation, such negative evidence does by no means exclude possible malignancy.”

It will have been observed that in the last sentence I stated that the presence of the defective mobility under such circumstances was “almost” pathognomonic. It is with good reason I express myself thus cautiously. For it must be sorrowfully admitted that, whilst the signs stated by me in 1888, which so far as I know practically form the last word upon the question of early laryngoscopic diagnosis, will be found sufficient in the very large majority of cases to arrive at an early time at the correct diagnosis of malignant disease, they by no means do so invariably.

In fact, Mr. Butlin's dictum, pronounced about twelve years ago—⁷

There are three classes of cases: the first in which any one and every one can make the diagnosis; the second, in which only the better instructed and more experienced make it, and others do not; and the third class, in which the conditions are so obscure that no one can make the diagnosis unless the larynx is opened, and in some of which it is even then difficult to make sure of the nature of the disease—

is as true to-day as when it was first enunciated. It is not only benign growths, tuberculous and syphilitic tumours and ulceration, perichondritis from different causes, the differential diagnosis between which and malignant disease of the larynx is occasionally excessively difficult or even almost impossible by mere naked-eye inspection, but there are some weird and outlandish conditions, which may simulate cancer or sarcoma, which are not described in any textbook, and which really cannot be expected to come within the thoughts of the observer. Thus I have described a case in which a globular blood clot completely enveloped what ultimately turned out to be an epithelioma; in another case seen with Mr. Butlin the tumour was found to be a leucoma instead of the suspected epithelioma; in a third instance seen with the same experienced observer an effusion of blood into a vocal cord closely simulated the appearances of malignant disease. In a case demonstrated before the Laryngological Society⁸ not only the laryngeal tumefaction but also the general infiltration of the cervical lymphatics, which by four experienced observers had been considered as malignant, spontaneously disappeared after simply tracheotomy. In yet another case, which I repeatedly demonstrated before the Laryngological Society of London,⁹ an obscure chronic

ulceration occupying almost the whole left vocal cord of a gentleman aged 60, which had been suspected to be either tuberculous or malignant, and concerning the nature of which the views at the meeting of the Society considerably differed, ultimately disappeared spontaneously after having been in existence for two years; and to-night again I have to bring before you another extremely obscure case of laryngeal tumefaction—the second of the kind in my experience—in a recent thyrotomy case of mine, which I regret to say ended fatally on the day after the operation from acute oedema of the lungs.

The naked-eye appearances of the tumour, which from its smooth surface was not suitable for the removal of a fragment for microscopic examination, neither on laryngoscopic examination nor when the larynx had been opened, left the least doubt in the minds of those present at the radical operation (Dr. Watson Williams, Mr. Stabb, Mr. Tyrrell, a medical friend of the patient's, and myself) as to the malignant nature of the growth, particularly since the left half of the larynx was almost completely fixed. Yet when the specimen had been forwarded to Mr. Shattock I received to my greatest surprise a report from him in which he stated that there was no carcinoma nor other form of malignant growth, but merely small celled infiltration of the mucosa, nowhere extending into muscle or even to the glands, which were very numerous in one piece. The glands in all three pieces were quite normal, as was the tissue in which they lay; so was the muscle. A papillary upgrowth was present in a few spots, but there was no indication in any of the processes of malignancy. Tuberculosis could also be excluded. Here and there there was a small area of necrosis in the inflammatory tissue of the mucosa. Mr. Shattock therefore supposed that the whole disease was a chronic inflammation attended with swelling and some papillary upgrowth, and due to some infective process of no particular specific kind.

On my observing that the description thus given did not account in my humble opinion for the clinical appearances and course of the disease, there having been a very distinct tumour projecting into the interior of the larynx with a mammillated surface, and slight ulceration on various parts, causing not only complete aphonia, but also pain shooting into the ears, Mr. Shattock suggested that the growth might have been at first a simple papilloma, which had run an unusual course; that without being malignant it had become the seat of an infective process; that this had in turn been followed by ulceration and swelling, which had exaggerated the clinical signs of a tumour swelling, and led to the fixation of the parts.

I can, of course, not say that this suggestion might not correspond to the actual facts of the case, but seeing our complete want of knowledge of the existence of such processes in the larynx as those sketched by him in this and in my previous case, I frankly confess that the explanation does not seem very satisfactory, and I shall be very much interested to hear whether any of those present are able, after inspection of the specimen here shown under the microscope, to shed some light on the subject.

Cases like the seven just mentioned of course reopen the vexed and perennial question of the value of the microscopic examination previous to radical operation of intralaryngeally-removed fragments of the suspected tumour. The elder generation will remember how fiercely that question was debated about twenty years ago on the occasion of the fatal illness of the late German Emperor. The views then expressed diametrically differed. In the opinion of some clinical and naked-eye observation was like nothing compared with the evidence gained by an expert's microscopic examination. The other side looked almost with contempt upon the help of the microscope, and stated that it was only in exceptional cases that it was of any use.

When the sad case was over I endeavoured to strike the balance between these conflicting views, and summarized the results of the collective experience of the then most prominent laryngologists of the world in the following conclusions:¹⁰

Microscopic investigation of intralaryngeally-removed fragments in cases of doubtful laryngeal neoplasms is a valuable but not infallible help to clinical diagnosis. It ought to be used in all cases in which it is possible. This is by no means always the case, inasmuch as in cases of submucous infiltrating cancer intralaryngeal removal of fragments is impossible. If such a removal is available one ought never to forget: (1) That it is by no means certain that the examination may at all yield results characteristic of any definite form of tumour; (2) that, even when the examination yields apparently characteristic results, the possibility must be kept in view that we have to do with a mixed form of new growth. This is

particularly important in cases in which the tumour is clinically suspicious and in which the microscopic appearance proves its benignancy. But the reverse is also possible, as shown by a case of Schmiegelow's. It will, therefore, be always desirable to transfer the microscopic examination, if it be possible, to an expert pathologist. The pathologist, however, can only give an opinion on the fragment submitted to him, and not on the disease itself from which the patient suffers, except when he finds in this fragment *positive* characteristics of malignant new growth. Examination must not be limited to the investigation of one single section, but must be extended over the whole fragment, which accordingly has to be cut up into sections, unless already previously the diagnosis of malignancy can be established with certainty. If necessary, cautious intralaryngeal removal and microscopic investigation of fragments of suspected growth must be repeated several times, unless meanwhile *clinical symptoms which are incompatible with our present knowledge of the symptomatology of benign growths establish with certainty the malignant character of the suspected growth*. In such cases radical operation, if otherwise indicated, is *not* to be postponed until the diagnosis has been confirmed by the microscope.

This proposition, I think I may venture to say, met with general acceptance, and is, I believe, up to the present moment followed by most of those whose work brings them in contact with cancer of the larynx. But it has not been allowed to pass unchallenged. Some years ago Dr. John N. Mackenzie of Baltimore passionately opposed the probatory intralaryngeal removal of suspicious laryngeal growths for the purposes of microscopic examination.¹¹ In his opinion such removal "subjects the patient at once to the dangers of autoinfection at the point of incision and to metastasis elsewhere; it stimulates the local growth of cancer, and the method is often inconclusive, sometimes misleading, and practically impossible."

I have fully answered, and I think refuted, Dr. Mackenzie's contentions some years ago,¹² and would not have returned to the point now were it not for a surprising statement recently made in the excellent paper read by Dr. Chevalier Jackson¹³ at last year's meeting of the British Medical Association at Toronto. He says:

Of twenty cases of malignant disease operated upon by me, negative preliminary microscopical reports of removed fragments were made in fourteen. That this was due not to the pathologist's error but to the inadequate specimens goes without saying. In each of the fourteen cases, operation, in the face of the microscopist's negative report, was advised, on the strength of the age of the patient and laryngoscopic appearances, coupled with failure of benefit from mercurial inunctions and 180 gr. daily of potassium iodide continued for three weeks.

I confess that this statement amazes me. To judge from my own experience Dr. Jackson has certainly been exceptionally unfortunate. If in my own practice from whatever cause I had found the microscopist's report at fault in anything like a proportion such as 14 out of 20 cases, I have no hesitation in stating that I should have long since joined Dr. John Mackenzie, and instead of recommending microscopic examination of intralaryngeally-removed fragments as a valuable, though by no means infallible method, have rejected it not only as inconclusive, but, what is much more important, as directly misleading. But my own experience has been widely different. Whilst again fully admitting that in a large percentage of the cases in question it is impossible, without unduly irritating the new growth, to intralaryngeally remove a piece for microscopic examination sufficiently large to enable the microscopist to arrive at a reliable conclusion; and whilst further admitting, as I have done in the above-quoted rule, that the piece removed may in a good many instances not show characteristic evidence of malignant disease, I can remember but one case within my own practice in which the microscopic examination yielded directly misleading results. This was the case of the late Mr. Montagu Williams, which I fully described in the *Clinical Society's Transactions*,¹⁴ and in which the microscopic examination of the first fragment seemed to show that we had to deal with an innocent papilloma. But the mistake was corrected already five days afterwards, when examination of the second fragment gave definite evidence of the existence of epithelioma.

In many cases of my own, on the other hand, the microscopic examination of an intralaryngeally-removed piece of the new growth has not merely fully corroborated the clinical diagnosis, but has materially strengthened my hands in proposing immediate thorough

operation. I therefore see no reason to withdraw from the attitude I recommended in 1888.

Two points, however, demand a moment's consideration at this juncture. In the first place, after two positive experiences of Dr. David Newman of Glasgow,¹⁵ fears were expressed twenty-two years ago lest the probatory intralaryngeal removal of a piece of growth might hasten the local progress, and lead to infection of the cervical glands. Dr. John Mackenzie has more recently reiterated this fear in lurid colours, and now I find that Dr. Chevalier Jackson also expresses his conviction that we subject our patient to some risk in the removal of a specimen "a week or more" before radical operation. In reply to this I venture to say that, with our perfected microscopic methods, no week or more need elapse before we receive the verdict of the microscopist; and whilst quite agreeing that the local growth of cancer may be stimulated by local interference, I cannot from my own experience bring myself to believe that the few days which must elapse between the intralaryngeal removal and the report of the microscopist are likely to bring about any important deterioration of the local conditions, whilst the fear of local autoinfection of previously healthy parts in the larynx or of metastasis elsewhere certainly is equally little justified by practical experience gained hitherto.

In saying this it is presumed, of course, first that the intralaryngeal removal of a fragment is always to be carried out by expert hands, and that undue irritation of the growth and unintentional wounding of previously healthy parts are being avoided, and, further, that the rule laid down by Dr. Newman twenty years ago is strictly adhered to—namely, that the probatory intralaryngeal removal of a part of a suspected growth ought only to be undertaken after the patient has formally consented to immediate radical operation in the event of the microscope proving the malignancy of the tumour. Both these preliminary conditions are most essential.

The second point on which I wish to speak in connexion with this question is one of much greater practical difficulty than the one just mentioned. Supposing that one had to deal with a suspicious growth, situated either near the anterior commissure and threatening to invade the other side of the larynx, or, worse still, situated near the arytenoid cartilage, in dangerous proximity to the posterior wall of the larynx, and supposing, further, that the microscopic evidence after examination of an intralaryngeally-removed fragment was of a negative character, what ought one to do? In accordance with my own rule quoted above most operators nowadays would, I think, nevertheless proceed at once to radical operation, considering it the smaller evil of the two to perform a thyrotomy, where such was possibly not required, than to wait too long and thereby to expose their patients either to the removal of both vocal cords, with subsequent complete loss of voice for the rest of their lives—namely, if the suspected growth in the anterior commissure should after all have turned out malignant, and should meanwhile have passed over to the as yet healthy other vocal cord; or, worse still, to total extirpation of the larynx—namely, if the growth, which ultimately proved to be malignant, had passed on to the posterior wall of the larynx.

Against this practice, however, it may be argued—not without some show of reason—that it was hardly fair to avail oneself of the testimony of the microscope if it spoke in favour of one's own contentions, and to brush it aside if it differed from them.

Moreover, if after all the growth should prove to be innocent when removed by thyrotomy and microscopic examination of its whole structure, the surgeon would undoubtedly have exposed himself to the accusation that he had not only performed an unnecessary operation, but that he had done so in the face of the evidence of the microscope.

Supposing, on the other hand, that he had removed such a growth on the strength of naked-eye examination only, and that subsequent microscopic examination had proved it to be benign, he would not only have laid himself open to the first part of the same reproach—namely, that he had performed an unnecessary operation; but he might be charged, and, indeed, very likely would be, with having omitted an important method of investigation before undertaking a more or less serious operation.

Supposing, finally, that, strong as his clinical appre-

hensions were, he had yielded to the negative evidence of the microscopic examination of an intralaryngeally-removed fragment, and had waited too long for confirmatory evidence, he certainly when in the course of events the growth turned out to be malignant after all, and now too much advanced to be dealt with by simple thyrotomy, would have to reproach himself that he had not had the courage of his opinions, and had thereby exposed his patient to the risks of a much bigger mutilating operation, the final results of which are not nearly so satisfactory as those of thyrotomy.

You see, gentlemen, from my enumerating these contingencies, that whatever course you may follow there are drawbacks attached to each of them, and that whatever you may do or may not do you are apt to expose yourself, whilst acting with the best of intentions, to serious recriminations.

Nor must you believe that the contingencies I have just enumerated are merely theoretical, and not likely to come within range of practical politics. Twice within recent years have I myself experienced their unpleasant reality, and the irony of fate has willed it that fault should have been found with me for diametrically opposite reasons. In the first case, which I communicated so far as it was then in existence at the meeting of the British Medical Association at Swansea,¹⁶ I was denounced because, firmly convinced as I was that the histologist's favourable report of a growth removed by thyrotomy was erroneous, I had in order to spare the patient harassing doubts given an evasive answer to his question as to the microscopic finding.* The second case was that of a subglottic, apparently malignant, rounded smooth tumefaction, from which it would have been impossible to remove intralaryngeally a fragment sufficiently large for microscopic examination without causing severe local irritation. After the performance of thyrotomy it was found that the tumefaction was due to an obscure infective inflammation. I, of course, informed the patient of this fact. The result has been, I am told, that I am now accused of having performed a perfectly unnecessary operation!

Whilst there are thus great and undeniable difficulties, the course one ought to follow seems to me clear enough.

Seeing the fact that errors in diagnosis are occasionally made by those who have had the largest experience, and this sometimes even in cases in which there did not appear to be any particular diagnostic difficulties, I think it is our plain duty not to omit the employment, whenever possible, of any recognized method that may be helpful in securing the diagnosis. Such a method certainly is the microscopic examination of intralaryngeally-removed fragments, provided that it is not approached with an exaggerated sense of its infallibility. Considering the fortuitous character of the intralaryngeal removal, and the fact that neoplasms are not by any means always uniform in their structure, the result of the examination may certainly be inconclusive, and sometimes even directly misleading. In addition it must not be overlooked that the interpretation of the appearances seen in a microscopic slide is, after all, a matter of individual judgement, and liable in not a few cases to the same errors to which clinical examination is exposed. In proof of this I need only remind you that often enough the opinions of various microscopists to whom one and the same slide is submitted, diametrically differ from one another. The patient ought, therefore, to be in all cases given a brief and fully intelligible explanation of the state of matters, and ought to be plainly told that the evidence of the microscope was only conclusive if proof of a distinctly malignant histological type, such as squamous carcinoma, was found; but that if the evidence were negative this did not by any means dispose of the clinical fears which were entertained in his case. It

*The further history of this case is as curious as was its beginning. The patient after leaving me put himself under the care of Dr. Greville MacDonald, who has kindly informed me that he removed with forceps large masses of the recurrent growth. This was pronounced by Mr. Shattock, who had declared the original growth an innocent papilloma, to be a papilloma in which a carcinomatous change was beginning. Mr. Watson Cheyne, however, to whom the microscopic preparations were also submitted, considered the diagnosis of carcinoma not proven. The patient then for a time refused to submit to any further treatment. Ultimately Mr. Cheyne had to perform tracheotomy in a great hurry, because the growth nearly filled the larynx and almost choked the patient. The tracheotomy was followed by another thyrotomy, also performed by Mr. Cheyne last March. Neither macroscopically nor microscopically was any evidence of malignancy found. Since then no recurrence so far appears to have taken place.

ought also, as already mentioned, to be made a *sine qua non* that in the event of the microscopic examination corroborating the clinical fears, the patient should consent to immediate radical operation.

Such a course in those cases in which the probatory removal of a fragment is possible at all without gravely irritating the growth—which is, I repeat, in a large proportion of cases coming under observation not possible—will satisfy the surgeon's conscience, and will protect him against unjustified recriminations made afterwards with regard to his mode of procedure. In not a few instances, to conclude from my own experience, the patient will, after such an explanation, declare himself satisfied with the clinical evidence, particularly if a second independent opinion should have been taken and should have agreed with that of the first adviser. Anyhow, it will not be possible for the operator to be charged with the omission of the employment of a valuable diagnostic method of which he should have availed himself.

Such is my present attitude in this truly important question, and I shall look forward with great interest to the opinions thereon which will no doubt be expressed in the subsequent discussion.

With this hope I leave the question of diagnosis and come to that of therapeutics. During recent years attempts have been made to combat laryngeal cancer by other means than surgical, and such widely different methods as injections of a preparation of the *Bacillus neoformans* (Doyen), the *x* rays, and trypsin injections have been laid under contribution for that purpose.

The injections with Doyen's serum, which Dr. Scanes Spicer has recently employed in several cases of malignant disease of the throat, mouth, and larynx,¹⁷ appear in that observer's opinion to favourably modify the symptoms and apparently retard the progress in certain instances, without, however, effecting a cure, whilst in other cases no benefit was received. Scheppegegrell¹⁸ states that in a case of laryngeal cancer treated by himself with the *x* rays a cure was obtained. In this case, however, it is not stated that a histological examination of the growth has been made, and it is therefore impossible to say whether the growth was really of a cancerous character. One isolated cure is claimed in a case treated with trypsin injections by Dr. Clarence Rice,¹⁹ although the author is careful to state in the subtitle of his paper that the case thus treated was "supposed" to be carcinoma.

In the interest of our patients it seems but right to express a hope that the further study of the alleged influence of trypsin upon the cancerous process will be allowed to remain in the hands of the medical profession instead of such uncertain cases being sensationally claimed—as Clarence Rice's has been—as "cancer of the larynx cured by trypsin." We shall all most heartily welcome any method by which the scourge of cancer may be successfully combated otherwise than by operation, but the millennium has not yet come to pass, and there cannot be the slightest doubt that at the present moment our only justified hope of curing the disease in any given case consists in the growth being eradicated by surgical means at the time when it is still purely local.

Of the operations which come into question for that purpose I shall more particularly dwell upon thyrotomy and total extirpation of the larynx, whilst the intralaryngeal method, subhyoid pharyngotomy, and partial extirpation will on this occasion be dismissed with very few words.

With regard to the intralaryngeal method, instead of repeating the arguments which I have on many occasions brought forward against it, I prefer telling you what has quite recently been stated on this point by a man equally distinguished as a general surgeon and as a laryngologist, Professor Paul von Bruns of Tübingen. He says:²⁰

The intralaryngeal operation is recommended by some laryngologists (Fraenkel, Jurasz, Bresgen, Krieg) as the least dangerous interference with regard to life and voice in suitable cases of small cancers situated in accessible positions. Baginsky quite recently goes so far as to state that the external operation is only to be employed "in the majority of laryngeal cancers." B. Fraenkel has collected from his own practice and that of others a number of cases in which after laryngoscopic operation the cure has lasted at least the triennium generally accepted for carcinomas. Thus, it is true, the possibility of cure by the intralaryngeal method has been proven, but this is an extremely rare exception, which demands the concurrence of numerous favourable circumstances, for the large number of

unsuccessful attempts is of course nowhere registered. By such attempts, however, a more rapid growth of the neoplasm may be promoted, a favourable time for external operation missed, and its chances materially deteriorated. From this point of view, which is shared by well-known laryngologists, such as Schrötter, O. Chiari, Moure, and Semon, I consider the employment of the intralaryngeal method in laryngeal carcinoma as insufficient, and one to be rejected, because, as a rule, it only damages the patient. I have seen sad examples of this. Kocher point-blank declares that intralaryngeal attempts at operation in suspicious laryngeal tumours are "faults of art."

With this opinion I thoroughly agree.

The next operation to be considered is thyrotomy, of which it may truly be said that not only men and books but also operations have their fates. At first employed in unsuitable, because much too far advanced, cases; then, as a natural consequence, rejected and absolutely condemned; then remaining in abeyance for a number of years; then resuscitated through the perspicuity and courage of Mr. Butlin; then quickly gaining the upper hand in this country, and justly considered as the standard operation for early cases of intrinsic laryngeal cancer, whilst still, with few exceptions, looked at askance by surgeons and specialists abroad; and only quite recently and slowly gaining its proper position on the European Continent and in the United States—such has been in briefest possible outline the history of thyrotomy during the last quarter of a century. Even now I regret to say that I learn from a paper read only last spring at the meeting of the South German laryngologists at Heidelberg that, "in order to obtain a lasting cure," a number of German surgeons remove the whole larynx even in unilateral cancer of the larynx and reject thyrotomy for cancerous new growth as an "insufficient interference."

It is an ungrateful and, indeed, impossible task to convince people who will not be convinced; and, with regard to such, one's only consolation is that truth will prevail over their theoretical objections. Those, however, who approach this, as other questions, without bias will, I venture to hope, be convinced of the efficiency and sufficiency of thyrotomy by the following facts derived from my own personal experiences:

From October 10th, 1878, until December 31st, 1906, I have seen in private practice 212 cases of malignant disease of the larynx. Of these, 136 were intrinsic and 76 extrinsic or mixed. No less than 177 occurred in men, and 35 only in women. Of the latter, again, in 12 cases only was the disease situated inside the larynx, whilst in 23 it was extrinsic, occupying in 18 cases the pharyngeal aspect of the cricoid cartilage.

I have already, in 1894, drawn attention to these startling proportions, which have not changed in my subsequent experiences; and I need not repeat what I said on that occasion, except that the question of the disparity between the sexes and of the localization of the disease in women certainly deserves serious consideration on the part of those engaged in the study of the etiology of cancer. Apart from the bare facts just mentioned, I regret that my own experience does not assist in elucidating these mysteries. Neither syphilis, nor abuse of alcohol or tobacco, nor hereditary taint, nor excessive voice use could be accused in the large majority of my male patients as having played a rôle in the production of the disease. It remains equally inexplicable why in my series the proportion of extrinsic and intrinsic cases should have been practically the reverse in the two sexes, there having been 124 of intrinsic and 53 of extrinsic in men, against 12 cases of intrinsic and 23 of extrinsic in women.

My experience since 1894 with regard to age again confirms my statement made in that year, namely, that the thirty years of life between 40 and 70 furnish the overwhelming majority of all cases of malignant disease of the larynx coming under observation, but I have seen in the twelve years past since then more cases occurring in the decade between 60 and 70 than in that between 50 and 60. Three patients seen between 1894 and 1906 were 80 years of age; none were younger than 30.

Whilst I have thus seen 136 cases of intrinsic laryngeal cancer, I have only performed thyrotomy—which is, in my opinion, the operation for this class of cases—in 33 cases of real or supposed malignant disease of the larynx. No conclusion must, however, be drawn from

these numbers as to the proportion of cases of intrinsic laryngeal cancer suitable for thyrotomy. First of all, a large proportion of these cases were sent to me before thyrotomy had been reintroduced by Mr. Butlin; secondly, a very considerable number of my cases only came under observation in the course of consultations with other surgeons and specialists, who wished to have my opinion as to diagnosis and operation, and who, when these questions had been settled in favour of operative interference, performed the latter themselves. In the light of my present experience, I should certainly say that in *all* cases of cancer, still limited to the interior of the larynx, not too extensive, not too near the posterior wall, not yet infiltrating the laryngeal cartilages, thyrotomy ought to be performed unless there are urgent contraindications arising out of the general health of the patient. Advanced age is in itself by no means a contraindication if the patient is otherwise vigorous and free from serious organic complications. I have in nine cases performed thyrotomy in men between 60 and 70, and in three in men over 70 with excellent results, and my very last case is that of a gentleman, aged 75, who nine days after thyrotomy for epithelioma of the larynx left the home in the best of health.

On the other hand, general debility, chronic bronchitis, advanced Bright's disease, diabetes, and similar serious organic mischief, of course gravely affect the prognosis.

Out of my 34 thyrotomies—in one of them the operation had to be repeated almost immediately after the first operation—undertaken in 33 cases for what seemed to be certain or very probable malignant disease of the larynx, in 8 the diagnosis was shown either to have been at fault or remained doubtful. Twice the disease turned out to have been tuberculous. Twice the tumefaction was stated by Mr. Shattock to have been of the nature of an infective inflammation. In 2 cases the diagnosis remained doubtful between fibro-sarcoma and innocent growth. In one case, already referred to in this paper, it is, in my opinion, still quite an open question whether the disease is of an epitheliomatous or papillomatous character, and in one case the subsequent history showed that the nature of the tumour had been that of an innocent papilloma. Three out of these 34 ended fatally, giving a percentage of 8.8 fatal results.

In one of the 3 fatal cases—reported before 1904—death resulted from an aggravation of a pre-existing bronchial catarrh in a very old man six days after operation; in the second case death eleven days after the operation was the result of secondary bleeding and subsequent exhaustion in a very feeble old man of 76; the third case, in which death resulted twenty-seven hours after the operation from oedema of the lungs, has already been alluded to in a previous part of this paper. It is a particularly melancholy circumstance that out of these 3 deaths 2 should have occurred in cases in which, according to the subsequent microscopic examination, the disease was not of a malignant character, but of the nature of an infective inflammation, and this fact adds, I should think, further weight to the view that microscopic examination of an intralaryngeally-removed fragment should whenever possible precede radical operation.

Of the cases of undoubtedly, that is, microscopically verified, malignant disease of the larynx, which were 25 altogether, 1, as just mentioned, died, and 24 recovered. In one of them the operation had evidently been incomplete. A second thyrotomy was performed at once, with more radical removal of the neighbourhood round the recurrent growth, and the patient has since (more than two years ago) remained perfectly well. In 4 cases recurrence took place. In 1 of these the patient died from cancer of the liver five years after the operation, *the larynx and the cervical glands remaining free*. This leaves, therefore, a percentage of 3 to 24 of cases of genuine *local* recurrence. In the first case recurrence took place nine months after the operation, and the patient, having refused further surgical treatment, died eighteen months after the operation. In the second case the first recurrence took place four months after the operation, when hemilaryngectomy was performed. A year afterwards this had to be followed by total extirpation of the larynx on account of metastasis in the cervical lymphatic glands, which were inseparably bound up with the larynx, the interior of which, however, this time had remained perfectly healthy. Death ensued from coma twenty-four

hours after the operation, which was performed by Professor Gluck. The patient had been suffering from advanced chronic nephritis. In the third case recurrence took place eleven months after the operation, and hemilaryngectomy has been performed too recently to say anything about the final result.

Deducting, then, from these 24 cases one too recently operated upon to be of any value for statistical purposes concerning freedom from recurrence, and one in which, five years after the operation, the patient died from cancer of the liver, the larynx and cervical glands remaining free, we find that out of 22 cases of undoubted malignant disease of the larynx, a genuine local recurrence took place in 3 cases. This gives a percentage of 13.6 recurrences. If the case in which death from cancer of the liver took place five years after the operation be included amongst the recurrences, we find 4 recurrences in 23 cases, or 17.4 per cent. recurrences.

With regard to the case just referred to, however, I wish to observe that, whether that occurrence ought to be looked upon as a genuine metastasis, or whether the same obscure agencies which caused the malignant disease in the first instance produced it again anew and independently of the first manifestation, must remain an open question in the absence of a *post-mortem* examination. The possibility just named is not so far-fetched as might be thought. A case has been reported by Gluck²¹ in which, after extirpation of a squamous-celled laryngeal carcinoma, a cylinder-celled carcinoma, from which the patient died, developed two and a half years afterwards in the transverse colon. In this case, at any rate, the idea of a genuine recurrence is excluded, and one cannot think of anything else but of a genuine fresh production of another form of malignant new growth.

The last category to be considered under this head, that is, the cases in which no recurrence took place, or in which, either after incomplete operation or after recurrence, lasting freedom was obtained after further operation, demand some special consideration before their ultimate result can be expressed in figures.

The determination, in cases of operation in any part of the body for cancer, of the exact period after the lapse of which the patient may be considered as "cured," is, of course, purely conventional. However late a date within the bounds of reason may be chosen, it will always be easy to point to some isolated cases recorded in literature in which recurrence, local or metastatic, took place after an even longer interval. All that can be said, therefore, is that when speaking of a "cure" in cases of operation for cancer, one means that the period has been passed within which, according to general experience, recurrence, if at all, usually takes place, and that the patient might now be reasonably expected to enjoy lasting freedom from the disease. In accordance with this ratiocination, by common consent the period of three years is now considered to cover the time of danger of recurrence, and statistics of operations for cancer are usually constructed upon this principle. Ten years ago, however, I pointed out that, owing to the peculiarities of the lymphatic supply of the larynx, intrinsic cancers of that part occupy an exceptionally favourable position with regard to the question of recurrence after radical operation, and that when *one* year has passed without recurrence, the patient may be justly regarded as having passed the critical period. At present, after ten years' further experience, I stoutly maintain the position then taken. It has been shown that in not a single one of the cases in which I performed thyrotomy recurrence took place after the lapse of the first year, and I shall therefore make that period the basis of the following calculations. I do so, not for the purpose of including a few more cases of cure in my tables, but because I know from practical experience how happy the patients are when they are told after the lapse of one year after the operation that they may now, humanly speaking, be considered out of danger of recurrence, and because I think it is right to give them that comfort. Subtracting, therefore, from my 25 cases of operation by thyrotomy for undoubted malignant disease of the larynx, 1 case in which death occurred from the operation, 3 cases in which local recurrence occurred within the first year after the operation, and 1 case too recently operated upon to be included in this list, but including on the other hand 1 of incomplete operation in which after the second thyrotomy a lasting

cure was effected, we have 20 cases of lasting cure remaining, that is, exactly 80 per cent. If, however, the case be further deducted in which five years after the operation the patient died from cancer of the liver, 19 out of 25 cases, that is, 76 per cent. of lasting cures would be obtained. Truly an extremely pleasing result, which I think favourably compares with the results of radical operations for cancer in any part of the body.

The duration of the cure in each individual case from the date of the operation to December 31st, 1906, has been as follows:

1 case	...	...	over 15 years
4 cases	...	...	between 10 and 15 years
4 "	...	...	between 5 and 10 years
2 "	...	...	over 4 years
3 "	...	...	over 3 years
2 "	...	...	over 2 years
1 case	...	...	just 2 years
1 "	...	...	1 year and 10 months
1 patient died 5 years after operation from pulmonary embolism.*			
1 patient died 4 years after operation from pneumonia*			

20

* In both these cases recurrence was absolutely excluded.

The vocal results are equally satisfactory; voice surprisingly good in 11 cases, good or fair in 5, weak or reduced to a whisper in 4. In not a few instances both vocal cords had to be removed.

Finally, in this connexion, I wish to mention as an additional advantage of thyrotomy that even in the cases in which either the operation has not been complete, or in which unfortunately genuine recurrence has taken place, the operation does not bring us to the end of our resources, but that, on the contrary, by a repetition of the operation, or by hemilaryngectomy, or by total extirpation of the larynx, a lasting cure may still be obtained, where the minor operation has failed.

With regard to the technique of the operation, I still adhere entirely to that described by me in 1894 in the *Lancet*, and only wish to recommend anew on this occasion the excellent shears for splitting the thyroid cartilage invented by my friend, Mr. Waggett. Various modifications of the technique, however, have been suggested, and Professor Paul von Bruns, who now, in accordance with the view generally held in this country, considers thyrotomy as the "normal" operation for the early stages of laryngeal cancer, describes the following as his own method.²²

Instead of general narcosis, half an hour to an hour before the operation an injection of scopolamin and morphine is given, and a solution of novo-cocaine is injected into the line in which afterwards the external excision is to be made, whilst after the larynx has been opened, the mucous membrane is painted with a solution of novo-cocaine and adrenalin, in order to abolish reflex cough and deglutitory movements, and to limit bleeding from the mucous membrane. If no graver haemorrhage is to be feared, previous tracheotomy and introduction of a cannula is avoided. With Kocher I prefer the oblique position of the body, with the head hanging down, in order to more securely prevent the aspiration of blood; this position also protects against the invasion of the pharyngeal phlegm, which is often secreted in large quantities into the larynx, and which has otherwise to be prevented by plugging of the lower parts of the pharynx. The division of the cartilages extends throughout the larynx into the trachea, in order to give sufficient space. When the cartilaginous halves have been drawn asunder an incision—if necessary under artificial illumination by means of a small electric lamp—is made all round the tumour down to the perichondrium and close to the cartilage. The bared surfaces are, if necessary, burnt with the galvano-cautery, and iodoform is rubbed into them. The introduction of an iodoform gauze tampon is omitted. Finally the halves of the thyroid cartilage are brought together, and the upper part of the external wound is closed, whilst the lower part in the region of the trachea remains open, and is only loosely plugged. No cannula is introduced.

This method differs in various essential points from that in general use in this country, particularly in the avoidance of general narcosis and of the use of Hahn's or some other form of tampon cannula. Seeing that Professor von Bruns speaks from practical experience and has obtained good results by the method he describes, it would seem cautious to object to it from a theoretical point of view. I fully see the advantages of placing the patient in an oblique position with the head hanging down, and thereby avoiding the introduction of a cannula, even during the operation, and shall give this method a trial.

I cannot help doubting, however, the advisability of employing adrenalin in painting the mucous membrane after splitting the larynx. Cocaine fully suffices for that purpose, and the employment of adrenalin, as I have personally experienced in one case, increases the risk of secondary parenchymatous haemorrhage. Altogether, I must say that the results obtained by the old method certainly are satisfactory enough not to necessitate modifications, although I by no means wish to imply that the technique generally followed in this country must necessarily be final.

I have only to add one word about the question of rectal etherization, which I see from the discussion following Dr. Chevalier Jackson's paper has again been proposed as a convenient mode of administration of the anaesthetic in cases of thyrotomy, as it dispensed with the anaesthetist's encroaching upon the narrow field of operation. That it does so is no doubt true, but it seems to have been forgotten that I fully described in my paper in the *Lancet* in 1894 a very lamentable case of death after hemilaryngectomy, in which the fatal issue was beyond a shadow of doubt due to ether poisoning after rectal administration of that anaesthetic. Not only the intestines and the stomach, but the bronchi, large and small, were intensely congested, and showed numerous large and small ecchymoses and free haemorrhages on their surfaces. For further description of the details I must refer to that paper, but I wish to say that nothing would induce me, after this extremely sad experience of my own, to give that method a fresh trial.

Of the next operation on our list—namely, hemilaryngectomy, or partial extirpation—I have to say but a few words. It is obvious that this operation will become rarer in proportion to the diagnosis of intrinsic cancer being more generally made at an early stage of the disease. In fact, it is likely that ultimately it will be limited to those cases of intrinsic cancer which come under observation only at a period when the disease has already invaded the cartilaginous framework, and to a few exceptionally favourable cases of extrinsic cancer. Quite in conformity with these general considerations I have only had occasion to perform the operation in five cases. In one of them—just referred to—death occurred from ether poisoning. The other four patients recovered. In one of them, in whom thyrotomy had been performed previously, the operation is of quite recent date. The results of the three remaining ones were not satisfactory; in one it is doubtful whether recurrence took place, although this is not probable. The patient died suddenly ten months after the operation from the bursting of an abscess in front of the trachea. In the second case recurrence took place in the cervical glands, the larynx remaining free, and death ensued fifteen months after the operation, the patient refusing further operative interference. The growth had been pronounced by Mr. Shattock to have been highly malignant, and the prognosis was bad from the first. At the time of the operation the thyroid cartilage was already invaded. The cervical glands were apparently not involved at the time of the operation. In the last case—already referred to—in which the patient was at first operated by thyrotomy, and afterwards by hemilaryngectomy, recurrence took place, about ten months after the last operation, in the cervical glands. Professor Gluck removed not only the cervical glands, but the larynx *in toto*, as its outside was inseparably connected with the affected glands. The patient never regained consciousness, and died about twenty hours after the operation had been completed.

My results of hemilaryngectomy are, therefore, far from satisfactory, and, as the outcome of my experience, I should certainly recommend removal of the corresponding cervical lymphatic glands, even if they are apparently not invaded, in cases in which infiltration of the thyroid cartilage renders hemilaryngectomy necessary. I have nothing to add to my previous description of the technique of the operation, except that in some cases it may be possible to safely leave a zone of the affected cartilage, either in its upper or in its lower region, behind. This materially assists in the prevention of stenosis.

With regard to subhyoid pharyngotomy, I have equally little to add to my previous description. I see from Professor Paul von Bruns's latest statistics of all subhyoid pharyngotomies performed for laryngeal cancer since 1890,

that in 16 per cent. only a cure lasting from one to three or more years had been obtained, that in 20 per cent. recurrence took place, and that the mortality of the operation was no less than 40 per cent. Quite apart from the fact that it can be employed only in a very limited number of cases, namely, in those in which the disease is situated near the upper aperture of the larynx, the danger of the operation is so great as to give little encouragement for its adoption, particularly in view of the fact that equally good access to the growth can be obtained by laryngotomy.

I myself have performed subhyoid pharyngotomy but once for malignant disease of the larynx,²³ and have met with the same disappointing experiences as others have done, namely, that the patient died on the fourth day after the operation, probably from sepsis.

The last part of my task, namely, the discussion of total laryngectomy, I approach, I do not mind confessing, with some trepidation. Experience has taught me²⁴ that thoroughgoing laryngectomists, with some exceptions, of which Professor Gluck is the most praiseworthy example, are apt to regard everyone who does not go to the entire length of their own convictions, as an enemy, and to treat him accordingly. Nevertheless, this shall not deter me from reiterating on this occasion the views, which I have consistently upheld since first total laryngectomy was discussed in public, and which may briefly be defined as being about equidistant from prejudiced antagonism to, and from injudicious adulation of, this operation. Like every sane person I unconditionally admit the legitimacy of any operation which saves, or even only appreciably prolongs a fraction, however small, of lives otherwise irretrievably lost, and I thus unreservedly recognize the justifiability of total laryngectomy. I gladly register that the formerly terrible mortality of the operation has through the progress of the technique been very much reduced of late years, and, finally, I do not doubt that a few of the patients who have survived the operation for any length of time have been and are quite content with their lot. But when thus much has been stated, I honestly believe that all has been said that could possibly be adduced in favour of total laryngectomy, and I cannot bring myself to regard the question of the kind of life the patients have to lead after a successful operation, and the question of the frequency of recurrences, as so secondary and comparatively unimportant as is certainly being done by the more militant faction of the enthusiastic advocates of the operation.

Total laryngectomy is beyond the shadow of a doubt one of the most mutilating operations in surgery. It does away with speech in its ordinary sense, for of the many ingenious phonatory contrivances which have been invented and recommended, I have never seen a patient avail himself for any length of time. He rather puts up with the pharyngeal whisper, which in some cases is audible at a distance, or communicates with the outside world in writing. In not a few cases to this loss of speech is added permanent difficulty in swallowing, which compels the patient to take his meals by himself or even to be fed artificially. All this more or less shuts out the patient from the company of his fellow men, partly from instincts of his own, partly from being driven to observe that he is an object of pity mixed with horror to others. He, therefore, usually shuns society and becomes a recluse. I do not wish to be accused of exaggeration, and I therefore emphatically repeat that no doubt *some* patients may lead a more amenable existence. Personally, however, whilst often enough meeting in society and in public places persons who have been successfully thyrotomized by others as well as by myself, I have never seen a patient whose larynx has been removed, elsewhere than in the meeting room of a Society, in which his case was demonstrated as a success; or in my own consulting room, when a recurrence has taken place. This, I believe, is also the general experience of others, and, in view of this fact alone, the lightheartedness with which by some total laryngectomy is recommended and practised when less serious interference would have fully sufficed, appears to me not only regrettable, but directly reprehensible.

In addition, there is that extremely serious question of recurrence after total laryngectomy, of which I am fully convinced we have not yet sufficient modern data to build a reliable opinion upon, and which yet is so extremely important when the question as to whether total laryng-

ectomy ought to be undertaken or not in a given case comes to be considered.

The only modern reliable statistics, so far as I know, of any single operator who has had considerable experience of his own are those of Dr. Chevalier Jackson. He states²⁵ that out of 8 total laryngectomies performed by him 3 were hemilaryngectomies followed by recurrence and total removal. One of the patients lived seven years after, when he died from cancer of the stomach; another lived three years without recurrence, dying of cerebral haemorrhage; and the third died eight months after from alcoholism. Of the remaining 5, 3 had recurrence within the year, 1 apparent cure was lost to observation after a year, and 1 is too recent to record. Out of the 3 prompt recurrences there was 1 metastasis in the lungs, liver, and pancreas. Thus out of 8 laryngectomies no absolute ultimate cures could be claimed in the author's own opinion, although 3 were apparently cured at the end of one year. I entirely agree with Dr. Chevalier Jackson when further on he states, with regard to the case in which seven years after removal of the larynx cancer of the stomach occurred, that such a recurrence indicates a vulnerable soil more than repullulation of the primary process.

I have for the purposes of this paper applied to Professor Gluck, and requested him to give me if he could a summary of all his experiences with regard to total laryngectomy. In reply he regrets being unable to comply with my wish, on account of the difficulty of obtaining replies from the very large number of patients from a distance upon whom he has operated. He at the same time states that, whilst formerly his material had mostly consisted of cases in which the disease was limited to the larynx, more recently, in consequence of the progress of technique, the cases in which the pharynx, oesophagus, and tongue were affected together with the larynx had considerably increased, the operation being thereby, of course, made more serious still. All the same, remarkable results had been obtained, and he could assure me that quite a number of patients in whom not only total extirpation of the larynx but also resection of the pharynx had been performed, had survived the operation for many years in a good state of health. He also promises to try and ascertain for a future occasion the total results of his experiences.

Professor Paul von Bruns apportions, in a statistic of all total laryngectomies performed since 1890, the proportion as follows:

Cure lasting more than three years ...	10 per cent.
Cure lasting one to three years ...	16.6 per cent.
Cure lasting less than one year ...	28.9 per cent.
Recurrence ...	24.5 per cent.
Death owing to operation...	19 per cent.

Personally, I can only say that what I have seen of total extirpation of the larynx has been anything but encouraging. I have never performed the operation myself, but have confided those few of my patients who, after full exposition of the situation, decided upon submitting to the operation to most experienced hands. One of my patients died from the operation itself, as already stated; none of the other three has survived the first year after operation. Not wishing to make sensational statements, I will only say that in all these cases the life the patients had to lead from the operation until their release by death was extremely sad. Indeed, whenever I have seen these patients a few months after operation, with recurrence fully established, the question has forced itself upon me with ever-increasing emphasis whether such a result was worth the mental anxiety, the physical suffering, the heavy expense, and the blighted hopes necessarily connected with the course that had been taken. All the same, I have kept before my mind that probably my personal experience has not only been small but exceptionally unfortunate, and that after all there remained the one stern fact that those patients' lives would have anyhow been irretrievably lost if no operation had been performed at all. I have, therefore, never dissuaded a patient, whose case seemed to offer a reasonable chance, from undergoing the operation, but have considered it my duty to lay an impartial statement of the alternatives of letting matters take their course and of having total laryngectomy performed before the patient, and in no way to influence his decision. Such a line of action appears to me the more

required in view of the unfortunate fact that in a certain proportion of cases so-called cured patients have committed suicide.

Unfortunately, until a specific has been discovered which cures malignant disease without having recourse to the knife, total laryngectomy will remain a cruel necessity in cases of extrinsic cancer of the larynx. From my own statistics above quoted, however, it will have been seen that fortunately the extrinsic variety is by far the rarer of the two by which the larynx may be attacked; and I feel sure that I shall have the sense of this meeting with me when, in conclusion, I express an ardent hope that every practitioner should endeavour to diagnose the intrinsic variety at so early a time that thyrotomy will suffice, not only to save the patient, but also to help him to an amenable existence afterwards. Fortunately I can say that, to conclude from my own experiences, this desirable improvement in early diagnosis has made material progress during the last few years. Still much remains to be done in this respect, and I cannot better end my introductory remarks than by the expression of a fervent hope that this discussion may give a fresh impetus to early diagnosis and immediate thorough removal of the disease by thyrotomy in cases of intrinsic cancer of the larynx.

NOTES AND REFERENCES.

- ¹ Indications for the Complete or Partial Extirpation of the Larynx. *Transactions of the International Med. Congress*, 1881, vol. iii, pp. 251-266. ² *Die Laryngotomie zur Entfernung intralaryngealer Neubildungen*. Berlin, August Hirschwald, 1878. ³ Those who wish for information on questions which will not be at all, or hardly at all, touched upon in this paper, I may refer to the following communications of my own in which these questions have been fully discussed:—(1) *Die Frage des Ueberganges gutartiger Kehlkopfgeschwülste in bösartige*, etc., Berlin, A. Hirschwald, 1889. (2) The Results of Radical Operation for Malignant Disease of the Larynx, etc., *Lancet*, December, 1894. (3) Zur Frage der Radicaloperation bei bösartigen Kehlkopfneubildungen, etc., *Archiv für Laryngologie*, 1897. (4) The Indications of Thyrotomy, *Lancet*, 1900. (5) Introductory Remarks to a Discussion on the Operative Treatment of Malignant Disease of the Larynx, *BRITISH MEDICAL JOURNAL*, October 31st, 1903. (6) An Address on Cancer of the Larynx, *Lancet*, November 5th, 1904. ⁴ *Archiv für Laryngologie*, vol. vi, p. 384. ⁵ *Handbuch der praktischen Chirurgie*, Dritte Auflage, 1907, Bd. II, pp. 242-244. ⁶ *Internationales Centralblatt für Laryngologie*, vols. v and vi, 1889. ⁷ *BRITISH MEDICAL JOURNAL*, October 26th, 1895, p. 1034. ⁸ *Proceedings of the Laryngological Society of London*, December, 1899, p. 15. ⁹ *Ibid.*, December, 1903, p. 51, and June 3rd, 1904, p. 187. ¹⁰ *Internationales Centralblatt für Laryngologie*, etc., vol. v, 1889, pp. 318-319. ¹¹ *Transactions of the American Laryngological Association*, 1900 and 1902. ¹² *Lancet*, November 5th, 1904. ¹³ *BRITISH MEDICAL JOURNAL*, November 24th, 1906, p. 1483. ¹⁴ A case of Partial Extirpation of the Larynx for Epithelioma of the Left Ventricle of Morgagni. Recovery. *Transactions of the Clinical Society*, vol. xx, 1887. ¹⁵ One Case of Auto-inoculation in Laryngeal Carcinoma and Two Cases illustrating the Danger of Intralaryngeal Interference in Cancer of the Larynx, *Transactions of the Clinical Society of London*, vol. xxii, 1889. ¹⁶ Introductory Remarks to a Discussion on the Operative Treatment of Malignant Disease of the Larynx, *BRITISH MEDICAL JOURNAL*, October 31st, 1903. ¹⁷ *Proceedings of the Laryngological Society of London*, December, 1906, and January, 1907. ¹⁸ A Case of Cancer of the Larynx Cured by X Rays, *New York Medical Journal*, December 6th, 1902. ¹⁹ Treatment of Cancer of the Larynx by Subcutaneous Injections of Pancreatic Extract (Trypsin); A Case of Growth supposed to be Carcinoma; Cure, *New York Medical Record*, November 24th, 1906. ²⁰ *Handbuch der praktischen Chirurgie*, 3te Auflage, 1907, Band II, p. 244. ²¹ *Monatsschrift für Ohrenheilkunde* 1904, p. 155. ²² *Loc. cit.*, pp. 245, 246. ²³ See my paper in the *Lancet*, 1894, tables, Case 7. ²⁴ See the papers by Dr. John Mackenzie, already referred to, as well as the papers by MM. Le Bec and Real, October and December, 1903, in the *Annales des Maladies de l'Oreille et du Larynx*. ²⁵ *Loc. cit.*

INTERNATIONAL DERMATOLOGICAL CONGRESS.—The sixth International Dermatological Congress will be held at New York in the autumn of 1907. The date of opening will be September 9th and the Congress will remain in session for a week. The President is Dr. James C. White of Boston; the Secretary-General, Dr. John A. Fordyce of New York. Papers may be presented in writing in the English, French, German, Spanish, or Italian languages, and may be discussed in the language most familiar to the speaker. Members desiring to present papers must communicate the title to the Secretary-General before May 1st, 1907, and send an abstract to him before that date. The themes selected for formal consideration are: 1. The Etiological Relationship of Organisms Found in the Skin in Exanthemata; to be presented by Professor W. T. Councilman of Boston. 2. Tropical Diseases of the Skin; to be presented by Dr. H. Radcliffe Crocker of London, Professor G. Riehl of Vienna, Dr. William Dubreuilh of Bordeaux, Dr. W. R. Brinckerhoff of Honolulu, and Dr. J. H. Wright of Boston. 3. (a) The Possibility of Immunization against Syphilis; to be presented by Professor A. Neisser of Breslau, Professor Ernest Finger of Vienna, and Dr. L. E. Leredde of Paris. (b) The Present Status of our Knowledge of the Parasitology of Syphilis; to be presented by Professor Erich Hoffmann of Berlin.

UNDER the will of the late Miss Helen Halyburton Symers of Dundee, who died on Nov. 26, 1906, the Royal Infirmary, Dundee, receives a sum of £1,000.

The Hunterian Lecture ON DUODENAL ULCER AND ITS TREATMENT.

DELIVERED BEFORE THE HUNTERIAN SOCIETY OF
LONDON.

By A. W. MAYO ROBSON, D.Sc., F.R.C.S.

THE serious character of ulceration of the duodenum and the frequency with which it is overlooked until dangerous complications have supervened, would afford a sufficient excuse for taking it as my subject this evening, but I would also mention as other reasons, the facts that I was requested to take up a practical subject, and that it has fallen to my lot to have had considerable experience of duodenal ulcers and their complications.

Until quite recently peptic ulcer of the stomach with its various complications quite overshadowed the similar conditions in the first portion of the duodenum, and though we now know how common ulcers of the duodenum are and that they not infrequently prove fatal as the result of haemorrhage, perforation, or other complications; our increased knowledge of their frequency and importance has chiefly been the result of investigations made during surgical operations.

This subject is one of many in which pathology based on autopsy has been corrected and simplified by biopsy or the study of disease in the living body, by actual observations made during the performance of abdominal sections; for instance, in some of the most recent works on medicine, observations based on *post-mortem* pathology give the proportion of duodenal to gastric ulcers as from 1 in 50 to 1 in 10, yet operative experience shows that in a large proportion of cases duodenal and gastric ulcers co-exist and that the real proportion of duodenal to gastric ulcers is 1 to 2 or thereabout.

The statistics of Drs. W. J. and C. H. Mayo show that in their last 200 cases of operations for peptic ulcer 86 were duodenal; of these, 27 involved the pylorus, and 9 had a separate and distinct ulcer of the stomach and duodenum.

It is a curious and as yet unexplained fact that, while gastric ulcer is common in women, duodenal ulcer is more frequently found in men. At the Rochester Clinic, of the total cases of duodenal ulcer operated on, 73 per cent. were males and 27 per cent. females; but in my own practice the proportion has been even larger—86 per cent. of males to 14 per cent. of females.

It is not so very long since the surgeon, when dealing with an acute abdominal lesion, often deliberately ignored the duodenum, just as formerly the pancreas; and, in fact, it may be said that perforated duodenal ulcer is to the surgeon almost the newest of the many possible causes of acute peritonitis, now capable of being treated rationally with a reasonable prospect of success.

Now that the importance of duodenal ulcer has been grasped, we have no cause to complain of want of recognition, as shown by the number of cases of perforating ulcer reported—unfortunately, however, for the most part unrecognized before the catastrophe of perforation had occurred. Fortunately, however, the reports of large numbers of cases of duodenal ulcer that have been treated before rupture or other complication show that ignorance and want of appreciation of the importance of the condition is gradually passing away.

It is in some respects unfortunate, both from the pathological and surgical point of view, that the duodenum was considered by the older anatomists as simply one of the essential divisions of the intestine and that the error is still perpetuated; for the portion of the duodenum as far as the point where Dr. Ochsner has shown the presence of a sphincter, just below the entrance of the bile and pancreatic ducts, has quite as much to do with digestion as has the stomach itself; and both physiologically and pathologically that portion partakes more of the character of the stomach than of the intestines, the small bowel proper, in fact, only starting below the sphincter just mentioned. Developmentally also, this point is marked out as the place of junction of the foregut and the midgut, so that the portion of duodenum from an inch below