NOTES.

A SECOND edition, revised and enlarged, of the "International Directory of Laryngologists and Otologists," compiled by Richard Lake, has been published under the auspices of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

The Medical Graduates' College and Polyclinic announces a vacation course of practical classes during September. The course opens on Monday, the 9th, and terminates on Friday, the 27th September. A class on Practical Otology will be held on Mondays at 5 p.m., and on Tuesdays at 9 a.m., commencing Monday, September 9. A class on Practical Laryngology will commence Wednesday, September 11, and will meet on Wednesdays at 5 p.m. at the College, and on Saturdays, at 2.30 p.m., at the Metropolitan Ear, Nose, and Throat Hospital.

In consequence of the great pressure on our space, owing to the lengthy report of the Section of Laryngology and Otology at the annual meeting of the British Medical Association, we are compelled to hold over the publication of many articles and communications of interest.

 BRITISH MEDICAL ASSOCIATION.

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

 SECTION OF LARYNGOLOGY AND OTOTOLOGY.

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

 A DISCUSSION ON

The Treatment of Nasal Obstruction from Intranasal Causes other than Mucous Polypus

was opened by Mr. F. MARSH (Birmingham), Dr. BROWN KELLY (Glasgow), and Mr. C. A. PARKER (London).

Mr. F. MARSH (Birmingham) said: In opening this discussion, it is advisable, first of all, to define what is meant by the term "nasal obstruction." I would define it as inability to breathe freely and equably at the same time through both nostrils. The degree of obstruction may thus vary between a slight insufficiency of one nostril and complete occlusion of both. That free and equable nasal breathing is essential will, I think, now be generally conceded by all who have experience of ear and throat diseases. I

can only say here that experience has convinced me that it is of the very utmost importance.

In accordance with the wish of the officers of the section, I propose to speak only of obstruction due to abnormal conditions of the turbinal bodies and septum, and to omit such causes as congenital smallness or stenosis of posterior or anterior nares, catarhal and inflammatory conditions, foreign bodies, rhinoliths, new growths, bulging of inner wall of antrum, collapse of *alæ nasi*, etc.

First, then, with regard to obstruction due to abnormal conditions of the turbinal bodies. This group will include :

A. *Bone Obstruction*.—1. The bony framework of the inferior turbinated being larger than normal from congenital or hypertrophic causes, or projecting too much into the cavity of the nostril. 2. A bulbous condition of the middle turbinated with downward enlargement, entrenching upon, and in severe cases occluding, both the middle and inferior meati.

B. *Soft Tissue Obstruction*.—1. Hypertrophy of mucous and submucous tissues of inferior turbinated, either general or most marked at either extremity. 2. Hypertrophy of similar tissues of middle turbinated. 3. Passive congestion of soft tissues of middle turbinated, often alternating, and often only present in the recumbent posture and varying with vasomotor tonicity.

C. *A Combination of Two or More of these Conditions*.

A. BONE OBSTRUCTION—1. *Bony Enlargement of the Inferior Turbinate* may be treated by three methods, viz.: Turbinectomy, anterior turbinectomy, crushing outwards of bony framework.

Turbinectomy, by Carmalt Jones's turbinotome, is applicable to those cases in which there is also mucous hypertrophy, most marked posteriorly, obstruction great, and the septum sufficiently straight to admit the passage of the turbinotome. The turbinotome must be sharp, must be carefully placed in position, and must be kept in the right plane during the forward sweep. General anæsthesia with gas or ethyl chloride enables this to be done with greater certainty, and a forefinger in the posterior nares is a valuable adjunct. Hemorrhage is often free, but is usually controllable by application of, or light packing with gauze dipped in, a solution of extract of adrenal gland. The result of a well-performed turbinectomy in a suitable case is very satisfactory, and reproduction of the turbinal body is sometimes remarkable.

Anterior Turbinectomy is applicable where the enlargement is chiefly anterior, when a deviation or irregularity of the septum renders the passage of a turbinotome difficult, and when an anæsthetic is not advisable or is vetoed by the patient. To Mr. Richard

Lake belongs the chief credit for this operation. It is best performed with a pair of scissors, strong, but light, and curved both at an angle and on the flat. From $\frac{1}{2}$ inch to 1 inch should be excised, and the margin left should be sloped and rounded off carefully. A cold wire snare should be used if there is any difficulty in removing the fragment. In slighter cases Grunwald's conchotome, or one of the many modifications thereof, may be the only instrument needed, small fragments being pinched out until the necessary space has been obtained.

Crushing Outwards of Bony Framework or Shell.—This method is a useful one when the occlusion is mainly due to projection inwards of the bony shell, with little or no mucous hypertrophy. In typical cases the turbinal body forms a right angle with the outer wall of the nostril. It is often bilateral.

The crushing may be done with either a pair of Walsham's straightening forceps or a broad-bladed pair of polypus forceps. A blade is passed into each nostril—resting over the bony projection—and the forceps opened, sufficient force being used to reduce the projection by at least one half. The compressing force can be exercised on the whole or any portion of the bone. The septum must not be used either as a fulcrum or for counter-pressure. The procedure is a quick one, can be easily done under gas or cocaine, there is but little hæmorrhage, and the result is satisfactory.

2. *Bony Enlargements of the Middle Turbinate* must be removed with cold wire screw snare, scissors, or Grunwald's forceps, as may be found most suitable for the individual case.

B. SOFT TISSUE HYPERTROPHY—1. *True Hypertrophy of Mucous and Submucous Tissues.*—If slight and general, the galvano-cautery is as a rule sufficient; several applications may be needed, and the direction and manner of cauterizing must depend on the shape and extent of the hypertrophy. If, however, the hypertrophy is most marked at each or either extremity, the cold or galvano-cautery snare should be used. Removal, when the anterior extremity is the one involved, can often be best and most expeditiously performed with scissors or conchotome.

2. *Hypertrophy of the Mucous Membrane* over the middle turbinated is generally associated with bone hypertrophy, though in cases of asthma I have seen the mucous tissues enormously enlarged—a result rather than a cause. Removal should be effected with either wire snare, scissors or punch forceps.

3. *Passive Congestion of the Soft Tissues* over the inferior turbinated bone is undoubtedly a condition most appropriately treated by the galvano-cautery, a groove in long axis, button-

holes, or isolated points, being made according to the degree and extent of the congestion.

Most of these cases occur in the overworked, the neurasthenic and neurotic—in short, wherever there is a diminution of vasomotor tone—and therefore general tonic treatment, rest, and change are important adjuncts to the local treatment.

C. COMBINATIONS OF BONY AND SOFT TISSUE OBSTRUCTION.—These must be treated by a combination of the above methods, according to the requirements of the case, anterior turbinectomy with the cautery being perhaps the most frequent one.

I come now to obstruction due to abnormal conditions of the septum. These may be :

A. *Bony or Cartilaginous*, comprising: 1. Deviations of bony septum. 2. Deviations of cartilage of septum. 3. Dislocations of cartilage of septum. 4. Exostoses and ecchondroses of septum. 5. Deviations with exostoses or ecchondroses.

B. *Hypertrophy of Mucous and Submucous Tissues over Septum.*

A.—1. *Deviations of the Bony Septum* may be simple or compound, and may vary in degree from an almost imperceptible departure from the straight line to an acute angle. They are generally either ridge-shaped of varying width or “bossed.” The former generally extend the length of the septum in antero-posterior axis; the latter are generally more localized. There is often some bony thickening over the convexity or angle of the deviation, and hypertrophy of the mucous membrane (compensatory) over the inferior turbinated on the side opposite the deviation. The treatment depends upon the degree of the deviation, the size of the nostril, and the condition of the inferior turbinateds. In many of the slighter cases in roomy nostrils treatment of the inferior turbinateds on the lines already indicated will give a sufficient breathing-space. Whenever this is not sufficient, the deviation itself will need treatment. In the ridge-shaped cases especially, when there is bone-thickening, a cutting procedure should be undertaken. Under cocaine and adrenalin chloride solution the ridge should be cut away either with the saw, spoke-shave, or Moure’s osteotome. If the ridge is formed by an acute-angle deviation, it is almost certain a communication will be made with the other nostril. This is of no consequence, and in some cases may be an advantage—for instance, those with a collapsed ala nasi from disuse. If the deviation of the septum is localized and rounded, a good result may be obtained with the starring forceps, used in one, two, or more places, according to the area

involved. It can be done under gas or ethyl chloride, and when the bone is thoroughly starred readjustment with Walsham's or any flat-bladed forceps, or the finger, is easily accomplished. The difficult cases are those where the whole of the septum is deviated, sinuous from before backward, and concavo-convex from above downwards, both nostrils being obstructed and undeveloped from disuse. Chloroform or ether is necessary, and Asch's or one of the various modifications of his operation must be performed. The area of deviation must be cut through or fractured in such directions that replacement can be made with straightening forceps and the new position retained without *pressure* splints. A *supporting* splint in one or both nostrils is often desirable, and I have found lengths of drainage-tubing of various sizes, or a splint cut out of a sheet of rubber, effective for this purpose. They are easily sterilized, cleanly, and better tolerated than most other material. I have long ago discarded the vulcanite and rubber plugs, my results with them being most disappointing.

The splints may as a rule be taken out at the end of the first week, but the patient should be kept under close observation for some weeks. Any tendency to relapse calls for the reinsertion of the support. Care must be taken to prevent adhesions, and if there is any fear of this, a piece of gutta-percha tissue should be kept between the opposing surfaces until healing is accomplished.

2. *Deviations of the Cartilage of the Septum* occur generally as a convex bulging to one side. Petersen's and Hajek's methods are efficient, but somewhat tedious and complicated. I have found it sufficient to thoroughly star the cartilage, replace it in position, and keep it there with a supporting splint.

3. *Dislocation of the Cartilage of the Septum* and eversions of the median edge of the lateral cartilages are best treated by excision of the projection, the mucous membrane being first incised and reflected.

4. *Exostoses and Ecchondroses of the Septum* are often found in association, the superficial layer being composed of cartilage, the deeper parts of bone. The younger the person, the greater the proportion of cartilage. They may occur at any part of the septum, but their favourite sites are the lines of juncture of the bones and cartilage forming the septum. In shape they vary from a small spine or spur to an elongated ridge or crest. The method of removal will depend chiefly upon the size, shape, and density of the projection. In the case of small spines, the galvano-cautery will perhaps most easily achieve the desired result, being bloodless, painless under cocaine, and not alarming to the timid and nervous;

or one of the many cutting hooks or ring-knives may be used. I, however, generally employ a blunt-pointed bistoury or strong blunt tenotome both for these and all those of moderate size composed chiefly of cartilage. The larger and denser ones must be removed with a spokeshave, osteotome of Moure, or a saw. If the projection is so shaped that it can be engaged posteriorly with a spokeshave or osteotome, they should be used in preference to the saw; the process is more rapid and less painful, the line of incision is clean, and the fragment is easily removed. I have not yet had occasion to adopt Moure's suggestion to make a groove for the reception of the blade with the galvano-cautery when there is no engaging projection. The saw—Bosworth's or Woakes'—according to the length of the exostosis, should be used for cases unsuitable for the above method. When practicable, the sawing should be done from below upwards, the line of the septum should be maintained as far as possible, and it is best to err on the side of cutting too much than too little. Scissors or the wire snare may sometimes be needed to complete the severance of the fragment. Of treatment by electric trephines, burrs and saws, and electrolysis, I have no experience.

5. *Combinations of Exostoses and Ecchondroses with Deviations*, the most common of all, should be treated by a combination of cutting away and straightening—if free removal of the thickened portion is not sufficient—according to the principles enumerated above. In all these cutting procedures hæmorrhage must be taken into account. It can usually be restrained during the operation by the application of adrenalin solution, and afterwards by a strip of gauze soaked in this solution and introduced into the nostril. This should be removed as soon as loose—about forty-eight hours afterwards—and the nostrils kept clean and aseptic by the frequent use of an alkaline antiseptic wash or spray. It is most desirable that the patient be kept under observation until healing is complete—often a matter of some weeks.

B.—Hypertrophy of the mucous tissues over the septum is rare, and seldom sufficient of itself to cause any great degree of obstruction. I have seen a few cases where it was very marked, but a satisfactory result was obtained by the use of the galvano-cautery.

Lastly I wish to speak of adhesions between the septum and turbinal bodies the result of previous ulceration, traumatism from the rough use of forceps in removal of polypi, and chemical agents.

One of the worst cases I have seen was from the treatment of mucous polypi by rubbing with solid nitrate of silver. The septum

and inferior turbinated were closely welded together, and it was infinitely more difficult to overcome this than to remove the polypi. The adhesions should not only be freely divided with scissors, but, if practicable, some of the turbinal tissue should be excised. Trichloracetic acid should then be applied to the raw surfaces, and a piece of gutta-percha tissue kept between them until healing has taken place.

Owing to the extent of the subject and the limited time allowed, I have had to deal briefly with many important points and to omit much detail. I have given my own personal experience, and trust that, although I have enunciated but little that is new, I have raised questions sufficient to stimulate and promote some discussion.

Dr. BROWN KELLY (Glasgow), in his opening address, said :

The part of our subject of discussion to which I desire to direct your attention is the treatment of swelling and hypertrophy of the inferior turbinate.

It might not be amiss to preface my remarks by a brief consideration of how we should act when turbinal enlargements are associated with certain other morbid conditions. I would refer first to adenoids. In children there is no doubt that the treatment of the naso-pharynx should take precedence of any intranasal measures that may at first seem necessary, and that the latter should be delayed until the effects of the adenoid operation have been observed. In adults the question of procedure is more difficult. Thus, we not infrequently meet with a case presenting the following symptoms: susceptibility to colds, post-nasal catarrh, and tendency to buccal respiration. On examining the patient, we find little or no evidence of intranasal disease, and in the naso-pharynx only a small mass of adenoids which just hides the choanal arches. Are we to attribute the symptoms to intermittent swelling of the inferior turbinates, to the adenoids themselves, or to the influence which some writers suggest is exercised by the adenoids in causing passive congestion of the turbinates? After observing the result of treatment in a number of such cases, I have come to the conclusion that a small mass of adenoids in an adult plays an insignificant part, if any, in producing the symptoms mentioned and in maintaining turbinal engorgement. Attention to the intranasal affection will therefore be of primary importance in these cases.

The association of a spine or deviation of the septum with turbinal enlargement, especially in a patient in whom only mild measures are permissible, may lead one to speculate as to whether

treatment of the turbinate alone cannot be made to suffice. Until comparatively lately there has been a tendency to avoid interference with the septum, owing to the severity of the measures necessary and the often unsatisfactory results, and to aim at obtaining the desired patency rather by sacrificing the turbinate to a greater or less degree. On the other hand, some rhinologists, believing that a septal outgrowth excites hypertrophy in the turbinate opposite, a view which is not supported, I think, by clinical evidence, have regarded the treatment of the septum as essential. Between these two extremes a middle course is to be steered. In general terms, septal and turbinal affections should be treated as far as possible according to their respective requirements.

The futility of treating a swollen turbinate in the presence of an accessory cavity suppuration need only be mentioned.

It is often a matter of considerable difficulty in treating pathological states of the inferior turbinate to determine how much should be done. This is particularly so when an intermittent congestive condition is present which gives rise to pharyngeal symptoms only, and is unaccompanied—at least, so far as the patient has noticed—by nasal obstruction. Rhinoscopy in such cases may yield a false impression as to the patency of the nasal fossæ, if it be not borne in mind that the psychical disturbance—excitement, mental tension, or whatever it may be—during the examination exercises a peculiar influence on the inferior turbinates, whereby they become collapsed. Under these circumstances, although we may feel fairly sure that the symptoms are of nasal origin—or, rather, that they are not of pharyngeal origin—it is desirable before beginning operative measures to obtain evidence of the suspected stenosis. For this purpose a drug having local vasodilator properties would be invaluable. In the meantime we must trust to the patient, and ask him to test for a few days the patency of each nasal passage from time to time, especially while lying in bed, for then the turbinates, more particularly that on the side upon which he lies, shows the greatest tendency to engorgement. Sometimes we may chance to see the abnormal swelling if an examination be made at the end of the visit, or at a second visit, when the patient has become more accustomed to his surroundings.

Exceptionally we meet with persons whose statements as to the presence or degree of nasal obstruction are exaggerated or unreliable. Thus, sufferers from cardiac disease may attribute their dyspnoea to a supposed nasal affection, and hysterical, neurasthenic and asthmatic individuals may complain loudly of insignificant obstruction. In these cases it is often extremely difficult to decide

as to whether the local condition has played a part in producing and maintaining the dyscrasia, or is merely an expression of the general loss of tone and heightened reflex irritability from which the patient temporarily suffers. In regard to asthma, I have seen so much benefit follow comparatively trivial intranasal procedures that I feel encouraged to operate when the indications are slighter than would warrant similar measures in non-asthmatics. Upon considerations such as these should be based not only the diagnosis, but also the estimate of the amount of treatment to be carried out at each sitting.

Various medicaments, chiefly astringents, vaso-constrictors, antiseptics, and alteratives, have been recommended for the reduction of turbinal engorgements. The benefits derivable from these is limited and temporary, and is best seen in cases in which the nasal affection is secondary to a constitutional disturbance.

For the more obstinate cases of swelling, as also for moderate degrees of hypertrophy of the inferior turbinate, recourse must be had to other measures. Amongst those that have been advocated are: Bougies (Wagner), tents (Solis-Cohen), elastic balloons distended with water (Dionisio), injection into the enlarged turbinal of ergot (De Blois), carbonic acid (Henderson), or zinc chloride (Viollet), scarification, electrolysis, massage, compressed air (Massei), and hot air (Lermoyez and Mahu).

Without denying a possible value to these methods in some instances, experience has proved that cauterization yields with most ease the best results in the largest number of cases. The agents that have been found most suitable for cauterization of the nasal mucous membrane are the galvano-cautery and chromic acid; trichloroacetic acid, for which so many advantages have been claimed, is inferior to chromic acid excepting in non-toxicity.

The galvano-cautery and chromic acid may be used interchangeably, although as a rule one or other is to be preferred in each case. Thus, for turgescence, slight hypertrophies, and in sensitive patients, the cautery is probably the better agent; when catarrh is a prominent feature, chromic acid is more efficient (McBride); and when the hypertrophy is considerable, both cautery and acid may be advantageously employed at the same sitting.

Little need be said as to the manner of carrying out what to most of us is an everyday procedure. It is commonly recommended to make three parallel furrows along the inner surface of the inferior turbinate. This, I believe, is rarely necessary, and I would deprecate the great destruction of glands thus caused. If the cauterizing agent be applied along the lower edge of the turbinal

where the glands are scantier, the desired reduction will be effected in the majority of cases, and with greater impunity. The depth to which the cautery-point is to be plunged, and the thoroughness with which the chromic acid is to be rubbed in, will depend upon the amount of enlargement present. No after-treatment is called for beyond the insufflation of an antiseptic powder and confinement indoors for the remainder of the day. An alkaline wash may be used afterwards if the discharge becomes abundant or tends to form crusts.

A second cauterization should not be made until the wound caused by the first has healed and the cicatrix contracted. This requires three weeks or longer, the duration of the process depending largely on the patient's constitution.

There is considerable diversity of opinion as to the frequency with which cauterization should be repeated. In the majority of cases two applications to each side should suffice, and it is very exceptional that more than three are needed. The patients in whom I have had greatest difficulty in effecting the necessary reduction were boys of from eight to twelve years of age, in several of whom asthma was a prominent symptom; the intranasal appearances in these cases were in no way unusual.

One should be chary of treating medical men who are attending cases of influenza. In several instances I have seen a severe attack of this disease follow cauterization in such a manner as to suggest a relation.

When the inferior turbinate presents large hypertrophic masses, their direct removal is preferable to slow destruction by cauterization. Of the instruments recommended for the treatment of this condition, the galvano-cautery snare is the best. The cautery snare is usually applicable to hypertrophies of the anterior end—with or without the aid of a transfixion needle—to those along the lower edge of the inferior turbinate, and to the masses occasionally found on the outer side of this body which are brought into view with the probe. The posterior end, on the other hand, cannot always be encircled, owing to the narrowness of the nasal chamber and the thickness of the ligature tube. In these cases the cold snare, which is more easily manipulated, should be tried.

To catch the hypertrophied posterior end of an inferior turbinate is sometimes a matter of considerable difficulty. It should be carried out, when possible, as it usually is, under anterior rhinoscopy; failing this, posterior rhinoscopy may be employed; and if the latter also be impracticable, attempts should be made to hook the mass in the loop of wire, the feeling of resistance being our

guide. The introduction of a forefinger into the naso-pharynx, to place the loop in position, is unnecessary and extremely disagreeable to the patient.

At one time I believed—what is still current in many text-books—that it was necessary in this operation to employ an ecraseur and to constrict the mass very slowly, in order to avoid excessive bleeding. Experience showed, however, that this was by no means a safeguard. Subsequently I abandoned the ecraseur in favour of an ordinary snare, with which I am in the habit of severing the hypertrophy in two or three minutes, instead of an hour or more as previously; I have noted but slight, if any, increase in the hæmorrhage since adopting this plan. I would repeat, however, that the galvano-cautery snare, when applicable, should be used in these cases. The operation with the cold snare is followed, as a rule, in half an hour to an hour, by bleeding. The patient should be warned of this, and instructed as to the measures to be adopted in the event of the hæmorrhage becoming profuse (*e.g.*, pediluvia, sucking ice, and recumbent posture). I have performed this small operation over 200 times, and although I apply neither styptic nor packing to the bleeding surface afterwards, I have had no alarming hæmorrhage, nor one requiring my personal attention.

In dealing with these posterior hypertrophies, it is well to keep the following facts in view: (1) That no amount of treatment applied to the anterior two-thirds of the turbinal will appreciably lessen the size of its posterior third. (2) That a removal of a hypertrophied posterior end is not infrequently followed by subsidence of the swelling of the rest of the turbinate. The snaring of the posterior end should therefore be undertaken at an early stage in the treatment of these cases. (3) That, after-removal of what at the operation appeared to be the entire posterior end, considerable enlargement may still be present when healing has taken place. This is probably due to swelling of the parts immediately anterior to the line of section. It is therefore advisable when removing a posterior end to include a tapering portion of the soft tissues along the lower border of the posterior third of the turbinal. (4) That after removing the posterior end on one side, that on the other, which previously appeared normal, may become enlarged.

Hypertrophied parts of the inferior turbinate may also be removed by scissors, cutting forceps, or the spokeshave. These instruments, however, are inferior to the snare in adaptability, precision, or hæmostatic action.

The spokeshave, or ring-knife, as it was originally termed, was

introduced for the removal of the hypertrophied posterior end of the inferior turbinate. This instrument might have retained an irreproachable place in our armamentarium if its use had been restricted to that for which it was designed. Unfortunately, it found a wider application, and was modified in order to remove not only the hypertrophied mucous membrane, but the whole or greater part of the turbinated body. The operation of turbinotomy has not redounded to the credit of British rhinology, and at present I would merely have disclaimed any partiality for it had the suggestion not been made that the subject should form part of our discussion. The following may be mentioned as some of the objections to turbinotomy: (1) That, in aiming at the improvement of certain functions, it removes the organs chiefly concerned in the performance of these functions. (2) That it accomplishes no more than can be attained by milder measures. And, I would ask, which of us would submit to turbinotomy in preference to treatment by snaring or cauterization? (3) That there is the liability afterwards to dryness of the mucous membrane of the upper air-passages. I am told on good authority that even ozæna may be a sequela, but of this I have no personal knowledge.

I might here remark that any operation whereby the nasal fossæ are made unduly free may be followed by abnormal dryness of the parts below. There are few conditions of the upper respiratory tract in which the rhinologist feels so helpless as that of wide nasal chambers with pharyngitis sicca and tendency to laryngitis. Caution therefore is always called for, but especially, I think, in dealing with advanced cases of polypoid rhinitis, in which the obstruction is due to inert hypertrophic masses, the tissues of which appear to have lost their characteristic expansile and contractile properties.

Is complete turbinotomy ever indicated? The only cases in which I can conceive it might be are those of great deviation of the septum as a whole in a very narrow nose; it might then be beneficial to remove the rudimentary inferior turbinate from the narrow side. The only occasion on which I attempted a complete turbinotomy was when operating in nasal fossæ such as described. The patient presented a most unusual group of symptoms, namely, occlusion of the narrow side by swelling of the inferior turbinate was accompanied by severe pain in the corresponding eyeball and marked contraction of the pupil, whereas, when the narrow nasal fossa was patent, the pain in the eye was absent and the pupils were equal in size.

Turbinotomy probably owes the support it receives chiefly to

two reasons: (1) It effects the removal of the enlarged posterior end of the inferior turbinate, and secures the benefit resulting therefrom. (2) As stated by one of its advocates, it demands only ordinary dexterity, while the snaring of a posterior end, on the authority of the foremost writer on rhinological technique, is one of the most delicate operations in the nose.

Time does not permit of my doing more than mention the importance of general treatment. Continued exposure to a vitiated atmosphere, an error in diet, or the neglect of a diathesis or systemic disease, may go far to nullify local treatment, however well carried out.

Mr. C. A. PARKER (London) contributed the following paper to the opening of the discussion:

The methods of operating for the relief of nasal obstruction have been very fully dealt with by various authorities during the last few years, and therefore I will not touch on this part of the subject, but will consider briefly some of the indications for operative interference.

I have recently made some observations on the directions of the air-currents in the nose, an account of which has been lately published in the JOURNAL OF LARYNGOLOGY, and therefore I shall only allude to them in so far as they bear on the subject of this discussion.

The method I employed for ascertaining the direction of the inspiratory air-current was to blow lycopodium into the air the patient was breathing, afterwards noting the distribution of the powder in the nose; and for expiration I noted the course which tobacco-smoke took on being exhaled through the nostrils.

In normal nares the distribution of the powder on the mucous membrane showed without any doubt whatever that the current of inspired air passes upwards and backwards through the middle and superior meatus, entirely missing the inferior meatus; that it then sweeps over the vault of the naso-pharynx and passes down the posterior wall of the pharynx to about the centre of its oral portion, from whence it takes a straight course into the arytenoids.

In expiration the air, as shown by the smoke, takes a lower course, passing chiefly through the inferior meatus.

Having determined the air-way in the normal nose, I next examined by the same methods cases in which various abnormalities existed, by doing which many points of interest and usefulness were suggested.

The chief points to be kept in view in considering a case of

nasal obstruction, and in determining what, if any, treatment should be adopted, are :

1. Difficulties of inspiration.
2. Difficulties of expiration.
3. The efficiency of the drainage of the nose.
4. The possibility of the abnormality being a source of chronic inflammation.

1. DIFFICULTIES OF INSPIRATION.—In considering this question, I wish first to point out that the use of lycopodium may be applied for practical purposes. In normal nares the powder is deposited on the septum in a broad band curving upwards and backwards through the middle and superior fossæ, and it is also seen on the anterior end and under surface of the middle turbinate, whereas in obstructed nares the lycopodium is diverted from its usual course, and the hypertrophy, spur, or deviation causing the obstruction is thickly coated with powder. It is thus possible to see, and to limit the operation to, the exact portions which require removal in order to establish free inspiration. This may be of great importance, for, seeing that the inspired air does not come into direct contact with the inferior turbinate, it is possible that the mucous membrane covering the structures in the middle and upper passages has more to do with warming and moistening the air than is generally supposed. Speaking generally, it may be said that any abnormality situated or projecting in front of a line drawn from the floor of the nose, just within the vestibule, to the anterior end of the middle turbinate will cause difficulty of inspiration, and should therefore be removed.

The principal abnormalities, excluding tumours and specific diseases, which may cause inspiratory obstruction, may be tabulated for the purposes of description as follows.

A. Alterations in the inferior meatus :

- (a) Dislocations and thickenings of the anterior end of the septal cartilage.
- (b) Spurs of the septum.
- (c) Tumefaction and hypertrophy of the inferior turbinate.

B. Alterations in the middle meatus :

- (a) Simple deviations of the septum.
- (b) Deviations with spurs.
- (c) Enlargements of the middle turbinate.

C. Alterations in the post-nasal space :

- (a) Adenoid hypertrophy.
- (b) New growths.

These abnormalities will be mentioned more in detail under their respective headings :

A. *Alterations in the Inferior Meatus :*

(a) *Of the Anterior End of the Septal Cartilage.*—Dislocations and thickening of this part of the septum are a most fruitful source of obstructed inspiration, and obviously require operative treatment. Whilst operating the normal air-course should be borne in mind, and sufficient of the cartilage removed to give a free air-way from the nostril to the middle meatus. To effect this it is necessary to take away not only the lower protruding part, but also any thickening which may exist higher up towards the middle meatus.

(b) *Spurs of the Septum.*—When situated in the lower meatus, spurs seldom give rise to any inspiratory difficulty. The majority of them are situated low down and far back, and do not project in front of the imaginary line already defined, and on applying the lycopodium test the powder is seen to have taken its usual upward course, leaving the spur untouched. Occasionally, however, a spur may project in front of the line and cause obstruction, in which case the lycopodium will be diverted from its usual course, and the projecting portion of the spur will be thickly coated with powder. Under these circumstances operation is clearly indicated, and sufficient of its anterior end must be removed to restore a free passage from the vestibule to the middle meatus.

(c) *Enlargements of the Inferior Turbinate.*—The normal path of inspired air being through the middle and upper passages, it follows that the inferior turbinate may be considerably enlarged without in any way interfering with inspiration—a fact constantly observed in practice. Sometimes, however, the anterior end is enlarged in a forward and inward direction, and crosses the line drawn from just within the vestibule to the anterior end of the middle turbinate, in which case it will cause obstruction, and operative treatment is indicated. In doubtful cases the use of lycopodium is helpful, for if the anterior end is covered with powder it is probably a source of obstruction, as normally none should be seen there.

As regards the posterior end, we shall see presently that its enlargement is more likely to cause difficulty of expiration, but excessive enlargement may also obstruct inspiration. In either case operation is indicated. As regards complete turbinectomy, I do not consider it ever necessary for the relief of inspiratory difficulties.

B. *Alterations in the Middle Meatus :*

(a) *Deviations of the Septum.*—These are far more productive of

inspiratory obstruction than spurs, and, unfortunately, are harder to deal with. By the use of lycopodium it is seen that even slight deviations may considerably interfere with the air-way, and especially those which involve the cartilaginous septum, and in which the greatest convexity of the bulge is situated towards the front part of the middle meatus. These slight cases cause considerable difficulty to the patient, and marked cases may be productive of complete stenosis; in either case, therefore, operation is indicated. The best method of dealing with the slight cases is a matter of some doubt, for the departure from normal is often so small that one hesitates to perform an extensive operation. In several cases I have found the free application of the cautery enough, and in others I have obtained sufficient room by taking off the smallest shaving of the mucous membrane and cartilage with a knife. In marked cases I prefer the method described by Dr. Lack in Watson Cheyne's new volume.

(b) *Deviations with Spurs of the Septum.*—These deformities are also productive of obstruction. There are two varieties to be considered: firstly, a simple spur lying in the lower meatus, with a deviation obstructing the middle meatus; and, secondly, a deviation the convexity of which is thickened into a spur. In the former variety it is the deviation which causes the obstruction and requires treatment; the spur, as a rule, is below the air-current, and may be left alone. The use of lycopodium will determine whether the spur is adding to the obstruction, and, if so, to what extent it should be removed. In the second variety operation is usually indicated, and it is generally possible to remove sufficient of the thickened septum to establish a free air-way without making a perforation. If, however, in the course of operation the saw penetrates the opposite side to any extent, removal should be abandoned, and the operation continued as for simple deviation.

(c) *Enlargements of the Middle Turbinate.*—Seeing that in normal nares the air traverses the superior meatus, enlargements of the middle turbinate, when sufficient to cause obstruction between the middle and upper passages, seem to assume more importance than is generally attached to them. Enlargements are met with in three distinct classes of cases: firstly, in rhinitis sicca; secondly, accompanying muco-purulent rhinitis; and, thirdly, in cases of commencing or established polypus. In dry rhinitis the enlargement may be caused by foreign particles in the air impinging on a dry mucous membrane and producing chronic inflammatory thickening; but I would suggest that the enlargement may also be the cause of the dry rhinitis, for, the superior meatus being blocked,

all the air must pass through the middle meatus, and thus the warming and moistening powers of its mucous membrane may be overtaxed. I would therefore further suggest the advisability in these cases of restoring the air-way from the middle to the superior meatus by amputating the anterior end of the middle turbinate.

In muco-purulent rhinitis, accompanied by enlargement of the middle turbinate, there is sometimes a distinct set of symptoms: the discharge is very profuse and sticky, and is voided with great difficulty; the voice has a distinct nasal timbre, and the patient complains of inability to breathe through the nose. This last symptom is more subjective than real, for, on being told to do so, he can close the mouth and breathe fairly freely through the nostrils. On examination, the inferior meatus is often found to be unusually roomy, but the middle turbinate is much enlarged and surrounded by thick muco-purulent discharge. This set of symptoms I consider to be an indication for removing the anterior end of the middle turbinate. The nasal voice and the difficulty of nasal inspiration will be at once relieved, and with appropriate treatment the discharge will soon cease.

The third variety of enlargement of the middle turbinate does not come within the limits of this discussion.

C. Alterations in the Post-nasal Space :

When it is remembered that normally the air-current sweeps over the roof of the naso-pharynx, it is readily seen that any hypertrophy or growth springing from the roof will be a source of obstruction. The fact that quite small pads of adenoids, even in adults, cause obstruction is thus readily explained, and the importance of their removal is obvious.

2. DIFFICULTIES OF EXPIRATION.—From the results of the smoke test and from the patient's subjective sensations it is evident that it requires far greater abnormalities to interfere with expiration than it does to impede inspiration. In expiration the air-stream, though normally passing through the inferior meatus, seems easily diverted into the middle meatus when the former is obstructed; in inspiration, on the other hand, even slight abnormalities, which divert the air-stream, cause considerable discomfort. This difference may perhaps be accounted for by the fact that inspiration is due to muscular action, whereas expiration is the result of elastic recoil. Anyhow, there may be great obstruction of the inferior meatus without any difficulty of expiration, but if there is obstruction of the middle meatus *as well*, then expiratory obstruction will be complained of. This I have proved by plugging the inferior

meatus with cotton-wool and watching the course of exhaled smoke. The smoke finds its way through the middle meatus, and no sensation of obstruction is experienced; but if in addition the smallest piece of wool is inserted into the middle meatus, both inspiration and expiration at once become difficult. Hence, it is evident that operative interference in the inferior meatus is seldom indicated for the relief of expiratory obstruction. There is, however, one abnormal condition which often obstructs expiration whilst leaving inspiration comparatively free, namely, enlargement of the posterior end of the inferior turbinate. If this enlargement is at all considerable, it will block the inferior meatus and partially obstruct the middle, thus producing a condition which would naturally be expected to cause such symptoms. When, therefore, the difficulty of expiration is in excess of that of inspiration, enlargement of the posterior ends of the inferior turbinates should be suspected.

3. THE EFFICIENCY OF THE DRAINAGE OF THE NOSE. — The efficient drainage of the nose is as essential to the health of the nasal cavities as is the free air-way. It is therefore important to inquire in what way intranasal abnormalities may interfere with this important process. From careful observations, it seems probable that the secretions gravitate to the inferior meatus, from whence they are expelled in an unobstructed passage by the expiratory air-stream on blowing the nose. If the inferior meatus is obstructed in any part of its course, the expiratory air-stream is, as has already been pointed out, diverted into the middle passage, at the same time losing much of its force, and hence the secretions collect in the lower passage, causing irritation, chronic inflammation and much discomfort to the patient. Again, difficulty of both inspiration and expiration is often met with in cases in which the intranasal abnormalities are limited to the inferior meatus. On examining such cases carefully, the middle meatus is found to be full of secretions—often muco-purulent and sticky—which are voided with great difficulty, and which consequently collect and cause obstruction. The abnormalities in the lower meatus are found to be very marked, and to be such as to prevent the discharges gravitating from the middle to the inferior meatus.

Operation is therefore indicated in those cases of obstructed inferior meatus in which secretions are found collecting in either the inferior or middle fossa. The conditions which may require operation are enlargements of the anterior end of the inferior turbinate, or of its posterior end, true hypertrophic outgrowths of the inferior turbinate, and some few spurs of the septum. It is never necessary to remove the whole of the inferior turbinate, as

the anatomical widening of the middle part of the inferior fossa always allows of sufficient room for both expiration and drainage.

It is seen, therefore, that as regards the respiratory function of the inferior meatus operative measures are seldom necessary ; but for the purposes of drainage it is often advisable to establish a freer passage.

4. The last point for consideration is THE POSSIBILITY OF NASAL OBSTRUCTION BEING A SOURCE OF CHRONIC INFLAMMATION. It is more or less an accepted doctrine that spurs, for example, may by their mere presence give rise to chronic rhinitis, and, secondarily, to chronic otitis, pharyngitis, laryngitis or bronchitis. From closely observing these cases, I am of opinion that spurs never cause chronic rhinitis and its sequelæ unless they interfere either with respiration or with the efficient drainage of the nose. Of all intra-nasal abnormalities, I should say that spurs projecting into the inferior meatus are the most innocent. To bear this out, one only has to remember the vast number of spurs which cause no symptoms whatever. Apart from the question of respiration and drainage, the only indications for their removal are hay fever and hay asthma. In these troubles, owing to the sudden engorgement of the inferior turbinates, it is possible that spurs may still further increase the obstruction and add to the irritation. The same troubles may also be occasionally an indication for complete turbinectomy.

In conclusion, I would suggest the following points more especially for discussion :

1. That even slight abnormalities occurring in the middle meatus are of more importance than great abnormalities in the inferior meatus.

2. That abnormalities causing obstruction between the middle and superior meatus are productive of harm, and may require treatment in order to restore the air-way.

3. That, in view of the fact that the inspired air does not pass directly over the inferior turbinate, it is probable that the mucous membrane covering the structures of the middle and upper passages shares the important function of warming and moistening the inspired air, and, consequently,

4. That operative interference should be strictly limited, no more of the parts being removed than is absolutely necessary to restore the natural air-way.

5. That the interior meatus is the natural channel for the drainage of the nose, and that removal of obstructing abnormalities is often necessary to render it efficient for this purpose.

Mr. MAYO COLLIER (London) said he would venture to remind them there had been an omission of a form of obstruction he would call "latent obstruction." Mr. Marsh in his definition of nasal obstruction fell rather short of a complete definition. He said nasal obstruction was a condition where nasal respiration had to be associated with oral respiration. This definition should be amplified by the words "and at all times." The nose should be efficient for nasal respiration at all times, day and night.

He referred to a class of cases entirely omitted by the opener of this debate—those cases that are free during the day when up and about, but obstructed at night, when the body is in the horizontal position and the head is on the pillow. The nasal cavities are lined with a membrane of remarkable constitution; it simulates erectile tissue and is affected by any general debilitating cause. This tissue becomes in some cases quite atonic, and fills up whenever the body is in a horizontal position.

These cases require not only general treatment, but the application of the galvano-cautery to several points of the tissue, to pin down the covering and lessen the tendency to obstruction.

Dr. WATSON WILLIAMS (Bristol) said it was most important to consider each case on its own merits. The symptoms were by no means commensurate with the degree of obstruction, for while in one patient more or less obstruction was unattended with symptoms, in another patient the same amount of obstruction caused very pronounced discomfort, and not seldom very great nervous depression.

He desired to draw attention to the large group of cases suffering from nasal obstruction, due to turgescence or hypertrophy of the turbinal bodies, associated with and caused by gout, rheumatism, and various gastro-hepatic disorders, and other systemic affections with vascular atony. In these cases general therapeutic measures, such as Turkish baths, a visit to some spa, British or Continental, or a course of nerve tonics, etc., would produce a very satisfactory result without resort to local operative procedures.

Many cases for which operative treatment was necessary could be completely relieved by very slight measures, such as inferior anterior turbinectomy. In others more radical measures, such as Asch's operation, or one of many other septal operations, were called for. In a few cases—very few indeed—he thought complete inferior turbinectomy was desirable, but in his experience these were very exceptional.

Dr. STCLAIR THOMSON (London) said the openers of the debate were to be congratulated on their extremely judicial and wisely

conservative remarks. The papers marked real progress in rhinology, and covered the ground so completely that it was only possible for him to take up a few of the suggestions which had been thrown out. As regards the "latent" or "intermittent congestive" form which had been referred to, he remarked that in some cases he had found it to be part of a tendency to emphysema and asthma, hepatic trouble, and reflex, due to more distant points of irritation—such as pelvic mischief in females.

He supported Dr. Brown Kelly in the view that complete removal of the inferior turbinal is very rarely required, whereas they must all be agreed that when there is true mulberry hypertrophy of its posterior extremity it should always be treated. The enlargement was pathological, and always the cause of trouble. It was at one of these annual gatherings that Dr. Wyatt Wingrave had drawn particular attention to this, and they were indebted to him for popularizing it with the profession in this country.

He thought Mr. Parker's remarks on the importance of what he termed "nasal drainage" deserved their consideration. His views might explain cases of one-sided muco-purulent rhinitis which they could not trace to any sinus.

The avoidance, if possible, of complications of influenza was an important point. He had seen most alarming symptoms, both in his own practice and in that of colleagues, occurring after slight operations carefully performed, which were undoubtedly due to influenza infection.

Finally, he could not agree that a patient was always better without a useless turbinal. They must avoid overdoing the removal of nasal obstruction or carrying out more than sufficient treatment to relieve symptoms. It would be better for a patient to have some slight nasal obstruction, and be forced to sleep with his mouth open, than to have completely patent nasal fossæ at the expense of the discomfort and distress of pharyngitis sicca.

Dr. MILLIGAN (Manchester) said he was one of those who strongly deprecated the somewhat reckless operative methods which had been in use for some years past in nasal surgery, and thought that more good might be obtained by a careful study of the particular requirements of each individual case and by designing methods of treatment as circumstances arose. For that reason he welcomed the communication which Mr. Parker had made, and thought that if Mr. Parker's observations were substantiated a scientific and rational basis could be founded which would materially assist in deciding as to what operative interference should be undertaken. With regard to the vexed question of the

removal of the inferior turbinate bodies, his own experience had been that such an operation was seldom required. In the great majority of cases a much more scientific method of obtaining the result desired was by removal of the anterior third or the posterior extremity of the enlarged inferior turbinate body. He did not wish to convey the impression, however, that a total turbinectomy was never called for. All he wished to emphasize was that it was but seldom required. In treating hypertrophies of the mucous membrane covering the inferior turbinate body, he had obtained considerable success by submucous incisions and the application of chromic acid fused upon the end of a probe and passed along the line of incision under the mucous membrane. By doing so a good, strong, and firm cicatrix was produced, which effectually bound down the redundant mucosa. In many cases he thought that minor degrees of nasal obstruction were frequently dependent upon general constitutional conditions, and that inquiry into the state of the patient's general health and treatment directed to any irregularity—such as hepatic congestion, ovarian irritation, etc.—would in many cases relieve the associated intranasal trouble. He was firmly of opinion that it was of very little use to lay down any set of rules as regards the treatment of nasal obstruction, either chronic or intermittent, as he was fully convinced that it was essential for every case to be studied separately and judged upon its own merits.

Dr. PERMEWAN (Liverpool) wished to add his tribute to the value and scientific character of Mr. Parker's contributions to the discussion. He ventured to think they marked an era in which accurate observation would take the place of more or less prejudiced contention on one side or the other. As regards the question of inferior turbinectomy, he thought that the old controversy as to the propriety of complete turbinectomy might well be laid to rest. Obstruction must be relieved wherever it occurred; and just as much of the inferior turbinate, or of any other structure, must be removed as the nature of the case demanded. There should be, therefore, no dogmatic statement laid down as to the unjustifiability of complete removal. Dr. Watson Williams' remarks on the relation of general diseases to nasal obstruction were of much interest, and there was no doubt some cases of nasal obstruction required, and would be cured by, general medical measures.

Dr. SCANES SPICER recognised the great value of Mr. Parker's observations, and thought they helped to explain why the genu and front part of the middle turbinated body and the adjacent anterior ethmoidal cells were the seat of such frequent, early, and

severe changes of an inflammatory character and polypoid degeneration, because, on Mr. Parker's hypothesis, here it was that any sources of irritation in the inspired air (dust, germs, etc.) were chiefly and perpetually deposited. He desired to support the continued use of the term "nasal insufficiency" to denote the lesser degrees of nasal obstruction, and as applicable to those cases for which others had suggested the terms "latent obstruction," "incompetency," and "embarrassment." He ventured to submit another term, and that was "nasal inadequacy," for these cases, and he considered that discussion on these terms was likely to be of great utility, for it arrested the attention of the unprejudiced thinker as to the subjacent facts. The profession did not yet fully realize the frequency and importance of these lesser degrees, hence the expediency of having them hall-marked by the most accurate and distinctive name that could be invented.

He disclaimed all sympathy with indiscriminate turbinectomy, but had from its first suggestion sustained the position that turbinectomy had a legitimate place in nasal surgery. He advocated the treatment of every case of nasal obstruction on its merits, giving due consideration to the degree, the severity of symptoms and signs, and the circumstances of the patient as to time and means at disposal. For example, patients coming from remote provinces and colonies, from India and Australia, were unable to remain indefinitely in a city under treatment while minor measures were being tentatively applied over months or years, in order to comply with theoretical views as to the possibility of doing without turbinectomy, entire or partial. In his opinion, the patient should certainly have the option of such a clearance by operation as would be speedy and effectual and relatively economical, should the rhinologist of experience and judgment deem it necessary, even at the sacrifice of more or less of the inferior turbinated body. Complete turbinectomy was also justifiable in certain cases of imperfect or arrested development of the nasal passages in which it was at once evident to the expert that nothing short of that would be beneficial or sufficient.

Another group of cases were certain complex and extreme deflections of the septum, in which treatment of the latter involved difficult and repeated operations, entailing time and expense that the patient could not undertake. These were all practical points in connection with the "merits of the case" which no practical man could disregard, even assuming that some other course might theoretically be better, if the circumstances were different. As to the disadvantages of turbinectomy, they were in his experience

insignificant. Primary and secondary hæmorrhage occurred, but were easily dealt with. He had never yet seen as a result of turbinectomy a case of pharyngitis sicca in his own practice or in that of anyone else. Suppuration often lasted several weeks, and scab formation, and occasionally bridging, but were usually quite amenable if a little care was bestowed by the patient. Turbinectomy, in short, was a procedure which required a judicial selection of fit subjects, but was a means which was justified by its end and results in proper cases.

Whether any given case of severe obstruction was a fit one for reduction of inferior turbinated, there would not usually be much difference of opinion among those who were dispassionate on the matter. Indeed, from the opinions expressed that day, he would estimate that out of one hundred cases of extreme and complex structural obstruction (forming, of course, but a small proportion of the total cases coming to any rhinologist) there would only be a margin of 5 per cent. about which opinions would differ.

Dr. DONELAN (London) said: In the cases which had been referred to as of temporary nocturnal occurrence, and in which an operation could hardly have been recommended, he had found considerable advantage from the use of a 5-grain tabloid of suprarenal substance at bedtime. The patients gained much comfort, and in some instances complete relief for about twelve hours after administration.

Dr. ROBERT WOODS (Dublin) said he thought the frequency of spurs on the septum might possibly be due to the recession of the lower jaw in man. This is borne out by the fact that in the lower negroes and aborigines of Australia spurs are much less frequent than in civilized races. The cause most probably is that as the jaw recedes the nasal septum becomes buckled, in order to adapt itself between the upper jaw and the brain case. The rule that should guide us in dealing with the inferior turbinal in cases of obstruction is to take away the smallest quantity of tissue compatible with the relief of the patient. This presupposes a degree of accuracy not likely to be attained when using the spokeshave. It is therefore much better to use instruments under guidance of the eye. The posterior end of the inferior turbinal he removes with an electric snare, and prefers this to the cold snare. He had been interested in the discussion on that form of obstruction to which Mr. Collier referred as "latent obstruction." Some years ago he drew attention to this condition under the name of "nocturnal obstruction," but he thought the term "latent" a better one.

Dr. HERBERT TILLEY (London) wished to add his testimony to the efficiency of submucous division of the tissues in those cases of nasal obstruction brought about by a general hypertrophy of mucosa of the inferior turbinal. Dr. Delavan had recommended this method. An ordinary tenotomy knife answered the purpose very well, and the edge should be kept well against the bone. When internal cicatrization occurred, the mucous membrane was braced up and very great relief afforded to the patient, while no destruction of the surface epithelium had taken place. The fine galvano-cautery point could be used in the same way. He always preferred the cold wire snare for the removal of posterior hypertrophies, because it seemed inadvisable to use the galvano-cautery loop in such close proximity to the Eustachian tube. He used the index-finger to guide the loop over the posterior hypertrophy, and thought that if the naso-pharynx was lightly cocainized (5 per cent. solution), and it was explained to the patient that the discomfort would be only temporary, the method had many advantages, and was by no means a difficult operation.

Dr. C. E. G. SIMONS said he had found complete turbinotomy actually necessary, and that the cases that had been operated on were perfectly successful and suffered none of the discomforts alluded to, such as pharyngitis sicca. One case (a double turbinotomy) was enabled to do very active work at high altitudes, and was in no way affected by the inspiration of cold air. The question of periodical obstruction in females at the monthly period and at the menopause, he said, was of importance. Few of these cases required surgical treatment, they usually yielded to bromide of potassium in fairly large doses. In a colliery district, he said, a very large proportion of the miners acquired nasal insufficiency whilst at work; but few required surgical treatment; they were usually better off without it.

The PRESIDENT remarked that he considered a decided step had been made in the right direction by the clear expression of opinion that the inferior turbinated bone should not be removed unless the necessary amount of air-way was unobtainable by other means. He had repeatedly protested against the reckless manner in which this operation had been performed by some specialists, and was very glad to find the same view so universally endorsed by those present.

With regard to removing the enlarged posterior extremity of the inferior turbinated body, he preferred the cold wire snare. He did not consider it necessary to tighten the snare slowly with the object of lessening hæmorrhage, as he had not experienced serious

hæmorrhage in consequence. At times the bleeding was profuse for a short period, but it usually quickly subsided.

Mr. MARSH, in reply, said he would first of all wish to pay a tribute to Mr. Parker's contribution to the discussion, as both original and valuable. His experiments would prove of guidance in the treatment of all obstructive conditions. He agreed with him that complete turbinectomy was seldom needed. It was especially called for in cases of asthma with almost complete obstruction when the cautery had failed to give any relief. It should never be done in slight cases in roomy nostrils. He also agreed as to the importance of preserving intranasal structures that were not factors in causing obstruction or other trouble, and that every case should be carefully considered on its merits.

NOTES OF TWO CASES IN WHICH CHRONIC HYPERTROPHIC LARYNGITIS PRECEDED PAPILLOMATA.—CURE OF ONE CASE BY ENDOLARYNGEAL OPERATION.

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As the relation of chronic inflammatory processes to new formations is a subject upon which evidence is as yet scanty, I have thought it worth while to record the two following cases:

Mrs. D——, aged thirty-five, was brought to me three years ago with the following history: For twenty years, or rather more, she had been voiceless, unable to speak except in a hoarse whisper. This dated from an attack of measles, from which she suffered when she was a girl of about twelve. Her general health during all those years was bad; she was thin, weakly, short of breath, and subject to occasional attacks of dyspnœa, which lasted a few days and subsided under ordinary treatment. These attacks were generally ascribed to cold.

In the summer of 1898 she had the good fortune to come under the care of Dr. Beilby, of Bromsgrove, for one of her attacks of dyspnœa. He diagnosed the condition as laryngeal, but was unable at first to get a view of the larynx. Before he had the opportunity of trying again the patient got a very bad attack of dyspnœa, and he was hastily summoned, to find her unconscious, asphyxiated, but by promptly opening the trachea and performing artificial respiration he succeeded in bringing her round.

A few days later he got a view of the larynx, and found a con-