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PROCEEDINGS OF THE SECTION OF LARYNGOLOGY AND OTOLOGY.

President : CHARTERS SYMONDS, F.R.C.S.

PROCEEDINGS, *Friday, July* 29.

(*Continued from page* 164.)

A discussion was opened by Dr. GREVILLE MACDONALD (London) and Dr. SAMUEL WEST (London) on INTRA-NASAL DISEASE AS A DETERMINING FACTOR IN THE PRODUCTION OF LARYNGEAL AND PULMONARY AFFECTIONS (SPASMODIC AND CATARRHAL).

Introductory paper by Dr. GREVILLE MACDONALD.

The subject of asthma in relation to nose disease is curious in a day when almost every advance is based on scientific deductions from fact. For we cannot pretend that our knowledge—if such it can be called, when even specialists busy themselves as much in contradicting as in substantiating one another's observations—is yet unequivocal. While we believe that asthma of long or short duration, whether called spasmodic or catarrhal, is often cured by treatment of the nose, we can neither ourselves offer explanation of the fact nor can the physiologist help us. Even if the latter can artificially excite symptoms of asthma by stimulation of the nasal mucous membrane, he brings us no nearer to a working theory and adds little or nothing to the value of our clinical observations.

I have nothing new to offer as theory, because of the conflict of my facts. Yet these latter so definitely proclaim the frequent cure of asthma by intra-nasal treatment that they are worth classifying in the hope that I may induce the profession to examine the question.

Time will not permit the relation of more than a few cases nor will my statistics carry conviction. If we use one or other means of giving weight to our facts, our hearers are still dependent on the accuracy of our statements. And I must content myself with asking you (*a*) to accept certain brief statements of fact as literal, whatever explanations you may prefer to put upon them. Having asked this much, I shall suggest, from the evidence of

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allied nasal symptoms and conditions, (*b*) how far it is possible to classify our facts and adduce some sort of generalisation, which, if not final, shall at least give us courage to go on with our work and persuade those who think us visionaries that there is hope in our claims.

(*a*) My own cases may be classified in three series: (1) Those pointing to the relief or cure of asthma by removing obstruction to easy breathing or causing pressure; (2) those where the treatment of any other sort of abnormality in the nose is similarly successful; (3) those where the mere cauterisation of mucous membrane in a comparatively healthy nose results in cure.

(1) That the removal of any obstruction whatever in the nose or naso-pharynx may result in the cure of asthma, whether spasmodic or catarrhal, is well substantiated. The most favourable form of obstruction, in my experience, is hypertrophy of the erectile tissue; and the region I like best to be able to accuse in an asthmatic is the anterior extremities of the inferior turbinals. In illustration of my contention that the cure of nasal obstruction may cure habitual bronchial asthma, I can quote a case sent to me by Dr. Brodie. On September 29, 1903, I removed an enormous mass of hypertrophied erectile tissue and thickened anterior ends of the middle turbinals in a girl aged seventeen, who had had chronic bronchitis and nightly attacks of asthma, steadily increasing in severity, almost since infancy. Her asthma and cough both disappeared the second night after the operation and have till now never once returned.

Next in importance is any irregularity of the septum causing pressure or obstruction to easy breathing; some of my most remarkable cures have immediately followed the removal of such obstruction. Less favourable than these is, curiously enough, the affection called adenoids. I am not sure that I can refer to one case of the cure of asthma from operation on post-nasal growths unless there is some co-existing obstruction in the anterior nares, although great improvement almost invariably results. Against this statement I must put the fact that my brother, Dr. Mackay MacDonald, has related two cases of immediate cure of asthma in children with adenoids, following a digital exploration of the post-nasal space, and without operation.

Less unfavourable than adenoids is polypus. Although asthmatics with this disease are always greatly relieved by operation, and their general condition improved, the prognosis as regards their asthma is singularly uncertain. Yet I can recall many real

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cures, but especially, I think, when polypoid degeneration has not involved the ethmoidal region to a general extent.

Such a summary of facts is sufficient in itself, one would think, to substantiate the fact of the relation of nose disease and asthma as cause and effect, notwithstanding the impossibility of classing them together in a working theory, and of venturing a prognosis in any individual case.

(2) But we now come to our second series of facts in which there is no obstruction, but where the treatment of an unhealthy mucous membrane helps or cures the asthma. These afford us even more definite reasons for assuming an intimacy between the nose and bronchial tubes. A large proportion of asthmatics are also sneezers, and an attack of sneezing often precedes, and more seldom terminates, a bout of asthma. Often, too, a patient will declare that the first warning he has of an attack of asthma is blocking of the nose passages, which open up again as the dyspnœa ceases. Here, however, the patient may mistake the sequence of events, seeing that the general venous engorgement accompanying deficient aeration of the blood will necessarily produce over-filling of the erectile tissue of the nose. Objectively, and apart from whether they have or have not some obstructive source of irritation, we commonly find in habitual asthmatics a general œdema and anæmia of the Schneiderian—a condition identical with what we find so often in those who suffer from intractable morning sneezing. In these cases, whether the œdema is associated with sneezing or asthma as the chief complaint, or whether the two are associated, I have used the electric cautery, with the happiest results, but especially when the œdema is so pronounced over the upper part of the triangular cartilage that the mucous membrane of it and the outer wall are brought into contact. Moreover, in hay-fever and hay-asthma, even where there is no œdema, I have had remarkable results from cauterising this region in anticipation of symptoms. To the importance of attacking this area I drew attention in a lecture, subsequently published, on "Hay Fever and Asthma," in 1892, and increasing experience has confirmed me in the importance of attacking thickened mucous membrane wherever situated on the septum. Thus, in April, 1902, Mr. Henry Huxley sent me a case, a girl aged twenty, who was constantly taking cold in the head, the colds invariably passing down to the chest and always accompanied by severe attacks of asthma. The only fault I could find with the nose was a thickening high up over the left side of the septum and some slight pos-

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terior hypertrophy of the inferior turbinals. I cauterised the septum six times. She has not had a suggestion of asthma since. Indeed, in my experience the treatment of any hypertrophy of the mucous membrane in the anterior region of the anterior nares with the electric cautery is attended with beneficial results; and I think that the anterior extremity of the inferior turbinals is quite as important as the septum. So strongly do I feel this that I am prepared to give a good prognosis to any asthmatic, whatever his symptoms, if he presents any degree of persistent engorgement or true hypertrophy of his anterior inferior turbinals. This point in practical experience I have asserted for many years past and still adhere to. Among other forms of abnormality of the lining membrane of the nose I can mention the cure of habitual asthma in a girl, aged seventeen, by the cure of an incipient atrophic rhinitis. This was fourteen years ago, and I know she has had no return of the asthma. But this is the only case of asthma I have ever seen associated with atrophic rhinitis.

(3) And now we come to our third series of cases, which are perhaps the most curious and paradoxical. They comprise the class to which Dr. Alexander Francis, then of Brisbane, now fortunately settled among us in London, drew our attention in a communication to the Clinical Society in October, 1902. His very remarkable statistics bear this interpretation, that whatever the state of the nose, free or obstructed, with a healthy mucous membrane, the great majority of asthmatics, be their asthma catarrhal or spasmodic or cardiac, whatever that may mean, are to be cured by cauterising the upper part of the triangular cartilage. Since hearing the paper he read before the Clinical Society in October, 1902, I have put his teaching into practice and am prepared to vouch for the accuracy of his observations, though again and again I have failed to benefit my patient by this treatment until I have removed some or other form of obstruction. By this treatment I can point among many others to the cure of two cases sent me by Dr. J. H. Philpot and another sent me by Mr. Beedon Turner. So that, though I greatly doubt whether Dr. Francis will get as good results in this climate as he had in Brisbane, I feel convinced that we owe him much for his laborious work.

So far we have sufficient clinical reason for associating pathological conditions of the nose with symptoms of asthma, though we are never able to induce, even in an asthmatic subject, an attack of asthma by irritation of the Schneiderian or olfactory mucous membrane. Yet there is another fact which very strongly points this

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association. It occasionally happens that after the removal of polypus the patient for the first time in his or her life immediately becomes and sometimes remains asthmatical. This has happened three times in my own experience. The first patient was a hospital out-patient of whom I lost sight, so that I do not know his subsequent history. The second was a frail woman who suffered badly from paroxysmal sneezing and membranous colitis. Two years before she came to me she had her polypus removed. The operation was followed by asthma nearly every night for six months, though she had never had it before. It gradually disappeared as her nose became blocked again; and when she came to me she had been free of asthma for eighteen months. I found the nose packed tight with growths, and I removed them piecemeal. After the first operation the asthma returned and remained with her, but it gradually improved as the nose became normal until now, nearly two years after she first came to me, I can almost speak of the cure of both nose and asthma. But I have not been content with treating the polypus; I have also used the galvano-cautery freely to the septum and inferior turbinals. The third case was brought to me a year ago by Mr. Henry Huxley. He had removed the patient's polypi with cocain a fortnight previously, and since the operation the patient had suffered from almost continuous asthma, though he had never had it in his life before. I found the whole ethmoidal region in a state of polypoid degeneration. We gave him a general anæsthetic and cleared away everything involved in the degenerative process. As he recovered, and after a few applications of the electric cautery to the inferior turbinals and septum where the mucous membrane was thickened, his asthma disappeared, and for the last nine months he has been quite free, and of course greatly improved in health.

(*b*) And now I come to the generalisation which we may deduce from our facts, and which is the nearest approach, as it seems to me, to a working hypothesis. To enunciate this generalisation I must draw attention to certain facts which will be admitted by any practitioner even if his experience in nose disease is but small. These also I will summarise under three headings:

(1) Whenever a patient complains of frequent and severe cold-taking and we find any abnormal condition in his nose, whether of obstruction or thickened mucous membrane or œdema, we are nearly quite sure of curing his cold-taking by operating or by the use of the electric cautery. But of all conditions the removal of polypi, though often most satisfactory, is perhaps the least certain

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in results. This cold-taking, moreover, may show itself in rhinitis, pharyngitis, laryngitis, or bronchitis, though the prognosis is better whenever the first symptoms show themselves in sneezing and rhinorrhœa.

(2) Whenever a patient complains of paroxysmal sneezing, which often in course of attack can be distinguished from ordinary cold only by the brief duration and frequency of recurrence, we can be tolerably sure of effecting a cure by the rectification of the nasal abnormality, especially if it is obstructive.

(3) A patient with polypi, less often with other forms of obstruction, not infrequently takes cold, often severely, sometimes in the form of laryngitis, sometimes of bronchitis, immediately after removal of obstruction. It would appear that the nasal mucosa, so long protected by the obstruction, is unable to face the first exposure after removal, just as a man going to a ball in a low-necked dress might get a pneumonia, though his wife, being habituated to such exposure, would do nothing of the kind.

Now, when we class together the facts of asthma, spasmodic and catarrhal, in connection with nose disease and the facts of sneezing, spasmodic or inflammatory, and consider also the part played by an abnormal condition of the nasal mucosa in inducing susceptibility to cold-taking, we are brought to a standstill in our inquiry as to the relation between nasal disease and asthma; for we realise that, in the first place, we must know more about the whole question of inflammation arising in a distant mucous surface following on the exposure of chilling of any surface, whether cutaneous or mucous membranous. If the sudden exposure of a long-protected mucous surface in the nose may result in a rhinitis or a laryngitis or a bronchitis, it is not to be wondered at that symptoms of asthma may also supervene at times. If a simple inflammatory process originating in the nose may gradually extend downwards, sometimes slowly, sometimes rapidly, till larynx, trachea, and bronchial tubes are involved and asthma is introduced, it looks less paradoxical that treatment of the nose by rendering it less susceptible to the initial attack should arrest also the tendency to asthma. When, moreover, we see so often an œdema of the nasal mucosa associated with paroxysmal sneezing, and occasionally see it rapidly extend to the larynx, and more rarely still as a mere symptom of angio-neurotic œdema, or alternating with urticaria, we are justified in supposing that a similar œdema of the bronchial tubes may determine the attacks of spasmodic asthma.

To summarise the results of treatment, we may affirm in form

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of the promised generalisation that any treatment which allays the irritability of the Schneiderian, whether by operation and the ventilating of abnormally protected areas of mucous membrane, or by hardening the hyperæsthetic areas with the electric cautery, any such treatment of the nose may modify or arrest the onset of the catarrhal attacks, whether they manifest themselves in symptoms of sneezing, laryngitis, bronchitis, or asthma.

But the whole subject of asthma is extremely difficult to reduce to a scientific position, and chiefly because it is one of the class of obscure neuroses which are often susceptible of modification and cure by modes of treatment which, because of their seeming success, take from us our assumed right to vilify quack remedies, "Christian science" and suggestion, until we can understand and master disease better. But when we find patients of all ages cured by intra-nasal treatment—I think at this moment of an old man of seventy, unable to work for fifteen years, yet cured and steadily working again after three or four applications of the electric cautery to his septum, and several children under fourteen cured by similar measures—I find it impossible to explain the facts on a supposition of the wonders of suggestion.

The following table gives approximately the results of treatment of 95 cases of asthma that have passed through my hands during the last two years.

Statistics of Cases treated during the last Two Years.

Polypus, 13. Cured, 5; relieved, 6; worse, 2.

Hypertrophy of erectile tissue, 13. Cured, 8; relieved, 1; under treatment, 1; no record, 3.

Septal spurs obstructing, 10. Cured, 4; relieved, 3; unrelieved, 2; no records, 1.

Cases of hypertrophy of septal mucous membrane treated with the galvano-cautery; also cases where septum was galvano-cauterised with no hypertrophy, 43. Cured, 16; relieved, 9; under treatment, 11; unrelieved, 4; no records, 3.

Sixteen cases too unsatisfactory in history, etc., to bear quoting. Cured over 40 per cent. all cases.

Introductory paper by Dr. Samuel West.

The affections of the nose which are associated with respiratory difficulties fall into three groups:—

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(1) Obstructive, where there is mechanical interference with the free passage of air through the nose.

(2) Infective, where inflammatory or infective processes are set up in the respiratory organs, by infection from the nose.

(3) Irritative, where the respiratory condition is of reflex origin excited by irritation within the nose.

(1) *The obstructive.*—Mechanical obstruction in the nasal passages does not of itself cause any respiratory affection, unless it be associated, as occasionally happens in children, with adenoids and enlarged tonsils; then deformities may be produced in the thorax, such as "pigeon breast," or Harrison's furrow.

What nasal obstruction must of necessity cause is mouth-breathing; the air is then not warmed and filtered as it would be in the nasal passages, so that the mouth and pharynx become dry and irritable, and chronic pharyngitis is the almost inevitable result. Besides this the parts are prepared for infection.

(2) *The infective.*—When the mouth and pharynx are moist, and when the mouth and tongue are continually washed with saliva, the germs which gain access with the air inspired are got rid of, or, at any rate, are not likely to grow. But when the breathing is through the mouth the coating which forms upon the tongue, though chiefly made up of dried secretion and cells, teems with germs of all kinds. If among these there are pathogenic organisms, *e.g.* the pneumococcus, very serious infection of the air-passages and lungs might follow. Thus, mouth-breathing greatly increases the risk of infection of the air-passages. If this danger were more often thought of in the specific fevers, especially of childhood, this frequency of pneumonia and bronchitis would, I believe, be greatly reduced.

When there is actually any infective condition in the nose, infection is very likely to spread directly to the neighbouring parts. Nasal diphtheria presents the most obvious and striking example. But so gross an infection as diphtheria is not required to illustrate this fact. Nothing is more common than for simple catarrh to commence in the nose and extend to the pharynx and even to the respiratory organs. Such is the history commonly given by patients of their chest colds. They describe the sequence of events graphically, and say that their colds always begin the same way, starting in the nose, extending to the thorax, and thence spreading to the chest. What is more, these catarrhs may be stopped by antiseptic washes to the mouth and pharynx, so that the line of extension is

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cut, or better still, of course, by the removal of the source of infection from the nasal cavities.

(3) *The irritative or reflex.*—This group is by far the most interesting in relation to the respiratory neuroses. Cough, often paroxysmal in character, is common with affections of the nose as it is with those of the throat. Another affection which naturally suggests itself is paroxysmal sneezing.

Besides these there are various subjective sensations to which nasal affections give rise, *e.g.* sensations of tightness in the chest, or shortness of breath, or even dyspnœa. All these conditions may stand in some relation to asthma, but they are not of themselves asthma, or even necessarily asthmatic phenomena, as they have been called.

Of the relation in which asthma stands to intra-nasal disease much has been written of late years. Opinions vary widely as well as figures. It is a matter of surprise to those who know that true asthma is not a common disease, that authors should speak of having seen 300, 400, or 500 cases of asthma in a few years. One wonders where they get them from. There are over 5,000,000 of people in London, and yet I doubt if there could be gathered together at the present time from all sides 500 separate cases of spasmodic or true asthma. The term asthma must be used, then, by these writers in a very wide and comprehensive sense, and the numbers can only be made up by including not only all the asthmatic phenomena above referred to, but many other phenomena of still more doubtful nature.

Accepting, however, for the purpose of discussion the figures given, we may consider how far they prove the frequency of the association. This problem may be attacked two ways:

(1) A number of cases of asthma may be taken, and the frequency of nasal disease among them be determined.

Thus Lublinski found in 500 cases 143 with some pathological condition in the nose (*i.e.* in 28 per cent.); of these 143 twenty-seven were cured (*i.e.* 20 per cent.) and thirteen relieved (*i.e.* 10 per cent. or 30 per cent. in all). Francis in 402 cases found nasal disease in fifty-six cases (*i.e.* in 13·9 per cent.), and very few of them were relieved by treatment.

To make such statistics of real value it is necessary to know the frequency with which these nasal conditions occur among healthy persons, for it is obvious that the association might be accidental.

(2) A number of cases of nasal disease may be taken, and the

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frequency of asthma among them be determined. Thus asthma was associated with nasal polypi in nine out of 360 cases (Bäcker), in seven out of 200 cases (Hering), *i.e.* in 3·2 per cent. Schmiegelow's percentages were higher—thirty-one out of 139 cases of nasal polypi (*i.e.* 22 per cent.) and forty out of 502 of chronic rhinitis (*i.e.* 8 per cent.), together in 30 per cent.

Francis in a recent paper maintains that when asthma is associated with nasal lesions the prospects of relief by treatment are less promising than where there is no gross disease.

All these statistics are unsatisfactory because of the indefinite meaning attached to the term asthma, yet they are sufficient to establish a connection. At any rate sufficient cases are recorded, and some few I have seen in my own experience in which true asthma associated with nasal disease has been cured or greatly relieved by removal or treatment of that disease.

A few cases are also recorded in which asthma has actually been produced in persons not previously known to be asthmatic by intra-nasal treatment.

We may conclude, therefore, that there is a relation between asthma and intra-nasal disease, but that its frequency is by no means so large as the published statistics seem to show. I may add that I do not believe any person who was not already asthmatic could be made asthmatic in this way any more than he could be made epileptic by similar means.

As regards the results of treatment I may express my general agreement with the experience of Sir Felix Semon, that though relief may be given in a few cases the prospects of cure are small.

Asthma is a respiratory neurosis and closely resembles epilepsy. Given the asthmatic or epileptic predisposition, in either case the attack may be excited by stimuli from various parts of the body. It is, therefore, the rule to search for a source of irritation and when found to remove or treat it. So in asthma when nasal disease exists it is fair to try the effect of treatment. Relief may be given, though cure is unlikely; the relief of asthma by remedies applied to a healthy nose may be compared with the checking of an epileptic fit by tying a garter tightly round the leg below the knee. But asthma being a neurosis and the patient of the highly neurotic, the effect of mental impression in estimating the result of treatment must be allowed for.

Let me say in conclusion that knowing only too well how difficult the treatment of asthma often is, I should be only too glad to treat any possible source of irritation I might discover in the nose or elsewhere in the hope that I might be fortunate enough to give relief.

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Dr. A. J. Brady (Sydney, Australia) said he had had a few cases that had been well for years after removing obstructions in the nose. He took a middle course between the two openers of the discussion.

Mr. Colin Campbell (Southport) said he had not had so many cases as Dr. Macdonald, but he had had ten cases up to within one year ago, since when he had had a great many more, and he had called attention to the influence of nasal treatment of asthma in the *Liverpool Medical Journal*, and his experience agreed with that of Dr. Macdonald. The most frequent and the most difficult cases to remedy in nasal asthma were those in which nothing was to be seen in the nose, but upon inquiry one discovered that when the patient had an attack of asthma in the morning one or other nostril was blocked. In such cases it was essential to treat the nose to cure the asthma. Twelve months ago he began the application of a radium tube to the sensitive areas of the nose. He applied it for twenty minutes, then allowed an interval of one day, then applied it for twenty-five minutes, allowed another interval, and then applied for thirty minutes, and thus produced a radium soreness instead of the previously existing soreness, and then painted the part with a saturated solution of argyrol. In all cases of long-existing asthma, where there was a condition of bronchitis with spirals, it was not sufficient even in an obviously nasal case to treat the nose only. One must also treat lower down, and he had followed out the treatment of intra-tracheal injections. He had published cases that had been cured for ten years and had remained for that time absolutely free, and one case had had asthma for twenty years. These were shown at Manchester last year.

Dr. Walker Downie (Glasgow) said that all were agreed that many of the cases of asthma were associated with some nasal lesion, although there were many not so associated, and also many cases of hypertrophy of erectile nasal tissue not accompanied by asthma. He did not agree with Dr. Macdonald, but thought that many of the cases were the result of mucous polypi, and if after their removal the asthma did not disappear it was because the removal had not been thorough. In some published cases of his, where many weeks had been spent in bed with typical asthma, polypi were removed, and for two years the patient had immunity from asthma. Slight attacks again came on at the end of that time, and more polypi were found and removed, with disappearance of the symptoms. He considered Dr. West's paper a most excellent one.

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Dr. StClair Thomson (London) said he was glad to hear Dr. West's opinion that cases of asthma were not so common as one would be inclined to think. The statements of patients on the subject must be taken with reserve, for half those who stated they had asthma were really suffering from dyspnœa due to mouth-breathing and nasal obstruction. He had known cases termed asthma which were really due to the dyspnœa of Graves' disease. Suggestion, as Dr. Macdonald said, plays a large part in the treatment.

Dr. Alexander Francis (London) said the great stumbling-block in the way of progress being made in the treatment of asthma was that they did not know how far, or in what manner, a nasal lesion was responsible for the asthmatic condition. It was extremely interesting to hear the happy result obtained by Dr. Macdonald in cases of asthma by removing obstruction to easy breathing or obstruction causing pressure. They wanted further explanation that the results were due to mere restoration of normal breathing, or to removal of a sensory irritation, for the following reasons:

1. Because asthma is comparatively rare in cases of marked nasal obstruction, when it should be most common.

2. The majority of patients suffering from asthma have their noses in a fairly normal condition.

3. Asthma is sometimes aggravated by a return to free nasal breathing, and much the same may be said of polypus cases.

He did not think the association so common as was generally supposed. Thus, Schmiegelow found only 31 cases of asthma among 139 cases of nasal polypi, and if asthma depended upon obstruction or the irritation of polypi, surely the association should be more frequent. On the other hand, among 492 cases of asthma that he had personally treated, he had met with only 39 cases of nasal polypi. In some cases asthma first appeared after polypi had been removed.

Amongst the minor evidences against the association of the two was the fact that the best results, as far as permanency was concerned, in cases of asthma associated with polypi had been obtained by treating the nose without touching the polypi. That there was some connexion between asthma and polypus was chiefly to be inferred from the difficulty in treating asthma when polypi existed. Ever since Voltolini, in 1871, recorded that he had relieved asthma by removing polypi the tradition had been handed down from one text-book to another that cases of asthma associated with polypi offered the best hope of affording relief by intra-nasal treatment.

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He believed that no more erroneous statement could be made in connexion with asthma.

The only class of case that approached in difficulty were those who had got into the habit of using Tucker's cure. He was confident that the chief reason why operators so frequently failed to relieve asthma—why Sir Felix Semon's statement that an exceedingly small proportion of cases obtained relief from nasal treatment was so commonly accepted—was that the one idea of treatment was to remove an irritation causing the asthmatic condition. His idea was that all asthma depended upon a condition corresponding to inhibition of exchange, which was dependent upon the respiratory centre, and that the stability of the centre could be affected by nasal treatment. Otherwise, it was hard to understand how gastric, cardiac, hereditary, and other apparently characteristic forms of dyspnœa could be relieved by nasal treatment, although they could not remove the evident sensory irritation, or why those results were most easily obtained when the nose was apparently normal.

In order to show that those results were not merely accidental coincidence, he had over 600 cases, of which he had notes, and of which 60 per cent. had obtained absolute and complete relief, 27 per cent. marked relief, and under 5 per cent. who got no improvement.

Dr. Watson Williams (Bristol) said they must not forget that true spasmodic asthma was a neurosis, and they were all on common ground in regarding the attack as a result of peripheral excitation of afferent nerves acting on an unduly unstable medullary centre. This may be regarded as a double centre, an expiratory and an inspiratory portion; and he had elsewhere summed up and published the physiological and clinical evidence which showed that the bronchial muscle contracts during expiration, and, like the alæ nasi and glottis, dilates during inspiration, and that spasmodic asthma is essentially an intensification of this normal rhythmical contraction, rather than a persistent spasm. Further, there was a close relationship between the nose and the respiratory centre in health; for Spencer, corroborating and extending Munk's observations,[1] had demonstrated experimentally the influence of the nasal area, and in less degree of excitation of other sensory organs, on normal respiration—for example, snuffing from excitation "of the mucous membrane of the nose in its upper part from the olfactory nerves," etc., the chest assuming a position of over-inspiration.

[1] Watson Williams, "Diseases of the Nose, Pharynx, and Larynx," 4th ed., p. 24 *et seq.*

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He would especially direct attention to observations, such as thos of Cajal, showing that collateral fibres from the gelatinous substanc of Rolando, which is the receptive nucleus of the trigeminus in th medulla, communicate with the motor nuclei of the vagus, especiall the nucleus ambiguus of the same and the opposite sides. Hence there is anatomical evidence supporting clinical observation tha normal respiration is influenced by afferent impulses from the nasa passages. Further evidence is afforded by the inhibitory respirator influence of the nasal catarrh induced by adenoids, resulting i deficient respiratory excursions and intra-clavicular flattening o the chest, and of the sometimes dangerous respiratory inhibitio observed during the removal of adenoids.

The removal of nasal polypi and of any underlying disease o the mucosa and ethmoidal labyrinth, of nasal spurs, or turbina hypertrophies, not only provided a normal air-tract which relieve the bronchi of the pernicious effects of buccal respiration, but als restored the normal influence of the nose on the respiratory centre This latter was a point of considerable importance, and, he believed was one of the main causes of cures by removing adenoids in asth matic children, and would explain Dr. McKay MacDonald's case referred to by the opener.

Nor could they fail to be impressed with the fact that many o the nasal abnormalities are, like the bronchial affections, the result rather than the cause of pre-existing asthma. But another influence was not to be disregarded: the traumatic effect of operative measures on the nose tended to relieve the asthma, and after each intra-nasal operation, or such cauterisation, the attacks of asthma were usually relieved or temporarily in abeyance. A good many years ago he was led to cauterise—with considerable relief to nearly every patient—even normal nasal passages to obtain this good influence on the cause of asthma.

Latterly he had had most encouraging results from applying strong faradic currents to the nasal mucosa, a terminal being inserted, covered with wet wool, into each nostril; beginning with a mild current, it was rapidly increased in strength without much discomfort to the patient, and the relief was so marked that patients soon desired the applications. He had never heard of this method having been tried by others, but would strongly commend it for trial; yet, unless there was some definite lesion, the removal of which was followed by cessation of the asthmatic attacks—and this was rare indeed—he never relied on any intra-nasal treatment alone to cure the patient. Such nasal methods seemed to influence the

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respiratory centres in such a way that the spasmodic attacks were temporarily prevented, while the general tone of the patient was being raised by nerve tonics, cold bathing, exercise, regulation of diet, etc., and he was thus enabled largely to avoid resorting to sedative remedies, such as stramonium, lobelia, etc., which, while relieving the attack for the time, render the patient more susceptible to subsequent attacks

Dr. Hemington Pegler (London) said he would like Dr. MacDonald to add to the great value of his statistical tables by giving further particulars as to the extent to which the asthma in his cases was affected by food, by leaving home—that is, effect of climate—winter months, fogs, tobacco smoke, and similar variations of daily life.

Dr. Scanes Spicer (London) said that the speakers in the discussion had almost entirely confined themselves to referring to "nasal disease," on the one hand, and "asthma" on the other. He thought that the proposers of the debate had in view—and wisely too—not only "asthma" in the restricted sense, but the wide group of "laryngeal and pulmonary affections" in which there was part oxysmal difficulty of breathing. The value of the debate on the present as on many previous occasions had been materially lessened—for the medical profession—by the different meanings attributed to the terms used. Take "asthma" for instance. Dr. West apparently used the word "asthma" in a highly restricted sense, for pure, spasmodic, or nerve asthma—"original sin" or "depravity" of the respiratory centre—without any initial peripheral irritation in existence or an unrecognised one. Dr. Macdonald, on the other hand, appeared to regard any paroxysmal attack of dyspnœa of which patients complained, and for which they sought relief, as "asthma." If the latter interpretation was not justifiable, neither the rhinologists nor the public were to blame; for the systematic works on medicine compiled by the general physicians had spread broadcast the notion that "asthma" included bronchitic, laryngeal, gastric, renal, hæmic, and other varieties whose clinical history was essentially different from the pure spasmodic form. If the physicians would formulate the exact limits of the term "asthma," which were to be accepted by all in any future debates, we should know where we were; the rhinologists could re-classify their observations, and we should be in a position to advance. At present the term "asthma" was, rightly or wrongly, extended to all paroxysmal difficulties of breathing. At the same time, the speaker had been led to conclude that a true spasmodic

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type due to perverted respiratory centre action was frequently grafted on—even when not originally present—to dyspnœas of bronchitic, emphysematous, cardiac, and other origins, and that a secondary neurosis of the respiratory centre, not differentiable later, except by the history, from a primary "spasmodic" asthma, was produced. Then, again, the term "cure" was an ambiguous one. It had a very distinct relation to the view taken as to the real nature of asthma. He would be a brave man who spoke of the "cure" of such neuroses as blushing, tachycardia, tic, and other perverted centre habits. The word "cure" was not to be lightly used to patients in connection with the treatment of disease. He had himself experienced the gratification of being told by patients that the intra-nasal treatment he had carried out had "cured" their "asthma"—the relief had been so great and so lasting (in comparison with the results of other measures) from troubles which had tormented them for years. His experience entirely coincided with Dr. Macdonald's as to the wonderful relief experienced in properly diagnosed cases, but he deprecated the use of the word "cure" by the rhinologist himself. It was not unlikely to give a handle to the omnipresent enemy if any attack ever took place in the future. When a physician treated a patient for an attack of gout, and his remedies expedited recovery, he and his colleagues were well satisfied, but they knew perfectly well the disease was not cured. Now, the rhinologist should not be expected to "cure" everything for ever and ever; but, alas! in rhinology a truly impracticable standard was set for them, and their methods and results were condemned because they could not perform impossibilities. What their patients wanted was speedy relief from their symptoms, and if they called it "cure" we must not. With reference to bronchitic asthma, he was of opinion that one of the most powerful exciting causes was the excessive abnormal variations of air-tension brought about by breathing through partially obstructed or insufficiently patent nasal channels. This led to rarefaction of air in the respiratory tract and a dry-cupping of the mucosa. The membrane became congested, œdematous, waterlogged, and ultimately hyperplastic. Its vitality was relatively low, and it became more prone to infection and catarrhal inflammation, hence pharyngitis, laryngitis, bronchitis, pneumonia, and a condition of tissue which predisposed to tuberculosis. On chronic catarrhal pulmonary conditions asthmatic symptoms often supervened. This excessive variation of air-tension (in the absence of mouth-breathing) resulted from nasal stenosis and faulty habits of

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breathing. The evidence thereof he believed to be seen in: (1) The abeyance of the natural physiological expansion of the alæ nasi, seen in all infants at birth, and in all quadrupeds on inspiration; (2) the collapse of the alæ nasi against the septum from the fall in air-pressure in the nose; (3) A noisy "sniffing" sound on inspiration, instead of a noiseless breathing. These excessive variations of air-tension were easily demonstrated by appropriate manometers, and both the apparatus and numerous tracings of the pressure curves had been exhibited by the speaker on different occasions.[1] These had proved that small increases of obstruction of the nasal passages increased the normal falls and rises of pressure three or four fold in ordinary quiet breathing through the nose, and a hundredfold in forced breathing. In nearly all cases of bronchitic asthma associated with stenosis, correction of the stenosis, followed by attention to correct methods of breathing, gave the greatest relief. Dr. Colin Campbell referred to a class of case of asthma in which he described the nose as normal, and which yet got blocked up every night. That was exactly the nose which the speaker as a rhinologist would call not normal, and which he would work at until he had succeeded in preventing the recurrence of the nocturnal obstruction. Such cases had been referred to as "latent" obstruction. The speaker believed they depended on unrecognised nasal stenosis combined with the action of gravity, which in the recumbent position especially favoured the collection of fluid in the undermost parts of the nasal mucosa, as the patient was lying down. In many such cases he had restored nocturnal comfort, and removed insomnia and asthmatic symptoms, by insuring proper nasal breathing. He had seen no reason to modify the working hypothesis he had previously expressed, that in some cases spasmodic asthma originated peripherally in intra-nasal irritation. The usual predisposing cause was intra-nasal deformity from injury, arrest of development, or hereditary deficiency causing undue approximation of parts which should be well apart. The exciting cause was a variable and intermittent pressure (caused by turgescence of the soft parts) on intra-nasal nerves which were afferent to the respiratory centre. These pressures were rhythmically increased and diminished by the intra-nasal changes of air-tension on inspiration and expiration, which gradually whipped up the respiratory centre, chiefly on its expiratory side, into a state of excitation and over-action, and all the more readily if previous

[1] British Medical Association Meeting, Manchester, 1902: "Proceedings of the Laryngological Society of London," 1902–3.

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attacks had predisposed the centre to such perverted action, or if the habit had been acquired, or in gouty subjects. He had had some good results with the galvano-cautery applied to the area indicated by Dr. Francis, but also elsewhere. When there was marked intra-nasal deformity and stenosis, he had found it necessary to correct these to get the maximum and most durable results—in fact, to insure as far as possible that no excessive intermittent or pulsatile pressure impulses could originate in the nose and be transmitted to the respiratory centre.

Dr. MACKAY MACDONALD quoted a case of true asthma occurring in a patient with a large perforation of the triangular cartilage of the nasal septum.

Dr. N. C. HARDING (Manchester) said he did not consider sufficient stress had been laid upon the instability of the nervous system, and thought that a peripheral cause started the attack, which cause might be in the bladder, rectum, stomach, or anywhere in the body. Lately he had examined every patient's nose, and it was remarkable what a large number of people who had no symptoms were found with deflection of septum and enlarged turbinals, and yet any one of which might, in case of instability of the nervous system, become causes of asthma. He narrated a case of cure simply by his examination by Killian's method, which was done without cocaine. This showed that treatment powerful enough to greatly affect the mental or moral condition of the patient might be efficient.

DR. PRICE BROWN (Toronto) spoke of the after-treatment in cases where asthma was suspected to be the result of a nasal abnormality. In removal of the obstruction all the nasal trouble was not removed, and it should be remembered that the force of gravitation was acting on the patient during sleep, which resulted in the one side of the nose becoming congested, with resulting oral respiration. What was required was to produce nasal respiration during the night, and for many years he had been in the habit of using rubber mouthpieces, which were made out of pure rubber sheeting cut by the surgeon at the time for each individual case. They were oval-shaped, and formed to fit the mouth between the lips and the teeth, and slipped in over the gums upon retiring at night. Being thin and flexible—that is, about $\frac{1}{16}$ to $\frac{1}{24}$ inch—they fit well, and the patient must consequently breathe through the nose. There was practically no danger of the rubber slipping into the mouth, but, if desired, a tape could be stitched to the centre of one side and tied round the neck. He had found this unnecessary. These mouthpieces produced little distress, and the enforced nasal breathing was

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productive of much comfort to the patients, who were glad to wear them until the catarrhal symptoms necessitating their use were relieved.

Dr. Herbert Tilley (London) had treated several cases of asthma according to Dr. Francis's method, and was astonished at the result of cauterisation of the septal mucous membrane opposite the anterior end of the middle turbinal bone. In one case of what had hitherto proved to be intractable asthma the cauterisation produced immediate relief, but the symptoms all returned within three months, when a reapplication of the cautery again afforded respite from the spasms. He had recently heard that the spasms had again returned. In some cases he had obtained no relief whatever in spite of frequent and thorough cauterisation. With regard to this mode of treatment, his mind was at present open on the matter. Some cases appeared to be remarkably relieved for varying periods of time, but in others no relief was produced, and he knew of no means of previously predicting what result would accrue from the use of the galvano-cautery in the individual case. Speaking generally, he thought that asthma was more amenable to treatment than it was before this method was introduced.

Dr. Henry Smurthwaite (Newcastle-on-Tyne) had found by personal experience the effect of gravity upon the air-space in the nose, as mentioned by Dr. Price Brown. He had found that the nose in asthmatic cases often seemed perfectly normal at the time of examination, but he had noticed the slight depression on the anterior part of the septum mentioned by Collier. He was confident that most cases of asthma were not pure asthma at all, and he preferred the use of the term "pseudo-asthma."

Dr. Newcomb (New York) thought there were so many factors in the neurotic state that one should be cautious in deciding results from any form of treatment, as many results had been obtained from different methods of treatment. Simple alteration of conditions, as a change of sleeping room, from one built of wood to one built of brick, and change of pillows, had both removed symptoms of asthma. It was important to get a more complete definition of what was meant by the term "asthma."

Dr. Jobson Horne (London) said he had followed the discussion with interest, and had listened attentively to learn whether the use of the galvano-cautery by others in the manner suggested by Dr. Greville Macdonald and Dr. Alexander Francis had been attended with equally gratifying results. He gathered that the only speaker who had followed out a series of cases under this form of treatment

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was Dr. Herbert Tilley, but he was not clear as to the results which Dr. Tilley had obtained. [Dr. Tilley, in reply, stated that he had treated seven cases of genuine asthma with the galvano-cautery, and of these two had been cured, three relieved, and two had received no benefit.]

The PRESIDENT considered that the discussion had justified the subject selected. One felt that the term "asthma" was a doubtful one to use, and therefore the particular title mentioned in the paper was deliberately chosen, and he thought the discussion had helped matters. Unfortunately, Dr. West had been obliged to leave the meeting, and therefore Dr. MacDonald alone would reply.

Dr. MACDONALD, in reply, said that the chief criticism to which his claims had been subjected was that one was not careful to diagnose asthma, and that the term was too loosely used. He was amazed at Dr. West's statement that the latter did not think there were 500 cases in London. The whole question was, What was asthma? He simply referred to it as a symptom, and he did not examine the chest, but only required to question the patient as to whether he had to sit up in bed, breathed noisily, and had to use Himrod or other such remedy. If he answered in the affirmative, one was justified in calling it asthma, whatever the cause might be. Dr. Francis, he thought, did not consider that the nose was the cause of asthma, but that any of various peripheral sources of irritation might determine an attack, given an asthmatic condition. He thought that the treatment was simply a method of counter-irritation, and if so it would fully account for the extraordinary variety of cases benefited. Some of their successes, however, might be in the nature of suggestion. Dr. Macdonald also instanced a case of a child who was not materially benefited by the removal of some adenoids present, and who, six years afterwards, was again brought to him for asthma, which alternated with eczema of the face. Whenever the eczema was better the asthma was worse, and *vice versa*. Since the septum had been cauterised there had not been a single attack of asthma, and the eczema was also cured. There was nothing abnormal to be seen in the nose. He now, since Dr. Francis's communication, treated the nose of every case of asthma that consulted him. Dr. Walker Downie spoke of the imperfect removal of polypi; but in the cases to which the speaker had referred he had had an opportunity of thoroughly eradicating these. He believed that in a few years every general practitioner would use the cautery for the treatment of asthma.

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