Hay fever, hay asthma and excessive sneezing / by Litton Forbes.

HAY FEVER, HAY ASTHMA,

AND

EXCESSIVE SNEEZING.

BY

LITTON FORBES, M.D. *(Honoris Causâ)*,

F.R.C.S., E., L.R.C.P., etc.

PUBLISHED WORKS

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PREFACE.

HAVING been myself a sufferer from hay fever, both in England and while on a visit to the United States, I have followed carefully for some years past the literature of the subject. Moreover, I have had occasion to treat a large number of cases annually, and have succeeded in curing myself. The affection is, I believe, in the vast majority of cases curable, especially if treated at an early stage.

In the following short essay I have endeavoured to give the most recent views both as to pathology and treatment. The literature of hay fever is now very voluminous, owing more especially to the valuable and exhaustive labours of many American observers. To have referred to all sources of information would have been impossible, without unduly increasing the size of the work. I wish, however, more especially to acknowledge my indebtedness to the valuable monographs of Sir Andrew Clark, Bart. (Cavendish Lecture) Blackley, Phœbus, Wyman and Sir Morell Mackenzie. The work of the latter on hay fever is undoubtedly a most exhaustive and accurate treatise, and probably the best and fullest now existing in the English language.

22, OLD BURLINGTON STREET,
May, 1890.

CHAPTER I.

HAY FEVER AND HAY ASTHMA.

DEFINITION.—*An acute inflammation of the pituitary mucous membrane occurring periodically in May and June.*

AT the outset an objection might fairly be taken to the term "hay fever" both as a misnomer and as involving an hypothesis which, however probable in itself, has not yet been completely established. All recent writers have with justice insisted on the important part played by the pollen of plants in this curious affection. Yet "hay," properly speaking, has but little to do with it, the pollen of a variety of grasses and flowering plants in their natural state being the chief exciting cause. In this country hay fever is only met with in May and June. In America, however, it occurs under two distinct forms, the vernal and the autumnal, the latter being met with in the months of August and September.

In recent years the literature of hay fever has become very voluminous. In England, Germany, and

America numerous works have appeared on the subject, and various opinions have been enunciated as to the true nature of the complaint. Attempts have been made to embody new theories in new names. Thus Gueneau de Mussy in France calls it *spasmodic rhino-bronchitis;* Mackenzie of Boston *vasor motor coryza*, and also *coryza sympathetica;* Sir Andrew Clark *periodic specific coryza* or *periodic nervous coryza;* Dr. Marsh of New Jersey, *catarrhus venenatus;* Dr. Herzog, of Vienna, *rhinitis vaso-motoria;* all which names alike involve some theory as to pathology or causation. But it is manifestly at once more convenient and practical to adopt a name consecrated by long use, familiar to all, and which embodies in itself at least the most characteristic and distinct feature of the disease, namely, its periodic occurrence during the hay season. But I think it advantageous to treat as a separate subdivision the asthmatic form, which is by no means so common as the feverish or catarrhal. While every case of hay asthma has commenced as one of hay fever, the converse of the proposition does not hold, for many cases of hay fever end before developing into hay asthma.

The CAUSES of hay fever may be considered under two heads, *predisposing* and *exciting*. It is more than probable that were the predisposition absent, the exciting cause would have little real influence. In other words, unless there was some *idiosyncrasy* in these cases the mere presence of the pollen of plants in the nasal

mucous membrane would not of itself be sufficient to induce the attack. This, indeed, is a self-evident proposition, as otherwise every individual exposed to the specific influence ought certainly to contract the disease. As a matter of fact, an exceedingly small number do so contract it. Many persons, such as gardeners and hay-makers, are much exposed to contact with pollen, but almost universally escape. Moreover, it is rarely met with among the working classes in the country, but very generally among men who lead sedentary lives and live in towns. There are, therefore, undoubtedly some predisposing causes which induce the attacks, and render some individuals more prone to be affected than others. Among such causes have been suggested *race*, *temperament*, *education*, *manner of life*, *sex*, *heredity* and *age*.

As regards race, the Anglo-Saxon, in both its English and American branches—that is English speaking people—are more particularly liable to it. The natives of the north of Europe and those of the south are seldom attacked. According to Sir Morell Mackenzie it is scarcely ever seen, though not absolutely unknown, in Norway, Sweden, and Denmark, and is also very rare in France, Germany, Russia, Italy, or Spain. It is said to be comparatively infrequent in Scotland, and more common in the south of England than the north. England and the United States are its chief habitat. In the latter country it is a severe scourge, occurring in

nearly every State, and under two well marked forms, the vernal and autumnal. It has been noticed, however, in New York, where the affection is very common, that the German and French populations generally escape its attacks. It would appear also that the Indians and negroes enjoy the same immunity, although the evidence on this latter point admits of some doubt.

As regards *temperament* hay fever is chiefly met with in so-called "nervous persons," that is in individuals possessed of considerable nervous energy, and capacity for work, as opposed to the bilious or phlegmatic. Social position and education would also appear to exercise a considerable influence. Hay fever like gout is essentially a disease of the wealthy, and though not absolutely unknown among hospital patients is at least very rarely met with. I have notes of many cases occurring in my own practice, but find that in all instances the patients have been at least in easy circumstances. Other writers have noticed the same fact. Thus out of Blackley's forty-eight cases all belonged to the educated classes, and the same applies to fifty-five cases reported by Wyman. On the other hand farmers and agricultural labourers, who it might have been supposed *à priori* would have been particularly prone to be affected, enjoy as a matter of fact almost complete immunity, possibly, as has been suggested by Mackenzie, because "habitual exposure to the cause of the complaint begets tolerance."

Sex.—Men are said to be more liable to hay fever than women, although in my own observed cases I have found the proportions about equal. Morell Mackenzie states that in his cases the proportions were thirty-eight males as compared with twenty-three females. The collective statistics of Beard, Phœbus and Wyman, give a grand total of 433 cases, of which 142 occurred in females. Possibly the more sedentary habits of women, and consequently their less exposure to plant emanations, may in part account for this comparative immunity. I am not aware that any statistics have been collected as regards the influence of particular trades or occupations. The main fact, however, is undoubted that the "classes" as opposed to the masses practically enjoy a monopoly of the disease.

Heredity, as might be expected from the analogy of other affections, such as gout, rheumatism and neuralgia, plays an important part in hay fever. I have several times had occasion to treat a mother and daughter, and have often been able to trace a distinct history in various members of one family. The undoubted connection of hay fever with gout in many cases explains this fact, or at least emphasises it. In Wyman's experience there was heredity in twenty per cent., in Beard's in thirty-three, in Morell Mackenzie's in twenty-seven out of sixty-three cases. ("Hay Fever," page 32.)

Age is also a factor of some importance. The affection

is rare in children and very rare in old persons. It is chiefly met with during the period of active life, ranging from about twenty to fifty.

Before discussing in detail the modern doctrine of the causation of hay fever it may be well to mention some subsidiary causes to which the affection has been attributed. These, though not the producing causes, are undoubtedly at times capable of aggravating symptoms and inducing paroxysms, and thus rendering an attack more severe and more prolonged. Among such may be mentioned *heat*, *light*, *dust*, *benzoic acid*, *excess of ozone*, and the *smell of certain flowers*, such as the rose, geranium, or heliotrope.

Heat.—The earliest advocate for the theory that heat might be productive of the disease is Bostock, whose view Phœbus so far adopted as to surmise that *the first heat of summer* exercised an important influence. But, as Sir Morell Mackenzie well remarks, were this the case we should expect to meet with the disease in a particularly virulent form on the plains of India, or during the topical summer of America, or in the equatorial regions. Such, however, is not the case.

Light.—Strong light such as sunshine if falling upon the face, will often cause a paroxysm of sneezing, and other symptoms. This is especially the case when open-

ing the eyes in the morning. In some instances the nervous apparatus of the eye is so sensitive that the sufferer endeavours by darkening the room or seeking shady places to lessen irritation. Many hay fever patients obtain more relief on dark and cloudy days. But this, as Wyman remarks, may not be altogether due to the absence of light, seeing that such days are more likely to be also cool and damp.

Dust.—When speaking of dust as an aggravating cause of hay fever it is evident that dust may, under certain circumstances, contain abundance of pollen. Hence, perhaps, the excessive irritation which is felt while travelling by rail or on dusty roads. In such cases it is evident that clouds of pollen, forming an integral portion of the "dust," may be blown into the respiratory passages. Hence, though the mechanical irritation of the particles of dust may cause an aggravation of the symptoms, no general conclusions can be drawn as to the power of mineral particles, *per se*, to cause hay fever.

Ozone, benzoic acid, the smell of certain flowers.—As regards the possible influence of excess of ozone in the atmosphere, Blackley made very careful and conclusive experiments. He produced ozone artificially, and inhaled it for several hours with entirely negative results. He also experimented with benzoic acid, coumarin, and many volatile oils, either inhaling the

vapours or applying the substances directly to the mucous membrane of the nose, but failed to produce any specific symptoms. There is, however, no doubt that the odours of certain fruits and flowers will, in some persons, induce paroxysms of sneezing, and otherwise aggravate the characteristic symptoms of the disease. Wyman mentions several cases of this nature. Some patients suffered severely from the smell of peaches, others from pears, tomatoes, grapes or melons. With many the smell of the rose was sufficient to induce an attack, while with others the rose was innocuous, and only heliotrope or geranium possessed any influence for evil. With some Indian corn (maize), when in flower, produced sneezing. With others the thistle and Roman wormwood *(ambrosia artemisiæfolia)* were especially baneful. The poisonous influence of some plants is beyond doubt, as for instance the two varieties of Rhus, Radicans, and Toxicodendon (Wyman).

The emanations from certain animals, *i.e.*, cats, rabbits, and guinea pigs have also been thought to cause asthmatic attacks ; but these attacks, as Blackley suggests, may be due simply to pollen entangled in the fur of the animals themselves.

None, however, of the foregoing causes can actually produce hay fever, however much they may aggravate its symptoms.

Causation.—The true cause, and the only sufficient

one, is to be looked for in the *action of the pollen of certain plants* on a mucous membrane disposed to receive it. This important fact, though long suspected, may be said to have been definitely established by Blackley, of Manchester, in 1873. His experiments were of a very ingenious and exhaustive nature, and were carried out with scientific exactness. He was the first to prove by actual experiment (1) that the inhalation of pollen would produce the characteristic symptoms of hay fever; (2) that there was a direct relation between the intensity of the symptoms and the amount of pollen floating in the air, and (3) that none of the agents above referred to, such as heat, light, dust, etc., could themselves cause the complaint (Mackenzie). The theory of the causation of hay fever by pollen is not free from some difficulties, but these can generally be explained. For instance, the fact that persons have been known to suffer who have not been in the immediate neighbourhood of plants of any kind is easily disposed of by remembering the ubiquity of the pollen grains. At certain seasons the air literally teems with them. They may be wafted many miles out to sea, and fall on the deck of a vessel, or be conveyed in its sails, or in articles of clothing. This difficulty is easily dealt with. Another, however, remains. This, put simply, is, why does every one who is exposed to pollen not suffer from hay fever? An answer to this will be attempted further on in this work.

Pathology.—The actual mode in which pollen exercises its specific action is quite unknown. It is without question a most irritating substance when applied to the skin or mucous membrane. Blackley attributes its effects to the power which it possesses "of dilating, and causing exudation from the capillary vessels of the connective tissue." As a matter of fact the grains are about one-tenth the size of the blood corpuscles, and may enter directly the current of the circulation (Wright Wilson, "Lancet," October 6, '73). Their action, however, is more probably a vital one depending for its power on—what in the absence of a better term—may be called the *idiosyncrasy* of each individual. Hence, whatever will explain this idiosyncrasy, or in other words the peculiar sensibility to the action of pollen shewn by some persons will account for the phenomena of hay fever.

The question of the pathology of hay fever has assumed great importance within the last few years, owing to the researches of J. N. Mackenzie, Roe, Daly, Bigelow, Sajous, and others in America. They have endeavoured, with remarkable success, to shew that in a large percentage of cases, structural lesions may be found within the nose. Thus, Roe, while allowing that pollen is the exciting cause of the symptoms in hay fever, adds that "he has observed in every instance in "those who were subject to hay fever, more or less "disease or hypertrophy of this erectile [nasal] tissue." ("Pathology and Radical Cure of Hay Fever"—Apple-

ton & Co., New York.) He concludes: (1) "That in a "large majority of hay fever cases, the initial lesion "will be found to exist in the condition of the tissues "of the nasal fossæ.

(2) "That the disease induces abnormal activity in "the ganglionic centres connected with them, an "abnormal activity which is reflected to other tissues "and organs.

(3) "That the sensitive areas in the nose are not "confined to any particular locality, and that there are "no zones in the nose which, when irritated, invariably "produce the same manifestations.

(4) "That the irritation may be reflected in one "direction at one time, and in the opposite at another.

(5) "That disease of the nose may produce disease "in other parts of the respiratory tract, which may "become independent centres of irritation.

(6) "That hay fever is due to the effects of a local "irritant, brought by the atmosphere into contact with "the sensitive regions of the air passages.

(7) "That the affection is not *per se* a neurotic "disease, nor necessarily associated with a nervous "temperament, although persons having a highly "nervous temperament, or a neurosis, are much more "susceptible to the influence of a local irritant.

(8) "That the neurotic condition, which is often "regarded as a cause of hay fever, is itself often "developed as the result of the local irritation.

(9) "That by carefully correcting all abnormal "conditions found in the nasal or other portions of the "respiratory passages, and the use of such systematic "medication as may be required to remove any associated "or consequent general derangement, we need not "fail to cure hay fever." (Quoted by Morell Mackenzie, "Hay Fever," p. 40.)

The above conclusions are, I think, thoroughly admissible. I have found them true in a large proportion of cases, but not universally so. There are, for instance, many persons who suffer from hay fever, and yet whose nasal fossæ are to all appearance perfectly healthy. Still, in my own experience, this is the exception rather than the rule, and it is rare to find a perfectly healthy nasal mucous membrane associated with the specific symptoms of hay fever. A more serious objection is that the hypothesis of an abnormal condition of the nose takes no account of racial peculiarities. Thus the French, German, and Italian races on the average suffer quite as frequently as the Anglo-Saxon from nasal irregularities, and from affections of the mucous membrane, but yet enjoy almost complete immunity from hay fever. Moreover, the occurrence of hay fever is strictly limited to one, or at most two, seasons in the year, whereas nasal obstructions may and do actually exist at all seasons.

Another view has been advocated by Dr. Harrison Allen ("American Journal of Medical Science," January

1884), that mere mechanical obstruction of the nasal passages may induce the affection, and hence that dilatation of the passages would afford a means of cure. But Dr. Roe has shewn that narrowing or obstruction of the nostrils is not very common among hay fever patients. Sir M. Mackenzie considers that the "position of the swelling within the nose is really of most importance." If this affects the anterior part only it is rather advantageous than otherwise as preventing the entrance of pollen. If, however, it is confined to the middle or posterior portions it becomes a source of much trouble, by causing the pollen grains to remain lodged in the nose. ("Hay Fever," p. 44.) This subject will be referred to later on when speaking of treatment. My own view is that though an unhealthy condition of the nasal fossæ is not absolutely necessary to the production of hay fever, yet as a matter of fact such a condition is found in a large number of cases, and if removed a cure will often follow.

The Gouty Theory.—The connection between gout, hay fever, and asthmatic symptoms presented itself to the minds of some among the earlier writers on the subject, for instance, Elliotson. In a series of carefully written articles, Dr. Gueneau de Mussy ("Gazette Hebdomadaire," 1872, p. 9), has shewn the frequent coincidence of hay fever with a gouty diathesis. He shews by a selection of cases that gouty eruptions of the

skin, such as eczema and urticaria, that asthma and that hay fever will often be correlated in the same individual, or in several members of a family. The same observer has also pointed out that local congestion of the upper air passages may act as a starting point from which the hay fever symptoms may spread.

In many cases of hay fever of supposed gouty origin I have observed that the sufferers were generally of a distinctly neurotic type. The attacks from which they suffered were like gout, periodic with a distinct tendency to recurrence. The patients themselves could foretell the advent of their attacks with great certainty. Indeed, between hay fever symptoms and those of gout there are several very curious points of resemblance. The attacks in both affections occur in crises, last a variable time, and are frequently worse at night. They occur in spring and autumn, but in England only in the former season. With many individuals some form of skin disease such as nettle rash or eczema is a common accompaniment of hay fever. A further careful examination will often reveal unexpected evidences of a gouty history. Hence it is not unreasonable to suppose that gout may be an important factor in the causation of hay fever, by inducing such a condition of the mucous membranes as to render them liable to suffer from the peculiar irritation of pollen. Other causes must of course not be excluded. Moreover as the gouty diathesis becomes modified or varied in members of a family so

will the manifestations depart from a normal or typical standard. The point which I am anxious to emphasize is the undoubted co-existence in many cases of hay fever and gout, whether the latter be inherited or induced.

The following case, recorded by Dr. Gueneau de Mussy, is typical of a large number of hay fever cases, the susceptibility in which to the influence of pollen is associated with a gouty diathesis. It is also a good example of the hereditary nature of this affection:

"Miss P., aged 24, of a highly nervous tempera-
"ment, had been subject for some years to regular
"attacks of hay fever. Her maternal grand-uncle had
"attacks of the same malady. Her mother suffered
"from it up to the age of forty-six. Miss P.'s brothers
"and sisters were free from hay fever, but suffered
"regularly from irritability of the skin, more especially
"of the face, from the middle of each May to the
"following June, that is at the very time when Miss
"P.'s attacks were at their worst. Miss P., herself, was
"a chronic sufferer from weak digestion, lassitude, drowsi-
"ness, and fatigue after food. Her attacks of hay fever
"occurred with unfailing regularity each year, and with
"the same symptoms as in the case of her mother. . . . .
"They were associated with itchiness in the auditory
"meatus, and a red papular eruption, with peeling of
"the skin on the chin, temples and cheeks. The skin
"symptoms commenced each year in March, and by the

" middle of May gave place to the catarrhal symptoms, " accompanied by violent purging. At the same time a " copious discharge of colourless fluid occurred from the " nose, and the eyelids became swollen, red, and tearful. " These attacks recurred eight or ten times a day, and " necessitated the use of as many handkerchiefs. The " patient was much exhausted after each attack and " accustomed to fall into a troubled sleep, from which " fresh paroxysms soon aroused her. The attacks were " readily induced by any pungent smells, particularly by " that of a rose, or by heat applied to the back."

In the above analysis we have a picture of a typical case of hay fever of gouty origin. There is first of all the hereditary history; then the gout shewing itself in the condition of the skin, but going no further than this, in two members of the family. In Miss P.'s case the hay fever first attacked the head and then the orifice of the nose, provoking reflex spasms (sneezing). It irritated in its course the nerve of hearing and the eyelids, and finally culminated in a violent attack of coryza, passing into asthma, and occurring with typical regularity each succeeding spring.

The following case is very similar to above.

Miss R., aged twenty-four, was recommended to consult me for annually recurring hay fever, associated with attacks of asthma and difficulty of breathing through the nose. The patient appeared fairly healthy; examination, however, shewed a weak heart and slight

emphysema of the lungs. Her grand-uncle had suffered from muscular rheumatism, a maternal uncle from gout, her brother from hepatic colic, associated with a skin affection, and her sisters from violent neuralgia. Miss R. herself noticed that her skin was very dry, especially on the head, and that the eyelids were irritable and swollen before the advent of the hay fever attacks. These latter would commence with discomfort in the nose, followed by abundant secretion, flow of tears and sneezing. This last symptom was very distressing, and would leave the patient much exhausted. The attacks lasted generally six weeks, and occurred sometimes twice in the same summer. On the occasion of the last attack the inflammation extended into the larynx, causing hoarseness of the voice with a violent and distressing cough. In the above history the correlation in various members of the same family of rheumatism, gout, hepatic colic and skin irritation, culminating eventually in hay fever, is well shewn.

CHAPTER II.

SYMPTOMS.

In considering the symptoms of hay fever, it is well to bear in mind that two distinct types of the disease are met with, viz.: the catarrhal and the asthmatic. The first symptom generally perceived is a slight itching in the palate and the roof of the mouth, with a sense of heat and dryness in the corners of the eyes, the nose, and over the brows. This initial or premonitory stage may last only a few hours, after which the nostrils become affected. There is then a sensation of stuffiness and obstruction of a peculiar character. It occurs, as it were, momentarily, the nostrils becoming suddenly blocked and congested, and as suddenly relieved. These attacks at first occur in the morning only, but subsequently at intervals during the whole day. The discharge from the nasal fossæ soon becomes abundant, and consists of a watery, almost limpid fluid, accompanied by a flow of tears, injection of the conjunctiva and neuralgic pain and itchiness along the margins of the lids and inner corners of the eyes. The irritation is intense enough to induce violent rubbing of the lids, which generally gives at least momentarily relief. There is often at this stage distinct feverishness with high temperature. The neuralgic pains vary in character and intensity, as also in position. At times they localise themselves in the

frontal region, at others in the eye balls, or back of the head. The senses of taste and smell are much interfered with and may be even temporarily lost. There is also partial deafness, with noises of a dull character, and a feeling of obstruction in the ear. The lips become dry and cracked, and like the features generally, more or less swollen. The skin also sympathises in the general disturbance. Itchiness in the back and chest, or even a sharp attack of nettle rash are not uncommon symptoms. The constitutional disturbance is confined to slight shivering, oppression in the head, lassitude and loss of appetite. The attacks may last only a few hours, or may continue for days or even weeks. All the above symptoms are markedly intermittent. They sometimes leave the patient suddenly, and then he feels fairly well, but recur again at variable intervals.

After the above symptoms have continued for some days they assume a bronchial character, as shewn by a frequent and harsh cough, with expectoration. Should the weather be unfavourable, that is dry and dusty, the lung affection may become aggravated. The cough grows worse, especially at night, and assumes a spasmodic character associated with attempts at vomiting. The disease is now at its height and gradually declines. The catarrhal symptoms become less marked, taste and smell return, and the attack passes off for that year without leaving any actual lesions behind it. Fortunately, all the above symptoms are seldom present in the same

individual. The sense of weight in the head, the itching of the eyes, nose, ears, and throat, however much they may vary in intensity, are constant. The discharge from the nose and irritation of the skin vary much in individuals, as do also the intolerance of light and the general debility. With some, this latter is sufficient to incapacitate from all work, with others it is quite a subordinate symptom. The attacks vary in intensity, not only in individuals, but in the same individual from year to year.

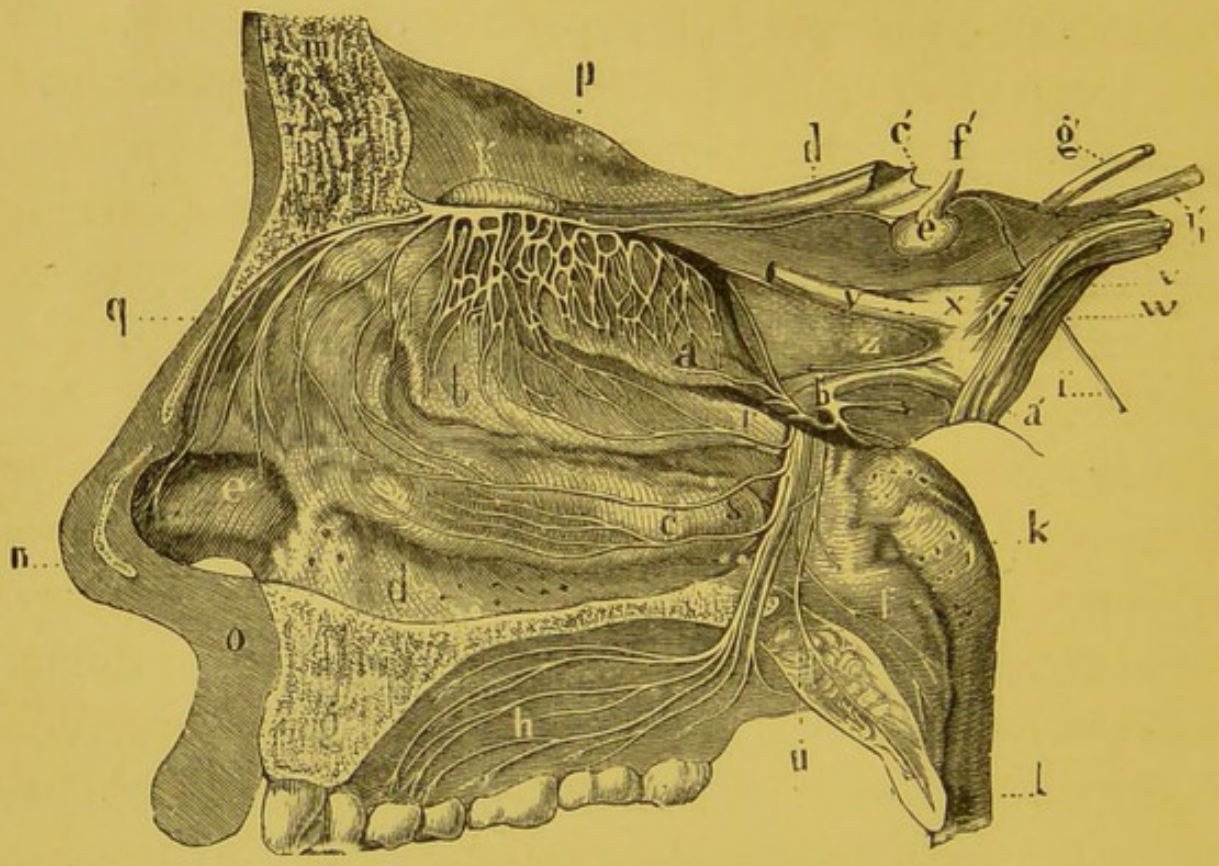
THE ASTHMATIC TYPE.

In cases of hay fever complicated with asthma, asthmatic symptoms generally appear not earlier than four weeks from the commencement of the attack. But this is not an invariable rule. In many instances the asthmatic symptoms challenge attention from the first, and constitute a well-marked variety of the disease. In others they follow the catarrhal, and only appear when the watering of the eye, the sneezing and the discharge from the nose have begun to diminish. Many persons escape them altogether, and even with those who do actually suffer, the asthma is not usually of a severe character. My own cases lead me to the conclusion that in hay asthma the attacks occur chiefly in the day time, but Wyman ("Autumnal Catarrh," p. 21), who has seen a great number of cases, believes "they usually come on "during the night, after the first sleep, and cease in

" about an hour, to reappear towards morning." They commence without obvious cause, and pass off in a few hours. The diagnosis is not always perfectly easy. Physical examination gives normal percussion sounds with mucus and sibilant râles and noisy inspiration and expiration. But the absence of bronchitis and affections of the heart, the suddenness with which the attacks begin and end, the history of the case, the time of year, and the appearance of the patient will generally be sufficient to distinguish hay fever from asthma. In both, however, the efficient cause is spasm of the minute muscular fibres of the bronchial tubes. But this spasm again is of nervous origin. It consists essentially, according to Dr. Hyde Salter, " of a perverted sensibility " of the nervous system in its receiving and transmit- " ting on to the muscle as a stimulus to contraction, " that of which it should take no cognizance. . . . . " The vice consists in the irritability of the part " irritated." That the nervous system plays a large part in the genesis of these attacks is shewn by the peculiar nervous temperament of most sufferers, by the hereditary character of the affection, by its similarity to true asthma, by its periodicity, by the effect which mental impressions have on it, and by the remedial power of sedative drugs, such as stramonium and belladonna.

But though hay asthma be mainly a neurosis and of so-called " nervous " origin there is nothing in this fact to prevent its being dependent directly on unhealthy

conditions of the nose. The mucous membrane covering the septum as also the middle superior and inferior turbinated bones, is supplied by branches from the



(*a*) (*b*) (*c*) Turbinated bones; (*h*) Hard; (*i*) Soft palate; (*f*) Upper part of pharynx; (*k*) Eustachian tubes; (*p*) Olfactory nerve; (*q*) Sensitive nerves from fifth pair (*v*) (*w*); (b^1) Spheno-palatine ganglion.

spheno-palatine ganglion. This ganglion besides the ordinary motor and sensory roots possesses also a sympathetic root, which places the nasal mucous membrane and the great sympathetic system of nerves in direct communication. These further join with branches of the pneumogastric nerve, and thus form as it were one complete whole. Its ultimate destination is the minute

muscular fibres of the bronchial tubes. Hence the connection between diseased conditions of the nose and the occurrence of asthma, following on hay fever, admits of explanation. Hence also an explanation of the fact that treatment applied to the nose will often cut short or radically cure long-standing attacks of hay asthma.

In some cases, however, especially when the catarrhal stage has continued a length of time, the succeeding asthma may undoubtedly be due to another cause. The area of nasal irritability and bronchial spasm may be connected, not by the nervous system only, but also more directly by extension and continuity of the inflammation. The catarrh may in fact spread from the nose through to the pharynx, trachea bronchi, and ultimate ramifications of these latter. The symptoms are then analogous to those of a "common cold," which commencing in the head, ends in the chest, bringing in its train catarrh, hoarseness, partial loss of voice, cough, and expectoration. Such cases might often be looked on as other than genuine hay asthma; but the diagnosis is sufficiently established by the fact that they occur yearly at stated seasons and are increased by exposure to an atmosphere laden with pollen. The indication in such cases is to direct treatment both to the spasmodic (asthmatic) element, and to the inflammatory. In the former lobelia, belladonna and stramonium are the typical remedies; in the latter chloride of ammonium, and the bromides and iodides of potassium.

CHAPTER III.

DIAGNOSIS.

Hay Fever must be distinguished on the one hand from "common cold," on the other from spasmodic asthma. From ordinary catarrh it is sufficiently marked off by the regularity of its periodic return, by the readiness with which certain irritants aggravate the symptoms, by the redness and itching of the eyes, nose, and throat, and by the copious and clear discharge from the nostrils. From bronchitis, in its earlier stages, it may be distinguished by the absence of the physical signs, and by the presence of characteristic symptoms in the eyes, nose and throat. From true asthma it may be known by the history of the attack and by the fact that hay asthma occurs only at certain seasons, whereas true asthma is met with all the year round, but chiefly in winter. In true asthma, also, the paroxysms occur chiefly at night and indoors, in hay asthma in the day time and out of doors. In true asthma there is generally absolute freedom in the intervals of the attacks, whereas in hay asthma there is a tendency to continuation. Moreover, in true asthma the eyes are seldom, if ever, affected.

CHAPTER IV.

TREATMENT.

The treatment of hay fever may be either preventive or curative. As regards the former, much may be done towards warding off the attacks completely. This may best be accomplished by a sea voyage. But this, I am strongly of opinion from personal experience, to be certain in its action, must be an ocean one, in which the sufferer is conveyed hundreds of miles away from land. Pollen, as is now well known, is carried in the air to great distances seawards, and a mere visit to the coast or a short channel trip is likely to end in disappointment. To those, however, who cannot manage a sea voyage, partial relief may be obtained by a temporary stay in a large town, or on an island, or even at the seaside, if the prevailing winds blow from the sea on to the land. For complete prevention the journey should be taken before the well-known symptoms appear. Should they have already commenced they may generally be shortened and considerably mitigated by suitable change of air. In addition to the above if the patient is obliged to pass much of his time in the open air, the nostrils may be plugged with cotton or a damp sponge, and tight fitting spectacles or a thick veil may be worn.

By means of the above precautions some persons escape the disease altogether, while others contract it in a comparatively mild form.

Apart from mere prophylaxis, the indications for treatment are first of all to strengthen the general nervous system, next to soothe local irritability, and lastly to remove the exciting cause. This latter indication I treat of more fully in a separate chapter, page 40. It should be noted, however, that hay fever is essentially an affection which varies with each individual. Every case, therefore, must be dealt with on its own merits. The same remedies will not always give relief to different persons, nor, unfortunately, to the same person in each attack.

As to general treatment, the diet should be nourishing, with an ample allowance of animal food. Alcoholic stimulants seldom do good, and as a rule are badly borne. Cold bathing and shower baths have been recommended, but generally are too severe in their action, the depression of the nervous system being very marked. Warm clothing, especially flannel, should be worn during the hay fever season, as it protects against the tendency to catarrh. Rubbing the skin daily with a flesh brush is also useful.

The *palliative* treatment must be directed mainly to individual symptoms. Thus the irritation of the eyes may be relieved by coloured glasses, by bathing with cold water or cold tea, or in other cases by using mild collyria

of sulphate of alum, gr. 1 to ℥j, or sulphate of copper of the same strength, dissolved in rose water. If the lids are inflamed, they may be anointed with vaseline or cold cream. More soothing, however, than these is a spray of a 5 per cent. solution of cocaine, directed for a moment over the closed lids. This I have found give more immediate relief than any other application.

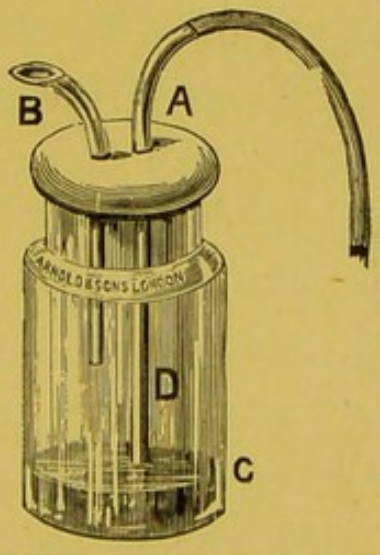
The discharge from the nostrils may be mitigated by holding the head over hot water. The effect of this treatment is much increased if the head and shoulders be at the same time covered with a shawl or cloth. Blowing the nose should be avoided. The organ need only be gently wiped. A veil of muslin, moistened with water, is a good protection to the whole face when patients are obliged to travel by rail or along dusty roads.

As regards nerve tonics, quinine has been recommended by many authorities, and I have certainly seen benefit derived from it. Its action, however, is uncertain, and at times it would appear to increase the sense of weight in the head, and the noises in the ears. Helmholtz used it in the form of injections, probably on account of its parasiticide action. Sir Morell Mackenzie prescribes an excellent pill containing valerianate of zinc gr. 1, and compound asafœtida pill gr. 2. In my own practice, so far as drugs are concerned, I rely chiefly on nux vomica and arsenic with the mineral acids, and in certain cases on the bromides of potassium and ammonium, and hydrobromic acid.

Tincture of opium is a very useful remedy where the local irritability is excessive. In the asthmatic form it diminishes the secretion of mucus, and lessens sneezing. Belladonna is also serviceable where the uvula and palate, as is often the case, are affected. Atropine, morphia, and aconite have also found earnest advocates. Thus Doctor Moorhead ("Brit. Med. Journal," July 3rd, 1886) recommends a hypodermic injection, containing $\frac{1}{20}$ of a grain of morphia, and $\frac{1}{200}$ of a grain of atropine. He states that he cured himself by the above injections, after having suffered for thirty years, absolute relief being obtained within ten minutes. Dr. Paget (*ut supra*) recommends twenty-five minims of a two per cent. spray of cocaine driven into each nostril and over the eyelids. From my own experience I consider cocaine of great value. It should not be used in too strong a solution, one of five per cent. being in all cases sufficient. Some persons bear it much better than others, and it is well to remember that in some individuals there may be a special intolerance of this drug. The nose should be cleared of mucus first, and then a small spray charged with the cocaine should be passed backwards into the nostrils as far as possible. Cocaine may also be applied to the interior of the nose by means of a brush or bougies. For the latter Sir A. Clark recommends that quarter of a grain of cocaine should be used dissolved in a mixture of gelatine and glycerine.

To subdue local irritation, the same physician recommends an application composed of glycerine of carbolic acid (℥j), hydrochlorate of quinine (ʒj) and perchloride of mercury $\frac{1}{2000}$ part; the whole to be mixed together and dissolved by the aid of heat. The nose should first be cleansed with boro-glyceride of the strength of one ounce to a pint of warm water. The brush dipped into the carbolic mixture should then be passed into the nostril, touching thoroughly its upper part, and subsequently its floor as far back as the pharynx. The same operation may then be repeated on the other nostril. This procedure is undoubtedly severe, but it has, in the hands of its author, given good results. I have tried it in several cases and believe it is often beneficial. The pain soon passes off, and the worst symptoms are possibly a slight headache or cough. Generally two or three applications are necessary, these may be made every alternate day, or if badly borne, every third or fourth day.

The Author's inhaler is essentially a Wolff's bottle connected with the external air by two tubes A and B which pass into the receiver through two air tight openings. The mouth of the pipe A is covered by fluid, the other B is free in the interior of the inhaler D. The whole is encased in flannel to retain heat.

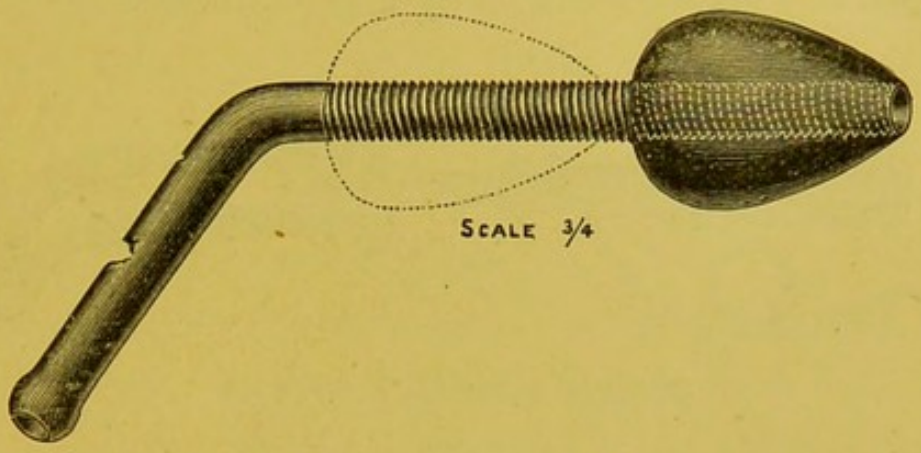


AUTHOR'S INHALER FOR WARM OR COLD INHALATIONS.

Inhalations are useful. Creosote or carbolic acid may be used, or oil of eucalyptus. But the oil of the pumilio pine (pumiline) is generally the best and pleasantest inhalant. These drugs should be used for about ten minutes at a time, at the commencement of an attack. In cases where the catarrh is very marked, insufflation of a snuff, composed of three-quarters of a grain of bismuth and one-sixth of a grain of morphia, may be tried. In the asthmatic form of hay fever much relief can be obtained during the paroxysms by the inhalation of fumes of nitre and stramonium. One of my patients procured relief for himself by the fumes of a powder consisting of four parts of stramonium, two of nitre, and one of aniseed. This mixture is probably very similar in composition, or at any rate contains the active principles of the well known "Himrod's Cure."

As a general rule, in all cases of hay fever, which is distinctly a depressing malady, both diet and treatment should be liberal and tonic. A certain amount of moral courage on the patient's part is also a desideratum, for the more the affection is resisted, the less trying does it become. Moreover, as it is probable that a previous unhealthy condition of the mucous membrane is, in many cases, necessary for the development of the disease, it is advisable that the nasal fossæ should be maintained in a healthy condition. Treatment, both local and general, should, therefore, be commenced *before the annual symptoms appear*. In

this way the attack may be warded off or much mitigated. Careful syringing with alkaline lotions and

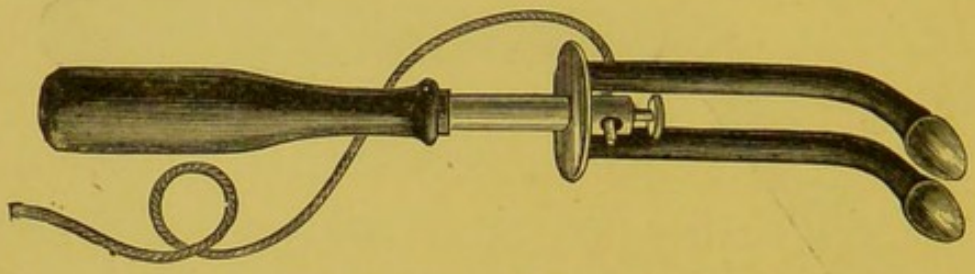


THE AUTHOR'S IMPROVED NASAL SYRINGE.

The above nozzle can be fastened on to any ordinary gutta percha syringe. It should be held as shewn in the figure, in the nostril, and pointed backwards towards the throat, not upwards towards the forehead.

sprays, the use of inhalants and of interrupted currents of electricity with other more general measures will often enable patients who have hitherto suffered, to tide over the trying months of spring without any manifestations of hay fever. As regards electricity I have seen much benefit derived from mild interrupted currents applied daily or every second day by patients themselves. The electricity should be used for about ten minutes to each nostril, and acts probably as snuff does in arresting sneezing, by destroying the irritability of the part. To facilitate the application of the current I have designed a double electrode by which the electricity can be applied to each nostril simultaneously. Like many other

remedies electricity may fail at times, but if either used independently, or in conjunction with other treatment, it will yield a large percentage of successes.



AUTHOR'S NASAL ELECTRODE.

The treatment of cases of hay fever (*see* p.17) depending on a gouty diathesis must at least, so far as prevention is concerned, consist mainly in constitutional remedies. The chief reliance will necessarily be placed on careful dieting, with occasional visits to certain mineral spas. When this latter indication cannot be complied with, something may be gained by suitable medication internally. As to diet the important point is to provide a sufficiency of nutritive material in a form easy of digestion and assimilation. A sufficient supply of meat and vegetable or amylaceous food will be always necessary, and so called "low diet" and poor living should be carefully avoided. On the other hand any excess of starch or sugar is contra-indicated. Hence farinaceous foods such as bread, rice, potatoes, etc., and all sorts of pastry should be partaken of sparingly, and alcohol scarcely at all. Pure or äerated water, or in some cases water to which a little lime juice has been

added form the best beverages. In cases, however, where digestion is weak, a small quantity of alcohol is sometimes a necessity. It may be taken best at meals, largely diluted with some mild mineral water. If wine be preferred, claret or light hock will generally agree best. All effervescing wines, such as champagne, and all malt liquors, are tolerably certain to cause mischief. The action of a milk diet is somewhat doubtful. Dr. Robson Roose considers that milk as a rule, increases the production of uric acid, and must, therefore, be considered unsafe. He adds, however, that experience shews that some gouty subjects can take as much as two quarts of milk in the twenty-four hours with benefit. In one excessively gouty patient, under my own care, I found that milk was always well borne. This gentleman was a perfect martyr to gout, and was seldom free from some manifestation of it. The result of many years of observation on his own behalf, led him to believe that "whatever came from the cow agreed with him," but this dictum, if true, in any individual case, will not admit of too wide application.

The diet of gouty subjects must be somewhat strictly limited. Beef, mutton, fowl, game, fish, eggs, green vegetables such as watercress and lettuce, pretty well exhaust the list. Tea and coffee, more especially the latter, can only be indulged in very moderately. Chocolate or cocoa nibs boiled for two or three hours, and then skimmed to remove the oily matter, are more suitable.

Scarcely less important than the quality of the food is the quantity. Gouty persons, especially those in whom the malady is suppressed or latent, should eat with extreme moderation. The sensation of satiety and repletion after a meal should never be produced. Plenty of exercise is desirable, more especially horse exercise; but this, like everything else, must be used in moderation. Excessive fatigue in persons of weakly or delicate constitutions is very likely to produce indigestion, and precipitate attacks of asthma. A fair amount of mental work does no harm, but excessive fatigue of mind or excitement should be avoided. There is abundant evidence to shew that hay fever is connected in most cases with some peculiar condition of the nervous system. Hence undue stimulation cannot fail under all circumstances to be injurious.

To those who have suffered annually from hay fever together with manifestations of gout, a sojourn at certain mineral spas is often useful. In England the best waters are Buxton, Harrogate, or Bath; on the continent, Wildbad, Toeplitz, Vichy, Royat, Baden, Wiesbaden, Aix-la-Chapelle and Aix-les-Bains. Bath, Buxton, Wildbad, and Toeplitz are warm waters, with a comparatively small proportion of mineral constituents. The waters of Vichy and Royat are strongly alkaline, while those of Baden and Wiesbaden depend for their efficacy on the presence of chloride of sodium. Those of Aix-les-Bains, Aix-la-Chapelle and Harrogate

contain sulphuretted hydrogen. The above-mentioned waters when taken internally stimulate digestion and secretion, and remove effete material from the current of the circulation. Used as baths they free the skin from impurities and accelerate its functions. Bathing however, in any form, must be adopted with caution by those having any tendency to gout or suffering actually from an attack of hay fever. Cold sponging and warm vapour baths should both alike be avoided, as also Turkish baths. The latter are very trying to delicate persons, and are positively dangerous when any weakness of the heart is present.

CHAPTER V.

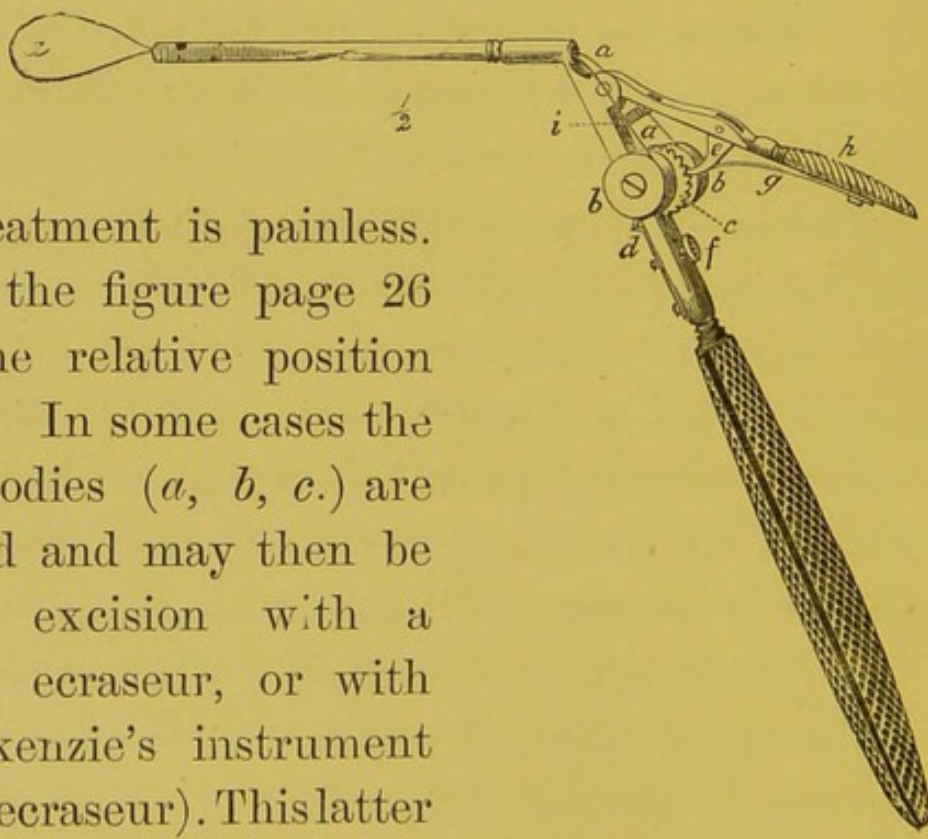
THE RADICAL CURE OF HAY FEVER.

Much attention has recently been paid to abnormal conditions of the nose as the cause of various reflex disturbances, such as asthma and the class of so-called "neuroses." Among these latter, according to some writers, hay fever should be included. Allowing that pollen be the active agent in inducing hay fever, a little consideration will shew that it is not, and cannot be, the sole factor in the production of the symptoms. Vast numbers of persons are habitually exposed to contact with the pollen of various flowering plants and of grasses, and yet escape altogether; while with others who do suffer, the attacks of the disease occur only within certain periods of life. It has been noticed that of those who suffer from hay fever many suffer also from an unhealthy condition of the nasal mucous membrane. Hence, it has been argued that this condition is in some way antecedent to the affection, and in fact the cause of it. The pollen would be powerless for evil if it fell on a perfectly healthy mucous membrane. The mucous membrane, in many cases, is not healthy, and thus, as

may be supposed, a convenient soil or *nidus* is ready at hand on which the specific germs can work. The early recognition of this condition is of great importance in the treatment of hay fever, because in certain cases it points to the possibility of radically curing the disease. The treatment, where successful, should not merely relieve for the time, but permanently cure.

Two explanations are given of the undoubtedly beneficial action of strong caustics applied to the mucous membrane of the nose. One is that they destroy the growths or swelling within the nose itself, which by the irritation they set up cause reflex action. This reflex action shews itself in a variety of symptoms, such as pain, sneezing, discharge of mucus, frontal headache, etc. When the cause has been removed these symptoms disappear, in many cases never to return. It is now well known that pressure within the irritable zone of the nose will cause asthma, as exemplified in the case of nasal polypi. Very often, however, this pressure cannot be proved to exist, and the explanation therefore will not apply universally. The second explanation offered is that the action of the caustic agent so alters the condition of the mucous membrane that it no longer affords a suitable soil for the disease germs. This appears the more probable of the two, and is borne out by many observed facts. The treatment by caustics was first suggested by Cazenave, and subsequently tried on a large scale by Dr. Sajous (Medical and Surgical Reporter, December 22, 1883), who up to 1884 had

treated over twenty cases without one failure. (See note in 7th Edition of Sir Morell Mackenzie's work on Hay Fever, p. 67). Dr. Sajous, himself, first used glacial acetic acid, but afterwards abandoned it for the electric cautery. Should this latter, however, not be at hand, chromic acid may be used with advantage (see the Author's work on "DISEASES OF THE NOSE," page 48: Renshaw, London). A small fragment of the acid should be fused on to the end of a tube or glass rod, and drawn in radiating lines over the hypertrophied mucous membrane. These lines, if sufficiently close together, will gradually become confluent. Any excess of acid can be removed by an alkaline lotion. More than one application will probably be required. If cocaine be used the treatment is painless. A glance at the figure page 26 will shew the relative position of the parts. In some cases the turbinated bodies (*a*, *b*, *c*.) are hypertrophied and may then be removed by excision with a Jarvis' nasal ecraseur, or with Morell Mackenzie's instrument (Mackenzie's ecraseur). This latter

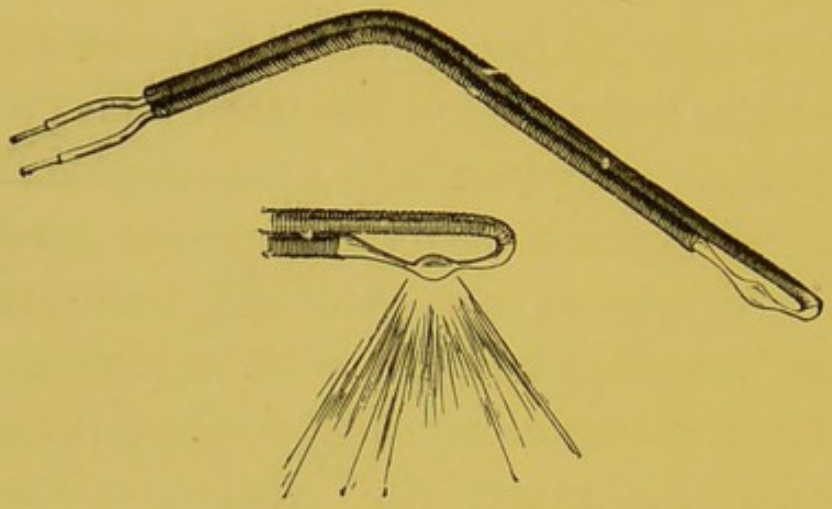


SIR MORELL MACKENZIE'S ECRASEUR.

writer (*loc. cit.*, page 68) mentions that he has frequently found portions of the mucous membrane exceptionally sensitive. This he ascertains "by touching the various "parts, especially the anterior and posterior extremities "of the inferior and middle turbinated bones and differ- "ent parts of the septum with a nasal probe. It will "sometimes be found that touching certain spots will "immediately give rise to sneezing, whilst the probe may "be passed over large tracts without causing a sneeze ". . . . . these spots must be freely cauterised."

In practice, however, the electric cautery is far superior to any other caustic agent, whether fluid or solid. Not only can the degree of heat be regulated to a nicety, but the destructive action can be very accurately limited. During its application the eye can follow the hand of the operator. Moreover, the after effects are slight, and the results more certain and more quickly obtained. I use in practice, a battery of six cells, (carbon and zinc, with sulphuric acid and bichromate of potash), and one of Löwenberg's rheophores for the right or left nostril, as the case may be. The nose should first be cleansed with an alkaline wash, and then sprayed with a five per cent. solution of cocaine, or if very sensitive with one of 10 per cent. The wire should be placed cold within the nose, and not heated until in contact with the part to be touched. The cauterisation should be thorough if it be desired to remove actual tissues, but superficial if intended merely to cause

shrinking, or healthy reaction of the mucous membrane. Practised operators generally avoid the use of a pro-



LÖWENBERG'S ELECTRODES.

tecting shield, and with Löwenberg's electrode it can scarcely ever be required. The current should be used so as to produce a dull red heat. The application should be repeated at intervals until the symptoms are relieved. The improvement is often very marked after the first application, but it may be necessary to repeat it five or six times in succession.

The above method of treatment has in my hands given excellent results. It is not of course applicable to every case, and if used in unsuitable ones may fail to give relief. It is, however, very generally useful. In cases of hypertrophied mucous membrane, enlarged turbinated bones, and other diseased conditions of the nasal fossæ, it acts with almost absolute certainty.

But to apply the galvanic cautery indiscriminately in all cases can only result in discrediting the

method, and in disappointing the patient. Moreover, though perfectly safe in skilful hands, the cautery may produce unpleasant results when used without sufficient care. In practice I limit its application strictly to those cases in which there is a manifestly diseased condition of the mucous membrane of the throat and nose, or where the paroxysms of sneezing are provoked by irritants. A practical method of deciding roughly whether an operation will be useful or not, is suggested by Dr. Bishop (Journal of the American Medical Association, July—December, 1887, p. 106). It consists in the application of cocaine (4 to 10 p. c.) to the sensitive spots. Should this arrest the paroxysms an operation will probably be useful, but if it has a negative effect then an operation would probably fail. But this test can scarcely be looked on as infallible.

CHAPTER VI.

EXCESSIVE SNEEZING.

Excessive sneezing, as is well known, is one of the most constant and at the same time annoying symptoms of hay fever. In many cases, sneezing is associated with some diseased conditions of the nose or throat, or with some abnormal states of the nervous system. But this is not always so, and occasionally violent sneezing may come on without any apparent cause. It may last many days or weeks, and produce both discomfort and physical exhaustion. The mechanism of sneezing is essentially the same from a physiological point of view, as that of coughing, sighing, yawning, sobbing, and laughing. They are simple modifications of the ordinary movements of respiration, and may be excited either by mental emotions or by some stimulus originating in the respiratory organs themselves. The mere act of sneezing, like swallowing, is one of no little complexity. It is essentially a reflex respiratory act. Some stimulus, for instance, is applied to the sensitive nerve fibres distributed to the interior of the nose. Thence it is conveyed to the "respiratory

centre," the existence of which is at present somewhat hypothetical, in the medulla oblongata. The practical result is a few rapid inspirations, followed by violent expiration. But in sneezing the air does not pass freely out through the mouth, but by closure of the glottis is forced through the nose. The act is quite involuntary, and can neither be produced at will nor checked. After sneezing, moreover, there is always a discharge of mucus. The nose, which a few moments before the act felt dry, may immediately after it be filled with fluid. The cause of this is due to the fact that two systems of nerves come into play during the act. The cerebro-spinal system conveys the stimulus applied to the nose or skin to the cerebral centre and thence to the throat and expiratory muscles. But this is further supplemented by the action of the great sympathetic, which exercises, among other functions, a controlling influence over the amount of blood sent through the small vessels. The ordinary inhibitory influence being for the moment suspended, the highly vascular or erectile tissues in the interior of the nose become gorged with blood. This produces a temporary swelling or turgidity accompanied by the escape of a large amount of watery fluid. This explanation is, however, not free from difficulties, one being whether the nasal tissues could possibly permit, by mere exudation, the escape of so large an amount of fluid as is generally associated with the act of sneezing.

Excessive sneezing may be due to a variety of causes, either singly, or taken together. Thus there may be structural changes in the tissues of the nose. These may be either of a temporary nature, due for instance to cold, or may be more permanent, depending on chronic thickening of the turbinated bones (*see* p. 26), or on polypi or adenoid growths. Or, again the sentient nerves of the nose may have become over-sensitive from inflammatory or other changes. Or again, as Mackenzie suggests (Hay Fever, p. 79), "the nerve centre in the "medulla may become so irritable that the slightest "impression will set in an action, or that it may operate "of its own accord, or from ideal impressions without "any stimulation through a nerve branch."

In many persons, perhaps in the majority, an attack of sneezing is premonitory of "cold in the head." The explanation of this is probably to be found in the swelling of the pituitary mucous membrane, which marks the first stage of coryza. This swelling or congestion causes pressure on the nerve endings, and by reflex action, stimulation of the "sneezing centre" in the medulla. In the case of a common cold the sneezing is generally followed by a definite and constant sequence of symptoms. Congestion is followed by infiltration of the mucous membrane, and this again by serous exudation. The exuded fluid has been shewn by Cornil and Ranvier to contain epithelial cells, more or less altered, together with blood corpuscles, pus globules,

and micrococci. The inflammatory attack thus ushered in by sneezing may end in simple resolution, or may extend only to the respiratory tract, or may again involve both it and the olfactory. Hence with many persons a "fit of sneezing" is found by experience to be the first of a series of symptoms which may last for weeks, and involve not merely the nose, but the whole respiratory mucous membrane.

It becomes important, therefore, to cut short such attacks as quickly as possible. Much may be done by negative treatment, such as the avoidance of cold draughts of air and of chills, due to sudden changes of atmospheric temperature. If more active treatment be required, opium in the form of the Pulv. Ipecac. Co. or Tinct. opii., is the best. Small doses of the latter taken at the commencement of an attack will often cut it short. A combination of morphia gr. ij. and bismuth gr. vj. used as snuff is also useful. Enough should be taken at a time to keep the interior of the nostrils well covered. Camphor in the form of a few drops of the spirits on a lump of sugar, is a well known domestic remedy. (*See* the author's "Diseases of the Nose," p. 29.) Local stimulants, such as strong smelling salts, sometimes act beneficially.

A fertile cause of excessive sneezing is often found in the condition of the nasal mucous membrane itself, due to the effects of chronic nasal catarrh. Such cases are more common in this country than on the Continent,

and are, no doubt, due to the frequency with which "cold" is taken in the variable English climate. In these cases patients complain of a constant sensation of stuffiness in the nose, with more or less excessive discharge, necessitating a frequent use of the handkerchief. These symptoms are associated with violent and often recurring fits of sneezing. Rhinoscopic examination shews that the erectile tissue over the turbinated bones is red and swollen, while the mucous membrane covering the septum is inflamed and hypertrophied. This condition may be so marked as to occlude more or less completely, one or both nasal passages. It may also be induced, or at least favoured by malformation of the nose, such as congenital narrowing of the nasal fossæ, and the presence of adenoid vegetations. Enchondromata and osseous growths within the nose itself may also give rise to attacks of sneezing. Of more frequent occurrence, however, than either of the above are polypi. In the early periods of their growth these may often be overlooked or mistaken for hypertrophied membrane. In all cases, therefore, of obstinate sneezing, more especially if associated with mucous discharge, a careful search should be instituted for incipient polypi.

The *treatment* of cases such as these, and indeed of all in which there is manifest hypertrophy of the nasal mucous membrane, must be mainly local. Instant relief may be obtained temporarily by the use of a five per cent., or, should this not prove sufficient, a ten or

even twenty per cent. solution of cocaine. The application may be made either with a brush or the spray producer, and be used freely, if experience has shewn that the patient bears it well and is free from idiosyncrasy as regards the alkaloid. But if a permanent cure is to be obtained, more energetic measures are generally necessary. Should the electric cautery not be at hand Mackenzie's nasal ecraseur, or chromic acid, may be used. In practice, however, nothing is so convenient, safe, and efficacious, as the electric cautery. It is, in my opinion, absolutely indispensable in the treatment of these cases. Its action is certain, and by a preliminary use of cocaine, can be made quite painless. By using a variety of electrodes of different forms, a certain advantage will be gained. For merely scarifying the mucous membrane Löwenberg's is a convenient type, but for removing masses of hypertrophied tissue I prefer a more knife-shaped electrode, while for touching sensitive spots, nothing answers better than a point of platinum wire, raised to a dull, red heat. I have also in these cases after the use of the cautery, found advantage from Mackenzie's nasal probes. (Sir Morell Mackenzie, "Diseases of the Throat and Nose," vol. ii., p. 254). Sometimes only a No. 1 or 2 can be inserted, but gradually as the passage enlarges, it may be possible to use a No. 6 or 7. A few minutes at first will be sufficient, but soon the length of time during which the bougies can be borne in the nose, may be extended to

half an hour. The same writer recommends the use of medicated bougies, of which he gives the following formula:—Gelato-glycerine, 40 grains; hydrochlorate of cocaine, $\frac{1}{10}$ of a grain; sulphate of atropine, $\frac{1}{120}$ of a grain (Hay Fever, p. 55.)

Treatment on the above lines will probably cure a large percentage of apparently obstinate cases of excessive sneezing. There will be a certain residue, however, which will not yield to local treatment. Here no lesions can be discovered on careful examination, and we are forced to fall back on the theory of "perverted nerve influence." It has been suggested that "the extremities of the nerve may become morbidly sensitive" (Mackenzie, loc. cit. p. 81), a hypothesis which has much to support it. Analogy shows that hyperæsthesia of nerves in other parts of the body—*e.g.*, the eye—is not uncommon. Moreover, there is actual proof that the nerves of the nose may at times become morbidly sensitive to certain substances or emanations, such as the pollen of plants, ipecacuanha or lycopodium powder, or even the smell of roses. Or, again, it may not be so much the actual nerves of the nose which are at fault as the "nerve centre" itself within the brain. This may be in a state of so called *exaltation*, which may betray itself in various ways in different individuals. The term "nervous temperament" may be applied to this condition, which is one often associated with more than average mental and bodily energy. In such per-

sons the nervous centres may be supposed to be more easily excited than in others, and indeed to be morbidly sensitive. All writers on hay fever in which sneezing is so marked a symptom, have dwelt on the necessity of presupposing some peculiar condition of the nervous system itself, in order to account for the observed phenomena. Otherwise there is the difficulty of explaining why pollen does not affect every one at certain seasons, but selects its victims only among well defined classes. Moreover, there is evidence to shew that excessive mental emotion may cause sneezing. In all cases, indeed, it is probable that the actual exciting cause may come from the nerves of the nose; but in the cases now referred to, the very slightest causes, such as would be quite insufficient in ordinary circumstances, may in peculiar temperaments induce a paroxysm.

In the treatment of such cases the necessity of local applications has already been insisted on. Whatever dulls the sensibility of the nerve endings distributed to the nasal mucous membrane, will be of service. Among such remedies may be mentioned snuff, which acts by exhausting the irritability, or cocaine which momentarily paralyses. In several cases which I have had under my care, much benefit has been derived from tolerably strong galvanic currents applied directly to the nasal mucous membrane (*see* page 36). This agent probably acts like snuff by blunting the extreme sensibility which characterizes the parts. Constitutional remedies

are also of use, notably opium and valerianate of zinc. I have, however, found most benefit from arsenic continued steadily for a period of some weeks. I generally prescribe three minim doses of the liq. arsenici hydrochlorici twice a day, and continue it for three weeks or a month. Should there be signs of a gouty diathesis, great benefit may be obtained by anti-arthritic treatment carried out on the lines already laid down.

The following cases are interesting as shewing how rapidly attacks of hay fever will sometimes yield to suitable treatment.

Case 1.—

Lady C. consulted me in 1887 for an acute attack of hay fever, the fourth from which she had suffered in as many years. The case presented all the usual symptoms in an aggravated degree, the discharge from the nose and eyes, and the frontal headache being very distressing. Various remedies had been tried, with very little success. I prescribed full doses of arsenic and nux vomica internally, sprayed the nostrils with a four per cent. solution of cocaine, and applied as strong a current of electricity as could comfortably be borne for about fifteen minutes to the nostrils. After the fourth visit the attack subsided, and up to the present (February, 1890), there has been no return.

Case 2.—

Mr. G. was recommended to consult me in spring, 1888. He had suffered for the last three years from

regular attacks of hay fever complicated with asthma. The nasal mucous membrane was very irritable, the general health indifferent, and the nervous system depressed. Examination of the nose and pharynx showed the usual congestion, turgescence, and increased mucous discharge. In this case I prescribed fifteen grain doses of bromide of potassium, three times a day, cleansed the nostrils thoroughly, and sprayed with cocaine. This was intended to be preliminary to a more thorough treatment with glycerine of carbolic acid. The latter was applied at the second visit, in solution with quinine and perchloride of mercury, the sensation of the mucous membrane having previously been blunted by means of the cocaine. Three applications on alternate days were well borne, and resulted in the cessation of all symptoms.

Case 3.—

Mrs. N., aged 30, consulted me in 1887. She was a highly nervous subject, and had suffered periodically for the last five years with hay fever in spring, and more or less with nasal catarrh during the autumn and winter months. In fact, the attacks, though aggravated at certain seasons, were never completely absent. Various methods of treatment had been tried. At the time of her visit she was pregnant, and severe treatment was therefore impossible. In this case the indications were to soothe and strengthen the nervous system, and induce a more healthy condition of the nasal mucous membrane.

The former indication was fulfilled by valerianate of zinc and asafœtida, followed by arsenic and bromide of ammonium, alternated with hydrobromic acid. The mucous membrane of the nose was treated with spray of cocaine, and inhalations of creosote and oil of eucalyptus. Galvanism in mild currents with the expectation of exhausting irritability was used once a day. This treatment rapidly cut short the attack, which did not return in 1888.

Case 4.—

Miss M., aged 28, consulted me in October, 1888, suffering from attacks of excessive sneezing. These came on at intervals in paroxysms of twenty or thirty, and were accompanied with mucous discharge and much nervous exhaustion. They had continued for three years, and were generally worse at the hay fever season. Any irritation, such as strong odours, cold drafts of air, etc., would bring them on. The interior of the nose was extremely sensitive, otherwise no departure from health could be discovered. Treatment consisted in constitutional remedies, galvanism, and the occasional use of the electric cautery. This was continued till February, 1889, when the sneezing ceased. There had been no return up to October, 1889.