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THE  
PATHOLOGY AND RADICAL CURE  
OF  
H A Y F E V E R ,  
OR  
HAY ASTHMA.

BY  
JOHN O. ROE, M. D., ROCHESTER, N. Y.,  
FELLOW OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, MEMBER OF  
THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, OF THE  
AMERICAN MEDICAL ASSOCIATION, ETC.

*(Second Article)*

REPRINTED FROM  
THE NEW YORK MEDICAL JOURNAL.  
*May 3<sup>rd</sup> and 10<sup>th</sup> 1884*



NEW YORK:  
D. APPLETON AND COMPANY,  
1, 3, AND 5 BOND STREET.  
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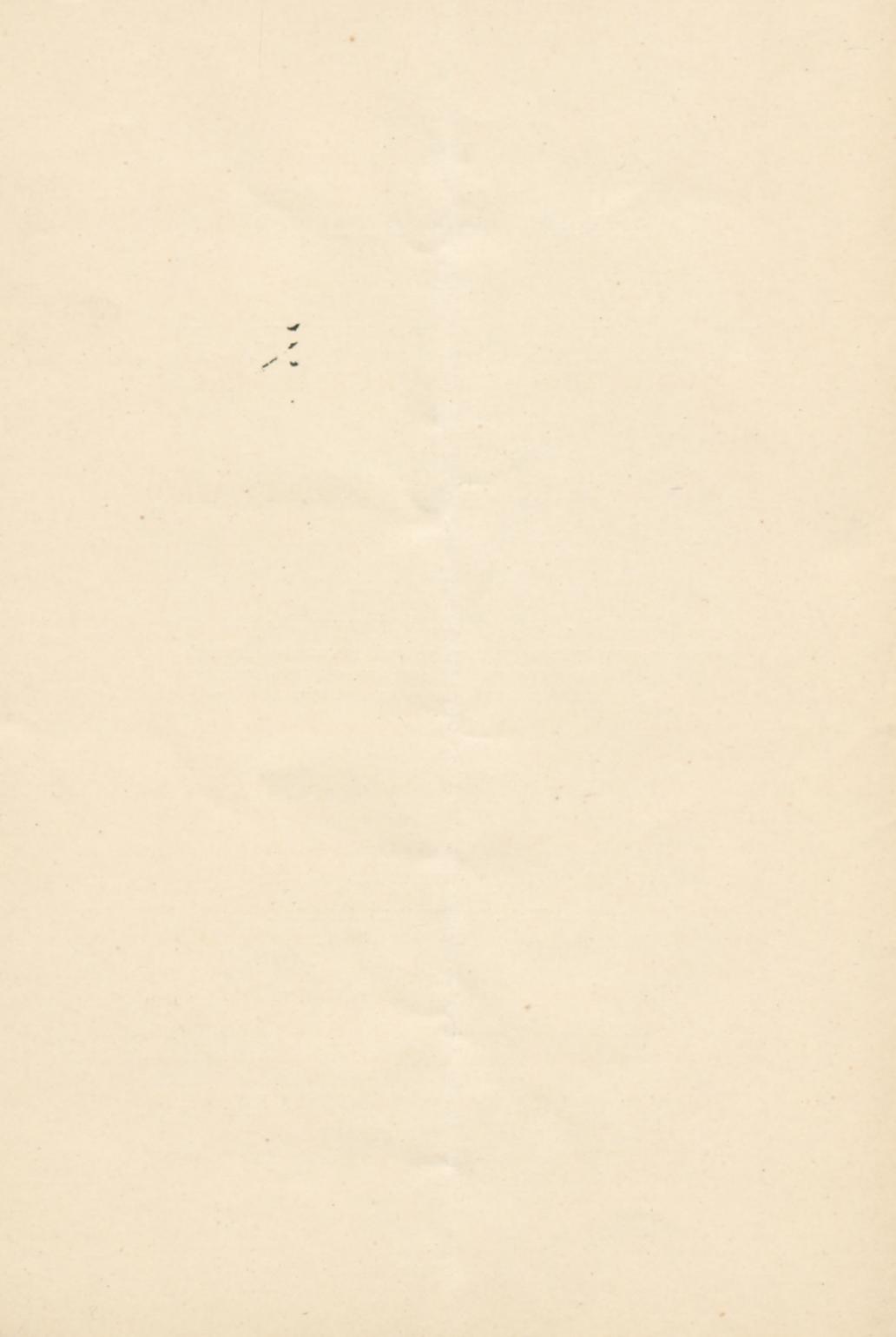
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THE PATHOLOGY AND RADICAL CURE  
OF  
HAY FEVER, OR HAY ASTHMA.\*

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At a meeting of this society one year ago I presented for your consideration a paper † on "The Pathology and Radical Cure of Hay Fever, or Hay Asthma," an affection which has been considered the most intractable and the most distressing of the so-called minor ailments that are not immediately dangerous to life.

I pointed out that the essential subjective cause is found in the nasal passages, and is due to a hyperæsthesia, or special susceptibility of the tissues of these passages which has been induced by disease, either latent or active; that the objective cause of the irritation of these tissues during the hay-fever season is mainly (and all direct evidence goes to prove that it is solely) the pollen of various plants and grasses that float in the atmosphere during the warm months when the various plants and grasses are ripening.

Aside from the numerous experiments which have been

\* Read before the Medical Society of the State of New York at the annual meeting held at Albany, February 5, 6, and 7, 1884.

† See "Transactions" for 1883, p. 154; also "New York Medical Journal," May 12 and 19, 1883.

made showing a direct cause and effect in every instance—the simple fact that by the removing of the individual entirely from the presence of pollen (and dust, which is always a violent irritant during this season, containing more or less pollen) no symptoms of hay fever will be excited, no matter how much the tissues of the nasal passages may be diseased, or how sensitive these tissues may have become.

I also pointed out that the various symptoms that arise which appear to be more or less of a constitutional nature, producing the asthmatic and nervous symptoms, are but the reflected irritation from the nose through the sympathetic nervous system, to which may, however, be added the mechanical impediment to nasal respiration during the attack.

It is not my purpose in this paper further to discuss the ætiology and symptomatology of hay fever, but simply to add some further observations on the subject, and to present additional evidence proving the curability of the affection by removing the local cause in the nose.

There still seems to be in the minds of many a doubt as to the nature of the affection, because of the confounding of the cause and effect, or because the secondary constitutional symptoms are looked upon as the primary cause. This is but a natural mistake, which a study of the disease and of the physiological and anatomical relations of the parts involved in the affection will very readily rectify.

The recorded observations of various systemic phenomena and marked derangements in other organs arising solely from disease and irritation in the nasal passages are becoming very numerous in medical literature. That most frequently seen is asthma, which is usually a prominent symptom of an attack of hay fever.

That this asthma is unquestionably caused by a fluxionary hyperæmia of the bronchial mucous membrane, produced by nerve irritation reflected from the nose, is shown

by the frequent occurrence of asthma in conjunction with chronic affections of the nose, which disappears on the removal of the nasal disease.

Epilepsy, chorea, cerebral affections, supra-orbital neuralgia and hemicrania, laryngeal cough, spasm of the larynx, violent sneezing, are prominent among the many phenomena that nasal disease often induces.\*

In an article on "Nasal Cough," Dr. J. N. Mackenzie, of Baltimore ("American Journal of the Medical Sciences," July, 1883, p. 106), has also pointed out that the seat of reflex irritability in the nose, in the production of cough, is located in the cavernous tissue at the posterior end of the inferior turbinated bones and posterior portion of the septum; that, by artificial stimulation of these parts, cough can be excited like that which is often produced by disease of these parts; but, by irritating other portions of the nasal chambers, no reflex irritability is excited, and the impression of the probe is simply that of a foreign body.

These conclusions are in entire accord with those of other observers. A number of cases have come under the observation of the writer in which they could be clearly demonstrated, not only in the production of cough, but also in the production of asthma, as cited in an article on "Nasal Disease a Frequent Cause of Asthma," read before the American Medical Association at Cleveland, June 6, 1883 ("Jour. of the Am. Med. Assoc.," September 15, 1883, p. 295).

It has been considered in my previous article that the

\* Hack, of Freiburg, calls special attention to these various reflex neuroses, which are caused by nasal disease, in his brochure, "Ueber eine operative Radical-Behandlung bestimmter Formen von Migräne, Asthma, Heufieber, sowie zahlreicher verwandter Erscheinungen," August, 1883. Hack also affirms that by removing the turbinated bodies the cause of hay-fever is eliminated.

vascular tissue covering the inferior turbinated bones and the lower and posterior portion of the septum is the seat of the irritation during an attack of hay fever, and that this tissue is always found hypertrophied.

This is true in the majority of cases ; but an examination of a large number of hay-fever sufferers has shown that the middle and superior turbinated bones, the upper and anterior portion of the septum, or any or all portions of the nasal cavity, may also become so diseased as to be extremely sensitive to pollen irritation.

Some cases are also met with in which there is little or no hypertrophy of the turbinated tissue ; but at the same time there is extreme sensitiveness of this tissue, which becomes greatly distended with blood on being excited by the slightest irritant. This is due to an increase in the size of the vessels, amounting almost to varicosity, in which the vessels have become dilated at the expense of the interstitial connective tissue. When free from irritation, the passages in these cases are commonly so free and open that, except for the appearance of the mucous membrane, disease of this tissue would be scarcely suspected.

The location of these sensitive areas can be discovered usually by the congestion and thickening of the tissues. In cases where turbinated hypertrophy or bony obstruction is the cause, it can not be mistaken or overlooked. By artificial stimulation with a probe, however, the sensitive areas can be accurately determined ; for, as they are touched, marked irritation is induced—so much so that in many cases symptoms can be provoked identical and almost as severe as those attending hay fever, with lachrymation, violent sneezing, and asthma.

It has also been noticeable that, in those cases in which the septum is involved, sneezing is usually most easily provoked and most violent.

This fact would seem to indicate that, as a rule, irritation or disease of those regions of the turbinated bones covered by cavernous erectile tissue is especially provocative of asthma and cough, while the septum is the site especially provocative of sneezing.

The violent and prolonged attacks of sneezing in this affection are therefore mainly due to the pressure of the swollen turbinated tissue against the sensitive septum.

It is also to be observed that many patients suffering from chronic nasal catarrh, other than hay-fever sufferers, are often also subject to more or less prolonged attacks of violent sneezing. In these cases one or both nostrils will be found narrowed or obstructed, by a deflected septum, by a thickening of the turbinated bone, or hypertrophy of the soft parts, as the case may be, so that a small amount of irritation and turgescence of the opposite sides will bring the parts in contact. Sneezing will then be excited until free discharge of mucus takes place, the irritant is expelled, and the turgescence becomes sufficiently reduced to allow separation of the parts.

In those cases where there is constant contact between the septum and opposite wall for any considerable length of time the parts become inured, we might say, to the irritation, but any congestion of the parts and accession to the pressure will likewise provoke more or less sneezing.

It has been considered by many hay-fever sufferers that this affection is not necessarily associated with a catarrhal condition of the nasal passages during the remaining portion of the year after the disappearance of the season's attack.

This is a most decided error, for a hay-fever subject is yet to be seen who, even during the period when entirely free from the attack, has not more or less chronic rhinitis, or nasal catarrh, although often not sufficiently severe to give rise to much annoyance, particularly if the nasal pas-

sages be capacious and not markedly obstructed, whereas in small and narrow nostrils the same amount of disease would produce decided and annoying symptoms of nasal catarrh.

In many of these individuals with capacious nasal passages it is to be noticed that they become so accustomed to moderate nasal catarrh that they cease to be annoyed by it, but, when cured, marked improvement in the general health immediately follows and the taking of colds becomes correspondingly rare.

Notwithstanding the fact that in all cases the cause of hay fever arises from a catarrhal condition of the nasal passages, or chronic rhinitis, and is nearly always associated with hypertrophy of the turbinated bodies, and also the fact that it is commonly associated with more or less narrowing or occlusion of the passages (perhaps by a deflected septum, or perhaps by an enlarged or deformed turbinated bone, in addition to that caused by hypertrophy of the turbinated bodies), it must readily be seen that all patients in whose nostrils these conditions are found, and who suffer severely from nasal obstruction and nasal catarrh, do not have hay fever. Again, we often see patients in whose nostrils there is no obstruction or contact of the surfaces when free from the attack, but who have hay fever very severely. It must therefore appear that nasal obstruction can not be looked upon as the cause of hay fever, but only as *one of the conditions* predisposing to its development; but in individuals who are subject to hay fever the obstruction contributes markedly in aggravating all the conditions.

In our climate the hay-fever sufferers form but a small portion of the large number of persons who have narrowed or obstructed nasal passages, and who suffer greatly from nasal catarrh.\*

\* My friend Dr. Harrison Allen, of Philadelphia, must have overlooked this fact, for, in an article on "Hay Fever and Allied Disor-

This fact would seem to indicate that in hay-fever subjects this hyperæsthesia is due to a special diseased condition of the ends of the terminal nerve filaments of some or all of the branches of the fifth nerve that terminate in the mucous membrane of the nasal passages.

If such be the case, it shows that in some of these cases there must be a special proclivity for these terminal nerve fibers to become diseased when so small an amount of disease of the surrounding tissues so readily affects them, and when in other cases we find no indication of these nerves being involved, however badly the surrounding tissues may be diseased.

In the treatment of hay fever we should first determine, by a careful exploration of the nasal chambers, the exact nature of the conditions which have been the exciting cause of the hyperæsthesia. Each particular spot which is especially sensitive should be located, and receive thorough and careful treatment until this sensitiveness is removed and no sensation of hay fever is experienced by the patient when these regions are touched. This hay-fever sensation is unmistakable by the patient, for on touching these regions, however lightly, a burning sensation is felt in the nostril, as if the probe were heated, and is attended by the usual reflex phenomena.

When hypertrophied turbinated corpora cavernosa are the seat of the sensitive region, they should be thoroughly removed. When this region is the seat of the sensitiveness, though there is no well-marked hypertrophy of the turbinated bodies, sufficient tissue should be removed to destroy the diseased and sensitive terminal nerve filaments and to ob-

ders" ("American Journal of the Medical Sciences," Jan., 1884, p. 156), he seems to believe that nasal obstruction alone is the direct cause of hay fever.

literate the enlarged blood-vessels. Redundant and hypertrophied tissue is best removed with Jarvis's snare, although caustics, such as acetic, chromic, or nitric acid, may be employed. For the destruction of the deeper plexuses of vessels, the galvanic cautery is by far the most efficient. It is also the most efficient means of removing the sensitive regions on the septum and other portions of the nasal chambers. For the latter purpose, a very small point should be used, so as to enable the operator to limit the cauterization entirely to the diseased tissue, and, by using a very small point, but little pain is occasioned.

All obstructions to the nostrils other than hypertrophic tissue should be removed, and also all abnormal conditions of the passages, whether they be sufficient to cause obstruction to the chambers or not, should be corrected.

In all these cases it is of special importance that there should be no points of contact between the turbinated bones themselves or the turbinated bones and the septum, even though there be no obstruction whatever to respiration. Spiculæ of bone are often found projecting across like a spur and exciting irritation and producing thickening of the opposite surface. This condition is more often found between the middle and superior than the inferior turbinated bone and the septum.

Afterward, when all offending tissue has been removed, local medication should be made to the nasal passages until the parts are healed and the chronic rhinitis cured, and the special irritability and hyperæsthesia has disappeared from every portion that is shown by the exploration with a probe to be abnormally sensitive.

The time when these radically curative measures should be instituted is, my observations lead me to believe, when the patient is free from the affection, and in time to allow thorough healing of the parts before the time of the expected

attack, although, if necessary, it may be begun during the attack.\*

It is also advisable and even necessary (where there is a doubt as to the sufficiency of the treatment) to examine the patient from time to time during the hay-fever season to observe if any portion of the nasal mucous membrane becomes irritated that has before been overlooked. If so, it should then receive prompt attention, and the diseased portion be thoroughly removed.

The practical outcome or result of this method of dealing with hay fever is, after all, the most interesting evidence as to its value. Of the five cases which I reported to the society last year, four have been accessible, so that I have been able to determine the result in these.

CASE I.—A farmer, aged thirty-five years. Hay fever twelve years. Treated in the fall of 1878. Has remained entirely exempt from hay fever since—now five years.

CASE II—I have lost sight of.

CASE III.—Mr. S., of Kansas, aged thirty-four. Hay fever twenty years. Was treated in mid-winter of 1881 and 1882. Has remained practically exempt. One hot, dry, dusty day last August he went out shooting in a dry stubble. Immediately after he had a profuse watery discharge from the nose, but which continued for only two or three hours. But he had no other trouble during the remainder of the season. This shows, how-

\* Respecting the time that treatment is best undertaken, as Dr. Allen has anticipated ("Am. Jour. of the Med. Sci.," *loc. cit.*, p. 164, note), I can not quite agree with him that it is best instituted during the attack at the time when all the tissues are greatly swollen and inordinately sensitive.

Dr. Allen considers it preferable that it should be initiated at this time, for the reason that "the places of contact can be then easily determined." It will be at once seen that I have found this to be unnecessary, for the reason that all the sensitive regions can be accurately determined before in the manner already detailed above.

ever, that he has still some *slight* sensitiveness in the nose, for which he is to report for treatment early in the spring.

CASE IV.—Mrs. K., aged thirty-one years. Hay fever eight years. Treated in the spring of 1882. Has remained exempt since. Two summers have now passed.

CASE V.—Miss C., aged twenty-two, also hay fever eight years. Treated in the spring of 1882. Has remained exempt since. Last summer, however, about one week before the time for her annual attack, she took a severe cold, which rendered her nose and throat sensitive, so that on a dry, dusty day she felt a slight irritation about and had a slight watery discharge from the nose, but none of her old distressing symptoms of hay fever.

CASE VI.—J. R., aged twenty-seven, a stout, well-developed man, was referred to me March 9, 1883. He had had hay fever for eight years very severely, his attacks coming on about August 10th and continuing until frost came, and being attended with more or less asthma. During the remainder of the year he had more or less catarrh and frequent colds in the head, with marked stoppage of the nostrils. When free from colds, his nostrils were clear and unobstructed. The inhalation of dust or any marked irritant at any time would cause sneezing and temporary stoppage of them.

Examination showed moderate general thickening of the mucous membrane of both nasal passages, but the turbinated bodies were not noticeably hypertrophied, nor were there any bony obstructions. On exploration, marked sensitiveness was found all along the inferior and middle turbinated bones, especially at the posterior end, giving rise to the characteristic sensations of hay fever. A similar sensitive region was found along the lower portion of the septum on both sides, and on the left side it was also very sensitive along its upper portion.

*Treatment.*—The sensitive turbinated tissue was cauterized sufficiently to destroy the hyperæsthesia and to obliterate the enlarged vessels which the frequent, sudden, and great swelling of this tissue indicated to be the case. A very small point was used, so as to give the least amount of pain. The sensitive organs of the septum were also touched with the cautery-point. Afterward local treatment was continued to the passages for

three or four weeks, until the parts had healed and no symptoms of hay fever could be excited in any portion of the nasal cavity.

He was traveling most of the time, and during the latter part of August went West. In November I heard from him that he had escaped entirely his annual attack, although he was in the region where others were having it and where he had had it before.

I will now add two equally interesting and very similar cases. In one of the patients the treatment was not sufficiently complete and thorough, and, in consequence, he had his annual attack. In the other, treatment was thoroughly followed out, and she was accordingly entirely cured.

CASE VII.—Mr. H., aged fifty-three, engineer. Hay fever very severely for twenty years, and attended with more or less asthma. His attacks came on from the 5th to the 15th of August and lasted until frost came.

During the remainder of the year he had more or less irritation about and discharge from the nose, which he attributed to the effect of hay fever. The slightest irritation would provoke sneezing, as sudden change of temperature from hot to cold, or cold to hot air. Spices, mustard, pepper, or horse-radish taken at meals would provoke violent attacks of sneezing, and dust was exceedingly irritating to him.

The summer of 1882 he spent in Florida to escape the disease. He went by water, and was entirely relieved as soon as he got well out to sea. While in Jacksonville he had but little trouble. He came home by rail the last of September, and by the time he reached Ohio he had hay fever even more severely than usual. June 13th of last year he came for treatment for hay fever. Examination showed marked hypertrophy of the inferior turbinated bones, a general disease and thickening and marked sensitiveness of the mucous membrane throughout the nasal passages.

I advised the removal of this hypertrophied tissue and all the sensitive areas in the nose, and afterward thorough general treatment to the other portions of the nose and throat.

I removed the tissue—a portion with the snare and a portion with the galvano-cautery. Before all the nasal disease was removed and the treatment of the case completed it was discontinued, and I did not again see him until the 18th of August, when he returned with hay fever very severely.

As I was about to leave for my vacation, I had no time to treat him then, and he went through with his severe annual attack. At the time of attack, when I saw him, there was no evidence of engorgement, swelling, and irritation of the tissues covering the inferior turbinated bones, on which I had operated for the removal of the hypertrophied tissues. On an examination of his nose, made a few days ago, I found the sensitive region to be confined mainly to the upper border of the septum on the right side. On touching this spot with a probe, asthma, violent sneezing, lachrymation, and a profuse watery discharge from the nose, were at once induced.

No special irritation was induced with the probe in other portions of the passages; not even a sneeze was excited.

CASE VIII.—Mrs. C., a distinguished music-teacher of Brockport and Rochester, consulted me, June 15, 1883, in regard to hay fever, from which she had suffered nearly every season since girlhood.

In describing her own case she says: "With my present knowledge of hay fever, I can see that I used to have it thirty years ago, but called it then a summer cold, and did not observe its seasonal periodicity closely. I remember, however, that a bouquet of roses was a terror to me, and a ride in the country during clover blossoming or harvest greatly aggravated this cold." She resided during this time in Brockport, N. Y., and afterward for two years in Washington, Ga. About 1868 she removed to Rochester, and escaped the fever for eight years. In 1876 she returned to Brockport, and found she had returned to her hay fever, which she observed came on from August 15th to 20th, and continued until frost killed vegetation. Some years she also had a severe attack of rose cold in June, which lasted six or eight days.

The symptoms attending her attack she described as follows: Itching of eyelids and back of the throat and mouth;

complete closing of the nostrils, which would open only for the passage of drops or streams of hot, clear water. Unable to sleep with mouth open, and unable to breathe with it shut, she spent the night sitting upright in bed, she says, "wondering at what seemed to her the culpable indifference of physicians to a disease which produced such intense suffering."

Some nights she coughed almost incessantly — a dry, spasmodic cough, very much like a bark.

With the wear of the fever and loss of sleep, winter always found her weak and unable to resist the cold. Her throat was very sore most of the time, and, while she did not feel a constant catarrh, the least exposure gave her a severe cold in the head.

Her health became in consequence very greatly impaired.

Examination of her nose showed well-marked hypertrophy of the inferior turbinated bones, both anteriorly and posteriorly. The tissue covering the middle turbinated bones was also thickened, and the bones so markedly projecting as to be in contact with the septum. Limited regions of thickened tissue were also found on both sides of the septum, which were extremely sensitive to the touch of a probe; in fact, violent sneezing, etc., would be excited by touching almost any portion of the nasal cavity.

The treatment consisted in removing all the redundant hypertrophied tissue with the snare, and afterward the deep plexuses of vessels were destroyed with the galvano-cautery electrode. The sensitive tissue on the septum was also cauterized with an electrode having a very small point, so that only the diseased portions were touched, and but little pain was thereby occasioned.

The projecting portions of the middle turbinated bones were removed with a pair of bone scissors, under an anæsthetic.

After thus thoroughly removing all the tissue obstructions in the nose, mildly astringent local medication was continued until the parts were thoroughly healed and all abnormal sensitiveness of every portion of the passages, on being touched with a probe, had disappeared.

The result in this case was entirely satisfactory, as the little

lady passed through the season without the slightest indications of hay fever.

In writing to an inquiring friend of hers—a hay-fever sufferer—on September 1st, she says :

“Up to August 20th I did not feel quite sure of my safety, as the vegetation was unusually late; but now the weeds are in their prime, and yesterday was a trial. I went on the lawn, took the mower from the gardener, and ran it in the hot sun; went into the garden and exercised violently; pulled weeds and nearly roasted myself, without a sneeze or a tear, and at night put my head on only an ordinary pillow and slept as well as if I had never had hay fever.”

During the present winter she says she is stronger and her general health is better than it has been in fifteen years. She has also been entirely free from colds and sore throat, to which she was constantly subject before her treatment for hay fever.

In conclusion, gentlemen, it must appear to you that it is clearly demonstrable that the cause which annually inflicts so much suffering on so many individuals is to be found in the nasal chambers, and can, with care and patience on the part of the physician and perseverance on the part of the individual, be entirely removed; that in those cases in which we fail at first to give our patients entire relief we know that our work has been incomplete, and that, by perseverance, our efforts, in every instance, will be crowned with success.

# The New York Medical Journal,

A WEEKLY REVIEW OF MEDICINE.

PUBLISHED BY  
D. Appleton & Co.



EDITED BY  
Frank P. Foster,  
M. D.

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