because of some excoriations of the skin at the edges of the fenestræ. The union of the bones was quite firm, the curvatures (angularities) at the upper part of the legs were quite removed, those at the lower part being, of course, still uncorrected. The lateral ligaments of the knee-joint had been so stretched, from the manner in which formerly the weight of the body had borne upon them, that the joint had quite a perceptible lateral movement; the patient was, therefore, not allowed to walk, the legs were kept straight by being tied together for several weeks longer. She was then allowed to walk with a pair of shoes with braces reaching on each side of the limb to about half way up the thigh, with fore and aft hinge-joints at knee and ankle. Locomotion, however, was still quite awkward, but she was allowed to go home to return for further treatment, which she did on November 25, and on December 17, osteotomy was again performed on all four bones at one sitting at points about three inches above the malleoli, and under the same precautions as

Fig. 3.

to sepsis as before, except that the wounds and legs were afterwards dressed in carbolized cheese cloth. The legs were firmly bound together, after being straightened with a compress of uniform thickness between them, so that they were parallel from ankles to knees.

The temperature did not rise above normal until the afternoon of the second day, when it reached 98.9° , which point it also reached the next afternoon; after that it fell and never rose above 98.4° again. On the third day after the operation the carbolized dressings were removed as a slight carbolic eczema had been excited and borated cotton was substituted. On December 24, the external wounds having quite healed, the legs were put up in plaster of Paris splints. On January 27 these were removed, and the legs bandaged together with a straight, short splint between them reaching to the knees. On February 17 the splints were removed and the shoes with braces put on; she walked fairly well, but from long habit separated the feet widely, and did not bend her

knees much. She improved in this respect, however, and at this date, August 13, 1883, one would hardly remark that there had been any deformity. The photograph of Fig. 3 was taken on February 24, the date of her removal from the hospital.

ARTICLE IX.

ON THE TREATMENT OF HAY-FEVER AND ALLIED DISORDERS. By HARRISON ALLEN, M.D., Prof. of Physiology in the Univ. of Pennsylvania.

IN the number of this JOURNAL for January, 1880, page 61, the writer contributed an article on the treatment of chronic nasal catarrh, and drew

the following conclusions as the result of the study of an important group of cases :—

“Obstruction is fatal to the efficiency of the nasal chamber as a respiratory and olfactory apparatus. . . . When a point of contact exists between surfaces which normally should not touch, the indication for the treatment is to destroy it. . . . This is accomplished by local remedies applied to the mucous membrane at and about the place of contact; or, in examples of abnormal deflection of the nasal septum, by removal of the offending portions of bone. In the case of the inferior turbinated bone, the swollen and engorged tissues accompanying the inferior meatus may be removed by the knife. . . . Improvement is apt to occur at times when occlusions disappear. In a word, the restoration of the nasal chamber to its proper use, *i. e.*, as a respiratory chamber, is often alone sufficient to cure the disease. . . . As a rule, it may be said that obstruction is followed by loss of function and distress; and when such obstruction exists, it should be removed when practicable.”

The writer believes these conclusions were original with himself, and when first presented in a verbal communication before the Philadelphia County Medical Society, on the evening of Sept. 24, 1879, were allowed to go unchallenged as to any claim to originality, while they were vigorously assailed on their own merits. After an additional experience of four years, the writer is able to endorse the conclusions formed at that time, and to apply them to a yet larger group of cases. Reference is made especially to the cases of nasal disorders ordinarily grouped under the term “Hay-Fever.” An effort will be made to prove that, putting aside the question of the etiology of this curious affection, in practice it may be met on the same plane as any other nasal affection, and that the means of effecting its cure are simply to overcome the tendency to obstruction of the nasal chambers.

The symptoms of hay fever are always associated with some degree of obstruction of one or both nasal chambers. A cause of this obstruction is dilatation of the bloodvessels. There is no doubt that the local phenomena are in most instances the same, and that the multiform related symptoms, such as injection of the eye, headache, malaise, asthma, etc., are due to reflex vasomotor disturbances. But many patients report for treatment who exhibit swelling of the nasal mucous membrane, occlusion of the respiratory passages, and mucoid or semi-purulent discharge, without any of the related reflex phenomena. Yet a third and intermediate group exhibit perhaps a tendency to turgescence of the mucous membrane, together with one or more of the more common constitutional symptoms of typical hay-fever. Indeed there is nothing peculiar to the disease just named save its sharply defined periodicity, particularly in that phase of it where the periods of recurrence happen to coincide with the time of fruitage of certain plants, or the gathering of certain crops. In a small group of cases where, in addition, other signs and symptoms become prominent which would invalidate the above proposition, I am inclined to attribute them to mental impression—in some of the varied phases of hysterical or neurotic excitement.

Or the case may be stated in different language, as follows: In an imperfectly defined group of cases of nasal catarrh, a sensation of sudden obstruction of one or both nasal chambers is a conspicuous symptom. This sensation is accompanied by a constant change in the chambers themselves, viz., engorgement of the membranes over the turbinated bones, producing pressure against the septum and occlusion of the respiratory passages of the nose. The sensations are recurrent, but vary greatly as to the time of the day or the season of their return. With some patients they are nocturnal, and are associated with the recumbent position; with others they occur after meals only; with some they occur in the summer season; with others yet again in the winter. The sensations may be confined to either chamber, or be present in both. In aggravated cases they are associated with numerous reflex symptoms, among which may be mentioned lachrymation and hyperæsthesia of the conjunctiva, headache, and asthma. Patients having a disposition to obstruction during the summer and autumn report themselves as suffering from "hay-fever;" while those having alternating attacks in the right and the left chamber report with "nasal catarrh."

The cases exhibit one feature in common, viz., that the inferior turbinated bones lie well above the plane of the floor of the nasal vestibule.¹ It will thus be seen that the mucous membrane, which is known to be the most erectile, is also the most exposed to irritation from extraneous substances, and to changes in the temperature of the surrounding air. In many persons not the subject of "hay-fever" and allied disorders, the lower free portion, including, of course, the inferior border of the bone, lies below the plane of the floor of the nasal vestibule; and in ordinary inspection the inferior meatus is out of sight.²

The following cases will now be detailed in illustration of periodic obstruction of the nasal chambers. Of these, Cases IV., V., and VI. are alone to be considered as cases of hay-fever; and of these, Cases V. and VI. were typical ones. Yet it will be found that all the patients were relieved by essentially the same plan of treatment.

CASE I. A lady aged 40, of spare habit, light complexion, nervous disposition, and with hair inclining to red,³ reported for treatment March 7,

¹ A number of cases are explained in the communication above quoted, page 69, as caused by the too free ingress of irritating currents of air, and the resultant continual exposure of the membranes to the contact of extraneous substances, and to abrupt changes in temperature.

² It is an interesting fact that no form of nasal chamber other than the one retaining the "raised" inferior turbinate is figured by E. Zuckerkandl (*Normal und Patholog. Anatomie der Nasenhöhle*, etc., Vienna, 1882). The writer has notes of many examples of the "depressed" inferior turbinate; indeed, in the adult, it appears in this country at least to be a very common variety.

³ The descriptions of colour of hair, kinds of complexion, etc. have been inserted in place of the names of the temperaments, as defined by the older writers. Certainly in the United States, however different may be the case in England, the Iberian and

1882. Two years before she had suffered from a severe attack of acute coryza. From the time of the subsidence of this attack, the nasal mucous membrane was exceedingly irritable, and with this condition was associated a mucoid discharge from the nostrils. The chief symptom, however, for which she reported, and which existed entirely separate from the causes which excited the original coryza, was loss of rest, due to obstruction of both nasal chambers coming on after the patient had retired for the night. At times this obstruction would be announced immediately after retiring, but more frequently it would come on during sleep. The patient would then be awakened by the distress arising from mouth breathing, and be from that time unable to sleep. Owing to this disposition, a tendency to laryngeal catarrh and to loss of smell was noticeable.

An examination of the nasal chambers showed that the left chamber was the smaller, though no septal deviation was detected. The anterior half of the left inferior turbinated bone was somewhat erectile. When a cotton-tipped probe was pressed against the membrane, and then quickly withdrawn, the depression caused by the instrument was instantly obliterated. The same condition existed on the right side, but to a less degree. The muscles of the palate, especially the palato-pharyngei, were relaxed, the tonsils were small and concealed, and the vocal cords congested. The naso-pharynx and posterior nares were normal.

The patient remained under treatment until May 1, 1882, and repeated opportunity was afforded for inspecting the condition of the nasal chambers and throat. Not in a single instance was the obstruction complained of ever detected. Here was evidently a recurrent or periodic congestion, due to causes which may be considered as sequelæ of ordinary winter catarrh. The case was first treated by the exhibition of strychnia and iron, and the application of a constant electric current to the pharyngeal and nasal structures. The patient was directed to keep an electric battery in her chamber, and at the time of the commencement of the obstruction to transmit a current of ten cells directly through the cheeks. This was followed by the happiest results, but did not effect a cure. Destruction of the angiose tissue at the anterior ends of the inferior turbinated bones by the galvano-cautery was finally determined upon. After the eschars had separated, and the irritation attending the use of the agent had subsided, the tendency to obstruction arrested and the patient ceased reporting, all her symptoms having disappeared.

CASE II. A young man, aged 20, with light hair, fair complexion, and a tendency to comedo, with large pupils, pearly teeth, marked with an occasional milky opacity; and the nails of the hands showing white maculæ; reported with the symptoms of nasal catarrh, which had persisted from childhood. The discharge was mucoid and moderate in quantity. The patient enjoyed entire exemption from all the symptoms during the summer months. The times of greatest distress were while lying in bed at night, and while exposed to the wind on bleak, cold days. At such times nasal respiration was rendered impossible, distressing frontal headache and lachrymation were established, while an occasional asthmatic attack would supervene. In other respects the patient enjoyed good health.

Examination of the nasal chambers showed that the left was somewhat

Celtic types have so inextricably commingled, that one cannot retain the term temperament and its various subdivisions of "bilious," "sanguine," etc., with the confusing sub-subdivisions of "bilio-nervous," "sanguino-nervous," etc., with any advantage.

the smaller, and on this side the septum was deviated to a moderate degree. The anterior ends of both inferior turbinated bones were engorged and red, and were covered with a glistening, mucoid discharge. The right middle turbinated bone was large and engorged, pressing against the septum. The pharynx and palate were normal, while the posterior nares were occluded by yellowish-white masses, which were identified with the posterior ends of the inferior turbinated bones, but which appeared to be absolutely without bloodvessels.

The treatment consisted in the free application of the galvano-cautery to the turbinated bones, both in front and behind. The patient was susceptible to pain to an unusual degree, and demanded the use of an anæsthetic for the destruction of the posterior hypertrophies. The use of the cautery was decided upon after failure to include them in the loop of Jarvis's snare. The day following the treatment the patient reported with a sharp attack of earache, which was found associated with a large, dry plug of cerumen in the external meatus. After the plug was removed the symptoms subsided. After this treatment of the nasal mucous surfaces had continued for a period of six weeks the symptoms disappeared and did not return.

CASE III. A young lady, aged 18, a resident of a mountainous rural district, reported January 9, 1882, having complained for eight years of a distressing recurrent obstruction in the right nasal chamber. She had been subject to attacks of tonsillitis in childhood, was anæmic, and suffered from a disposition to nausea immediately after waking in the morning. The patient had been exceedingly nervous from infancy, had always been a poor sleeper, and had never been able to breathe through the left side of the nose. As a consequence of this disposition, when the right side was obstructed during an attack, mouth-breathing was necessitated. At the time of obstruction the patient complained of headache, lachrymation, and attacks of sneezing.

On examination the left nasal chamber was found obstructed anteriorly by an osseous spur, which extended the entire length of that portion of the vomer which is exposed at the ethmoidal notch. The chamber was, in addition, everywhere narrowed,¹ and the inferior turbinated bone freely exposed from in front. The right chamber was capacious, and at no point revealed existence of any abnormal condition. The naso-pharynx was exceedingly irritable, and its examination by ordinary means impracticable. By the aid of the finger passed above the palate, it was ascertained that a firm, rounded mass projected slightly beyond the plane of the left posterior naris, while the parts in the neighbourhood of the right posterior naris remained unimpaired. The tonsils were enlarged, but in other respects the pharynx was normal.

Treatment began at the date of the patient's first report, January 9, 1882, and continued until March 8, 1882. Without detailing the separate steps of this treatment, suffice it to say that it consisted in restoring the left nasal chamber to its use as a respiratory passage, and in destroying the disposition to turgescence on the part of the membranes in the right nasal chamber. To accomplish the first, the long osseous spur was filed off and the ethmoidal cartilage was separated from the lower

¹ The left nasal chamber in this case, and the left nasal chamber in Case VI., are instances of congenital narrowing of the nasal chamber, as defined by the author, without deviation of the septum. See *Trans. Amer. Laryngol. Assoc.*, 1883.

border of the ethmoidal notch, and pushed over to the right side. Applications were made by the galvano-cautery to the posterior end of the right inferior turbinated bone, and the same agent was used in reducing the size of the tonsils. This line of treatment, which was a severe test of the patience and courage of the young lady, was in the end successful. A recent report received from her parents, dated November 22, 1883, stated that the cure had remained permanent.

It is particularly interesting in this case to observe that as a result of the treatment not only did the disposition to headache, lachrymation, and sneezing disappear, but without the aid of any internal treatment whatever, all signs of the long standing anæmia and malaise disappeared. The nervous disposition so noticeably developed was, as a matter of course, not influenced by this local trouble, and the curious phase of vomiting persists. In this case it would have been easy to assume that all the symptoms were neurotic. The persistence of distress on the right side of the nose, and the well-defined periodicity of the attacks, were facts well established.

CASE IV. A merchant, aged 30, nervous disposition, brown hair, with light complexion, and a tendency to dark rings under the eyes, came under treatment April 11, 1881, having suffered for five years from attacks of obstruction of the nasal chambers, associated with tickling sensations, sneezing, headache, smarting of the eyes, etc. These attacks were entirely independent of weather, locality, and season; they were accompanied by the discharge of a thin mucoid secretion; would last from four to six days, and would then subside as suddenly as they appeared, but left the system depressed, and caused the patient to have the appearance of a man recovering from a debauch.

Examination showed the anterior extremities of both inferior turbinated bones swollen, cedematous, and macerated. The bones were in addition exposed throughout their entire length, that is to say, the inferior margins were clearly seen by the aid of direct light, and were everywhere above the plane of the floor of the vestibule. The membranes were pendulous. The chambers were symmetrical. The membranes were everywhere of an intensely red colour, and presented a striking contrast to the pallor of the dermal lining of the nasal wings. The examination of the posterior nares revealed a symmetrical vomerine swelling. The pharynx was normal.

The treatment, which extended over a period of one month, consisted in using the galvano-cautery freely over the anterior extremities of both inferior turbinated bones. These applications were accompanied by more than the usual amount of distress, the patient being exceedingly sensitive to pain. When the patient had recovered from the effects of the treatment and the eschars had separated, the symptoms disappeared and did not return.

CASE V. A farmer, aged 21, having light-brown hair, hazel eyes, and fair complexion, came under treatment January 26, 1883. When six years of age he had suffered from an attack of membranous croup, and from this time on, had suffered periodically with summer asthma. The attacks would begin about the first of July and last well into the autumn. They were accompanied by a constant disposition to lachrymation, by nasal obstruction, and by tingling at the roof of the mouth. During the last four years, he had had in addition winter catarrh, presenting the ordinary symptoms of muco-purulent discharge, frontal headache, etc.

On examination, it was found that both inferior turbinated bones were well raised above the plane of the floor of the vestibule, and were intensely engorged both in front and behind. The nasal chamber was somewhat the smaller, the septum being moderately deflected to the left. Both the middle turbinated bones were engorged, and behind they were seen lying against the septum.

The treatment of this case presented some exceptional features. The patient being of an excessively nervous disposition would not permit the use of the galvano-cautery. Treatment was therefore entirely confined to repeated applications of glacial acetic acid, and of nitric acid to the nasal mucous membrane. This plan was pursued till April 15, 1883, when by reason of illness in his family he was compelled to return home and has not since been seen. A letter received in September, however, stated that he had for the first time in many years escaped his usual summer asthma.

In this case, the applications of the acids evidently accomplished the same results as would have been attained by the use of the galvano-cautery, namely, a reduction in the size of the membranes covering the turbinated bones, and possibly the destruction of hyperæsthetic surfaces.

CASE VI. A gentleman aged 23, of small frame, with black hair and eyes, of somewhat nervous disposition but of excellent constitution, reported for treatment October 17, 1882. He had suffered for sixteen years from hay-fever, two other members of his family, a cousin and a maternal aunt, being similarly affected. The patient had also suffered from a chronic nasal catarrh, the principal distress from which arose from occlusion of the nasal passages. His periodic attack would begin mildly on the 10th of August, becoming more severe on the 20th or 21st, and ending about October 10th, provided he remained in Philadelphia. While it continued, deep-seated itching would be felt in the mouth, throat, and respiratory tract, generally, sometimes followed by cough and considerable expectoration. Severe and constant conjunctivitis, with itching and puffing of the eyelids, was one of the most annoying symptoms. Exposure to light increased the distress in the eyes. The attack was always worse during moist, hot days, and in a furnace-heated room, than in the open air. Exposure to any heated dry atmosphere produced occlusion of the nasal passages, with an accompanying sense of suffocation. When so induced, this occlusion was immediately relieved on the patient's going into a cold room or into the open air. He was most comfortable in cool damp weather. A sense of fullness would sometimes be experienced in the lower part of the forehead during the attack, but most of the sensations were confined to the eyes and nose. There was no pain behind the ears, and no sensation as of a band drawn about the head. At no time of the year did wheezing, shortness of breath, or genuine spasmodic asthma appear. Mental influence seemed to be nil. Tobacco had no effect; hot coffee, used only occasionally, apparently modified the symptoms for the better. In the spring the symptoms, if present at all, were very slight, and lasted for a few days only, varying from the end of May to the end of June. The occurrence of the spring attack, however, has not modified the autumnal period either as to duration or severity. At any time of the year, an acute attack of coryza might be brought on by exposure to dust, or to irritating vapours, even by smelling carbolic acid crystals; though hay, flowers, etc. would have no particular effect. The patient seemed to be singularly free from liability to "take cold" from exposure to draughts,

wetting, etc. During an attack prompt relief was obtained by a sea voyage.

Upon examination it was found that the left nasal chamber was very small in all its proportions, and firmly occluded in the maxillary and palatal portions. The septum was not deviated. The inferior turbinated bone was raised above the plane of the floor of the vestibule. Posteriorly, at the plane of the posterior nares, a well-defined swelling was detected at the upper part of the vomer. The left posterior naris was smaller than the right. The right side was capacious throughout, though the posterior naris was nearly occluded by a hypertrophy. The pharynx was irritable and injected, and the salpingo-palatal folds unusually conspicuous.

Treatment began October 17, 1882, and was discontinued on the 2d of June, 1883, with the understanding that it was to be resumed at the beginning of the usual annual attack. This attack, however, was considerably modified in severity, and throughout the whole period the patient acknowledged considerable difficulty in reporting with the typical symptoms present. While he was satisfied that something still remained to be done for his relief, the parts were always found free from congestion, and both nasal chambers were usually open, which results could be directly attributed to the treatment of the previous winter. However, on the morning of August 22, two days after the time of the usual appearance of his attack, and after a dusty railroad ride of sixty miles, he reported with a moderate amount of turgescence of the mucous membranes, which partially occluded the left nasal chamber at the beginning of its palatal third. Accompanying this condition there existed also, to some extent, the characteristic itching of the eyes, the disposition to sneeze, the tingling in the nose, etc. The galvano-cautery was at once freely applied on the left side to the opposed surfaces of the inferior turbinated bone and to the septum at the beginning of the palatal third of the chamber. The patient almost immediately acknowledged relief from his disagreeable sensations; and on several other occasions, when he had felt the symptoms returning and had appeared for treatment, he reported decided temporary benefit from the use of the galvano-cautery. On the whole, as the result of the continued repetition of the cautery applications, the distress peculiar to "hay-cold" gradually lessened, and by September 25 he considered himself well, or, to use his own language, "comfortable after incomparably less suffering than in previous years. The cauterization during the attack was accompanied with no sense of discomfort, and I invariably left your office better than when I entered it."

REMARKS.—The conclusions to be drawn from the study of the foregoing cases can be summarized briefly as follows:—

(I) That the treatment of all conditions of obstruction in the nasal chambers, no matter from what cause arising, can be successfully carried out by destroying the causes of obstruction. If the cause be an overgrowth of bone-tissue, it must be filed, sawed, or drilled away (Case III.). If it be caused by a deviated cartilaginous portion of the septum, such portion must be re-set in a new place (Case IV.).¹ If, as is often the case, it is due to periodic turgescence of the mucous membrane or the resulting

¹ See author's paper in *The Medical News*, 1882, xli. 32.

secondary hypertrophies, such growths must be destroyed, either by the galvano-cautery, by the snare, or by caustic acids.

(II) That the treatment of hay-fever and allied periodically recurring nasal affections in no way differs from the treatment of other nasal diseases accompanied by obstruction, and that the treatment may be conducted during an attack as well as in the intervals between any two attacks.¹

ARTICLE X.

ELEPHANTIASIS ARABUM CURED BY LIGATURE OF THE FEMORAL ARTERY.

By G. C. E. WEBER, M.D., of Cleveland, O. (Reported by J. G. Gehring.)

IN view of the fact that the successful operations, both in this country and in Europe, for the cure of this most obstinate disease of the lower extremity, by ligation, are so few as to be easily counted upon one's finger ends, and because of the apparent propriety of resorting to this last method before amputation becomes an imperious necessity to save the life of the patient, I take the liberty of calling the attention of the profession to the following successful case operated upon by Dr. G. C. E. Weber, of Cleveland, O.

Elephantiasis Arabum, although very rare in this country, and seldom if ever occurring among native Americans, is occasionally met with in individuals of foreign birth, such a one being the case in question. Originally occurring in certain parts of the Orient, it has gradually found its way to western Europe, and is now not uncommon in the countries bordering the Atlantic seaboard. It is a disease that is oftenest found affecting people in the lower walks of life, who, by reason of poverty and privations, and perhaps as a result of debauchery and reckless living, are ill-fed and poorly nourished and their vitality reduced to a point so

¹ The study of the above subject-matter has extended over several years, and it will be seen that Case IV. is dated April, 1881. Desiring to mature my plan and not appear hasty in drawing my conclusions, I awaited extended experience before publishing my results. I desire in this connection to state that my friends Dr. Wm. H. Daly,² of Pittsburgh, and Dr. J. O. Roe,³ of Rochester, New York, have published the favorable results of the treatment of hay-fever by surgical methods. Drs. Daly, Roe, and myself have been working in this matter independently of each other, and it is probable that other practitioners who have not yet published their results have also been laboring in the same field. It must in justice to Dr. Roe be said that in one respect he would not agree with my conclusions since he does not approve of the conduction of the treatment during an attack. In my own experience, the treatment not only may be undertaken at any time, but it is even preferable that it should be initiated during an attack, for the places of contact can be then easily determined.

² Archives of Laryngology, 1882, iii. 167.

³ New York Med. Journ., 1883, xxxvii. 612.