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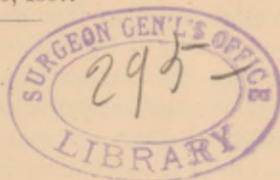
A Contribution to the Pathology and Treatment of the Respiratory Vaso-Motor Neuroses.

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A. CONTRIBUTION TO
THE PATHOLOGY AND TREATMENT OF THE
RESPIRATORY VASO-MOTOR NEUROSES.*

BY JOHN NOLAND MACKENZIE, M. D.,
BALTIMORE.

WE are at present passing through a revolution of sentiment in regard to the pathology of certain affections whose external phenomena at least are chiefly or wholly manifested in the respiratory apparatus, and notably its upper segments. Phenomena inexplicable on commonly accepted beliefs have received their fitting explanation in morbid conditions of these structures linked to a disordered state—imperfectly defined it may be—of the vaso-motor sympathetic. Especially is this true of that interesting group of symptoms known as “hay-fever,” but for which I think the term *coryza vaso-motoria periodica* a more appropriate appellation.

In this paper I shall limit myself strictly to the essentially vaso-motor neuroses, and shall not enter upon the discussion of the purely sensitive and motor reflex. As my views on the subject of the respiratory reflex neuroses, and especially in regard to vaso-motor coryza, differ in many es-

* Read before the American Laryngological Association, May 29, 1886.

sential particulars from those advanced by other observers, and as some of my *confrères*, who have done me the honor to quote from my writings, have apparently failed to appreciate the fundamental ideas underlying my theory of these affections, I will ask your indulgence while I recapitulate, as briefly as possible, the principal articles of my belief. I shall furthermore ask you to refer for a more elaborate statement of my case to my former communications on the subject of reflex and vaso-motor phenomena.*

That portion of the respiratory apparatus known as the naso-bronchial tract is, together with its appendages and connections, frequently the seat of certain periodical vascular disturbances in which paroxysmal explosions of nervous force play a conspicuous part, and which depend, it is reasonable to assume, upon some form of sympathetic or vaso-motor nerve-irritation. The vascular changes with their associated nervous phenomena may affect the upper respiratory tract in its entirety, either appearing simultaneously or successively in its different segments, or may be chiefly manifested or localized in some individual portion of the tract (nose, pharynx, larynx, bronchial tubes). In the latter case the nasal cavities and the bronchial tubes are most frequently the areas upon which the nervous shock is expended—the two territories being seemingly held in close reciprocal relationship by virtue of a physiological law of sympathy between the two extremities of a mucous tract. In the one

* See especially, "Trans. of the American Laryng. Assoc.," 1884, pp. 113 *et seq.* Papers on Coryza Vaso-motoria Periodica in "Medical Record," July 19 and Oct. 18, 1884; Rhinitis Sympathetica, "Maryland Med. Journal," April 11, 1885; Origin and Cure of Coryza Vaso-motoria, etc., "Trans. of the Medico-Chirurg. Faculty of Maryland," 1885; Review of Morell Mackenzie on Hay-Fever, "Am. Journal of the Med. Sciences," Oct., 1885, pp. 511-528; Production of Rose-Cold by an Artificial Rose, etc., *ibid.*, Jan., 1886.

case a sympathetic coryza results, in the other a sympathetic bronchitis.

In the evolution of these reflex phenomena two factors are conspicuously concerned: a depraved condition of the nerve-centers, and an abnormal excitability of certain portions of the naso-bronchial tract.

The derangement of the nervous apparatus may be transmitted from father to son, or it may be acquired in a number of different ways. Thus, for example, it may be the result of prolonged irritation of the respiratory membrane (*e. g.*, from nasal congestion and inflammation, polypi, etc., chronic affections of the larynx, pharynx, and bronchi), leading to repeated and continuous vascular disturbances over certain areas (as, for example, the frequent engorgement of that portion of the nasal cavities covered by erectile tissue), with subsequent abnormal irritation of the nerve-centers. I do not bring this forward as a mere theoretical assumption, but as a fact of personal experience, having been able to trace clinically the development of the neurasthenic condition from simple pathological irritation in the respiratory tract, and notably in the nasal passages.

It thus comes to pass, after a time, that the constant excitation of the nerve-centers by the peripheral irritation so alters their reflex excitability that they respond more readily to reflex-producing impressions. When, therefore, an increase of peripheral irritation occurs, either from extraneous influences or internal causes, a corresponding excitation of the centers is produced which expresses itself in a paroxysm. We might draw a parallel here between this chain of events and the mechanism of the epileptic attack, or the exaltation of the spinal nervous system from abuse or disease of the generative apparatus.

The exalted state of the centers may be conditioned in another series of cases, entirely independently of any local

irritative process in the respiratory tract, by a constant wear and tear of the general nervous system from a multitude of causes—from the faulty nervous constitution which Beard has termed neurasthenia. Such a condition, it is not difficult to imagine, might produce in time a disordered state of the sympathetic and abnormal functional activity of the vaso-motor centers.

In individuals affected with this form of neurasthenia, local organic irritation would be more likely to lead to reflex phenomena referable to the region of the affected part than in those whose nerve-centers had not been subjected to the same amount of functional strain. In the vaso-motor manifestations under review are found simply an application and illustration of this natural law. Or, to put it in other words, the area in which the vaso-motor reflexes occur will depend, other things being equal, on the seat of the local pathological process—on the localization of the area of peripheral irritability. A polypus in the nose, for example, would excite in such a person symptoms referable to the respiratory system, while a similar growth in the rectum would elicit reflex disturbances referable to the lower bowel. Now, as there is no tract more subject to direct irritation from the external world than the respiratory, we should naturally look to it for manifestations of central vaso-motor disturbance, and herein lies the answer to the question which may be propounded: Why is it that these vaso-motor disturbances are so often encountered in the respiratory tract, and notably the nasal passages?

In still another class of cases the excessive irritability of the nerve-centers may find its predisposing cause in pathological states of the system as a whole, as, for example, certain diathetic conditions; or it may be the result of reflected irritation from individual parts of the body.

There are certain diseases that tend to abrogate the func-

tional activity of the nerve-centers, and at the same time show a special proclivity to manifest themselves or leave traces of their existence in the respiratory tract. I might instance gout, rheumatism, certain fevers, syphilis, etc., and it is a clinical fact that the origin of the trouble may be traced to such a source. You are familiar with the fact that vaso-motor coryza was, and is by some at present, supposed to be one of the protean manifestations of gout, from the alleged frequency with which it is encountered in those of a gouty diathesis. If what I have said above is accepted, however, it is scarcely necessary to point out the inadequacy of this theory, and to lay stress upon the proposition that gout enters as a factor into the ætiology of the affection only in so far as it is one of a host of diathetic conditions which lead to weakness of the nerve-centers and inflammatory conditions of the respiratory tract.

In connection with this portion of my subject I should like to call attention briefly to the occasional remarkable behavior of this group of respiratory neuroses under the influence of certain acute diseases. I have observed the whole group of symptoms—coryza, asthma, sneezing, cough, etc.—completely disappear during an attack of acute rheumatism, while in another case a recurrence of the nasal affection and asthma took place during an attack of measles after a prolonged interregnum of immunity from these conditions.

We now come to the discussion of the hyperæsthetic condition of the respiratory membrane. Is this factor constant, is it primary, is it the *fons et origo* of these affections, or is it fugitive and secondary? Is it the result of purely local disease, or is it the peripheral expression of more central nerve-irritation? These questions have an important practical bearing on the treatment.

It seems to me that the existing confusion in regard to

these questions arises from failure to separate the hyperæsthesia naturally associated with the local pathological process and the excessive irritability principally met with during the paroxysms of this class of affection. According to my belief, the intense hyperæsthesia characteristic of the paroxysm is, like the vaso-motor phenomena (engorgement, swelling, etc.) which accompany it, a purely secondary phenomenon, and occurs only through the intervention of central irritation or paresis. This characteristic irritability may pass away with the subsidence of the attack, or may be more or less constantly present in the interregnum, according, presumably, to the amount of structural injury which the nerve-centers have undergone. This secondary hyperæsthesia may be brought about, then, if my view be accepted, either by a direct impression made upon the terminal nerve filaments in the respiratory mucous membrane, or by an indirect influence conveyed or reflected through the vaso-motor centers from a distant organ; or, finally, from an excitation starting in the centers themselves.

The hyperæsthesia met with in these conditions may be general, or localized in individual segments of the respiratory tract. In either case, while all portions of the tract as a whole or in part may share in the general hyperæsthesia, there are certain areas in which the latter is usually more pronounced, in which a greater susceptibility to the impressions by which reflex acts are produced is discoverable, and in which may be most conveniently and satisfactorily studied the vaso-motor manifestations of this special class of neuroses. These are: In the nasal passages, the area covered by erectile tissue, and chiefly that portion found in the lower and posterior portions of the nostril (posterior end of inferior turbinated body and erectile tissue in the septum immediately opposite—reflex sensitive area); in the pharynx, the vault and posterior wall; in the larynx, the

inter-arytenoid commissure; and, in the trachea, certain areas along its posterior wall. It is worthy of notice that, roughly speaking, it is the lower and posterior portions of the individual segments of the respiratory apparatus where these sensitive areas have been shown to exist.

According to my belief, then, these affections are intimately related to some disturbance of the sympathetic nerve, and probably a deranged condition of the vaso-motor centers themselves.* The neurasthenic phenomena, whatever the condition may be upon which they depend, may, as has been pointed out above, be due entirely to a primary irritation or well-defined disease in the nostril or in other parts of the respiratory tract, but until this condition is produced the case is simply one of ordinary nasal inflammation, and does not become true vaso-motor coryza until the nervous apparatus is markedly involved. In other words, in considering this affection we are dealing with a neurosis, or, at least, with an affection in which the neurotic element plays the essential and most conspicuous part.

In addition to the arguments already advanced in favor of this view, I desire to call attention to the existence of a hitherto undescribed neurosis of the aural apparatus closely allied or analogous in aetiology, mechanism, etc., to vaso-motor coryza, of which I have seen one case, which will be published in due time. Suffice it to say here that in this affection we have to deal with, if we may thus express it, a sort of hay-fever of the ear. When to this we add the recent observation of Dr. Gradle † concerning a periodical affection of the conjunctiva closely analogous to hay-fever, we have, it seems to me, additional evidence in favor of the sympathetic origin of the affection under re-

* For an elaboration of this point, see especially "Am. Journal of the Med. Sci.," Oct., 1885, *loc. cit.*

† "Am. Jour. of the Med. Sci.," April, 1886.

view. In vaso-motor coryza the area over which the reflex vaso-motor disturbances are manifested is chiefly the territory which receives its vaso-motor nerve-supply from the sphenopalatine ganglion; in the aural neurosis, the phenomena are localized or more pronounced in the area presided over by the otic; in Dr. Gradle's cases of recurring conjunctivitis the parts involved are supplied by the ophthalmic, and so on.

I would also refer to two additional observations which I have made, and which are of especial interest in view of the probable vaso-motor or sympathetic nature of the affection—viz., the occasional marked swelling of the thyroid gland, and to an enormously swollen and congested condition of the auricles analogous to that of the rabbit's ear in the famous experiment of Claude Bernard upon the cervical sympathetic.

I have said above that the two areas most frequently and notably concerned in these respiratory vaso-motor disturbances are the nasal passages and bronchial tubes. This leads me to refer briefly to the question of asthma and its relation to nasal disease. To Voltolini is universally and erroneously attributed the credit of pointing out this interesting relationship. That the asthmatic paroxysm is not infrequently associated with or terminated by a discharge of mucus or serum from the nasal passages, is a fact which was familiar in ancient times. Thus, among others, Cœlius Aurelianus,* in speaking of the diagnostic value of an excess of mucus in connection with the so-called "convulsive asthma," after commenting on its various symptoms, proceeds to say:

"At si gravior impetus superpositionis fuerit, ora ægrotantium livescunt, et quidem excluso per nares humore mucii-

* "De morbis acut. et chron., libri viii"; Amstelodami, 1709, lib. iii, cap. i, p. 430.

lento, relavantur, atque præfocationis carent metu, quod non aliter cedit, etiamsi per oculos lacrimarum fuerit fluor."

He also gives a cold in the head (*gravedo*) as a symptom of asthma. It was not, however, until centuries afterward that Zecchius* described an asthma whose cause he ascribed solely to a catarrh of the head, whose premonitory symptoms were a pain in the head, a distillation from the nose, and a small cough, and whose treatment consisted in the use of the ordinary remedies directed against catarrh of the head. I have called attention, too, elsewhere,† to the "suffocative catarrh" of Schneider, and the "anniversary asthma" of Floyer, as bearing upon this relationship. I may add that the association of asthma, whooping-cough, and sneezing was also observed by Josef Frank.‡

Coming down to more recent times, we find Bree# referring to a case of an asthmatic restored from the disease—

"Whose Schneiderian membrane became unusually dry in the progress of his recovery, and was even affected at this time with inflammation. The fluctuating qualities of the air, often irritating this membrane, occasionally produced a paroxysm without expectoration, until the habit of relapse was at last conquered by the means employed." In another place he observes: "If there have been frequent repetitions of irritating causes and convulsive efforts of the respiratory muscles, the asthmatic paroxysm may much more probably supervene upon

* "Consultationes medicinales," Francofurt., 1650, xviii, p. 160 *et seq.*; liii, p. 565; lxxiv, p. 708 *et seq.*—*et in al. loc.*

† "Am. Journal of the Med. Sciences," January, 1886, p. 52, footnote, and p. 53.

‡ "Præceps medicæ universæ præcepta," Lipsiæ, 1818, pars II, vol. ii, sec. 1.

Robert Bree, "A Practical Inquiry into Disordered Respiration, distinguishing the Species of Convulsive Asthma, etc.," Phila. ed., 1811, p. 145.

the milder effort to reject an acrid particle by sneezing and cough."

Later on, Rudolf Ferber,* of Hamburg, referring to the frequent association of sneezing, migraine, bronchial asthma, and hay-fever, advanced the theory that these phenomena were the expression of a neurosis of the trigeminus brought about by circulatory disturbances in the lower pelvis. These led, he thought, to a slowing of the venous current with stagnation of blood in the skin, mucous membranes, nose, etc. This abnormal condition finally begets a disturbance of the sensitive nerves of the parts with a tendency to reflex phenomena, manifesting themselves chiefly in the domain of the trigeminus. Thus the alveoli of the lungs and the mucous membrane of the bronchi become surcharged with venous blood, and this engorged condition probably acts directly on the sensitive filaments of the vagus.

I may mention here a little brochure to which I have never seen any reference, even among German writers, which I stumbled on accidentally in the library of the Surgeon-General's Office at Washington, and which I take pleasure in rescuing from an undeserved oblivion. The pamphlet is entitled "*Die Migraine ist eine Angina, der acuter Magencatarrh eine Neurose. Ueber die Bedeutung der Angina Faucium, ihre Verbindung und ihren Zusammenhang mit einer Reihe von Krankheiten,*" and is from the pen of Dr. Ferdinand Wydler, of Aarau. The chief contention of the author is indicated in the title of his work. Among the conditions supposed to depend upon slight catarrh of the pharynx are cardialgia, gastralgia, vertigo, vomiting of blood, epistaxis, sopor, delirium at night.

* "Der Niesekrampf u. deren Beziehung zur Migräne, zum Bronchialasthma u. zum Heufieber." "Arch. d. Heilkunde," 10ter Jahrg., Leipzig, 1869, p. 586.

hemicrania, neuroses of the trigeminus, cervico-occipital neuralgia, angina pectoris, brachial neuralgia, stenocardia, etc. He concludes as follows :

“ Nach meiner Auffassung ist die Hemicranie, sowie die frische Trigemineuralgie eine Angina, gleichsam eine fragmentarische Angina, mit den begleitenden hervorstehenden Krankheitssymptomen der einfachen catarrhalischen Angina nervöser crethischen Personen: eine Angina, bei welcher als hauptsächlichste Symptome, Prostration und Kopfschmerz, Schwindel, meistens auch Erbrechen erscheinen, und sich als Hauptleiden hinstellen, die jedoch deutlich von dem Zeichen der Zusammenhörigkeit des Zusammenhangs und Ursprungs, von der frischen Röthung der Schlundgebilde begleitet sind.”

While the enthusiasm of the author carries him a little too far, his pamphlet must be regarded as an important contribution to the literature of the naso-pharyngeal reflex. Finally, Trousseau * discussed at length the relation of coryza to asthma, and Follin and Duplay † assert that many of those who suffer from nasal polypi “ become subject to attacks of asthma.” To Voltolini belongs the credit of curing his patient by removal of the nasal neoplasm.

The older writers, as has already been pointed out, ‡ were doubtless familiar with the disease known as “ hay-fever,” which they considered as a species of, or identical with, the so-called bronchial asthma of the present day. It was not until after the observations of Bostock that the asthma arising from the emanations of grasses was regarded as distinct from the asthma produced by other causes, while it has taken nearly a century for us to return to the simpler classi-

* “ Clinical Medicine,” New Syd. Soc. Trans., London, 1868, vol. i, p. 619 *et seq.*

† “ Traité élémentaire de pathologie externe,” Paris, 1868-’69, tom. 3, p. 815.

‡ “ Trans. of the Med.-Chir. Fac. of Md.,” *l. c.* “ Am. Journal of the Med. Sci.,” Jan., 1886.

fication of the older nosologists. Even now our notions of the condition known as "asthma" are more or less vague and indeterminate. It is looked upon as a disease *per se*, as a distinct pathological entity; but if we consider exactly what is involved in the ordinary conception of this condition—that, like many other disturbances of respiration, it has no definite anatomical lesion—that it is common to an almost indefinite number of pathological states, we shall be forced to regard asthma as a symptom which, like cough, may be ushered in, follow, or occur simultaneously with irritation in various parts of the body, but which is most commonly symptomatic of some disorder of the respiratory tract. I do not propose, in this communication, to discuss the mechanism of the asthmatic paroxysm; whether it is essentially a spasmodic phenomenon, or whether the bronchial constriction is due to an engorged condition of the mucous membrane analogous to that seen in vaso-motor coryza—a transference, so to speak, of the nasal swelling to the bronchial tubes—are matters which do not come within the range of the present inquiry. While there are many reasons for belief in the correctness of the latter view, which was advanced by Weber,* and which has recently found an eloquent defender in Sir Andrew Clarke,† and while such

* "Ueber Asthma nervosum." See "Tageblatt d. 45 Versammlung deutsch. Naturforscher u. Aerzte in Leipzig," 1872, p. 159.

† "American Journal of the Med. Sciences," Jan., 1886. In simple justice to Trousseau, whom some recent writers seem to overlook, it must be stated that he was the first to look upon the peculiar coryza (undoubtedly the hay-fever of the present day) occurring in connection with asthma (see above) as one of the manifestations of that disease, as a part of the asthmatic process, and also the first to suppose that the difficulty in respiration, sometimes associated with urticaria, was "occasioned by an eruptive or congestive state of the mucous membrane of the bronchial tubes analogous to the eruption and congestion on the skin." (*Op. cit.*, vol. ii, p. 284.)

transference probably does take place in a large number of cases, still it were unwise, in the present state of our knowledge, to eliminate completely the element of spasm as a possible factor in other cases, and to lay down the law that the constriction of the bronchial tubes alleged to be peculiar to this condition can only be brought about by sudden swelling of the mucous membrane.

An interesting feature of a certain proportion of the class of cases we are now discussing is the occasional association of urticaria, asthma, and coryza. And just here I may remark that the relation of asthma to skin affections was familiar long before the days of Trousseau. Thus the illustrious Hoffmann* mentions, as a fact of common experience, that asthma sometimes follows the suppression of a cutaneous rash; and before him Baglivi† had recommended, in such an event, that the patient should sleep with one having the "scabies," that, catching it, he might be relieved of his asthma. It is also related that William of Orange was cured of an inveterate asthma during the running of a sore on the shoulder produced by the famous cannon-ball wound received at the battle of the Boyne.

In the condition of affairs that we are discussing, the coryza may precede the asthma and urticaria in time of appearance, disappearing or remaining after their eruption; or the asthma or urticaria may antedate the attack of coryza; or, finally, instead of alternating the one with the

* "*Ita experientia docemur, a scabie retropulsa . . . a tinea capitis male curata . . . nostram passionem exoriri.*" F. Hoffmann, "Op. omnia physico-medica," part ii, § ix, p. 257, Geneva, 1760. In speaking, too, of the symptoms of asthma, he adds, "Mucus per nares excluditur."

† "Opera omnia med. practica," ed. octava, Lugduni, 1714, "Prax. med., appendix de asthmate," p. 104. "*Ex scabie retropulsa si asthma fiat, cum scabioso dormiendum est, ut scabies revocetur, vel urticis cedenda cutis.*"

other, they may appear simultaneously in the individual. At the last meeting of this association I stated my belief that these phenomena seemingly depend on an imperfectly defined neurosis or vaso-motor influence (possibly some derangement of the cervico-occipital sympathetic), which is probably the connecting link between these affections. Now, in attempting to define the reciprocal relationship between this triad of conditions, we may regard the skin essentially as a part of the respiratory tract—as the external organ of respiration. It is only necessary for me to recall the physiological importance of the skin in respiration among some of the lower animals, and the embarrassment of respiration in man from pathological or experimental suppression of the cutaneous function. We may accordingly regard this neuro-vascular disturbance of the external surface as a natural symptom of the respiratory vaso-motor neuroses, and assume that, while the relation of asthma and coryza may be explicable by a possible normal sympathy existing between the two extremities of the internal respiratory tract, both asthma and coryza may be linked to the skin affection by a sympathetic bond which holds in equilibrium and close consent the whole mechanism of the respiratory function.

The principles involved in the foregoing propositions have served as the basis and rules of my practice in this class of affections during the past three years, and with a most gratifying result. In that time between sixty and eighty cases of paroxysmal vaso-motor neuroses of the respiratory tract have come directly or indirectly under my professional observation. Of this number, the nasal passages were most frequently the seat of the vascular disturbance, and next in frequency the bronchial tubes and pharynx. Occasionally the affection was more or less clearly localized in the laryngeal cavity, but, according to

my experience, this is an exceptional event. While the sympathetic nerve disturbances manifest themselves most frequently in the nasal cavities, in a certain proportion of cases the pharynx and larynx appear to be the starting-point of the trouble, and I have traced a number of reflex phenomena, such as asthma, cough, etc., to diseased conditions of these structures. The vaso-motor disturbances, both of the pharynx and larynx, are, however, commonly associated with, or preceded by, similar affections of the nasal cavities. In the pharynx and larynx they are characterized by an excessive degree of hyperæsthesia—the very act of opening the mouth giving rise in some cases to retching and even vomiting. Indeed, a considerable number of cases of so-called hyperæsthesia and paræsthesia of the larynx and pharynx are traceable to some vaso-motor disturbance or sympathetic nerve irritation. The changes in the vascularity of the mucous membrane often take place with great rapidity, the vessel dilatation being quickly replaced by a condition approaching pallor, while the latter as quickly gives place to the laryngeal or pharyngeal blush. In cases in which the neurotic feature is especially well marked, the alternate dilatation and contraction of the vessels can be most conveniently studied. The suffusion and swelling may be diffuse and uniformly distributed over the structures, or it may be more pronounced over certain areas, presenting a certain anatomical resemblance to a cutaneous eruption.

The secretion of colorless watery fluid is not so constant nor so abundant as in analogous conditions of the nasal passages, nor is the swelling of the mucous surfaces so conspicuous. The reflex phenomena symptomatic of this class of pharyngo-laryngeal neurosis need not detain us at present. Suffice it to say that they are sufficiently numerous, and consist chiefly of various sensory and motor disturb-

ances in the path of the nerves that radiate from the pharyngeal plexus, and in spasmodic contraction of the pharyngolaryngeal muscles. In one case the spasm of the pharyngeal and palatal muscles was so great that it materially hindered the passage of air through the nares and laryngeal vestibule, causing the patient to start suddenly from his sleep with what might be termed a veritable naso-pharyngeal asthma.

In whatever portion of the respiratory tract these vaso-motor neuroses are situated, the general principles of treatment are in each and every event essentially the same.

When, some time ago,* I formulated the view according to which the so-called nasal or respiratory reflex neuroses, the group of phenomena known as "hay-fever," "asthma," and other reflex conditions found in connection with nasal disease, may be classed as symptoms which, owing their origin to a common cause, form part and parcel of a single pathological process, I did so not merely upon theoretical grounds, but based my conclusions upon the results of clinical experience—upon the observation that the treatment of one of these neuroses was essentially the treatment for all, and whether we had to deal with paroxysmal cough, asthma, or with the *ensemble* of those phenomena known as "hay-fever," "rose cold," etc., the therapeutic indications are identical.

With these brief prefatory remarks, let us turn to the most typical and interesting of these affections, in which the nasal passages and adjacent organs are the most conspicuous seats of the vascular disturbances, and which we may designate coryza vaso-motoria periodica.

The chief indications in the treatment of this affection are: (1) To remove any existing local respiratory disease or irritation; (2) to so alter the nutrition of the nerve-centers that they may not respond so easily to reflex-producing

* "Maryland Med. Journal," April 11, 1885.

impressions; (3) to search carefully for any pathological condition, systemic or local, which may be regarded as a source of direct or indirect irritation of the nervous or respiratory apparatus, and adopt appropriate measures for its relief. Failing in the above measures, (4) the partial or complete destruction of the vessels or sinuses over the area or areas in which the vascular disturbance is most marked.

I have dilated at length, elsewhere, upon the manner in which these indications should be carried out, and shall, therefore, on this occasion, only offer a few supplementary suggestions.

The first lesson to be learned in the treatment of this affection is that it is a chronic neurosis, and, as such, requires chronic treatment. It should be remembered that the peculiar condition of the sympathetic is, like epilepsy, with the patient by day and by night, in winter and summer, ready at any moment, under favorable conditions, to give expression to its presence by a paroxysm. Any treatment, therefore, undertaken a short while before the expected attack or during its course, is almost wholly palliative, and can rarely, if ever, accomplish any permanent good. And thus the innumerable remedies (such as chloral, belladonna; opium, stramonium, etc.) which have been used from time to time can accomplish no lasting good, and in many cases either lose their beneficial effects altogether, or, in the end, by their constant physiological effects upon the nerve-centers, may tend even to aggravate the predisposition to the affection. In this category I would place cocaine. As I pointed out some time ago,* and also at the last meeting of this association,† the long-continued use of

* Discussion on Cocaine, May 15, 1885: "Trans. of the Med.-chir. Fac. of Maryland," 1885, p. 189.

† Discussion, June 26, 1885. "Trans. of the Am. Laryngol. Assoc.,"

this drug in the nose and throat begets an increased irritability of these structures, due, probably, to the repeated contraction and consequent fatigue of the contractile elements in the smaller vessels and erectile tissues, which terminates in some cases in a subparalytic condition of these structures, and subsequent puffiness of the membrane. As the habitual use of cathartics eventuates, sooner or later, in constipation, so the prolonged use of cocaine will result, in a certain proportion of cases, in a hyperæsthetic condition of the mucous membrane. In the case of the erectile tissues, it is especially open to the objection that, by bringing repeatedly into play the contractile power of these structures, it may ultimately weaken their walls and lay the foundation for a permanent dilatation of the erectile cells. In calling attention to these disadvantages of its continuous use in these affections, I do not by any means desire to question the many excellent virtues of this remedy. In certain acute affections of the mucous membrane, and for its effect on the nasal erectile structures, pointed out by Bosworth, it is a God-send, but I am convinced that at present it is too indiscriminately and injudiciously employed. In the disease under review, it has in my hands utterly failed to dissipate, except temporarily, its symptoms, or to abridge, in the slightest degree, its course. For a short while amelioration is secured, but, at the expiration of a period varying from half an hour to two hours, the symptoms recur, and the drug has to be used again and again.

My custom is to treat this affection as I would any other chronic disease of the nervous system. The commencement of the treatment, accordingly, should date from the 1885, p. 142. I may add that since then Beverley Robinson ("Med. Record," Oct. 17, 1885), Ingals ("Journal of the Am. Med. Assoc.," Feb. 20, 1886), and others, have recorded similar observations.

first appearance of the patient for consultation, and terminate, it may be, long after he is apparently free from his disease. I can not insist too strongly on the importance of prolonged and continuous tonic treatment addressed to the nervous apparatus. It may at first fail, and the paroxysms return again and again with all their accustomed severity; but, if it be persisted in, the time will come, sooner or later—provided there is not some incurable lesion—when the intervals between the paroxysms will be less and less, and the attacks themselves less severe, until finally they cease altogether.

The great mistake which is universally made, it seems to me, is the suspension of treatment upon the termination of the attack, and I therefore wish to emphasize the importance and necessity of continuous treatment throughout the interregnum of fancied immunity from the disease.

In carrying out this remedial course two difficulties will present themselves: the firmly-rooted belief in the patient's mind that there is nothing the matter with him in the intervals of exemption, and his natural discouragement when, in spite of treatment, he may have an occasional return of his old disorder.

The general tonic and hygienic treatment will vary with the individual peculiarities of the subject and the conditions of his environment, and will usually consist, to speak in general terms, of prophylactic measures directed against the development of nervous and catarrhal affections.

Among the many remedies I have tried in the constitutional management of this class of affections, I would mention and recommend arsenic, phosphorus, zinc, quinine, and nux vomica. These drugs may be used alone or in combination for an almost indefinite time, if the usual precautions in regard to their physiological effects are exercised. The

following method of administration, although it has failed me at times, has, nevertheless, been so generally beneficial in my practice that I do not hesitate to recommend it for your trial:

(1.)

℞ Zinc. phosphid..... gr. $\frac{1}{8}$;
 Quin. sulph..... gr. ij;
 Ext. nuc. vom..... gr. $\frac{1}{4}$.

M. Ft. pil. no. j.

S. : To be taken before meals.

(2.)

℞ Liq. arsenic. et hydrarg. iodid., gtt. iij ad v.

S. : In wineglassful water, after meals.

Formerly I used Fowler's solution, but for the past year have substituted the iodide of arsenic and mercury (Donovan's). The quantity of the ingredients should be increased according to the judgment of the physician. Should the physiological effects of any of the remedies manifest themselves, it should be stopped for a week or so, and then resumed in the same or diminished doses.

I may add, in leaving the subject of constitutional treatment, that for several years I have employed the above-mentioned lines of treatment in simple inflammatory conditions of the nasal passages and throat, and have found them important auxiliaries, especially in the earlier stages of the simple inflammatory process, when the vaso-motor element of inflammation is chiefly evident from the repeated and sudden erection of the turbinated structures.*

I have also seen good effects from the continuous use of the bromides and the iodide of potassium. In two cases I have made use of the constant current (from ten to fifteen cells), placing one electrode over the nape of the neck, and

* See article by the writer in the "Medical News," Philadelphia, April 4, 1885.

passing the other extremity of the current alternately over the region of the superior cervical ganglion and through the nasal passages. In one, apparent, and in the other decided, relief to the symptoms was obtained. Although my experience with this agent has not been sufficient to warrant me in pronouncing either for or against its use, I consider it, nevertheless, worthy of further trial.

In one case a satisfactory result, as far as the amelioration of the symptoms was concerned, was secured by partial obliteration of the pharyngeal vessels with the galvano-cautery. The patient, a physician, suffered from the pharyngeal variety of vaso-motor neurosis, associated with an abnormally large, swollen, and varicose condition of the veins on the posterior wall. The vessels were cut across in a number of places, and since the operation the paroxysms have been notably less severe.

In regard to the topical treatment of existing nasal disease, I can only repeat what I have said over and over again, that any treatment addressed to the nasal chambers accomplishes one result, and one only—it closes one door against *ab extra* irritation of the nerve-centers. In many cases, it is true, this will be of itself sufficient. The nasal passages may be the sole avenues through which the nerve-centers are influenced, and, with the removal of the irritant and the consequent physiological rest of the centers, the disorder may be apparently, and in the course of time actually, dissipated. But there are other cases in which, from what I have indicated above, such a course will obviously fail. Those of my colleagues, therefore, who consider the removal of the nasal obstruction or irritation as the sole remedy for this disorder, base their belief, it seems to me, upon an incomplete conception of its pathology. The value of the galvano-cautery and other therapeutic measures addressed to the nasal passages will depend, to a large extent,

upon whether the existing nasal disease is the primary cause of the central irritation, whether it is the sequel of repeated attacks of vaso-motor coryza, or whether it is a purely accidental phenomenon. Whether primary, secondary, or accidental, it always acts as an excitant of the disease, and it is of the utmost importance that it should receive the most careful attention. But it must not be forgotten, at the same time, that behind the nasal, throat, and head phenomena stands the neurosis, and that, until the sympathetic nerve-irritation is overcome, we can not expect to thoroughly eradicate the disease.



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