A further contribution to the subject of vasomotor ataxia / by Solomon Solis Cohen.

A FURTHER CONTRIBUTION TO THE SUBJECT OF VASOMOTOR ATAXIA.

BY

SOLOMON SOLIS COHEN, M.D.,

OF PHILADELPHIA.

From the

Transactions of the Association of American Physicians,

1902.

C

A FURTHER CONTRIBUTION TO THE SUBJECT OF VASOMOTOR ATAXIA.

By SOLOMON SOLIS COHEN, M.D.,
OF PHILADELPHIA.

This communication is intended to supplement the articles published in the *Philadelphia Polyclinic*, June, 1892, and the *American Journal of the Medical Sciences*, February, 1894. While in the description of his cases no other writer has adopted the term "vasomotor ataxia" proposed in the communications referred to, yet a number of cases belonging to one or another subgroup of this general class have within the last few years been placed upon record under other names, new or old. Reference may be made especially to the phenomena of vascular throbbing in certain neurasthenic patients (angiopathic neurasthenia), described by Dana in 1897, and to Savill's[1] discussion of the neurovascular disorders of the extremities. In brief, the class of cases to which it is desired to recall attention exhibit multiple and diverse phenomena suggestive of instability of vasomotor control, central and peripheral. To cite but a few examples: In one subject a slight blow upon the skin will produce circumscript edema, or even extravasation; in another a slight indiscretion in diet will be followed by swelling of one side of the face and lips; in another, without traceable cause, "blood blisters" will appear in the pharynx. One will suffer to-day with urticaria, and next week with asthma; another will have paroxysms of migrain alternating with gastric crises, and sometimes attended with mucous enteritis; one will manifest acroasphyxia with mild vertiginous phenomena; another may have no marked symptom except hay fever in its due season. In no person are all the phenomena invariable; in few is there but a single group of manifestations; in none are the exciting causes always definite and the same; but in all certain stigmata of the condition are constantly present, and upon

[1] On Acroparesthesia, Erythromelalgia, Sclerodactylia, and other Angioneurotic Disturbances, with an Attempted Classification of Angioneurotic Disorders of the Extremities.—*The Lancet*, June 1, 1901.

their recognition depends the diagnosis—which consists in the assignment of the individual to his class, rather than in the giving of a name to the special symptoms presented at a particular moment.

I shall not detain the Association with reports of cases, of which I have gathered very many. A sufficient number is already on record to illustrate nearly all the points to be touched upon, while so great and so varied are the number and character of the symptoms manifested in individual patients at one time or another, that their recital would leave no time for the main purpose of the present communication. I shall ask attention rather to certain considerations pertaining to the philosophy of medicine, and especially to that portion thereof that an eminent English observer has denominated the study of "the synthesis of disease."

In studying the aberrations of the human organism we must take into account not only the forces of the environment that may excite disturbance, but also the forces within the body, through derangement or failure of which the disturbance becomes manifest. In so doing, we have to consider not only chemical and physical action and reaction, not merely cells, tissues, organs, systems and functions individually, but also—to adapt Whewell's term—the "consilience" of the organism.

That there are differences in the responses not only of different species, but also of different individuals of the same species, to environmental changes, is a matter of every-day observation. The same order of facts obtains likewise in the pathologic laboratory, and may be manifested even when the species is one so little resistant to infection as the guinea-pig, and the environmental change one so decided as the inoculation of cultures of tubercle bacilli. A certain child may swallow several grains of a quinin salt and exhibit no obvious disturbance of physiologic equilibrium; another takes but a fraction of a grain and becomes febrile, flushed and delirious. Of several men exposed to the same cold winds and snow, one contracts pneumonia, one exhibits hemoglobinuria, another suffers with frost-bite, another manifests Raynaud's phenomena in the extremities, and some escape with slight discomfort.

In a case under my own observation, a boy, aged seven years, was so markedly affected by two grains of cinchonidin salicylate, administered by his mother, that, until I had learned of the drug-giving, I suspected the existence of scarlatina. A woman, aged forty years,

exhibited general anasarca following the administration of strychnin, of nux vomica, of picrotoxin—the two latter agents being given as tests of the susceptibility. A woman, aged twenty years, went into a cataleptic state of nearly two days' duration following the use of one-eighth grain of morphin sulphate by the mouth; after recovering she informed me that a similar condition had occurred in sequence to the hypodermic use of morphin some years previously. She did not know that my prescription contained morphin. All these patients possess in some degree the physical and psychic characteristics to be described later.

It is quite easy to speak of peculiar individual responses to drug action, to bacterial attack, to meteorologic conditions, to psychic influences, as "idiosyncrasy;" but is this not merely another form of the ostrich-like head-hiding habit that is too common in professions having a technical terminology? What shall it profit us to translate our ignorance into Greek? Idiosyncrasies must have a physiologic basis; normal as to the individual, they are abnormal as to the race. In certain instances, undoubtedly, they are but manifestations of that tendency to variation, of which evolution sometimes takes advantage to improve the species; in others they are of a more general character. When such an apparent abnormity is congenital, usually inherited, often shared with others of the same family—and in addition is manifested by members of many unrelated families—it is evidently not so purely individual as the term idiosyncrasy would imply; but is representative of a condition actually or potentially present at some time in all men. It is abnormal not *quoad naturam*, but *quoad tempus*. It may be a reversion to a condition formerly common to the race, or may be the beginning of a new development of good or evil promise.

I am not unmindful of the fact that modern tendencies are toward the discrimination and separation of syndrome groups through specific etiologic, morphologic, and metabolic characteristics, rather than toward their inclusion in general classes through broad functional relationships. We seek for definite responses to definite irritants as criteria for the new nosology that shall substitute accurate description for vague surmise. Even the rather definite group of cases that we now include under the term of typhoid fever will doubtless be divided into several other groups, differentiated by data of gross or minute pathologic anatomy and of bacteriology; acute polyarthritis no longer

means rheumatism; hematology is rapidly accumulating the basic facts for a reclassification of the anemias. It may thus at first view appear retrogressive to erect a nosologic class based upon the very indefiniteness of the exciting causes and the organic responses; and including syndrome groups apparently so opposite as those to which the names of Graves and of Raynaud have respectively been given. The endeavor to determine the exact nature and location of the metabolic and histologic alterations that are associated with these syndromes would seem much better worthy of attention. Of the great importance of minute and exact research there can be no question, but upon the interpretation of its results there may be division of opinion. That opinion is not unanimous concerning the etiology or pathology of Raynaud's disease, or of Graves' disease, may have other explanation than incompleteness of research. The great biologic question as to the relation of structure and function is here involved. If function may precede and determine structure in normal evolution, a similar sequence may take place in pathologic evolution. The morbid alterations discovered after death in bodies that during life have manifested the functional disturbances described by Graves or by Raynaud may be, in greater degree than we believe, sequential rather than precedent.

By the term vasomotor inco-ordination, or ataxia, it is proposed to designate not a disease, but a fundamental disorder, out of which, through the incidence of varying exciting causes, varying syndrome groups may be developed. If the eternal question, "What is the explanation of that explanation?" may still be asked, and must for the present remain unanswered, nothing in medicine or other sciences is free from the same limitation. The fundamental disorder to which reference is made is a deficiency, rather than a perversion of the normal order. It may be congenital or acquired; in the former instance manifesting incomplete development, individual, familial, or racial; in the latter instance illustrating Hughlings Jackson's law—which is but one aspect of an universal law—that neural functions latest developed are earliest overthrown. The function in question is that of inhibition of cardiovascular motion. As heart and vessels have been developed from one primitive tube, and their nerve-supply has arisen from one primitive source, it is convenient to speak of vasomotor—meaning cardiovasomotor—phenomena. The importance of inhibition

in evolution, biologic and sociologic, may briefly be alluded to. Life, development, progress, depend upon it. The inhibition of chemical and physical changes occurring under ordinary environmental conditions, so that response to certain definite environmental stimuli may become more and more specialized—even seemingly purposive—is one of the principal distinctions between living and non-living matter, and, in progressive degree, between various kinds of living matter. The inhibition of psychic responses of a kind unfavorable to mental and moral progress influences the development of individuals and races. The inhibition of individual desires and tendencies by the forces of organized society makes civilization possible. This is one side of the shield, of which the other is termed voluntary activity or will. In other words, the evolution of inanimate matter into bioplasm, of bioplasm into men, of men into civilized communities, is characterized, first, by gradually increasing control of the reactions of the organism to the forces of the environment, and, second, by progressive organization of this control, so that what was at first volitional, or, at least, the result of effort accompanied with consciousness, becomes automatic. This automatic control, or inhibition, is not annulment of the function restrained, but regulation—preservation of normal balance—and thus involves also the excitation of the function under appropriate conditions; the pneumogastric inhibition of the heart being the clearest example. The normal balance of cardiac function being represented by a rate of seventy-two beats to the minute in the quiescent man, normal pneumogastric control permits acceleration of the cardiac rate within certain limits, to meet the demands of exercise, in resisting the attacks of certain pathogenetic agents, in the attempt to compensate for structural or functional perversions in the blood or in the heart itself, and under other conditions. One of the lower animals, being frightened by the approach of an enemy, seeks escape in flight. The normal mechanism of his flight calls for relaxation of pneumogastric restraint; the heart beats rapidly, the eyeballs protrude, it is possible that the thyroid gland may enlarge with the increased supply of blood. The tendency to this association of phenomena under fear and certain other strong emotions that find vent in muscular activity, is an evolutionary inheritance among human beings also. I have observed in human beings protrusion of the eyes sufficient to show the sclera above and below the cornea under certain conditions of

emotional excitement accompanied by increased cardiac activity; notably in a nymphomaniac, but in less degrees in others, both men and women, in conditions of non-sexual excitation. It is, I think, not uncommon in those who at the same time become red in the face from rage. The relation between menstruation and changes in the size of the thyroid gland—especially when the latter is enlarged—is as well known as the Roman matron's custom of measuring the neck of her newly-wedded daughter. But the rapidity of the heart, the protrusion of the eyes, the possible enlargement of the thyroid, normal under certain conditions and subsiding when the occasion has passed, are abnormal under other conditions or if persistent. The woman who, being alarmed, does not try to run away, has no physiologic need for the increased circulatory and nervous activity that helps the frightened rabbit to escape. To preserve the balance of function that we call health, her pneumogastric or other inhibitory activity must be strengthened rather than relaxed under the strain. If it can meet the emergency, there is, perhaps, a transient excitation of the heart, with pallor or flushing of countenance, and then equilibrium is restored; but if not, Graves's syndrome may be initiated, and persist. I have observed at least two instances in women in which the development of persistent tachycardia and goiter immediately following fright, with subsequent development of exophthalmos, seemed to be established beyond question. In other apparent instances of the same kind previous observation had not been sufficiently accurate to exclude the probability of error in date of origin of symptoms. But such is not the history of every case of Graves's disease, nor is such the result of every severe fright to woman or man. Evidently, then, two elements enter into consideration—the one fundamental, the other accidental. The former must be present; the latter may or may not be brought to act upon it. Without the fundamental disorder the exciting cause does not produce the specific result. Without an adequate exciting cause the fundamental disorder does not become manifest in the specific manner. The fundamental condition is one; exciting causes may be various. Various exciting causes having certain features in common may be followed by identical results; as the mechanism of a clock acts in the same manner, whether the pendulum be started by a push with the hand or by the attraction of a magnet. Other exciting causes lead to results resembling those of the first class in some particulars and differing in others. Exciting

causes differ in degree and in persistence as well as in kind; the degree of the fundamental disorder differs in different individuals. Thus the possibilities of diverse combinations of factors being great, the possibilities of results diverse in degree, in persistence, and in individual particulars are equally great; but withal there must be a fundamental resemblance in results, dependent upon the identity of the fundamental disorder. Considering the continual demands of normal function upon the vasomotor taxic mechanism for accurate adjustment to the instant needs of organs, tissues, cells, as well as to the constant demand of the organism as a whole; taking into account, further, the varying conditions of the environment and the necessity for quick response of the vascular mechanism to the necessities of occasion; realizing even then very imperfectly how mobile, yet how steady, must be the vasomotor control—it is not difficult to understand either the importance of this control or the numerous symptoms to which defect therein may give origin.

Granting such fundamental defect, not only do the diverse manifestations described as the basis for this paper become understandable, but also we are able to recognize the origin of many symptoms, otherwise confusing, that may occur in certain individuals during the course of various acute and chronic diseases, and which, without this clue, might lead to serious error in diagnosis or in treatment.

As a matter of fact it is not probable that any individual has complete automatic vasomotor control; yet, equally as a matter of fact, the vast majority of human beings have control practically adequate to all ordinary occasions. The symptoms occasioned by defective control, or, as I wish to term it, *vasomotor ataxia*, are, on the whole, phenomena perfectly normal under adequate causation. Their abnormity lies in the fact of their occurrence under stimuli normally inadequate, in their undue persistence, or in their excessive degree. They are also characterized by a certain associative character, as in the definite syndromes of Graves and Raynaud; the number and character of the associated symptoms depending on factors and relationships that we need not now inquire into. They differ very much in degree, and in character may be either apparently spastic or apparently paretic; that is to say, may indicate either excessive vascular relaxation or excessive vascular constriction. Until the question of dilator and constrictor nerves of the vessels is settled, it

cannot be said that relaxation is actually paretic; in all probability it is at times active. Rarely are all the phenomena in a given seizure dilative or constrictive; both sets of symptoms are often commingled, though one or the other will usually predominate. An individual will, as a rule, show the predominance of the same class of symptoms in his various paroxysms—for example, always becoming pallid or always flushing with his migrainous or vertiginous attacks; though there are many exceptions even to this rule. The flushings, chilliness and other vasomotor disturbances of the climacteric in women are of the same order of phenomena, and, as frequent concomitants of a physiologic process, may be said to be normal. It is to be noted, however, that the process in question is one of devolution.

Individuals of deficient vasomotor control always present certain phenomena indicative of their condition. Some of these stigmata are to be discovered only upon careful search, others may be seen at once; but they rarely attract the interested attention of patient or physician until more marked manifestations occur. The symptoms which lead to the discovery of the condition are, as a rule, paroxysmal in character, and do not recur regularly—or even in an invariable manner, until some special association, as Raynaud's syndrome or Graves's syndrome, becomes, as it were, organized. Among the more or less constant characteristics of those whom I am accustomed to term "vasomotor ataxics" may be mentioned the following:

1. Dermographism can always be demonstrated, and in marked cases factitious urticaria is produced readily.

2. There is usually a tendency, especially during conversation of an exciting character, to contraction of the upper eyelid, exposing the sclera above the cornea. Sometimes this can be developed by having the subject fix his eyes upon a point at the normal level of the pupil, and telling him to open his eyes as widely as possible. I have looked upon it as a larval condition of the palpebral contraction known as Stellwag's sign of exophthalmic goiter.

3. There is in many cases an exaggerated tendency to blushing. Sometimes what might almost be termed a "permanent blush" occupies one cheek or a portion of a cheek. Frequently there will be a tendency for one cheek and one ear to become hot and flushed, without special emotional or other excitation, while the other cheek and ear remain normal.

4. Minute cutaneous angiomata are often to be found upon various portions of the body.

5. The nails exhibit the most constant and definite characteristics. Apart from striations, which are not rare, they show certain strata of more or less definite coloration. In the most pronounced cases I have been in the habit of terming them—in order to impress the condition upon students—"patriotic nails;" the markings being red, white, and blue circular segments. At its base, for probably half its length, the nail is more or less cyanotic—blue, purple, or faintly violet; beyond this there is a broad, whitish area, and then toward the finger-tip the nail becomes pink or red. In the midst of the pink area there appears a semicircular or crescentic line of deep red. Sometimes these crescentic markings of red, white, and blue alternate in greater number. Sometimes there is a blue or white area beyond the deep red line. Sometimes the nail is pink, purple, or leaden throughout, except for red and white crescentic areas toward the finger-tip. At times the skin around the base of the nail is of a deep brick-red color. Usually the nails are curved both longitudinally and horizontally, but sometimes they are flattened. Often there are certain permanent characteristic but indefinite colorings of the fingers, and, at times, of the whole hand. These become accentuated temporarily under conditions of temperature variation, natural or artificial. In certain persons the hands are always more or less pinkish, and the color extends in some instances a greater or less distance up the wrist. In others, the wrist and the palm and dorsum of the hands may be cyanotic, and the fingers pink or pinkish purple. In others, the fingers may be pink or purple, or of mixed hues, and the palms and dorsum of ordinary color. In some subjects there is an irregular mottling. I have noticed this mottling, extending over the arms, or, indeed, over nearly the whole cutaneous surface, as an hereditary phenomenon—and in some cases as a paroxysmal one. In one marked instance in my clinic, red, white and blue areas scattered over the whole body, including the foreskin, developed under observation after the patient—a boy just reaching puberty—had been stripped for examination on a somewhat cold day. Weather changes cause considerable difference in these appearances, cold having a tendency, as a rule, to increase the depth of the cyanotic (venous) hue, while heat tends to increase the proportion of the pink or red (capillary) tint; though this may vary in

different individuals. As a rule, if one hand be kept in ice-water for several minutes it will become red, while the other becomes more deeply blue. Warm water or hot water will redden the immersed hand without obviously affecting the other. Pressure, or stroking, quickly changes the color of the part manipulated to white, but the original coloration returns after a brief interval. Elevation of the hand will cause the color, whether pink, or blue, or purple, to disappear as the vessels become emptied, leaving the hand abnormally white. If the whitened hand then be allowed to fall it first becomes pink at the finger-tips, the pink tint spreading over the hand as the capillaries fill; and then, as the dilated veins begin to receive blood, the coloration will change through various shades to that formerly manifested—the same distribution of blue and pink as in the other hand being observed after some two or three minutes. If, however, the wrist be constricted by a broad ligature when the hand is allowed to fall, the return of the coloration is delayed, or even prevented entirely while the bandage is in place. Even in those who fail to show marked color-changes, slight pressure with the finger-tips on almost any portion of the cutaneous surface will leave a white imprint with red borders persisting for several seconds.

6. In addition to the effect of weather upon the hands, referred to in the preceding paragraph, persons of deficient vasomotor co-ordination usually exhibit marked general sensitiveness to changes of temperature. They may be divided, according to the nature of this temperature reaction, into several groups, of which three may be taken as types. In the first group may be placed those who suffer in summer, but are comparatively comfortable in winter. These will complain of the heat of an apartment whose temperature is pleasant to its other inmates. They sweat excessively on slight exertion, and usually exhibit Shakspeare's "moist palm of youth," even when advanced in years. In such subjects, too, one is likely to find some degree of enlargement of the thyroid gland, and they are always made worse by the administration of thyroid extract. In the second group are those who complain in winter and are usually comfortable in summer. These persons ask for windows to be closed when others in the room prefer to have the windows open. They wish fires to be lighted earlier in the fall than is necessary for the comfort of other people; they usually burden themselves with excessive weight of cloth-

ing; they have dry palms, and even when the weather is but moderately cool their hands may be cold and cyanotic, perhaps swollen, while their noses become either red or white and cold. In some, perspiration is deficient, even in the summer, and these suffer inordinate distress in hot weather as well as in moderately cold weather. Others perspire with undue readiness. The third group includes those who are comfortable only in moderate temperatures, being distressed not only by extremes of summer or winter weather, but even by slight degrees of either heat or cold. In addition, there are numerous individual variations even among those falling into one or the other of these three classes. It is because of these intermediate variant cases that we are enabled to gather all these persons into one class. It will be observed that those who suffer from heat approach to the type of Graves's phenomena, while those who suffer from cold approach to the type of Raynaud's phenomena; yet the vascular phenomena observed in the hands, even among those who show the cyanotic coloration, are not those of excessive constriction of vessels, but of dilatation, as is proved by the experiment of elevation and depression, both with and without ligature, as detailed in the preceding paragraph. Constrictive phenomena of both cyanosis and pallor may occur paroxysmally without obvious cause, or under natural or artificial excitation of sufficient degree.

7. In certain patients, especially those with more or less constant red flushing of the face, if a silver probe be drawn across the flushed cheek a bluish-black mark will be left, which can afterward be wiped off. I assume that this is due to the formation of silver sulphid, but I have not as yet been able to have a chemical study made.

8. Refractive errors are almost invariably present; in the great preponderance of cases there is hyperopic astigmatism.

9. The majority of those who manifest these stigmata would unhesitatingly be classed as "nervous," "neurotic," sometimes even as "hysteric" individuals; yet some whom I have studied are persons of great intelligence and stability of character. These have usually possessed highly developed sympathy and imagination; among them are artists, actors, authors, jurists and physicians of the first rank.

The phenomena just described are more or less constant, and some of them at least will be found in every individual of the class under discussion. Other characteristic phenomena are found in certain individuals only, but in many persons, and in more or less intimate but

inconstant association. Among these, special mention may be made of tingling and numbness—not only in the extremities, but in the face, in the tongue and lips, and sometimes over one-half of the body—and of blood losses—as epistaxis, hemoptysis, hematemesis, hematuria (which may be so slight, however, as to be merely discoverable by the presence of erythrocytes in unusual quantity upon microscopic examination of the urine), hemoglobinuria, retinal hemorrhage, petechiæ, etc. Slight, transient, but recurrent, albuminuria, is not uncommon. Hives and attacks resembling erythema nodosum are manifested with more or less frequency, while recurrent circumscript edema (angioneurotic edema)—sometimes affecting especially one-half of the tongue—or giant urticaria, local or general, may appear in apparent sequence to trauma, to emotion, to indigestion, to food and drug intoxication, or to sudden chill, etc. In some persons the hands will swell to almost twice their normal size when exposed to cold, even in slight degree. These subjects sometimes have attacks of chromidrosis or hemidrosis. Many persons have at different times what may be termed substitutive crises—as vertigo, migrain, asthma, or nausea and emesis.—But to extend the list of symptoms and syndromes would be to begin the record of cases and to pass beyond the purpose of this paper. That the paroxysms or crises are often precipitated by toxic influences of endogenous or ectogenous origin is probably true, but whatever be the toxico-pathologic mechanism of individual symptoms or of special groups of symptoms, underlying all is the fundamental defect of inhibition, which Savill terms "vasomotor inco-ordination," and for which I prefer my original term—vasomotor ataxia.

Apart from the general relationships discussed, there is a practical clinical value to these observations. It lies in the recognition and assemblage of the cases that as yet do not fall into accepted syndrome groups. Doubtless more or less definite causation and more or less definite toxico-pathologic mechanisms will ere long be established for Graves's and Raynaud's syndromes, as for Mitchell's erythromelalgia; and other syndrome groups among those described, may—like angioneurotic edema, hay fever, and migrain—receive limiting descriptions and specific names. I shall, in a future paper, attempt to point out some of the more or less constant associations that may serve as the bases for such diagnostic entities. But beyond all these will remain many vague and inconstant manifestations, recurring irregularly and

in varied association—differing from time to time in the same individual—to which the general term, vasomotor ataxia, will still apply; and which, without the clue afforded by a knowledge of this disorder, would be most puzzling. Yet, upon correct diagnosis depends their intelligent treatment. A patient alarmed by hemorrhage, gastric, pulmonary, or nasal, by sudden transient blindness, or by sudden general anasarca, may be soothed by a truthful assurance that there is no danger; the physician made unnecessarily anxious by the discovery of albumin or blood in a patient's urine may be relieved by the recognition of its origin; the substitutive symptoms occurring in the course of years in a given patient will be attributed to the one true cause, and not treated as so many different diseases. Though the spokes of the wheel are many, and at the periphery widely separated, there is but one hub, and that hub has but one center; and to this, not merely to spoke or to rim—to the central disorder and not merely to the peripheral symptoms—must the therapeutist direct his attention.

As to treatment, this must be largely individual and at first tentative. The congenital defect cannot be remedied, but its ill consequences may measurably be overcome. Chief to this end are hydrotherapeutic applications that will improve vascular tone and educate, from periphery to center, the responses to thermic and mechanical stimulation. Graduated douches and ablutions of alternating temperature (hot and cold), and effervescing thermal baths followed by cold water frictions, are among the best of these. Pneumotherapy, electrotherapy, and massage are also useful, and I anticipate good results from electric-light baths. When edematous and erythematous phenomena are most marked, ergot and barium chlorid are, with thymus extract, and adrenal preparations, both locally and systemically, among the medicaments often of service. When constrictive symptoms predominate, thyroid preparations, erythrol tetranitrate, sodium nitrate, and glonoin may palliate. Strychnin or atropin may be a useful vasomotor tonic in some cases—but picrotoxin, which, if necessary, may safely be given to adults in doses of $\frac{1}{10}$ grain or even more—is perhaps the drug of greatest benefit in the majority of cases.[1] Judicious dietetic and hygienic

[1] Since reading this paper the girl, Sarah O'N., whose case was the first that I published (Philadelphia Polyclinic, June, 1892), has reported in good health; her hands exhibit color changes in hot and cold water, but she has no headache, no goiter, no tachycardia. The thyroid gland can easily be demonstrated, hence there is slight enlargement. Picrotoxin was the drug employed in her treatment, adrenal not having come into use at that time.

regulations, supervision of rest and exercise, with tonic psychic influences, are of prime importance. Usually the patient should be advised to drink water freely to avert autointoxication.

Recapitulation and Summary.

For description of cases the writer refers to his previous communications upon this subject and to the recent observations of Savill upon a subgroup manifesting acroparesthesia and acroasphyxia, etc. Attention is called to the condition of essential instability of the controlling (or taxic) apparatus of the vasomotor nervous system as a large factor in the defective reaction of the individual toward environmental changes, so that persons of the type described exhibit upon slight excitation (physical, chemical or psychic) certain phenomena which in other persons require causes of greater moment. These phenomena depend upon irregular, and sometimes widely-distributed contractions and dilatations of the capillaries and the smaller arteries (and veins?), and may be divided into three classes: (1) Those dependent upon excessive relaxation (dilator-excitation or constrictor-paresis) of the vessels, often with concomitant impairment of cardiac inhibition; (2) those dependent upon excessive constriction of vessels, usually with disturbances of cardiac inhibition also, but sometimes without definite cardiac phenomena clinically demonstrable; (3) those in which phenomena of the two opposite groups are commingled. The third group is the more common. Graves's disease presents an extreme type of the phenomena of excessive vascular dilatation, with paresis of cardiac inhibition. Its exciting causes are various, and its toxico-pathologic mechanism undetermined. Raynaud's disease presents an excessive type of vascular constriction, and of it the same may be said concerning undetermined exciting causes and toxico-pathologic mechanism. Between these two extremes are many varieties, differing much in severity and locality of symptoms: simple urticaria; angioneurotic edema; migraine of the spastic type and migraine of the paretic type; anomalous eruptions of various kinds; drug idiosyncrasies; hay fever; asthma; intermittent albuminuria; polyuria; tendencies to hemorrhage from various organs, to petechial and purpuric spots, and to small mucous or cutaneous varices and hematomata; minute cutaneous angiomata; paroxysmal tachycardia; and other more or less closely related

phenomena. As definite exciting causes and definite toxico-pathologic mechanisms are determined, definite nosologic groups may be separated and certain syndromes, like those of Graves and of Raynaud, made into diagnostic entities. Over and above these, however—and for the present, this is the most practical issue of these observations—will always remain many vague and ill-defined conditions arising in response to any one of a number of different stimuli, among which temperature, weather, endogenous and ectogenous noxæ, and emotion are most prominent. The symptoms may vary much in the same individual at different times; they may be manifested in the course of various acute and chronic diseases, confusing the diagnosis. With the clue afforded by the knowledge of vasomotor ataxia, however, the symptoms become clear, and intelligent treatment can be instituted. Hysteria, neurasthenia, and epilepsy bear close, but as yet undetermined relations to the condition, which may be predominant or apparently insignificant in their semeiology. The symptoms of the menopause are essentially vasomotor ataxic in character, but are a transient phase in the devolution of the female. Essential vasomotor ataxia is usually congenital—often affecting in different ways several members of one family; but at times the disorder seems to be acquired in sequence to disease or accident. Treatment must be largely dietetic, hygienic and psychic; with such medication, and such measures of physiologic therapy, as may be appropriate in the individual case.

DISCUSSION.

Dr. Prince: I think the phenomena described by Dr. Cohen are interesting and in a way important ones, as they are found very frequently making up the symptom-complex of a large number of diseases. They belong to a class of symptomatic phenomena which are perversions of physiologic processes—that is to say, the phenomena themselves are physiologic, but the processes have become either enormously exaggerated or excited by abnormal associations. Dr. Putnam some time ago gave the name to some of them of "caricatures." If we look upon them in this light I think we can understand their pathology. What Dr. Cohen describes is practically what I once described under the name of "association neurosis." Clinically such perverted processes are of importance in that, after having become associated

together they form a group of recurring symptoms, and thus contribute a true functional disease. Not a few of the neuroses and psychoses have this pathology. Probably the only true functional diseases are of this nature.

DR. SACHS: It seems to me there is another point of view from which this whole subject must be regarded. I cannot see the benefit to be derived from separating this special group. We have been busy for ten years trying to differentiate this group, and, while I am fond of speculations, I think we should bear in mind the study of anatomic changes. At one end of the list Dr. Cohen has placed exophthalmic goiter and at the other end migraine. It seems to me we should be more interested in discovering the cause and acquiring actual concrete knowledge of the conditions underlying these various vasomotor disorders.

DR. JACOBI: Four weeks ago I saw a case of exophthalmic goiter in a patient forty-four years old who gave this history: She had been confined with her third child, and during her convalescence became frightened because her husband wanted to cohabit with her. She was so wrought up that she went into convulsions, and the next day presented the symptoms of exophthalmic goiter, from which she has been suffering these eleven years.

DR. COHEN: I agree thoroughly with the opinion that the conditions I have described are merely exaggerations of natural phenomena—that is to say, they would be normal when occurring under adequate excitation. Occurring as they do, they indicate the absence of the normal inhibitive or regulative power. In the paper itself, Dr. Sachs's objection to assembling rather than separating these phenomena has been anticipated and answered. Dr Jacobi has pointed out forcibly how philosophic speculation is sometimes of advantage. There are a sufficient number of men making concrete, chemical and structural investigations, and nothing I may say or do will prevent them from continuing their good work; but, after all, we must gather and interpret the scattered data to appreciate their full significance. We must also learn something of the psychic causes of disease before we can apply intelligently that great remedy, psychic treatment. Such conditions as hysteria and neurasthenia can never be understood without the correlation of psychic and physical studies; and my observations are an attempt in that direction. Failure of inhibition is not an hypothetic, but an actual condition; and, moreover, anything that will enable us to establish and recognize classes of patients who are likely to exhibit certain group-symptoms will help us in studying both the gross and minute pathology and treatment of such conditions. Antemortem pathology is at least of equal importance with morbid anatomy.