1882, and his integrity of character was such as to bring to him the nomination, in 1883, of Governor of New Jersey, by the prohibitionists, which honor he declined.

In the midst of his busy life this great man has fallen, and all of us feel that we have lost a genial friend and a trusted counsellor, who was ever ready to give us of the best that he had. Taken ill on the 29th of April last, his life forces were so exhausted that he could not rally, and in one week he passed to the great beyond. On May 11 he was laid in his final resting-place, leaving his bright example as a valuable heritage to cheer us on in every good word and work.

What lesson has his life left for us? He was sixty-seven years young, for he could not be called an old man. One thing it may teach us: not to be so prodigal of our life forces. It is likely that had he been a little more conservative of his strength he might still have been with us. Let us then study more earnestly those things that tend to the preservation of life and the prevention of disease, which our Section so nobly represents. Preventive medicine, as we understand it, leads to the prevention of the use of medicine by advancing along sanitary lines, with such care of the body and its environments that disease will be prevented, and the use of medicine rendered unnecessary.

This work is committed to our hands, and let us realize that it is not for today alone that we plod, but as the movement passes along to succeeding generations it will gather increasing force and become a blessing to millions yet unborn. Thus shall we aid in the great work of humanity.

By all means let us have a Department of Health.

ORIGINAL ARTICLES.

ABOULIA IN RELATION TO HYSTERIA.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., July 7-10, 1898.

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That hysteria is a cerebro-spinal neurosis is now an accepted fact. In its many neuromimetic manifestations it presents both a psychic and a purely neurotic front. It is a mental trouble, but has associated with it at times undoubted sensory-motor disturbances. Sir James Paget used to say that the hysteric exclaims, "I can not;" that it looks much as if it were "I will not;" but that in reality it is, "I can not will." This is one of those clever generalizations that cover much knowledge, but still leave much unsaid. Certain paralyses and anesthesiæ of hysteria can not well be attributed to volitional influences, at least in their late manifestations. Something more than a mere oblivion of the will power must be invoked to account for some of the singular phenomena revealed in connection with the special senses. Many of the visceral and vasomotor symptoms are clearly beyond the power of the patient's volitional faculty. Hence, hysteria must be recognized as a double-faced phenomenon. There is a clearly-defined affection of certain centers lower than those that subserve the purposes of mentalization. Hysteria is not entirely an

affair of the brain and the will. This fact has introduced much confusion into the study of the pathology of the disease. Can it be possible, in view of this double-sidedness of the symptoms of hysteria, that the latter is really a combination of two affections: a mental (psychic, volitional) and a more strictly neurotic (subpsychic, ganglionic)? Some have so thought, but the distinction is arbitrary, for mentalization is as much neurotic as is any more strictly sensory-motor manifestation.

Without doubt, hysteria is *ab origine* a functional disturbance of that part of the encephalon or cerebral center concerned in the make-up of the so-called faculty of the will. On the other hand, it is equally true that many of the symptoms of hysteria, such as hemianesthesia and anuria, reveal a functional disturbance of nerve centers much lower than those of the cerebral cortex. Therefore, either we have two forms of disease under the head "hysteria"—a cerebral and a spinal neurosis—or we have a general concomitant neurosis of the whole cerebro-spinal apparatus, its manifestations revealing a variety in harmony with the various functional characteristics of the different centers involved; or we have a single disease, a functional disturbance of the cerebral (psychic) centers involved in the constitution of the intellectual faculties (especially the so-called volition) and this in turn affects secondarily the lower or subcerebral centers. The first two views are not as popular as the last. Gowers seems to accept the third view, for he says "it is certain that the disease (hysteria) can only be really cured by the restoration of the normal balance of cerebral function but the secondary disturbance of lower centers (e. g., vasomotor) may at times preponderate over that which can be recognized in the highest, and may be independent in their degree and in some cases apparently (though not really) in their occurrence." My own observations, both here and in Paris, incline me strongly to regard hysteria as primarily a cerebral trouble, an aboulia, and it seems to me that the aphorism of Sir James Paget is in the main correct.

Now, to harmonize this theory of hysteria with the manifestations of the disease in the lower or sub-psychic centers, I have for some time past felt that there must be a change made in some of our notions in regard to the so-called volitional faculty. For example, it seems clear enough to me that every case of genuine hysteria (in which category I do not class hysterical manifestations of purely reflex origin) has its start in a disturbance of the will power, but if I regarded the will as a distinct entity, a special faculty with a special habitat, I do not understand how it can *directly* affect the lower, involuntary centers. I can not comprehend how an individual's disturbed will power can bring about a hemianesthesia and its transference. I must reconstruct my old psychologic ideas in regard to the will, or else relinquish the view entirely that the will is at all concerned in the phenomena of hysteria. I can not do the latter, and so I have accepted a theory of the will which seems to me logical, and on the basis of which I see my way clear to an explanation of the phenomena of hysteria.

What is the will and where is it located? Is it, as some of the older psychologists taught, an intellectual faculty, existing *per se* and having a local habitat in the brain? The will-function has obviously to do with every voluntary organ and tissue in the body, and if it were possible to definitely locate its center, say

somewhere in the fore-brain, much of the confusion now surrounding pathology would vanish. It would then be comparatively easy to understand how this faculty, seated in diseased brain tissue, might emit or receive abnormal impulses from all the organs of the body. Such an explanation would be eminently physical and easy of elaboration. Such an explanation would rest, however, upon an erroneous conception of the prime nature of volition. *The will is not a faculty that emits or receives anything. It is a term, a definition, merely expressive of a choice, the preponderance of a motive, the outward representation of an inward impulse that is stronger than the other impulses.* The manifestation of volition usually terminates in an action, but this action is not the result of the operation of some particular volitional center in the cortex; it is the result of certain ideas or feelings (impulses) which preponderate at the time and so involve more or less the whole sensory-motor apparatus. In the language of Ribot, "voluntary activity appears to us as a stage in that progressive evolution which proceeds from simple reflex action, where the tendency to movement is irresistible, to the abstract idea, where the tendency to action is at the minimum." The will is thus merely a consciousness of a kind of internal, mental reflex. Mind is made up of sensory-motor activities, real or representative. On the one hand, a vast quantity of afferent impulses, pouring in through the various avenues of special sense and being stored up in the brain by means of heredity in the race and simple memory in the individual, interweave themselves into latent ideas and feelings. These latent impulses, awakened into activity by newer incoming impulses, set into play the motor or idio-motor representative centers, which send out efferent impulses to terminate in muscular action. The transitional process that takes place within the brain from afferent to efferent impulse is recognized in consciousness, and is spoken of as the exercise of the will. As I have just intimated, the time of the reception of the afferent impulses that ultimately go to make up the mental world of ideas and feelings and the time when the corresponding efferent impulses that terminate in voluntary action are sent out need not necessarily be the same or even successive. If a voluntary act is performed today (efferent impulse), the preponderating idea or feeling which gives it birth (afferent impulse) may have been acquired years before and have lain dormant in the meanwhile. The essential fact in regard to voluntary action is that it is always necessarily preceded by some idea or motive, and this idea or motive may have been stored up by memory or by heredity years before. The reflex character of the will is the point to be insisted upon. It is made up always of an antecedent and a consequent; the transference of the former into the latter is what consciousness recognizes and denominates the will.

Upon first thought, this reflex theory of the will would seem to banish all notion of its freedom, but here again the error is made that the will is a special faculty, a thing by itself, of which freedom may be predicated. But there is no such entity as the will, and a thing that does not exist can not be said to be bounden or free. The so-called will, let it be repeated, is merely the expression or conscious representation of a set of impulses acting more vigorously at the moment than any other set of impulses. The phenomenon of inhibition illustrates well this conception of the will. Take for example the depressive

effect of fear. A child learns by observation when its guardians are angry with it. It sees the raised hand and the frown on the face. It learns to associate these signs with punishment and pain (afferent impulses). The memory of pain (latent impulse) awakens a mental state in which certain intended actions are inhibited (efferent impulse). At times these awakened memories (latent impulses) of pain are overridden by others (also latent impulses) more powerful, such for instance as some strong feeling of pleasure expected of the intended action, and as a result the desired inhibition does not obtain. In the latter case the child does what it wanted to in spite of the threatened punishment. The afferent impulse which awakened in memory the idea of pleasure in connection with the intended action was stronger than the afferent impulse which was associated in memory with the idea of pain. Hence the efferent impulse represented by the child doing what it intended to do was different. It looks as though the child willed differently; in reality there was merely a conscious transference from one action to another in accordance with the relative strength of the preceding motives (afferent impulses).

A burglar fears the law to a certain extent and his memory of punishment, acquired by instruction or by actual experience, inhibits him so much in his acts that what he does he does by stealth and under the cover of darkness. If the motive for burglarizing be much stronger than his fear of punishment he will be less restrained and bolder. His mental inhibition will be overcome by his mental avariciousness. This mental conflict, this internal struggle between motives of various strengths, these motives having all been acquired some time previously through the special senses, terminates in some corresponding form of action, and to the onlooker from the outside it appears as though the man had merely exercised some faculty, the will, in deciding to act as he did. Two latent impulses may at times neutralize each other and we say of them, the individual will is paralyzed. A burst of anger, for instance, may be made to suddenly vanish by a recollection of a terrible accident to the victim of the anger.

In all these instances the actions of the individual are "willed" in accordance with the predominance of this or that motive; but the "willing" process is not the result of an action on the part of some special faculty seated somewhere in the frontal lobe and directing this muscle or that organ to functionate. The will is, therefore, psychologically at least, "an individual reaction," and "that which is inmost to us."

"The ego, albeit an effect, is a cause and that in the strictest sense." "To sum up, we have seen that from the lowest reflex action to the highest act of will, the transition is imperceptible and that we can not say precisely where volition proper, that is the personal reaction, begins. The difference is the most pronounced at the two ends of the series: at one end extreme simplicity, at the other extreme complexity; on one hand a reaction that is ever the same in all the individuals of the same species, on the other a reaction which varies according to the individual. Simplicity and permanence, complexity and change are here paired" (Ribot). In the consideration of hysteria and its management this conception of the will is of immense importance and throws light upon much that has heretofore been dark.

This conception of the will involves the idea of a

reflex, or as Ribot expresses it, a reaction. Aboulia means, therefore, a paralysis of the psychic or mental reflex. According to the latest physiologic data, the cortex is as much peripheral in relation to the centers of subconsciousness as are the integument, muscles, etc. An impulse originating in the cortical motor area is *reflected* through the lower subcortical ganglia and anterior cornua to its appropriate muscle just as much as though it had been reflected from some point in the skin around through the anterior cornua to the corresponding muscle. We are all familiar with the reflex picture presented when some portion of the body comes unexpectedly in contact with a hot iron. The reflex picture produced by an awakened sensory area of the cortex is just the same, though not as apparent as the former. Let me illustrate: Suppose I move my arm. The older psychology would say that such a movement being voluntary, originated in some special volitional faculty. Upon a moment's reflection I think it will be seen that such a movement of the arm, though originating in the cerebral cortex, is as much of a reflex as if the same movement had been produced by touching a hot piece of iron. The only difference is, that consciousness is *immediately* cognizant of the former reflex. When I "willed" to move my arm, I did so from some motive, else there would have been no movement. Inertia is as much a law of the mental as of the physical world. In analyzing the motive that caused me to move my arm, there is found underlying it some previous sensory or apparent impulse which may have immediately preceded the movement or have been stored up in memory a long time before. Some discussion I may have had with a friend about the movement of my arm, or some desire I may have had to show my prowess, which desire may have been originally implanted in me by some one praising or criticising me; or any one of a thousand different reasons may have led me to move my arm. I certainly had a motive for moving it at all, and that motive was created out of some influence from the outer world exerted upon me through one or more of my special senses at or prior to the moment when the arm was moved.

Suppose I touch a hot iron and then in spite of the pain, keep my hand on the iron. Is not that a pure voluntary act in direct opposition to a reflex? No; in such a case the cortical reflex is merely stronger than the cutaneous. Why do I keep my hand on the heated iron in spite of the pain? Simply because I have a motive for so doing. That motive may be the love of praise, emulation or experimentation, but whatever it is, it is based upon some previous sensory impulse poured in upon me from the outer world. Those impulses have been received, and if they have been latent, have been stored up in the sensory cortex. The matter may be formulated somewhat thus: No motive, no voluntary act; no sensations, no motive; hence all voluntary acts are in their last analysis referable to prior sensations and the so-called will is thus shown to be a sensory-motor reflex.

I grant this does not leave much room for the idea of a "free will," but it appears to me as a most rational explanation of volition, which in its final analysis proves to be merely the personal reaction of the individual to past and present impulses. The "wills" of different individuals, or their personal reactions differ just as the sensibilities of all mere protoplasm, the amebæ, for instance, differ in their response to exter-

nal irritation. If this explanation of "will" be well understood, much can be made clear as to the nature and treatment of hysteria.

We call hysteria a neurosis, a neuromimesis. In its typical form it seems to be a rational disorder, almost an aboulomania; yet there are symptoms, as I have said before, that seem to lie outside of the influence of the will. It is both a psychic and purely neurotic disease. Psychosis and neurosis are, however, the same. Mind is made up of sensory-motor phenomena or their cortical representation. I have endeavored to show that "will" especially is merely a sensory-motor reflex, and, therefore, hysteria from every point of view is simply a neurosis. It is a neurosis of the cerebro-spinal system involving its great sensory-motor reflex function. In idiopathic hysteria it is the higher arc, the cortical reflex arc, that seems to be affected; in hysterical manifestations due to extra-neurotic lesions it is the lower or subcortical reflex arc that is involved. The reflex character of the hysterical manifestations caused by a diseased ovary are obvious enough at times, but while not so obvious, nevertheless just as much of a reflex is the hysteria produced by cortical trouble such as may have been produced by bad heredity, bad education, bad discipline and other factors that enter into the making of the individual's character, *his personal reaction*. We say a hysterical patient's will-power is at fault; as a fact, however, her higher sensory-motor reflex apparatus is at fault, and she does things and reveals symptoms because certain bizarre impulses have taken the place of more rational and appropriate impulses. The trouble may be entirely on the sensory side of the arc, and in most cases it is; then, in conjunction with the various anesthetics, there may be complete absence of choice between motives or complete non-volition (aboulia). Again, the impulse from the sensory side of the arc may be so feeble as to awaken only the feeblest sort of a motor response (partial aboulia). Thirdly, the impulse from the sensory side may be so abnormal and extraordinary as to terminate in the strangest sort of movements (aboulomania). A hysterical patient, therefore, may exhibit sensory or motor paralysis (volitional) from mere absence of appropriate sensory impulses, or from two or more sensory impulses conflicting and neutralizing one another; or, she may reveal the strangest sort of motor symptoms and assume attitudes (for sympathy and effect, we say) because her motives (sensory impulses), past and present, have been unnatural and inappropriate. Illustrations of all these conditions will readily occur to any one who has seen much of hysteria. Therefore, I think we can safely say that hysteria is a neurosis involving the great sensory-motor reflex function of the cerebro-spinal apparatus; that the typical form (aboulia) is a disturbance of the higher (cerebral) sensory-motor reflex as much as are the hysterical symptoms caused by a disturbance in the lower (spinal cord, ganglionic) sensory-motor reflex arc. Being a neurosis, involving all the cerebro-spinal reflexes, it is easily seen why hysteria should mimic all organic diseases involving the same reflex arcs.

From the above standpoint, the treatment of hysteria becomes plain. In the lower form of the disease all extraneural sources of irritation should be sought for and removed so as to restore the integrity of the lower reflex arcs. In the higher form, a new set of different impulses and new motives should be

awakened so as to restore the equilibrium of the higher or cortical sensory-motor reflex arc. Of course, heredity is a tremendous obstacle to overcome, but is not altogether insurmountable. Given, therefore, all measures to restore the physical condition, nutrition, etc., of the tissues involved, the treatment of hysteria resolves itself into the study and correction of the patient's sensory-motor reflexes. This involves so many obvious details that I will not occupy your time now in rehearsing them.

Reliance Building.

THE RELATION OF NEURASTHENIA TO INSANITY.

Presented to the Section on Neurology and Medical Jurisprudence at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY JOHN PUNTON, M. D.

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The vast increase of our knowledge of the nervous system and its application to disease has been found to be most useful in the correction of certain former erroneous inferences. Hence a complete revolution has taken place in our knowledge of its pathologic states, which has also been the means of greatly enlarging the range of its organic lesions, at the same time materially limiting the scope and significance of its so-called functional affections. In spite of our grand success, however, in unraveling the secrets of the morbid changes in both structure and function of the neuron, much still remains to be done before we can successfully cross the Rubicon that separates organic lesions from those that are of purely functional origin.

This uncertainty of our knowledge has led to the formation and maintenance of a false system of nomenclature which not only confuses but greatly hinders the progress of scientific nosography. Hence many terms have come into general use which at the time of their advent were very convenient screens to shield our ignorance, but as our knowledge increased the scope of their power and significance was greatly reduced and limited, until today a larger and fuller knowledge renders many of them futile and actual misnomers. Others again embody a generalized morbid state or condition which later investigation renders capable of scientific classification, thereby greatly limiting their former power and significance, and unless the physician is fully aware of the changes wrought by such advance, he is greatly handicapped in his interpretation of the term, and his skill in diagnosis proportionately suffers. In no branch of medicine are such mistakes more common and conspicuous than those found to be associated with lesions of the nervous system. Nor is this strange when we remember its complex mechanism and the difficulty experienced in mastering the details of its scientific study in health and disease.

One of the most striking and widespread examples of mistaken identity in the true interpretation of the significance of the term is found associated with the morbid condition designated as "neurasthenia." I doubt if there is a more common and serious affection of the nervous system that is more generally misunderstood by the profession at large than this *fatigue-neurosis*. It is surprising to find the gross indifference manifested on the part of many physicians toward its real nature and character. Not only do they treat neurasthenia carelessly, but they refer to it

slightingly, and imply both by word and conduct that they believe the patient to be a malingerer, and that his sufferings are entirely false and even conjured for the occasion. It will, therefore, be the purpose of this paper to try and correct such erroneous inference as well as place it upon its true scientific basis.

The term "neurasthenia" was supposed to have been first used by Dr. Beard in describing a general morbid weakness or exhausted state of the nervous system. Later investigations, however, prove that his claim to priority in its use was an erroneous one. To Dr. VanDusen belongs the credit of using it as early as 1867 in his valuable paper entitled "Observation Upon a Form of Nervous Exhaustion, or Neurasthenia Culminating in Insanity," which appeared two years earlier than Beard's famous monograph. It has since been shown, however, that neither of these physicians invented the term, as it can be found in Dunglison's Medical Dictionary published in 1833. Notwithstanding these facts, the medical profession is under lasting obligations to Dr. Beard for the persistent manner in which he emphasized the importance of its study, thereby acquiring for himself an enduring monument in medical science. Prior to his labor in this direction, much confusion prevailed in the interpretation of a large group of symptoms which were fundamentally dependent upon a morbid weakness of the nerve centers, but which had been previously ascribed to disease of the various visceral organs involved, such as perverted conditions of the kidney, liver, stomach, uterus, etc. The result of Beard's work, however, led to a more thorough systematic study of its pathogenesis, which is still in progress, and the conclusions so far reached warrant the assertion that expresses an affection which does not limit itself to any part of the nervous apparatus, but affects it as a whole. Hence it is an extremely generalized condition, and often associated with other functional and organic diseases.

Its extremely generalized character may therefore affect the brain, spinal cord, peripheral nerves, the visceral organs, and indeed all parts of the human organism subject to nervous innervation. Consequently its symptomatology is exceedingly extensive and varied. This wide range of involvement has led to much confusion and is the responsible agent for the vague, ill-defined notions entertained by many concerning the true nature and character of neurasthenia; some physicians even going so far as to deny its existence altogether as a clinical entity. Laying aside all controversy, the consensus of opinion today by those most competent to speak declares that neurasthenia in its quintessence is a true fatigue neurosis characterized with an increased morbid reaction of the ganglionic nerve centers to all kinds of impressions, both mental and physical, whether slight or profound; producing an excessive nervous weakness and nervous irritability, which constitute its chief cardinal symptoms. Moreover, recent investigation demonstrates that while the various symptom groups occurring in neurasthenia are numerous and differ widely in detail, yet there are always present certain essential features that constitute a well-defined clinical syndrome. These have been termed by Charcot as neurasthenic stigmata.

All authorities agree that the cardinal symptoms of neurasthenia present well-marked evidence of weakness and irritability of the nerve centers which in themselves are expressive of fatigue. Weakness and