

he, with Brooks F. Beebe, gave a clinical demonstration of calomel in 1/10 gr. doses by the mouth. In every instance the flow of bile was very materially increased; it poured out through the abdominal incision, saturating the dressings and a portion of the bed. A week or ten days later we would repeat the experiment, which was followed by the same results. Our conclusions were that calomel very materially increases the flow of bile after each administration. The results of these experiments were given to the Cincinnati Academy of Medicine soon after.

Before closing, I wish to make a brief report of the following case handed me by Dr. David Riestman, of Philadelphia:

The patient is a professional man, about 30 years of age, whom I saw with Dr. L. W. Steinbach. For a number of years he has suffered from what might be called a chronic bilious state—impaired appetite, coated tongue, heavy breath, sluggish bowels, lack of energy and ambition, and symptoms of mental depression. On several occasions he has had severe pains in the right hypochondrium suggestive of gall-stones, and occasionally he had been jaundiced. A brief cure at Carlsbad, half-heartedly undertaken, did not benefit him. Lately he has become pronouncedly jaundiced, the bowels have been constipated and offensive, the tongue heavily furred, the lips dry, the breath foul, and the appetite in complete abeyance. At the height of this attack he became melancholy, with fear of the future, which seemed to him inexpressibly dark, although from a financial point of view he was very prosperous, and his social position was assured. He became extremely depressed and even began to talk of suicide. Fever developed, which at first was thought to be typhoidal in character, but subsided after ten days. The Widal test and diazo-reaction were negative. He had had an attack of typhoid fever eleven years ago. Before that he had had no trouble with his liver or gall-bladder. The jaundice has now disappeared, the tongue is clean, the conjunctivæ clear; and while his mental attitude is not yet one of unreasonable happiness, it is much better than it was, and he no longer harbors any melancholy thoughts. Both Dr. Steinbach and myself looked upon this case as one of auto-intoxication. There was no doubt a bacterial agency, resident perhaps in the gall-bladder and to the toxin production of the bacteria were added the effects of retention of bile.

PELVIC AND NERVOUS DISEASES.

THE THIRD ELEMENT IN THE EQUATION BETWEEN PELVIC AND ABDOMINAL DISEASE IN WOMEN AND DISTURBANCE IN THE NERVOUS SYSTEM.*

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While getting together the material for the study of this subject last year, I was particularly impressed by the fact that epileptic women who were insane and those primary degenerates who were markedly defective and lapsed into dementia during the period of adolescence were practically free from either history or evidence of any menstrual disturbance; also that there were a great many women coming to the hospital, as well as a certain number among those who had been in residence for some time, who were suffering from apparently grave pelvic lesions which had not been recognized before coming to the hospital and of which the patients themselves were not conscious. Further, among those women who complained most of the symptoms of pelvic disease and in whom there was the most intimate

association apparent between the pelvic and mental disturbance, the most trivial lesions were present and the slightest departure from the normal in the physical manifestations of the menstrual molimen. Again, almost all of the women who came into the hospital with a history of pelvic disease giving rise to symptoms had received special treatment, generally surgical, but without benefit to their mental condition, as was evidenced by the persistence of insanity and their commitment to the hospital.

As I stated in a former paper,¹ during the past five years in the hospital at St. Peter, these women have been carefully examined and placed on appropriate treatment as soon as admitted; but with no more result, as regards direct influence on their mental condition, than was attained before they came into the hospital. These facts confirmed to my mind a conclusion, before reached from other data, concerning the relation of somatic conditions in general to disturbances in the nervous system; namely, that there must be another factor which determines the association of the different neuroses with pelvic disease in women. This I have designated the third element in the equation; and it may be defined as the nervous potentiality of the woman. I quote from the paper before referred to as follows: "We have not found that there is any particular form of insanity associated with pelvic disease, nor that there is any relation between the intensity of the mental disturbance and the severity of the pelvic disease, and the same holds true in the relation between menstrual disorders and insanity. In those cases where there was a distinct exacerbation of the mental disturbance in connection with the menstrual molimen, the patient was either free from menstrual disturbance or it was very slight. But in all of the cases where there was well-defined menstrual disorder, there was more or less severe physical disturbance. There were 18 cases of infantile uterus among the young unmarried women, and in most of these cases the ovaries were small and hard. These women were, however, primary degenerates² and more or less completely demented before coming to the hospital. Among the epileptics there is usually an increase of mental disturbance, and in the number of convulsions during the menstrual period, but those under our care are free from pelvic disease or menstrual disorder. In studying the histories of the 231 women we found that in 10 cases the insanity was attributed to the influence of the change of life, in 19 cases to menstrual disorder and in 15 to pelvic disease. In all of these there was the same want of relation between the severity of the pelvic disease and the intensity of the mental disturbance. In fact, most of the cases, after careful examination and study in the hospital, failed to disclose any evidence of severe pelvic disease or any connection between the insanity and the disease of the generative organs. At the same time, it was quite evident in other cases that if the existing pelvic disease had been recognized and carefully treated in time, the mental breakdown of the woman might have been averted. During the past five years there have been committed to the hospital five women on whom laparotomy has been performed, and some one or all of the generative organs removed for the purpose of curing the existing insanity. In one case the patient was sent to the hospital soon after the operation, as

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¹ Tomlinson: Association of Pelvic Diseases and Insanity in Women, and the Influence of Treatment of the Local Diseases upon the Mental Condition. *THE JOURNAL*, Sept. 30, 1899.

² I mean by primary degenerate, a defective individual who becomes insane during the period of adolescence and lapses into dementia.

she had torn open the abdominal wound during an outbreak of violence. Her recovery from this accident was uneventful and she got well enough mentally to go home. The other four are still with us and always will be, and during the past ten years there have been twelve other women committed to the hospital on whom laparotomy had been performed for the cure of insanity. They, too, had not been benefited mentally and have since died or are still with us."

The diseases of the nervous system associated with pelvic lesions and said to be due to them are always functional, and I can not find that the claim has ever been made that gross degenerations in the central nervous system have resulted from disease or lesion in the generative organs of women. While a considerable number of women who come to the hospital suffer from pelvic disease or menstrual disorder, these conditions and their influence on the mental state of the woman seldom form a part of the clinical history of the case before admission. But when we consider the intimate association between the nervous system and the functional activity of the generative organs in women, and the further fact of the association of arrested development in the generative organs with instability or defect in the nervous system, it is easy to understand why these disease-conditions should stand in apparent causative relation with each other. This associated defect is frequently so marked in primary degenerates, that the uterus and ovaries present all the characteristics of senility, while menstruation is either scanty, delayed, or sometimes absent for long periods. In two cases in this hospital, both primary degenerates, admitted during the period of adolescence, there was a history of infrequent and scanty menstruation from the advent of puberty, and with the outbreak of mental disturbance, menstruation ceased entirely. In one case this amenorrhea has lasted three, in the other, two years, and there has been neither physical nor mental evidence of the recurrence of the menstrual molimen. Again, in this class of cases, it is the rule for the advent of puberty to be delayed, the average being 17 years; and yet no one at all familiar with insanity would think of attributing the mental disturbance accompanying the progressive degenerative changes in the nervous system in these cases to menstrual disorder. However, it is not uncommon to see young women with unstable nervous systems, whose uteri have been curetted or their ovaries removed with the object of curing a condition dependent upon progressive degeneration in the nervous system; because the physician, while recognizing the intimate relation between the nervous system and the generative organs, failed to see that the pelvic symptoms were dependent upon the degenerative process in the nervous system, and that both were due to defective development.

The study of the life history of animals shows that in the lowest types, the life of the female is constituted in the generation of offspring and that all the activities of the adult organism are directed to that purpose. In the higher animals and man, while this absorption of the somatic activities in the reproduction of the species is apparently not so complete, yet it really is so, but presents a different aspect, because of the alterations in the nature and capacity of the organism resulting from changes in environment and the increased complexity of the activities involved. In the human species the largest share of the energy of the mother is devoted to the preservation of her offspring until they become self-sustaining, and we know from the history of civil-

ization that this period of helplessness has grown progressively longer in proportion to the increasingly complex environment of the human being. Along with these changes in the way the female of the human species has been conditioned, corresponding changes have occurred in her organism and especially in those activities involved in the process of maternity. Conspicuous among these changed and increased activities have been the growing influence of the nervous system upon the cycle of maternity and the converse of this influence in the untoward effect of the stress and accidents of maternity upon the nervous system. The resistance of the organism has been lessened in every direction, so that along with greater capacity to feel has come the tendency toward exaggeration of those sensations and activities which were pleasurable or negative, until they become painful.

While the greater development of the nervous system has increased the capacity of the organism to respond to the incident forces in its environment, it has also made active in consciousness those sensations which result from visceral functioning and which under more primitive conditions were not evident, but now respond excessively to slight stimuli and become conspicuous because defect in their structure interferes with the proper performance of their function, or disease makes their activity strenuous and distressing. Analogous proof of this change is found in the life history of the higher domestic animals, which are placed under artificial conditions as the result of in-breeding and unnatural surroundings. What horses and cattle gain in beauty of form or special capacity they lose in hardihood; because those characteristics which depend upon the greater activity of the nervous system are developed at the expense of the rest of the organism.

The function of maternity in the female of the human species has, as a result of civilization, grown from a simple physiologic to a complex and largely pathologic process, and conspicuous among the changes which have resulted are disturbances of the function of the nervous system, manifested by pain, excessive emotional mobility, and aberration from the normal plane of mental activity. If the conditions of modern civilization have brought about this result in the average woman, it is not surprising that we should find an exaggeration of these manifestations in the unstable and defective. These women have for a common characteristic, excessive cerebral mobility, either resulting from inherited imperfections of structure, or acquired causes of instability; they are constantly affected to an extreme degree by disturbances, which although trivial in their nature, have an exaggerated effect on their unstable, mental equilibrium, making the everyday trials and disappointments of life, which are borne by the average woman with equanimity, insupportable calamities and the resultant excessive emotional activity produces extreme mental irritation and physical exhaustion. Should one of these outbreaks occur during a menstrual period, it would be quite natural that some physical disturbance should occur, either in the form of headache, dysmenorrhea or amenorrhea. The recurrence of these conditions with any degree of frequency would of course soon establish a typical neurosis associated with the menstrual molimen. Again, should this association occur in connection with the cycle of maternity or in the presence of chronic pelvic disease, a neurosis or psychosis might easily be established, the permanence of which would be determined by the degree of defect in the nervous system of the woman.

The effect of pregnancy upon the nervous system of the mother and the peculiar susceptibility of women to causes of mental disturbance during the puerperium are so well known, even among the laity, as to have resulted in a definite tradition, with conventional rules for the conduct of the pregnant woman and her environment during the puerperium; because experience has shown that the woman is more susceptible to external sources of irritation at this time and is liable to serious disturbance of physical health, by untoward conditions in her environment, which at other times would be innocuous and especially those which affect the nervous system. These ill effects seem to increase with civilization and its requirements. In other words, along with the increased capacity to enjoy there goes a proportionate tendency to suffer; so that while frequent child-bearing, overcrowding and bad surroundings in the tenement districts of the city, and exposure and overwork in the country among the poor, bring a train of physical ills to complicate maternity, high-pressure intellectual life and social competition have an equally disastrous effect upon the well-to-do. Thus, whatever weakness or defect may exist in the mother is exaggerated by her condition, and what was originally a physiologic becomes a pathologic process, out of which develops a host of conditions, most of which are temporary but that often destroy the physical or mental health of the woman.

When we come to the analysis of case records, however, we can not help being struck by the relatively small number of women who have borne children and in whom pelvic disease has resulted, who become the victims of any one of the different chronic neuroses or psychoses. When we consider further how common it is to find profound neurasthenia or hysteria associated with a slight perineal tear, increased mobility of the uterus or slight malposition, while a fibroid tumor wedged in the pelvis, pus-tubes, or a complete perineal tear, in another case will give rise to no nervous symptoms whatever, there is still further evidence that the lesion of the generative organs is not the cause of the neurosis associated with it.

Two women came under my observation last year who well illustrate the antithesis. One, a young woman, the mother of two children, the child of a consumptive mother, had been highly neurotic as a girl and had suffered from dysmenorrhea. When I saw her she had been in bed most of the time for six months and had all sorts of pelvic and nervous symptoms. She had a small perineal tear and some prolapse of the vagina, but no disease of the pelvic contents, and she menstruated regularly without discomfort except from the nervous symptoms. The other was a woman 60 years old, who was in robust health, without an ache or pain, and who was doing the work of a man out of doors; yet her perineum was torn to the sphincter and the elongated cervix with the prolapsed vaginal wall protruded three inches from the vulva.

In St. Mary's Hospital, Rochester, Minn., where a large number of operations for abdominal and pelvic disease are done every year by my friend, Dr. W. J. Mayo, the records show that those women who complain most and have the most marked nervous and mental symptoms in connection with pelvic or abdominal disease, usually have the most trivial lesions, and in nearly all cases where the neurosis and psychosis is attributed to the pelvic or abdominal disease, he has found evidence of attacks occurring before the physical disease existed. Furthermore, he has seldom seen the nervous

conditions cured by operation for the pelvic or abdominal disease in this class of cases; although a temporary benefit may accrue as the result of the preparatory treatment and the period of convalescence, as well as the suggestive effect of the operation itself. In his experience, only those neuroses and psychoses have been benefited which have made their appearance after the onset of the pelvic disease, and which grow worse in proportion to the interference with the physical health and welfare of the woman. The different neuroses were not present in his experience, except in those cases where the personal history of the woman showed pre-existing instability or defect in the nervous organization.

While it is undoubtedly true that a great many women who have an unstable nervous system become insane or the victims of neurasthenia or hysteria in the presence of severe pelvic or abdominal lesions, these disturbances do not take place until the disease has existed for some time, that is, until the general health of the woman has been seriously impaired, her vitality lowered and her resistance materially lessened. Besides, associated with these lesions are usually anemia, septic infection and autointoxication, and usually after these secondary conditions are established, the nervous breakdown takes place. To illustrate: A woman came under my care, transferred from a general hospital where an operation had been done for the removal of pus-tubes. She was 35 years old, the mother of four children and had been in good health until the birth of her last child, three years before. She was and had been highly neurotic and had several explosive outbreaks as a girl, besides presenting other evidences of instability. She had been quite ill for a year before the operation, but passed through it without any untoward symptoms and was apparently convalescing nicely, when, seven days after the operation a stitch-abscess formed in the abdominal wound. The day this was opened she became restless, did not sleep the following night, and in a few days passed into a condition of violent excitement, in which state she came under my care. She had borne successfully the illness resulting from the pelvic lesion and the shock of the operation, but the reinfection from the stitch-abscess, added to the artificial establishment of the climacteric, was too much for the unstable brain and a degenerative process began, which in her case was permanent.

Taking these facts into consideration, it would seem evident that the equation between pelvic and nervous disease is not a simple one, and also, that with the prognosis as x , the third element is the most important; especially when we have to consider the effect of surgical procedure and its potentiality for cure in those cases where pelvic lesion and nervous disease are associated. The functional activity of the general nervous system is manifested in the perception, transmission and relation of external and visceral impressions, and in the co-ordinate discharge of motor impulses in the manifestation of muscular and visceral activity. This adaptation of internal to external relations constitutes the life of the individual, and as the tendency is for all activities which persist to become definite and uniform, most of those which have to do with the vegetative and locomotive functions become automatic and are performed without the active intervention of consciousness. It will be readily understood that the welfare of this mechanism will depend upon its proper nutrition and the absence of any unusual or excessive strain. Should such a strain occur, the result would be a disturbance of definiteness and uni-

formity proportionate to the amount and character of the strain, while the persistence of the aberration of function would depend on the degree of interference with nutrition and the relative perfection of the different parts of the mechanism.

The history of the sexual life of women shows that, even among the most healthy, excitement, overwork or emotional disturbance are reflected in disturbance in the function of the generative organs, especially among those in adult life and who have borne children. If these abnormal conditions occur during the menstrual molimen or in the cycle of maternity, they result in dysmenorrhea, headache, emotional outbreaks, or abortion, delirium, subinvolution, leucorrhœa and ovarian tenderness; all of which disappear as soon as the general health of the woman is restored to normal. On the contrary, if the nervous organization of the woman is unstable, these untoward effects are exaggerated and tend not only to recur but to persist and become habitual. This is manifested by the change of character, which as a rule is permanent; the failure of memory and attention; and the lessened or lost capacity for continuous mental effort. Even in the mildest cases there is loss of self-control, manifested by impatience, irritability and complete loss of "grit," so that the victim succumbs to trifling disturbances, is exhausted by slight muscular effort, and on account of these conditions becomes abnormally self-conscious, recording all experiences in a staccato key and looking upon every relation in life from the standpoint of individual personality; realizing vividly the responsibility of others toward herself, which she magnifies, but losing sight entirely of her responsibility toward others. These people are most unhappy, living always on a transcendental plane of nervous erethism, magnifying every ordinary sensation into a profound emotion; seeing in every call for muscular effort a herculean task, and resenting the apparent want of sympathy shown in the failure of those around them to appreciate things as they see them; while at the same time their exaggerated egotism makes it impossible for them to realize that there is any standard other than their own.

If I am right in my contention it would follow that the symptoms accompanying pelvic disease and menstrual disorder and referred to them are the result, rather than the cause, of disturbance in the nervous system, and that their variation, intensity and persistence are dependent upon the nervous potentiality of the woman. Therefore, in determining their pathology and considering their management, as well as the prognosis and the effect of treatment of the disease of the generative organs; we should be guided by the data to be obtained from the family and personal history of the woman, which show the limitations of her nervous potentiality and the nature of its response to the untoward conditions in her environment.

Neuroses and psychoses as they occur in men are quite commonly attributed to disease conditions in, or abuse of, the generative organs, but we do not hear of operative measures being recommended for the cure of the existing neurosis or psychosis. On the contrary, it is fully recognized by those whose experience has made them familiar with the manifestations of insanity, that these disturbances or perversions of sexual function in men are symptoms and a part of the neurosis or psychosis. The gonorrhœal infection, which in woman produces a pyosalpinx or hydrosalpinx or pelvic adhesions, in man produces cystitis, pyelitis or septic arthritis.

Yet, if these conditions occurred in association with a neurosis or psychosis, they would not be looked upon as causative factors, and we would not expect to cure the nervous disease by operating upon the generative organs; although such an operation might be done for other reasons.

Three men have been admitted to the hospital at St. Peter during the last ten years, the victims of self-mutilation, in all of whom dementia rapidly supervened upon the castration. Their history, however, showed them to be defective individuals, in whom the mental breakdown was the result of the incidence of the ordinary stress of industrial and social competition upon a limited cerebral potentiality at a time when resistance was lessened by privation or disease.

I can not do better in closing than to quote from the conclusions expressed in my paper of last year on this subject: Menstrual disorder and pelvic disease are quite commonly associated with the different neuroses and psychoses, but in my experience they bear no apparent causal relation to the nervous disturbance; nor is the intensity of the nervous disturbance in proportion to the gravity of the physical disease; but on the contrary, the most grave pelvic disease, even among the neurotic and insane, exists without disturbance in the nervous system and frequently without physical symptoms.

In cases where the insanity or chronic nervous disease has existed for more than a year, or the patient has a defective nervous organization, treatment of the disease of the generative organs is practically without effect upon the insanity or neurosis, and in such cases operative interference resulting in the establishment of an artificial menopause almost invariably hastens the onset of dementia.

Operative interference is called for in the treatment of pelvic disease among the insane for the same reasons that would determine the necessity for such treatment among the sane; that is, for purely surgical reasons.

In order to determine whether or not treatment of the disease of the generative organs will have a curative effect on the insanity or neurosis, it is important to know the family and personal history of the patient with regard to the presence or absence of evidence of unstable or defective nervous organization, the length of time the insanity or neurosis and disease of the generative organs have existed, and to what extent the general health of the woman is affected by the pelvic disease independently of the insanity or nervous disease.

PELVIC DISEASE AS A FACTOR OF CAUSE IN INSANITY OF FEMALES AND SURGERY AS A FACTOR OF CURE.

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In considering what we know of the causes of insanity, the unknown quantity represents an equal ratio with that which may be fairly regarded as the known. In the psychiatric revival of the last ten years, the moral causes, upon which so much stress was wont to be laid in the past, have sustained a severe recession.

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