habitues there is regularly a percentage of cases that are completely curable by operation. My impression, amounting to a conviction, based upon careful observation, is that patients curable by operation are not apt to be comprehended, are often never examined, and further, that a vista of enlightenment is just beginning to open for men who should be, for the best interests of their patients, in insane asylums and institutions for the cure of drug habitues."

Dr. Van de Veer said, when asked his impression: "Try some operation in every case." He does not believe that traumatisms and malformations contribute to insanity, but the good effects of operations have not escaped his eye. A few others who are not prepared to acknowledge any connection as etiological factors, do not deny the benefits that have been accomplished by surgery. It is a mistake to carry the principle announced by Dr. Van de Veer too far, for fear of encroaching upon the grounds of empiricism, by removal of normal organs. The latter, as stated, is to be deplored. He surely did not intend that his statement should be spread as a blanket alike over ills, real and imaginary.

Very little is said in reference to post-operative insanity. It is mentioned, under the head of surgical traumatisms, but the impression is that they are more often temporary melancholia or hysteria, and that they usually occur in predisposed subjects or in the puerperal state; the latter being influenced in many cases by septic infection. In one case I operated on, in the second week of the puerperium, for complete tear of the perineum, the insanity did not appear until after she had fully recovered from the operation and attempted to take bodily exercise. I was informed that she lost an excessive amount of blood at her confinement, which must have been true, as she was almost exsanguinated when I saw her. In this case there was no sepsis, but extreme anemia, which did not show its bad effect upon the brain until she assumed the upright position. Her recovery was prompt and kept pace with the increase in red blood-corpuscles and hemoglobin. In this case the operation had nothing whatever to do with the cause of the insanity, but if it had not been done, I believe the bad effect of the complete laceration and involuntary evacuation from the rectum would have produced, in connection with the anemia, a very pronounced mental disturbance.

I have noticed that the violent post-operative nervous changes following hysterectomy are more apt to occur in women whose wombs have grown to a large size. Patients with pedunculated fibroids and small wombs are not apt to suffer in this way. The nearest to an exception to this proposition in my experience was a case of carcinoma of the fundus uteri, in which the womb was about six times its normal size. Although of a very neurotic family, the patient made a good recovery, but succeeded in nearly worrying the life out of her physician and family for eighteen months before showing any signs of improvement. Another strange feature is that insanity existing before the removal of these tumors is often instantly relieved, while, on the other hand, insanity following the operation may be weeks or months developing.

Dr. J. F. Baldwin says: "Occasionally insane cases are made worse by operative interference." Manton claims they are not; and others speak as though operations are not to be feared in these subjects.

Hobbs' impressions are: "Organic lesions of the

inflammatory type are the most prominent factors among pelvic diseases in exciting mental alienation, and displaced organs rank next in importance, and tumors last in the order of causation." . . . "that neglect of gynecic surgery in any institution for the treatment of the insane is a serious omission, as where so many women are congregated together there must exist many cases of unsuspected, and, if not investigated, untreated, forms of pelvic disease."

The gynecologist is to-day curing cases of nerve exhaustion or neurasthenia in which the neurologists have failed, by correcting pelvic lesions in addition to the general treatment. We know that the gynecologist repairs injuries, replaces organs, removes septic centers, and couples with them rest and seclusion, with the best results. In many of these cases the neurologist, from prejudice or lack of skill, fails to recognize the disease in the pelvis. I have in mind a patient with grave hysteria and neurasthenia who suffered many things of many men and at last fell into the hands of a neurologist, who declared, after a most careful examination, that she had no pelvic disease. He failed utterly, but fortunately her uterine displacement was recognized by another man, and immediate relief followed his treatment.

We know that cure of disease of the female genital organs is a most valuable and essential aid in the treatment of many nervous troubles in the sane woman; why therefore, have we the right to deny insane women the privilege her more fortunate sister receives?

THE CAUSAL RELATION INTRA-ABDOMINAL DISEASES BEAR TO NERVOUS DISTURBANCES RECOGNIZED BY GYNECOLOGISTS, IGNORED BY NEUROLOGISTS.

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Perhaps the most difficult of subjects for the master to teach or the student to master are the reflexes of the nervous system and their influence upon the functions of the various organs. In a certain sense are we not yet students?

That all-pervading, ever-acting force that from infancy to old age should hold in stable equilibrium the harmonic rhythm of the individual, for want of a better term we may designate "vital." This life power we know has its definite limitations, although, as one forecasts the future of the individual, he is aware that it must be expressed in the unknown terms of the algebraic formula " $x+y$ " or " $x-y$." If in health it is so difficult to graduate and measure the possibilities of the individual or determine his daily perturbations within the limit of normal function, how much more abstruse is the problem to detect and to judge aright the pathologic, which it is a part of the daily duty of the conscientious physician to take into careful consideration!

These problems are as old as the mental development of man, and have been coincident with history. Each generation views them with new interest, and it is very probable that certain of their most abstruse factors will remain unsettled as long as modifying conditions and influences produce such infinite kaleidoscopic variations

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in man's development. Science brings about marvelous changes, and we speedily learn to look with equanimity on the acceptance of a new truth, although at variance with our earlier teaching. At a not remote period, heat, light and electricity were looked on as independent and non-convertible forces. He who gave us the key to the transmutation at will of one force into three different forms of physical energy opened the gate into a highway leading to new development; energies coexistent with the life of the planet, but harnessed anew for a higher civilization, the possibilities of which no man may yet estimate.

This individual, vital energy which we call life, has an existence in kind throughout the entire animal kingdom. To man is given, although not exclusively, but in a much greater degree, the power of transmutation of physical force into mentality and that higher efflorescence of its stable equilibrium—mortality—the soul life, the most intangible, the least understood, but in general acceptance, the one enduring factor of existence.

If the physiologic conditions which attend normal development are kept in proper equilibrium, the life machine which we call the body has extraordinary possibilities of energy, and one of the secrets of the largest outcome in its usefulness is the symmetry and correlation of its developing powers. Unduly stimulated, in a certain direction, we look on the brilliancy of this force in the exhibition of its powers as phenomenal and say this is genius. But encouraged too much in this direction we soon find that it may develop into an eccentricity, even an excrescence of character out of equilibrium, and become a positive, individual weakness. This may easily become pathologic, and our state prisons and asylums for the insane are filled with individuals who are sad illustrations of a force unbalanced, primarily due to deviations in mental acquirement.

If the basic, physical conditions become changed, it necessarily follows that greater or less perturbations will be manifested in the mental product. Here, fortunately, we have the guardianship and control incident to the earlier individual development, which project upon the lines of activity, certain influences which we call habits—in other words, doing an act because we have been trained to do it. An illustration: co-ordination of muscular movements, forms of thought, expressions of speech, etc., pertain, in large measure to, and are under the control of, the cerebral functions. These, again, must operate through certain avenues, the spinal nerves, their centers and ramifications, the sensory and other subordinate organs.

An individual in normal health may be defined as one in stable equilibrium between waste and repair, the organism as perfect as the day previous less the age of the machine, plus the product of possible mental and moral increment. Viewed from this standpoint, a defect in the equilibrium of physical forces lessens normally the life product. The reparative processes interfered with from even a temporary defective digestion and nutrition may so change the normal judicial equilibrium as to lessen the value of the opinion of the physician or the clerical adviser, as to influence the verdict of him who holds the life of the criminal in decision, or as to lose the battle to the general. If simple transitory perturbations of nervous or mental force are thus easily affected, what may we not expect when some one of these avenues of life force becomes permanently distorted? These are the wrecks that daily come under the supervision and care of some of us here gathered.

In the subdivision of our various labors, it is but

natural that we view the objects through the media to which we are most accustomed. Thus the ophthalmologist, having so often traced the persistent headaches and mental discomfort incident to astigmatism, is likely to think that some visual error is the cause, and will perhaps demonstrate the truth of his opinion by the relief which follows the wearing of properly adjusted glasses.

The physician will weigh carefully the equilibrium between waste and repair, examine with care the digestive and assimilative organs and attribute, with much wisdom, certain defects to lack of nutrition, and to improper and irregular work of the various functions.

The careful student of mental diseases, who should be first a good physician and something more, may view with hopeless equanimity, conditions which he ascribes less to perverted than to ruined forces, and may condemn the individual to a passive restraint.

The surgeon, ever on the alert for some new interposing factor which may have disarranged the machine, seeks to find and remove, often with surprising results, the foreign element which is the cause of the perturbation.

The wise gynecologist should be the physician and something more, the surgeon and something more, since he has under careful consideration another set of organs in addition to those already under discussion, designed for the reproduction and perpetuity of the race. Here enters that subtle factor which has been called, "a normal and constant contribution of specific material by the reproductive glands to the blood or lymph and thus to the whole body." This recent physiologic theory, of so-called internal secretion is an abstruse subject indeed, but one that has been long recognized in one form or another.

The physiologic effects of healthy ovaries and the force which they exert through their correlated organs of reproduction dominate in large degree the individual during the greater period of life. At the recent meeting of the Maternal Congress of Mothers, Dr. Oscar Christman, professor in the State Normal School of Kansas, portrayed certain phases of their effects, although his topic was, "Science of Child Study." He attempts a sexual differentiation, but evidently from the study of effects, rather than of causes.

In the joint discussion which was held two years ago before this Section of the AMERICAN MEDICAL ASSOCIATION, much of importance and value was advanced. It was demonstrated that the leading neurologists were not forgetful that in woman they had a special subject of study in reference to their observations of nervous phenomena quite unlike those of men. Several gentlemen who took part in the debate were generous enough to accredit the gynecologist a service of the highest value which he has rendered by his contributions, demonstrating the relationship of sexual disease to nervous and mental phenomena.

For many years I have advocated the necessity of the study of pelvic and abdominal diseases among the insane and have urged the superintendents of different asylums to institute a careful methodical examination of every patient. Although this special phase of the subject is to be prominently brought before you by Dr. Carpenter, I can hardly do less than refer to one of the most valuable contributions yet offered upon this subject, by Dr. R. M. Bucke,¹ superintendent of the Asylum for the Insane at London, Ontario. It may be

¹ President's Address before the American Medico-Psychological Association at St. Louis, May 10, 1898.

accepted as a most remarkable fact that of 132 patients carefully examined, only 10 were free from pelvic disease, organic disease being found in 122. Operations of one sort or another were performed on 109 of these women.

"The results of 195 operations performed on 109 patients were as follows: First as regards bodily health, 3 cases died as a result of operation. In nearly all the rest of the cases where there has been time enough for any result to follow, the physical health has been restored or greatly improved. Then as regards mental health: In 39 cases the patient recovered from her insanity, in 32 other cases there has been improvement in the patient's mental condition, so that 71 out of the 106 patients who survived the operation either recovered their mental health or this was improved." He gives rather elaborate tables of the cases, analyzing them in different groups. Most interesting in comparison is a table of 32 non-gynecologic cases: "The physical health in every case was improved; there was no death; the patient was made more comfortable and, as a consequence, apparently he became less irritable, more amenable to management, often very much more useful about the asylum; but in no single instance was there such a change in the patient as could be by the most sanguine be called mental recovery, or even marked mental improvement. It seems plain then that it is not simply the operation that cures the insanity in any case, but it is something in the kind of operation performed, or rather in the kind of disease which is removed that decides whether or not the surgical procedure is going to effect a radical change in the patient's mental condition. . . . A consideration of this analysis will show that in our experience, neither the removal of a diseased uterus, nor the fixation of a displaced uterus, nor the cure of a vaginal lesion, has much effect in the relief of insanity; but when this last results from an operation it is nearly always, if not always, due either to the removal of diseased ovaries, the amputation of a diseased cervix, or to the cure of some diseased conditions of the endometrium."

It seems to be plainly in evidence that, if such serious disturbances of the nervous system call for commitment to an asylum, it must be accepted without debate that minor lesions of the nervous system must be very much more common, and that, as a consequence, it is of the first importance that such pathologic conditions should be recognized early and relief afforded before the mental equilibrium is permanently lost.

I can not question that leading gynecologists would scarcely be in variation of opinion upon this subject, and possibly the greatest profit which may result from this discussion will be the reflex influence upon the rank and file of the profession in early seeking the cause and promptly remedying thereby the effects of conditions which, if permitted to continue, result so disastrously. I have attempted to review a little carefully my own experience, covering about two thousand laparotomies, viewed from the standpoint of perturbations of the reflex nervous system, associated with pelvic disease. In the main my conclusions emphasize those of Dr. Bucke, that it is, in much the larger degree, the diseases of the ovary, impeding or impairing the function of the same, which are at fault. Oftentimes, it is difficult in the individual case to determine analytically, as for example, a diseased adherent ovary associated with a retroverted fixed uterus.

This occasion does not permit more than a generaliza-

tion of the subject and a proper introduction to its discussion, but our case-books are replete with most interesting illustrations. I can hardly forbear giving the following cases, which may be considered typical. First, that of a man, since surgeons must not forget that the reflex nervous system in the male often plays sad havoc, from seemingly slight cause, in the disarrangement of the physical and mental economy.

CASE 1.—A. B., a merchant, aged 36, single, of excellent habits. He was never seriously ill until two years ago, which he says was the inception of his present trouble; the difficulty steadily developed, until for some months "he has regularly breathed through a hole in his back." He has been from physician to physician without benefit, all having declared the impossibility of his statement, usually laughing at his oddity. He abandoned business and settled his estate, in the belief of early dissolution. He was sent to me by an urgent friend. Noting immediately an unstable mental equilibrium, I examined him very carefully and found a large, old, suppurating wen which caused him pain at every movement. I accepted his hypothesis of disease, but declared it could be cured. He enthusiastically demanded immediate operation. The removal of the tumor and healing of the wound cured the phenomenon which he described as "breathing through a hole in his back," and he was almost at once as well mentally as physically. Disillusioned, he resumed business with his former interest and success.

CASE 2.—Mrs. D., aged 32, married at 18, healthy as a girl, mother of six children: not well since the birth of fifth child. Since then has had a shuffling gait, with difficulty lifting the feet, and gradually growing worse. She noticed at the menstrual period greater difficulty in walking. She has been under the care of different physicians. Blisters along the line of the spine and actual cautery have been applied without benefit. Has worn a leather jacket for a considerable period, without the aid of which she was scarcely able to walk at all. In the autumn of 1897 she was in the Massachusetts General Hospital for six weeks, under the care of Dr. James J. Putnam. As the result of a consultation, it was determined that operative intervention was ill-advised because of manifest lesion of the spinal cord.

I saw her in 1898. She was in good nutrition, rather stout, mental state normal, not of a nervous temperament. No especial pain; spine rather tender, co-ordination of muscular movements normal. She complained of weight and heaviness in the limbs, shuffling and dragging of feet. Supported by the jacket, she walked alone with the greatest difficulty, depending on the aid of a friend to assist her. Without the jacket she could not stand alone or take a single step. Tendon reflexes normal. Pelvic organs apparently fused by old inflammatory processes. I operated March 3, 1898, and removed enlarged, cystic, prolapsed ovaries, fixed by old vascular adhesions to an adherent retroverted and enlarged uterus. I then sutured the uterus bilaterally through the broad ligaments to the abdominal wall. Convalescence was rapid and uneventful. She was permitted to get up on the twentieth day, when she could walk better than for six years. She was discharged from the hospital in four weeks, walking without the jacket. She improved steadily, resumed her household duties and is at present an active, vigorous woman.

CASE 3.—Mrs. M., aged 28, menstruated at 13; married at 16. She was a healthy, well-developed girl. She has had five children, the youngest 4 years old. At the birth of the fourth child she was injured and has not been well since. Much of the time afterward she was not able to sit up more than two hours a day. She entered a public hospital on account of these conditions. Lacerations of the cervix and perineum were repaired without benefit. She was first seen by me about two years ago, when it was perfectly apparent that she had large, tender, adherent, prolapsed ovaries, associated with a fixed retroverted uterus. She declined further surgical intervention and returned to her home in New Brunswick. She was brought back to me April, 1900, with much difficulty. She has been practically bed-ridden for the last two years, and suffers continuously with pelvic pains and other discomfort. A specially

noteworthy symptom has been such marked photophobia, that she has been confined to a dark room the last six months. On April 19, I removed the diseased, displaced ovaries and made bilateral anterior fixation of the uterus. At the end of a week she declared that she felt better than for months; she was not uncomfortable in a well-lighted room ten days after the operation. In two weeks she could read and write a little. She was discharged May 22, declaring that she felt better than for some years. She uses her eyes almost without discomfort.

The conclusions to be drawn from this paper are obvious: The science and art of medicine has advanced during the present generation with such tremendous strides that it is impossible for any man to be wisely conversant with it in all its subdivision and detail. In the vista of the future many unexplored fields are inviting keener research, with the promise of a fruitfulness to the race, the end of which none may safely prophesy. Already our knowledge is sufficient, if wisely applied, to increase the longevity of the race one-third, divide its suffering and diseases and double its productive capacity.

Specialism in medicine is the natural outcome of modern medical knowledge. Yet we must remember that specialism must be founded on a broad, thorough, scientific knowledge, and this knowledge must be brought into daily application by the specialist, if he becomes the really wise adviser. Other than this, the old contention of the disciples will be repeated in the statement, "I am Paul or I am Apollos," and discussions like the present may end in sad disaster; clad in the panoply of complete armor, throwing down the gauntlet, each to the other, one declaring that the fault is apparent for the shield is golden, while the other as stoutly affirms that it is of silver. When too late, it is discovered that the disaster has occurred through the intensity fraught by partial knowledge.

Most men declare that they are possessors of the rare commodity called common-sense. A brief analysis teaches that it is only special sense in common use, and that all men were intended to be armed with this five-sided shield. Only when used in this way can the special investigator be made of common profit.

AUTOINTOXICATION FROM DEFECTIVE MENSTRUATION.*

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One of the principal purposes of menstruation is ridding the maternal blood of the unused fetal food. It has been known for generations that the fetus must be fed in some way, but until the last decade due allowance has never been made for the methods by which this food is obtained and the routes by which it is gotten rid of when unused.

Jacobi and Stephenson were among the first to observe the increased oxidation by which Nature burns it up. My own original work, so far, has dealt almost exclusively with the mechanics and hydrostatics of this extra wave, but what I now propose to give you is largely chemical.

We all now know that during the child-bearing age the woman eats for two. The healthy woman in the non-impregnated state gets rid of this extra amount of food by menstruation. During the intrauterine life of the child she passed it through the placenta to the child, and re-

ceives back from the child the products of its oxidation, which she in turn passes off through her own eliminative organs. After labor she passes it to the child through the breasts. As soon as the child is weaned, menstruation is re-established. This is common knowledge to you all, and only needs a passing mention; but I repeat it simply to emphasize the fact that every healthy, child-bearing woman has a superabundance of nourishment in her blood which must be disposed of in some way.

Before making a specific application, let us for a few minutes go to comparative pathology. Every one knows that a horse is accustomed to hard work; if this work suddenly ceases and he is allowed to stand in his stall and is fed the usual amount, after three or four days it becomes a very dangerous thing to take him out and work him to the same extent that he had been accustomed to the previous week. Many of you have had your pets, after such treatment, suddenly go down with that acute gout which every veterinary surgeon is constantly treating. You know that it is due to the retention in the horse's blood of the food that he would have burned up had he been kept at work. During his idleness, this food has been more or less stored up in his tissues, but when you take him out and drive him rapidly it is forced out of the muscles, cellular tissue, liver, etc., by the increased heart-beat, into the circulation. During the idle state it has not been elaborated as it should be, and instead of being burned up and disposed of, it has been gradually transformed into a toxic substance. Had the horse been kept at work, while there might have been a small amount of this toxic substance formed, his kidneys, intestines and skin would have disposed of it as rapidly as made; but when his idleness has allowed it to accumulate in the tissues, the sudden increased heart-beat has thrown a dose of it into his circulation which is simply overpowering to his nervous system, and the result is that your horse falls in the street, and, besides a veterinary bill, you have weeks or months of anxious watching as a penalty for your carelessness.

Another illustration, which is known to a few of you who handle fine cattle: Take a high-bred Shorthorn, Jersey or Alderney, of which your milkman is very fond. If he does not understand the laws of parturition in cattle, while the cow is dry before having her calf, he will give her the same amount of food that she has always had, and is liable to call your attention to how fat and sleek she is getting. The labor comes on, the calf is born; and within twenty-four hours your cow is down with a typical attack of puerperal eclampsia. The veterinarians call this puerperal apoplexy; but one case that I watched carefully proved to me that there was no apoplexy about it, as there was no paralysis of any muscles, but in every respect a typical eclamptic attack. The post-mortems in veterinary literature show the same thing. Their management of the case is the same as that of the horse that I have just described; in other words, to stimulate the excretions to their highest point, and to hold off all forms of food except water. All this proves that even in the lower animals, no matter whether pregnant or not, and that even in geldings, a superabundance of nourishment in the blood, to say nothing of undigested nourishment in the intestinal canal, is a very dangerous thing, and when it accumulates in such large quantities that the emunctories can not easily handle it, it at once becomes a violent poison. This is the key with which we can unravel many of the puzzles that have been annoying us for generations.

To begin with pregnancy itself: All child-bearing

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