State. The various vaccine farms in this country at the present time are propagating virus from one of these three stocks (DeWolf, *Chicago Med. Journal and Examiner*, 1881, vol. xlii, p. 481, ex seq.), all of which have been shown to be vigorously prophylactic against small-pox.

In seasons when small-pox is prevalent, there is always a great and unusual demand on the propagators for virus, and the temptation is necessarily great to make every animal produce the largest possible amount of lymph. It may thus happen that points are charged with a material from a vesicle at too late a period of the disease, or the discharge may be increased by irritating the parts so that points charged under such circumstances, will not produce the genuine and protecting vaccine disease, but a spurious cow-pox affording no such protection.

It would, therefore, seem that it would be eminently advisable and proper that vaccine farms should be under government supervision, as it is certainly an injustice to vaccination to be held responsible for the shortcomings of propagators. Dr. Craig, of Rock Island, Illinois, ten years ago strongly urged this point before the Illinois State Board of Health.

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SOME CONTRA-INDICATIONS FOR THE USE OF OPIATES.

Read before the Philadelphia County Medical Society, January 27, 1892.

BY MARIE B. WERNER, M.D.

My object in presenting this subject before the Society to-night is manifold; I wish to show that in general practice the indications are limited for the use of opiates. We must fully realize that we have a broader basis for medical science than symptomatology, in order to give our patient the full benefit of our knowledge. Our position being at all times one of trust, we must endeavor, in helping our patient, to find the cause and remove it, rather than hide the symptoms it gives rise to by an opiate. Aside from the possible mental disturbances such a course of treatment might induce, it often materially complicates surgical efforts to relieve patients, the results of which we have repeatedly heard discussed at these meetings.

In order to discuss this drug with due fairness, it will be necessary to give a few moments to the consideration of its physiological action on the human economy. Dr. H. C. Wood, in his *Treatise on Therapeutics*, says: "When opium is taken in such a dose as to produce its mildest physiological effects, it exerts a quieting influence, inducing a peculiar dreamy condition; after a length of time varying according to the idiosyncrasies of the patient and the dose of the drug, this condition passes into sleep, either light, dreamful, natural, or heavy and deepening into stupor. On awakening, the patient may return at once to his normal condition; but very often he experiences a state of depression shown by languor, a little headache, nausea, or even vomiting, which may last for some hours. One of the most common of these departures from the ordinary course of symptoms is an excessive depression following the sleep produced by moderate doses of the medicine. This state is seen, as far as my experience goes, most usually in females of weak, nervous organization, such as are peculiarly liable to attacks of neuralgia.

The symptoms are a feeling of weakness and prostration, often accompanied by chilliness, dull headache, and giddiness, but especially marked by intense nausea and frequent vomiting."

Bartholow states that, as a rule, opium does harm in all gastro-intestinal maladies in which there is a deficiency in the proper secretion, or a suspension of the functions of the liver and kidneys.

Dr. J. B. Mattison, in his valuable paper read before this Society in October, 1890, entitled "The Renal Status of Opium Habitues," after a careful analysis, arrived at the following conclusions: *First*, the habitual use of opium in any form will cause organic renal disease; *second*, the changes most likely to be met with are cirrhotic; *third*, that the rationale is threefold. Vasomotor changes, impaired general nutrition and inflammatory action due to non-eliminated irritant products. I would further call attention to the valuable contributions of Dr. A. Haig, published in the *British Medical Journal*, 1890, in his studies on the influence of opium and morphine on uric acid; also, of the retention of this latter product in the human economy and its relation to the causes of disease. His observations and experiments proved to him that the administration of opium or morphine caused retention of uric acid, accompanied by a reduction of arterial tension; that, when the effect passes off, there is a rebound, with an excessive excretion of uric acid and marked high tension, often accompanied by headache and mental depression.

Let us look carefully into these statements and compare them with our practical experience. We find that, after lulling pain and induction of sleep, we come to a period of depression, even after a moderate dose of the drug. This depression is usually followed by a certain loss of resistance to bear any renewal of pain, and, in consequence, it becomes necessary to repeat the use of the drug; indeed, when we study carefully its action on a previously weak, nervous organization, we find the description given by Dr. Wood very ably described the case for us. He tells us: "The symptoms are a feeling of weakness, prostration, chilliness, dull headache, nausea," etc. In the face of this the questions must certainly present themselves to us: Is it wise to simply gratify the desire of the patient? Would it not be better to study the cause and remove it rather than hide the symptoms which lead us to the origin of the trouble? I refer to cases in every-day practice; cases in which a periodical monthly pain is lulled to sleep by several doses of morphine or opium, while the proper cause is entirely left out of sight. There is no doubt in my mind that cases have come to all of us where a case of chronic constipation or continuous indigestion combined with a nervous, irritable temperament, perhaps, added to that, or independent of this, an unpleasant skin eruption, etc., claimed our attention.

Quite often a question regarding any menstrual difficulties shows that there is some pain, often varying in severity, and the next question, What do you do for the pain? will elicit the answer: Oh! I take a little paregoric, or I have some pills or suppositories I use, perhaps previously given to some member of the family for pain. Not infrequently an investigation will show that the main ingredient is some opiate.

In our day of progressive medical science it becomes necessary that we should join hands and forces—first, to see if the proper hygienic rules regarding

clothing, exercise, and cleanliness are scrupulously carried out, and that the proper functions of secretions and excretions are thoroughly understood. If aside from these precautions there is still pain, a local investigation should be made by the physician, and, the condition carefully studied, the cause removed if possible. To give an opiate in such cases I consider criminal, since the patient receives a double injury; not only is she not relieved permanently, but she is robbed of much of her normal resistance, and I fear many have become chronic invalids, for it is a constant struggle to overcome the after-effects of the opiate before the time arrives for another relief of the same sort. If the patient escapes becoming addicted to the opium habit, she cannot escape the local gastro-intestinal irritation which is invariably set up, and which will defy all medication so long as its cause is kept up.

I can at this moment call to mind three cases in which three weeks out of four all sorts of laxatives are used to overcome the amount of morphine taken during the fourth week; the complexion is sallow, the breath heavy, the skin impure, and how can it be otherwise? If an examination reveals no functional trouble other than the local congestion, or possibly some displacement downward induced by improper clothing or a lack of attention to the proper excretions, is it not at once clear that an opiate in the long run increases the cause of pain? Lulling the pain induces no cure, and the resulting constipation acts in two ways to make the patient worse: first, the pressure of a distended bowel; second, the absorption of effete products. Let such conditions continue for some years, as they often do, and we have other factors enter the field to make life miserable—sluggishly acting liver or kidneys, a worn-out stomach, and not infrequently a nervous wreck.

In order to emphasize this point, I will only have to call attention to a series of comparative experiments on animals¹ made by Dr. Edward Levinstein, and reported in his book on "Morbid Craving for Morphine." His deductions from a number of experiments are as follows:

"1. That internal applications of morphine sooner paralyze the digestive powers of the stomach than the subcutaneous injection.

"2. Both ways of administering morphine bring on functional disorders of the secreting nerves.

"3. Both cause catarrh of the stomach and intestinal tract.

"4. Large doses of morphine given internally cause a subacute catarrh of the stomach, on account of the irritating chemical action of the morphine.

"5. The subcutaneous injection of morphine causes a chronic catarrh of the intestines in a mechanical manner; in consequence of the impaired influence of the secreting glands due to the action of the morphine, the secretion of the digestive fluids is stopped altogether, or at least diminished in quantity, and consequently the intestinal tract is encumbered for a longer time by the ingesta."

The same author speaks of amenorrhœa and sterility as being a sequence to the continued use of morphine, drawing largely upon the results of his own observations, and accepts Pflueger's theory in explanation of it.

In these days, when "preventive medicine" is being advocated by all of us who desire to place medical

science on the highest standard, should we not think many times more than twice before we write a prescription for an opiate to relieve pain? In the face of all these facts, it becomes a serious question of right and wrong if we stop short of exerting all our knowledge to study the *cause* of the pain we have been called in to alleviate. Often the prescription-book is entirely useless, unless its blanks could be filled with directions to the patient how to dress, eat, and give herself the physical care she needs.

The use of morphine after pelvic operations has been discarded by most of our operators, and clearly has been the means of reducing mortality rates, as well as obviating many of the dreaded after-complications. I recall in one of my earlier operations the advice given by one of our older physicians to rely on opium and calomel, which I followed, with the result of having on my hands a sufferer from insomnia and chronic constipation after I had discontinued its use; had I not been careful to destroy all prescriptions, I feel certain I would have had more trouble. Another case comes to my mind of a patient who had a section done for some pelvic trouble by a physician who also believed in the opium after-treatment. This patient came under my care later, and confessed that she had often helped herself to a suppository after the doctor had stopped their use. My object in referring to these cases is to show the danger of setting up the morbid craving and its attendant evils with only medicinal doses and in the space of two or three weeks; showing at once the danger a prescription containing an opiate may induce in the hands of a nervous patient who has periodical attacks of pain. Such cases do not always reach the state necessary to require hospital treatment; hence, are often exceedingly vexing to the physician and surrounding friends. A direct accusation to the patient would often fail to bring the results desired, while the friends and relatives cannot always be relied upon for the tact and discretion so necessary. For that reason the physician must often exercise a vast amount of patience and time to educate the ones immediately concerned, and to prove the deleterious effects the use of opiates have, and then, *perhaps*, the patient can be cured.

It may, perhaps, be of interest to quote from a discussion on morphine in the British Gynecological Society, 1889: Dr. Bantock gave as his experience after surgical operation "that patients were much better off without it—they escaped the restlessness which was left as the opium wore off." Dr. Bedford Fenwick called attention to the fact that opium increased the congestion of the kidneys to a dangerous extent, and might even go to a complete suppression of urine; also, that it caused a complete atony or paralysis of the muscular tissue of the intestines, thus preventing their acting. Dr. R. T. Smith had given two doses of a quarter-grain of morphine each in a case of severe shingles; the patient had suppression of urine for twenty-four hours. Dr. Thomas Savage, in his address read at the annual meeting of the Birmingham and Midland Counties Branch of the British Medical Association, says: "It is not long since it was the custom to administer opium and morphine as a routine treatment in all cases of peritonitis and many other conditions in the abdomen. We have now learned the inadvisability of so doing. May we not extend the withholding of these and similar drugs in other states? I have myself thought

¹ Covering a space of time from six days to five weeks.

that the general practitioners rely too much upon anodynes."

In this matter of too sympathetic and assiduous medical treatment errors rather of judgment than intention are often committed.

Of no less importance is the behavior of an opiate on a patient of uric acid diathesis, in which a demand for relief of pain on the part of the patient often becomes quite urgent. Here, again, the researches of Dr. A. Haig show us that the drug tends to store up the acid; that when elimination begins to take place there is often a return of pain, the patient again demanding relief—in this manner a cycle can easily become established. These pictures teach us the importance of keeping the drug *entirely out of the reach of the patient*, and the necessity of its *careful and conscientious* use where it may be indicated.

SOME NEW STUDIES OF THE OPIUM DISEASE.

Read before the Philadelphia County Medical Society, January 27, 1892.

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As a preface, I wish to express my emphatic dissent against the common use of the word *habit*, in describing the opium disease. The popular meaning conveyed by this term is some state or condition voluntarily acquired and retained, with the certainty of being thrown off at any time at the will of the patient. This view assumes a knowledge of the physiology and psychology of the brain and its functions that is not yet attained. Hence the use of the word is incorrect, wrong, and contradicted by the facts in the clinical history of each case. It also conveys a false impression of the nature and origin of such cases, and is a word to which different meanings will always be given. No other word is more misleading and confusing, when applied to opium, alcohol, and other border-land neuroses.

Beyond all question, the toxic use of opium and its alkaloids is rapidly increasing. Only about 50 per cent. of opium and morphine manufactured is required by the legitimate demands of medicine and pharmacy. The enormous balance is consumed in some unknown way. Comparative estimates make the number of opium cases in this country over a hundred thousand. Whether this is correct or not, it is evident that the number is very great and largely concealed, and many of them are very hopeless and difficult to treat. The natural history of such cases indicates a steady, progressive degeneration, on to death. Recovery is rarely spontaneous, and without the aid of applied science. Up to the present time, all clinical studies have been confined to the symptoms and treatment, starting from some indefinite point after the opium addiction begins. The old superstition of a moral origin, and of some wilful, wicked impulse, is accepted as the first original cause. Writers, and even specialists, seldom go back into the early etiology, or inquire what conditions or forces led to the first use of opium. The object of this paper is to trace some recent facts which throw new light on this unknown stage of etiology.

From a careful clinical study and grouping of the history of a number of opium cases, it is evident that a large proportion have a distinct *neurotic diathesis*,

or, more literally, have inherited from their parents some condition of brain and nerve defect which favors and predisposes to the development of neurotic diseases. A more careful study of these records shows that in some cases an *opium diathesis* is present, or a special inherited tendency to use opium. Here are two conditions which influence and favor this disease. It is a well-known fact, that a large proportion of all nerve and brain diseases appears in children of neurotic and defective parents. Such children have received some special tendency and predisposition favoring the growth of nerve diseases, springing into activity from the slightest causes.

The latency or activity of this diathesis will depend on certain conditions of life and surroundings, which in many cases can be traced. In some instances the diseases of parents reappear in the children, in others in allied diseases, and not infrequently these defects pass over and reappear in the third generation. Often such defects are dormant, and only break out from the application of some peculiar exciting cause. Thus, a hysteric mother and paranoiac father were followed by three children. One was an alcoholic, the second was a wild, impulsive temperance reformer, the third was a sad, depressed, melancholic man. In the third generation opium and alcoholic inebriety, insanity, pauperism, also feebleness of mind and body, appeared. These varied forms of nerve diseases all had a neurotic diathesis as a basis, and the different phases were the direct result of different exciting causes. These facts are numerous and well attested, and so uniform in their operation, that it is entirely within the realm of possibility to predict, from a knowledge of the diseases of the parent and the environment of the child, that certain forms of degeneration and disease will appear with almost astronomical precision. This term neurotic diathesis covers a vast, unknown field of causes, which extend back many generations. The evolution of brain and nerve defects can often be traced through the realms of environment, nutrition, growth and development. Medical text-books and teachings which fail to recognize this, give very narrow conceptions, and strange exaggerations of the influence and force of many insignificant and secondary factors in the production of disease. The opium-taker has often this neurotic element in his history. It may be traced back to his ancestors, or it may be associated with brain or nerve injuries, cell-starvation, faulty nutrition, auto-intoxications, brain strains, or excessive drains of nerve force. A train of predisposing causes may have been gathering for an indefinite time back. Then comes the match which kindles or fires the train of *gathering forces*. This same train of exciting causes may not explode, because the germ soil is absent. Opium in all forms is given daily, and yet only a comparatively small number of cases become addicted to its use. Why should an increasing number of persons take opium continuously for the transient relief it gives? Why should the effects of this drug become so pleasing as to demand its increased use, irrespective of all consequences? The only explanation is the presence of a neurotic diathesis, either inherited or acquired. The existence of a special opium diathesis has been doubted with supercilious contempt by many writers. Any clinical study will show the error of such doubt. The notes of a few cases which have recently come under observation are illustrations by no means uncommon, and indi-