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THE EFFECTS OF ALCOHOL ON THE CENTRAL NERVOUS SYSTEM.*

By Henry J. Berkley, M.D., Baltimore.

The subject of the pathological effects produced by the action of alcohol, in any of its numerous forms, upon the tissues of the central nervous system, has attracted, since the inception of modern pathological medicine, considerable attention, but until quite recently the results accomplished have not been at all commensurate with the amount of labor expended; in fact have resulted in nothing positive beyond demonstrating fairly conclusively that the prolonged use of alcoholic drinks extending over a period of years are condusive to atheromatous and other changes in the blood-vessels, and certain ill-defined degenerations of the cerebral nerve cells.

Attempts to acertain the effects of alcoholic drinks on the brain of the human subject cannot be very conclusive in their results from a microscopical standpoint, because we are hampered by a lack of knowledge of the post-mortem

* Portion of a lecture on the effects of toxins on the nerve cell, delivered at the Johns Hopkins Hospital, March 29, 1896.

changes that follow dissolution within a few hours, and it is rare indeed that one can obtain pathological material from the human subject sufficiently early to be absolutely certain that we can definitely exclude all anatomical changes.

The finer the stains we use, the more difficult does it become to recognize the minute histological alterations, and after an attempt on my part to study the human brain in alcoholism, from the standpoint of a previous knowledge of brain cell lesions, I was obliged to abandon the attempt until the definite lesions could be ascertained by experimental study, not that we were unable to find pathological changes, but from an inability to interpret them, and differentiate between abnormal conditions and post-mortem states.

The literature on experimental alcoholism consists of only two articles, from the pens of Vas and Dehio, both using the Nissl method of staining. The first-named writer finds alterations in the chromatin structures, the finely granular character of the nerve cell is perceptibly diminished, and gives place to a homogeneous swelling. In advanced cases of the alteration, the cellular protoplasm alters its power of taking up the coloring matter, and appears darker than usual. A shrinkage of the protoplasmic body cannot be definitely ascertained.

The study of Dehio was never finished. He tried rapid poisoning of animals with large doses of alcohol, and studied its results on the Purkinje cells. Alteration in the chromatin of the cells was found, with more uniform absorption of the dye than normal, but this pathological find is far from definite.

Nearly a year ago, owing to the kindness of Dr. Friedenwald of this city, who was conducting a series of experiments on the effects produced by alcohol on the animal organism, I was enabled to procure the brains of eight rabbits that had been subjected to the continued — *intra vitam* — action of alcohol over a period of time varying from three weeks to more than one year.

They were cerebra from two series of experiments. The first series comprising five brains had been systematically fed daily with quantities of absolute ethyl alcohol, varying from five to eight c. c. Death eventually took place in convulsions. The principal clinical symptoms noted were a progressive diminution in weight, increasing torpidity, and eventually convulsions. Nearly all the animals showed at the post-mortem evidences of fatty changes in the heart muscle.

The second series comprised the brains of three rabbits that had been subjected to the action of the drug in a somewhat different manner, more closely approximating the course taken by a man while on a debauch. The rabbits were first fed for several days on a minimal amount of ethyl alcohol, and after a certain tolerance had been established, the quantity was gradually increased until it reached twelve to fifteen c. c. of the poison given daily in a single dose. Despite feeding and careful attention the animals emaciated greatly, losing nearly one-half their weight, and eventually all died, almost precisely three weeks after the beginning of the experiment.

The material for the study obtained, it then became necessary to find some special method of staining by which the finer portions of the neuron, the protoplasmic dendrites, and the substance of the axon and collaterals to their end-apparatus could be stained with certainty. This was finally accomplished by the addition of phospho-molybdic acid to a silver nitrate solution, by which Muller's fluid preparations were impregnated somewhat after the manner of the rapid Golgi method. Those portions of the cerebra fixed in absolute alcohol answered perfectly well for the Nissl and other aniline stains for the demonstration of the protoplasm of the cellular bodies, the nuclei, and the structures of the blood vessels.

The histological lesions in the two classes, acute and chronic alcoholic poisoning, divide themselves chiefly by the different characters of the vascular lesions into two groups,

the nerve cell lesions being of the same character in both, only varying in amount and intensity of the alteration.

In the acute series the damage to the vascular apparatus is exceedingly well defined. Especially in the medium-sized and smaller arterioles, the nuclei of the intima are swollen, show definite alterations in their staining qualities, and at times appear to be even necrotic. The muscularis is greatly swollen, hyaline in appearance, has assumed new staining qualities, and the elongated nuclei have in part disappeared from their positions. Owing to the swelling of the middle vascular layer the Virchow lymph space has been obliterated, and, in fact, in many places where the swelling is intense, the adventitial layer is closely pressed against the outer margin of the peri-vascular space. This last sheath of the arteries does not appear to have been damaged to the same extent as the more internal ones, its nuclei staining better, and there being no visible tumefaction. The contents of the peri-vascular spaces, wherever the swelling of the muscularis has not completely obliterated it, attracts attention. In it are large quantities of a finely granular detritus, and scattered thickly among the granular matter lie numbers of leucocytes in various stages of degeneration and disintegration.

Within the vessel are mingled with the red blood corpuscles large numbers of leucocytes, all showing evident signs of corpuscular alteration. Somewhat strange to note, all these leucocytes are of the polynuclear variety, hardly any of the mononuclear ones being visible among them. Here and there in the arterioles and capillaries the leucocytes have aggregated into masses, and form veritable plugs in the lumen of the vessels, and from their very closely packed appearance must have occasioned an almost complete stoppage of the blood-stream sometime before death. Outside the walls of the arterioles the leucocytes are in places so thickly set together that they compress the sheaths of the vessel, and in this way have helped to retard the blood current. Ruptures of the walls of small veins are by no

means infrequent, but never is the blood extravasated beyond the sheath of the peri-vascular space into the surrounding cerebral substance.

Two factors have probably place in the damage to the circulatory apparatus, the presence of a poisonous irritant circulating with the blood-current, and damaging the walls, and secondly, and not less important, the production of an acute leucocytosis from the deteriorating action of the alcohol on the blood-forming organs. The immense numbers of leucocytes that are carried by the blood stream into the cerebral circulation accumulate, probably, from the atonic condition of the heart muscle and the muscular walls of the arterial system not being able to force them through the capillaries equally with the red-blood corpuscles by reason of their larger size, and they accumulate in these canals, plugs of them are slowly formed, a backward pressure on the arteries begins, which is especially deleterious in the already weakened condition of these vessels from the poisonous effects of the drug, and eventually so great does this pressure become that the arterial walls are greatly damaged, and lose to a great extent their vitality.

The changes in the nerve cells seen with the aniline stains are commensurate with the arterial ones. They consist chiefly in alterations of the cellular protoplasm, which now shows an increased absorption of the dye, together with diffused staining of the chromatin particles. The most extensive degree of cellular alteration is found in the immediate neighborhood of greatly damaged vessels; where the vessels have little or no alteration of their sheaths the cellular elements are usually sound. Nuclear lesions are neither well marked, nor advanced.

The interesting degeneration of the protoplasmic twigs, which occurs equally in the chronic alcoholism, will be described under that section.

Morbid changes in the neuroglia are of interest and moment. The ordinary support neuroglia, both along the pial margin, and the star-rayed cells more deeply situated.

are unaffected by the changes in the vascular and nervous elements. On the other hand, the vascular neuroglia shows important changes. The cells are much swollen, the bodies rounded, the tentacles thickened, though not spreading over more territory than normally; altogether they appear to be taking an active part in the process of degeneration, taking up and removing from the tissues the detritus of the destroyed protoplasmic twigs and stems.

Vascular changes in the chronic cases are not nearly so pronounced as in the acute ones. The walls of the arterioles are irregularly shrunken, and their nuclei, while not increased in numbers, are swollen, and show abnormalties in their staining qualities. Changes in the muscularis are almost absent. The peri-vascular spaces are larger than in the control preparations, and the hyaline sheath is a little more definite than normal. In the larger arteries there is thickening of the sheaths, and considerable focal multiplication of the nuclei of the adventitia. In the spaces around the vessels a few grains of hematoidin debris is occasionally found, together with a little fine granular detritus. Miliary hemorrhages near the pial margin of the cortex are not infrequent.

The vascular contents attracts but little attention, there is a rather unusual number of polynuclear leucocytes in the blood, but, very few of these have transuded through the walls into the outer space.

The protoplasm of the cortical nerve cells, especially those of the psychical variety, shows insignificant departures from the normal in the form of alterations in the chromatin, and absorption of larger quantities of the dye, the cell staining somewhat diffusely. Nuclear variations on the contrary are very pronounced, and show mainly in the central nucleolar figure, which is enlarged, roughened, and has elongated buds projecting from its surface. The portions of the nucleus beyond the nucleolus show diminution of the presence of the molecular particles, in contrast to the control preparations. In the clear karyoplasm there is a

decided tendency to take up more than is normal of the aniline stain, and so marked does this tendency become, that at times the contents of the nucleus are rendered indistinct, and it becomes much less refractile than natural.

In examining a pathological tissue by any of the silver methods we must bear constantly before our mental vision the fact that this method of staining is extremely apt to lead one into error, not only from the unknown post-mortem changes of the cerebral structures, but also from the inconstancy and inequality of the staining of the elements. We should, therefore, have always at hand a large supply of control material, so that whenever question arises we may have before us all variations of the normal characteristics of the nerve cell. These variations in health are within certain limits, and must be passed before one can say with certainty that we have before us a pathological condition. Inequalities in staining are much more likely to lead one into error than any amount of physiological variation.

For the practical purposes of this examination, the intrinsic variations in the neuron may be reduced to the normal inequalities or varicosities in the substance of the finer dendrites. These varicosities in the dendrons are of comparatively infrequent occurrence, and show either as knots at the forkings of the branches of the dendrites, or as small irregular swellings, seldom more than one or two on each stem, particularly at or near their terminations. Equally with the other portions of the stems the irregularities are covered by the gemmules. This presence of the knob-ended gemmule helps one greatly to differentiate between normal and abnormal thickening of the dendrites, for, whenever the irritation which produces the swelling is continued over a considerable period, the gemmulae fall off and disappear.

After all possible allowances have been made for artifacts and physiological variations in our sections stained by the silver phospho-molybdate method, there remain a large

number of cells that are distinctly abnormal. The principal lesions of the nerve cell in the alcoholic brain, to which we would call attention, are a distinct diminution in size, disappearance of the gemmules, certain swellings of the dendritic stems, roughening of the thicker processes, and also to some extent of the cellular body, the last being caused by shrinkage of the protoplasm.

A careful comparison of a control preparation, and one from an alcoholic rabbit will show the following essential differences: the cell bodies and main processes are in the control more even and smoother, the dendrites are broader, and the gemmules stouter and more numerous, thicker, more feathery, apparently spreading over more lateral surface, and are very regular in appearances, while in the alcoholic, there is a gap here and there as if some of them had fallen off, or had disappeared, while the processes appear to be thinned, and have at numerous places irregular thickenings on which the lateral buds are entirely absent.

Among the cellular layers we find a vast number of cells, especially the pyramidal form, which show upon their protoplasmic extensions some of these tumefactions of rounded or elliptical form. Some of them are very small, and are only to be noticed after close search, while others are so large as to immediately attract attention. The number of the dendritic swellings may vary greatly, a dendron may be almost covered with them, or there may be only one or two on the stem, in the latter case they are usually larger than in the former.

The process of tumefaction always appears to begin near the free extremity of the dendron, and gradually extends downward toward the body of the cell. The basal dendrites are usually not so extensively involved in the degeneration as the apical.

An essential accompaniment of the process of tumefaction of the protoplasm of the dendrites is the loss of the gemmulae. The smallest pathological swelling causes an evident decrease in the number of the buds on the portion

of the dendron affected, as the swellings increase they progressively disappear, and when a process is filled with tumefactions and knots they entirely vanish, with, perhaps, the exception of a few scattered ones situated along the least diseased portions of the stem. In the intervals between the thickenings the dendrites appear to be atrophied.

It would seem from our specimens, as if the denudation of the gemmulae and the tumefaction of the stems was the first step in a process that eventually was to end in the entire destruction of the cell, at least so far as its functions are concerned, for the stumps of cells that remain can have neither projective nor receptive faculties. It is true though that very few of the cells show signs of advanced deterioration of the substance of the cellular body, though here and there a neuron may be found which exhibits a more striking degree of degeneration. The body is now greatly roughened, and the staining of the altered protoplasmic substance is very irregular.

Unlike the dendritic substance that of the axon shows no decided changes, even when attached to the most degenerated cells. The collaterals and end-apparatus of the axon is equally uninfluenced by the degenerative process, and these portions of the neuron have everywhere all the appearances of health.

While the alterations of the neuron in the acute alcoholic cases undoubtedly is due to the combined effects of the alcohol and the disturbance of the vascular supply, the same conditions do not wholly apply to the nerve elements in the chronic ones. The vascular lesions are now inconsiderable, and accordingly we must now look to the direct action of the poison as the cause of the degeneration of the nerve elements, acting as it does through the medium of the nutrient supply upon the cellular protoplasm, the serous portions of the blood permeating through the tissues, and with the admixed alcohol coming directly into contact with the living protoplasm of the cell, the least resistent portions, those at

the greatest distance from the corpus suffering first, then the other portions of the soft protoplasm.

Cerebellar lesions in alcoholism correspond entirely with those in the cerebrum.

One striking feature of the degenerative process is, that very considerable numbers of the cerebral and cerebellar cells remain apparently intact, perhaps, it is only every third or fourth cell that shows pronounced alterations, but this fact cannot militate against the conception of the degeneration as a pathological entity from the standpoint of the numerous forms of dementias and chronic alcoholic psycoses, for the nerve elements of the cerebrum are intricately connected one with another by means of their conductor-endings and the knob-ended gemmulae, between which the dynamic forces originating in the cell-body pass from one cell to the other over the almost imperceptible space that is present between the two, and thus the death of a single cell may destroy the normal relations between dozens of other cells, and in this way induce an inco-ordination of thought and action, while the vast majority of the cellular elements retain their histologically normal characteristics.

Using the same methods of staining and fixing of the tissues, we have found similar lesions in the cerebra of human alcoholics as in our rabbit series, only the lesions are less extensive than with the animals, perhaps, only because the human subjects had received presumably smaller quantities of alcohol in proportion to their bodily weight than the rabbits.

ON THE RELATION BETWEEN INTEMPERANCE AND MENTAL DISEASE.

By Bedford Pierce, M.D. (Lond.),
M.R.C.P. (Lond.),
Medical Superintendent of the Retreat, York.

In considering the relation between alcohol and mental disease, the first question that arises is the extent to which insanity is produced by alcohol. Every text-book upon mental diseases describes a special form of insanity due to alcoholic intemperance, independently of that acute form of mental disorder known popularly as delirium tremens.

It is unnecessary for me to point out the characteristic features of alcoholic insanity, even if it were easy to do so; but I may remark that it presents no constant symptoms, and that unless one knows the history of patients suffering from it, there is great difficulty in distinguishing them from those laboring under other forms of mental disease. Hallucinations of hearing in the form of "voices" are common; also delusions of suspicion, and such patients may be very dangerous; in other cases they are profoundly depressed, with a strong tendency to suicide. A large proportion of those "found drowned" and reported in the press are, if their history were known, chronic alcoholics, and it is noteworthy that no less than 20.8 per cent. of the suicidal male patients admitted into our asylums give a history of intemperance. Profound mental enfeeblement is the termination of almost all cases that do not recover. Alcoholic insanity, however, when not of long standing, is one of the more curable forms of mental disorder. As one would expect, total abstinence from alcohol is essential if the recovery is to be complete. I have no sympathy with a treatment that prescribes for such patients "a hair of the dog that bit

them." Two thousand three hundred and sixty-five patients suffering from alcoholic insanity have been annually admitted into English asylums, taking the average of the last five years. This gives a percentage of the total admissions of 14.2 per cent. There is, however, a great difference if we distinguish between the *sexes* in the incidence of alcoholic insanity, since drink was the cause in no less than 20.8 per cent. of the males admitted, and but 8.1 per cent. of the females.

These figures are obtained from returns furnished to the Commissioners in Lunacy by the medical officers of asylums, and are published in the Blue Book for 1894.

If private patients (those whose friends are able to pay for their maintenance) are considered apart from pauper patients, the percentage is very slightly reduced; and we may safely conclude that this cause of insanity operates to almost the same extent in the middle classes as in the lower classes of our population.

In the Retreat the numbers are too small to allow of any reliable comparison. Including all cases in which alcohol may be a contributing cause of the mental break-down, I find that out of 40 males admitted during the past three years, 10 gave a history of alcoholism; while out of 58 females, there were but 8 cases. Thus my cases give a total percentage of both together of about 18 per cent., which, so far as they go, corroborate the figures given in the Blue Book, as allowance should be made for the fact that I include patients whose attack was accelerated, but not entirely caused, by alcoholic excesses.

Dr. Clouston, of the Royal Edinburgh Asylum, gives the percentage of admissions during fifteen years as 16.4 per cent., though during the influenza years there was a sudden increase to 26 per cent.

Exaggerated statements of this question are, I regret to say, made; but it would not be far wrong to conclude that from 14 to 18 per cent. of the cases of mental disease occur-

ring in Great Britain are due in large measure to alcoholic intemperance.

The mental ruin produced by alcohol is in no way proportionate to the 2,000 unfortunate persons who, from this cause, find their way into our asylums. Everyone is acquainted with men and women whose mental powers are so shattered by long-continued indulgence in drink that they have reached the borderland between sanity and insanity, even if it be not overstepped.

These subjects of chronic alcoholism may have entirely lost the power to abstain from drinking, they may have gradually allowed their families to become penniless, and their children to lack the common necessities of life; their character may have so altered for the worse that it is obvious to everyone that they are almost different persons, — thoughtless and selfish instead of kind and affectionate.

I do not propose to allude to the pressing need for further legislation to obtain increased powers for restricting the liberty of habitual drunkards, nor to the urgent call for inebriate homes for the poorer classes; to which I may add the need for the imposition of penalties upon those who knowingly supply drink to persons notoriously of intemperate habits, since these matters are outside the scope of my paper. I wish, however, to emphasize the fact that alcohol does incalculably more harm in producing mental degeneration in the many who are never placed under care, than in the few who find their way into asylums.

There are two forms of chronic alcoholism which, as a rule, can be distinguished; in one the indulgence is more or less constant, and in the other it occurs in periodical outbursts. In the former there is often considerable enfeeblement of mind or other signs of mental deterioration, often without actual drunkenness at any time; so that the patient may be quite unaware of the change and his relatives even may be ignorant of the true cause. It is one of the most striking features of alcoholic intemperance that, in both acute and in chronic cases, the subject does not rightly appre-

ciate his condition. This greatly adds to the difficulty of treating such patients.

The other variety of chronic alcoholism is paroxysmal in character, and to it the name "dipsomania" has been given. It consists of a craving for stimulants which overmasters the subject from time to time when he or she gives way to an outburst of drunkenness. These patients usually suffer less mental deterioration than the habitually hard drinker.

These forms of chronic alcoholism cannot, however, be sharply defined, and many cases are intermediate between these extremes.

In dealing with the effects of alcohol upon the individual in producing mental disturbance, I have begun with the more chronic and deep-seated affections, and have yet to mention two acute disorders produced by this agent.

Delirium tremens, acute alcoholic delirium, is a condition of profound mental disturbance which occurs after a drinking bout, and frequently when some physical disease has lowered the vitality of the patient. It is characterized by restlessness and excitement, and hallucinations of sight (the seeing of creeping things, etc.).

Delirium tremens is a very grave complication of disease and may render highly dangerous some ailment which otherwise might have been in no way serious.

Besides this, a form of acute mental disorder of longer duration (*mania à potu*) is described by alienists as distinct from chronic alcoholic insanity.

Besides the various mental disturbances already mentioned, I must also point out that the deleterious effects of alcohol are not confined to the individual, and that there is overwhelming evidence to show that the children of intemperate people inherit a tendency to intemperance or some form of nervous disease.

Modern writers on heredity, Weissman and his school, have attempted to demonstrate that acquired characters are not transmitted to the offspring. I am satisfied that this

does not apply to acquired alcoholic intemperance, and doubtless Weissman would not teach that a definite poison could be imbibed by a parent without injury to the offspring, and would probably protest against his biological dictum being carried into the sphere of pathology. Be that as it may, it would be easy to quote a number of authors to show that alcoholism in parents is very prejudicial to their descendants. Thus are the sins of the parents visited upon the children. The offspring of such parents may either be peculiarly susceptible to the influence of alcohol, or may inherit a mental instability rendering them easy victims to it, or the inherited defect may be manifested in a tendency to insanity, epilepsy, or some other form of mental disorder.

There is, moreover, very strong evidence to show that drunkenness in parents is one of the most frequent causes of idiocy or imbecility in children.

Dr. Legrain, in a recent work upon "Social Degeneration and Alcoholism," has published an account of the descendants of 215 drunkards that he personally has traced. This work shows conclusively that in such families a very large number of the children die young, and that the families rapidly die out; that epilepsy, insanity, and other nervous disorders are extremely common.

Before leaving this part of my paper, it may not be out of place to express the opinion that I consider the influence of alcohol upon the brain of infinitely greater importance than its influence upon the circulation or upon other parts of the body.

In England it is true that we have heard of the watering of geraniums by diluted solutions of alcohol, and of attempts to accustom water-fleas to living on weak spirit and water, and we hear that neither geraniums nor water-fleas flourish. All this, however, is remote from the problem in hand, and the skeptical person is not convinced by deductions drawn from such experiments. The work done by Prof. Kraepelin and his pupils in Heidelberg promises to be of very great importance.

Kraepelin has summed up his conclusions as to the action of alcohol in his *Psychologische Arbeiten*, Band I, p. 83. He states that experiment has shown that the idea that alcohol strengthens has arisen from self-deception. Alcohol only facilitates the discharge of motor impulses, and does not make them more powerful. If there is any strengthening effect, any increase of power, it is very transitory, and is quickly followed by a pronounced diminution, which takes some time to disappear. He goes on to say :—"Moreover, the powers of conception and judgment are from the beginning distinctly affected, although we perceive nothing of it. The actual facts are exactly the opposite to the popular belief. I must confess that my own experiments, extending over more than ten years, and the theoretical deductions therefrom, have made me an opponent of alcohol."

The relation between intemperance and mental disease is, however, a reciprocal one, and not only is drunkenness a cause of insanity, but mental disease is a cause of drunkenness.

This latter aspect of the question I propose briefly to discuss.

Consider in the first place the case of a man in the early stages of an attack of mental disease. The disease in question may be almost of any kind, characterized by either excitement or depression ; but for our purpose we will assume the attack is one of simple mania, the leading features of which are deficient self-control and lack of judgment, excitability, talkativeness, and usually restlessness and inconstancy of purpose. Such a patient becomes an entirely altered man, and among other changes we may find that he has commenced to drink freely, and perhaps for the first time in his life is intemperate. The early stages of such a mental attack are insidious, and it may not be for a week or two that the patient's relatives recognize the actual unsoundness of mind, and take the necessary steps to ensure proper treatment. In looking for an explanation of the attack, what is more likely than that the whole may be ascribed to the

unaccustomed indulgence in drink? And thus the case may be considered primarily alcoholic, when the alcoholic indulgence was really secondary to the mental disorder. My point is this, that in the course of acute mental disorder it is not rare to find that patients hitherto abstemious may become very intemperate, owing to the loss of self-control produced by the disease. It is, however, certain that this influence of mental disorder is not limited to acute disease.

If we consider the extensive evils which, during the past few years, have been produced by influenza, we shall find that one of the most common results has been a more or less defined mental and nervous disorder. Numberless people have never been the same since their attack, and not a few have become actually insane on account of this obscure and insidious nervous poison. It may, I think, be fairly contended that intemperance has also been caused in the same way. We know that there was an extraordinary increase of spirit drinking, coincident with the appearance of influenza among us. Doubtless much of this was due to habit or a false belief as to the efficacy of spirits in combating the disease; but I also think there is good reason to believe it was due in large measure to the depression produced by the disease itself.

There are other forms of nervous disease which may contribute to the production of intemperance, notably hysteria, epilepsy, dyspepsia; and several well-authenticated cases are recorded in which habitual drunkenness dated from injury to the head. Thus in some obscure way a shock or actual injury to the brain may be the proximate cause of drunkenness in persons who have previously been temperate.

If we examine the family history of chronic alcoholic patients, we shall find they present an unusual number of relatives suffering from some form of mental disease. And, indeed, in cases where there is a history of alcoholism in the parents, a further inquiry may show an insane inheritance.

The following case quoted by Legrain will illustrate this point :—the patient, an epileptic imbecile, was one of a family of sixteen, ten of whom died in childhood ; one sister, who was hysterical, had nine children, many of whom died in convulsions. One brother of the patient was feeble-minded and deaf, one brother was epileptic, and a brother and sister are described as very nervous. The mother of these children was alcoholic and hysterical, the father was an inveterate drunkard, and two paternal uncles were drunkards. The paternal grandparents, however, were not intemperate, but the grandfather was weak-minded and the grandmother hysterical.

This case illustrates the conclusion which I believe we can safely draw, viz.: that alcoholism tends to arise in families that are unstable, and that this instability is an inherited neurotic condition that may be manifested in many different ways.

It may serve to emphasize this point if I quote the opinions of a few authorities :

Dr. Clouston.—"Excessive drinking and mental disease are closely connected hereditarily in many cases. The children of drunkards often become insane, the children of insane people still more often drunkards."—(*Morningside Reports,* 1889.)

Dr. Maudsley.—"The neuropathic nature of dipsomania is further attested by these facts ; first, that it is commonly found to own a morbid, nervous inheritance, such as ancestral insanity, epilepsy, or drunkenness ; and, secondly, that it is sometimes acquired as the sequel of an injury to the head, or of a sunstroke, or of a regular attack of acute insanity."—(*Pathology of Mind, 2d Ed., p.* 501.)

Dr. Legrain found heredity in 63 out of 103 cases of drunkenness. He also says "the great majority of drinkers are predisposed, disordered, and defective. The drinker is almost overwhelmed by a number of cerebral affections in the family with which he is connected by the close band of morbid consanguinity. Excess in drinking is only one of

the numerous characteristic symptoms of mental ruin."—(*Tuke's Dictionary of Psychological Medicine, p.* 65.)

Dr. Blandford. — "Early habits of drinking are also frequently contracted by weak-minded people, and we constantly find that habitual drunkards, as well as dipsomaniacs, are the offspring of insane or epileptic patients." — (*Insanity and its Treatment, p.* 161.)

Dr. Savage. — "Drinking may be an early symptom of insanity. It may be a direct inheritance, or it may be a result of neurotic inheritance." — (*Insanity and Allied Neuroses, p.* 421.)

My own results, in so far as they go, entirely corroborate the opinion that a neurotic inheritance (by which I mean the inheritance of a tendency to epilepsy, insanity, hysteria, or other kindred nervous diseases) is a predisposing cause of inebriety. Out of 18 alcoholic patients, 8 presented a history of mental disease, 3 a history of alcoholism in the family.

One other point in the inheritance of a tendency towards drunkenness is the increased susceptibility to the influence of alcohol that certain members of a neurotic stock possess. In its cruder forms this is seen by the production of profound intoxication by very moderate quantities of alcohol.

To sum up, I think there is no escape from the conclusion that, on the one hand, alcohol does an incalculable amount of harm quite independently of any question of inherited failings or even acquired predisposition; and, on the other hand, in very many cases of habitual drunkenness there exists a decided inherited proclivity to alcoholic intemperance or other manifestation of nervous instability.

One conclusion is inevitable in considering this question, viz., that members of unstable and neurotic families should totally abstain from alcoholic beverages. Yet we all know of cases where, in spite of every warning, this necessary means of avoiding calamity is entirely disregarded. But if we reflect, we may see that this reckless conduct is not necessarily due to willful choice of a dangerous path, but it

may be due either to inherited and imperative desire for self-indulgence, or to some innate defect of judgment.

Everyone with experience in mental disease knows how ill-defined is the boundary between sanity and insanity; and the study of mental disorder in the few within and the many without asylum walls profoundly influences our opinions upon responsibility for errors of conduct. It makes everyone charitable to recollect how poorly equipped mentally, as well as physically, such a large number of mankind begin life, and how ill able they are to surmount its difficulties. In reflecting upon the causation of drunkenness, the same charitable considerations must influence us.

Alcohol seems to have a special affinity for the nerves of the extensor muscles of the legs. Why should the terminal portions of the peripheral nerves be first affected? Is it because they cover a much larger area than when collected into bundles, and so are more exposed to the poison circulating in the capillaries, and partly because they are farthest removed from the nerve cells, on the energy radiating from which their health depends?

The selective power of alcohol is also remarkable, for the sensory nerves and cells causing much disturbance long before paralysis comes on. Is this nerve intoxication which in most cases is found to be a breaking up of the medullary sheath of the nerve in segments? Wide-spread central nerve and muscular degeneration follow from alcoholic poisoning, but whether this is nerve intoxication, nerve degeneration, or nerve inflammation, is not clear.

PULMONARY TUBERCULOSIS IN THE SUBJECTS OF ALCOHOLIC NEURITIS.

By T. N. Kelynack, M.D., (Vict.), M.R.C.P. (Lond.),

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Under the heads of alcoholism and tuberculosis, the pathologist has to group a considerable number of lesions, which, while presenting different macroscopic and microscopic characters, are yet in all instances due primarily either to the toxic influence of the chief product of the growth of yeast organisms, or the toxic bodies associated with the development of the tubercle bacillus. In both cases we have to deal essentially with the results of a toxæmic condition.

Modern observations have clearly shown that the development of certain micro-organisms in the body may be modified by the presence of other organisms or their products.

And, still further, the results of recent treatment by so-called immunized serum and animal extracts seem to indicate the great probability that some, at least, of the as yet but little known conditions, which we speak of collectively as "predisposition," are closely dependent on chemical influences which may not only be recognized but possibly controlled.

A consideration of such facts as these leads one to ask —Is there any reason to believe that chronic alcoholism predisposes to tuberculosis?

An impression exists among a large section of the public, and indeed, is supported in some medical quarters, that habits of alcoholic excess are antagonistic to, and even preventative against, tubercular disease.

Payne, a few years since in the Discussion on Chronic

Alcoholism at the Pathological Society of London, stated that: "With regard to the influence of alcohol on the production of tubercle, the utmost divergence, and indeed contradictory opposition of opinion, prevails. Huss found tubercular phthisis to be rare in drunkards, and that has been the general conclusion drawn from post-mortem observations. It has even been thought that drinking freely checks the progress of phthisis, but of this I can find little evidence. On the other hand, the more general impression is that alcoholism is a frequent cause of consumption." Payne goes on to add: "On this disputed point we must appeal to the methodized experience of those who have special opportunities of observation."

Adopting this suggestion of Dr. Payne, I have ventured to indicate very briefly our experience in the Pathological Department of the Manchester Royal Infirmary during the last three years, limiting myself, however, at the present time to a consideration of those cases of alcoholism in which the chief feature was that of "paralysis." In these cases the history and clinical features conclusively established the fact of the long-continued alcoholic poisoning.

Eight fatal cases of alcoholic paralysis have been examined in the Pathological Department of the Manchester Royal Infirmary since October 28, 1892, and in no less than seven, pulmonary tuberculosis was found.

The following abstracts of our notes will briefly indicate the chief features:

CASE I.—*Chronic Alcoholism; Hepatic Cirrhosis; Multiple Neuritis; Acute Pulmonary Tuberculosis; Gangrenous Colitis with Perforation; Acute Peritonitis.*

Fanny G., æt. 45, was admitted under Dr. Dreschfeld, July 30, 1892. Well marked history of chronic alcoholism; typical symptoms of peripheral neuritis; much gastro-intestinal disturbance, with vomiting during last month; recent development of symptoms of acute miliary tuberculosis of lungs.

Autopsy. — Much wasted, sallow-looking middle-aged female.

Lungs: Both extremely congested. Numerous recent scattered tubercles in lower left lobe. No tubercles in right, which was emphysematous and deeply pigmented. Weight: right, 11 oz.; left, 15 oz.

Heart: Six ounces, small, myocardium soft, flabby. Peritoneum: Semi-fluid fæcal matter in abdominal cavity. Stomach: Acute gastritis. Intestines: Small, intensely congested. Large localized gangrenous enteritis in central portion of transverse colon, with distinct perforation. Liver small, 39 oz., distinctly "cirrhotic." Spleen: 2½ oz., much congested. Kidneys: Fairly normal. Bladder: Walls thickened, much inflamed, and in places seat of phosphatic deposit.

CASE 2.—*Chronic Alcoholism; Multiple Neuritis; Cardiac Dilatation; Pulmonary and Intestinal Tuberculosis.*

Mary T., æt. 57, was admitted under Dr. Steell on March 29, 1893. On admission presented well-marked symptoms of peripheral neuritis. Quickly developed delirium of "alcoholic" type, and died April 4th.

Autopsy.—Short, well-formed, middle-aged female.

Lungs: Both much congested; patch of "healed phthisis" at left apex; numerous areas of recent caseous pneumonia throughout greater part of upper lobe. No distinct tubercle in right lung.

Heart: 8 oz., cavities of left side dilated. Intestines: Numerous tubercular ulcers along ileum and ileo-cæcal valve. Liver, 52 oz., slightly cirrhotic and markedly fatty. Spleen: 2 oz., soft, congested and pulpy. Kidneys: Both congested, but otherwise apparently normal. Brain: Congested. Irregularly triangular patch of red softening in left lenticular nucleus. Membranes congested and somewhat thickened.

CASE 3.—*Chronic Alcoholism: Pregnancy; Normal Parturition; Fatty Degeneration of Myocardium; Steatosis of Liver; Multiple Neuritis; General Anæmia; Pulmonary Tuberculosis.*

Ellen W., æt. 40. Admitted under Dr. Harris, February 10, 1894. Very marked alcoholic history; said to have been in the habit of taking a bottle of whisky daily. Had been very weak and pale for twelve months. Was confined six months ago. On admission, characteristic aspect of alcoholic paralysis. Intense general anæmia. Very feeble action of heart. Patient died suddenly day after admission from cardiac syncope.

Autopsy.—Body, that of wasted, dusky-looking, middle-aged female.

Lungs: Right: Whole lung anæmic and œdematous. Numerous patches, chiefly in middle lobe, of tubercular caseous pneumonia. Slight puckering at apex, but no distinct indication of old tubercle; left area of complete consolidation of tubercular caseous pneumonia. The cheesy area was breaking down in center, forming an irregular cavity which extended to the pleura. Left apex presented no evidence of old phthisis, and lower lobe free from macroscopic tubercles.

Pleuræ: The left pleura in greater part of visceral pleura thickened by recent deposit of inflammatory lymph which could be readily detached. On posterior part numerous, small, raised, white, glistening tubercles. Heart: Enlarged, flabby; much sub-epicardial deposit of fat; myocardium, soft, friable, yellowish-brown color, and presented, particularly in region of papillary muscles, distinct "tabby-cat" striation. Peritoneum: No tubercle. Stomach and intestines: Anæmic. Liver: Old perihepatetic adhesions; weight, 100 oz.; general steatosis; slight cirrhosis. Spleen: 4½ oz. Kidneys: Finely granular.

CASE 4.—*Chronic Alcoholism; Chronic Pleurisy and Peritonitis; Multiple Neuritis; Acute Pulmonary Tuberculosis.*

Isabel C., æt. 32, housewife, admitted under Dr. Dreschfeld, May 28, 1894. Had been a "secret drinker" for a long time. On admission characteristic symptoms of multiple neuritis. Little or no improvement, and then development of marked pulmonary phthisis, leading to death on July 23.

Autopsy. — Middle-aged, much emaciated female; bed-sores.

Lungs: Both much congested, and studded with tubercular nodules.

Pleuræ: Extensive firm, fibrous adhesions. Heart: 8 oz., and apparently normal. Peritoneum: Old peritonitis, with much matting together of intestines. Liver: 44 oz., slightly cirrhotic. Kidneys: 5 oz. each, slightly granular surface. Cord: No macroscopic changes.

CASE 5.—*Chronic Alcoholism; Fatty Liver; Multiple Neuritis; Pulmonary Tuberculosis; Paralysis of Diaphragm.*

Margaret C., admitted under Dr. Steell, August 1, 1894.

History of steady drinking for last fifteen years, during which she had very little food.

On admission presented characteristic symptoms. Complete paralysis of lower extremities. Tendon reflexes absent. Muscular hyperæsthesia disappeared from the calves, but continued in the thighs. For the last few days before death the diaphragm was almost completely paralyzed. Death from respiratory failure occurred on October 19, 1894.

Autopsy.—Well-formed, somewhat wasted, middle-aged female. Foot dropped on both sides, with drop of big-toe most marked.

Lungs: Right, more or less crepitant throughout, congested, slightly œdematous and with several, small, gray irregular foci of consolidation, especially marked in upper lobe, and evidently tuberculous. Left upper lobe almost completely consolidated by tubercular pneumonia. Considerable fibroid induration, caseation, and softening with distinct cavitation. Lower lobe also congested, œdematous, and studded with recent tubercle. Pleuræ: Slight adhesions. Bronchial Glands: Enlarged and evidently tuberculous.

Pericardium: Normal. Heart: Small; weight, 8½ oz.; much sub-epicardial deposit of fat. Myocardium: Soft, flabby, friable, and seat of considerable degenerative changes.

Peritoneum: Normal. Stomach: Congested and coated

with mucus. Liver: 56 oz. No cirrhosis, but slightly fatty. Spleen: Normal. Kidneys: Normal. Brain: Apparently normal; vessels, healthy. Spinal Cord: Presented no distinct macroscopic lesions. Phrenic Nerves: Microscopically found to be in condition of marked neuritis.

CASE 6.—*Chronic Alcoholism; Fatty Liver; Multiple Neuritis; Pulmonary Tuberculosis.*

Charlotte A., æt. 41. Admitted under Dr. Leech, February 5, 1895. Alcoholic history. Had cough three weeks before admission. Six months ago said to have spat blood. For last month had severe pains in legs and progressive weakness in limbs. On admission, characteristic signs of extensive neuritis in lower extremities. Also much cerebral disturbance, chiefly in form of delusions. Extensive dullness over upper part of right lung, with bronchial breathing and râles. Temperature high and irregular. On February 12th, shortly before death, paresis of diaphragm was noted.

Autopsy. — Well-formed, wasted, anæmic, middle-aged female. Foot drop on both sides.

Lungs: Both seat of extensive tuberculosis. Right most involved, upper half being converted into pigmented fibrous tissue, in which were numerous foci of caseation and many large cavities. Recent caseous nodules occupied upper part of lower lobe, in several places breaking down into cavities. Left lung presented caseous areas and several small cavities. Pleuræ: Extensive adhesions especially marked on right side.

Pericardium: Contained quantity of serum. Heart: Much sub-epicardial deposit of fat. Myocardium: Soft and flabby. Peritoneum: No tubercles, but slight adhesions in neighborhood of liver. Stomach: Dilated, congested, and with hemorrhages in mucous membrane. Intestines: Apparently normal. Liver: Much enlarged; weight, 68 oz., smooth, soft, friable, yellowish-pink color, no cirrhosis. Spleen: Normal. Kidneys: Normal. Uterus: Apparently parous. Brain: Presented no gross lesion. Dura: Adherent to scull cap. Pia-Arachnoid: Thickened and opaque, and with considerable sub-arachnoid œdema.

CASE 7.—*Chronic Alcoholism; Multiple Neuritis; Acute Pulmonary Tuberculosis.*

Gertrude D., æt. 24, single, barmaid, admitted under Dr. Steell, June 6, 1895. Distinct history of alcoholism. Had been in the habit of taking very large quantities of alcohol, in various forms, daily, for a considerable time. Three weeks before admission, first noticed weakness in lower extremities. Had cough and expectoration for some time.

On examination, extensive paresis of extremities; unable to stand; grasp very feeble; anæsthesia of hands; numbness of fingers; marked muscular hyperæsthesia; inability to hyperextend wrist; considerable pain in legs; characteristic dropped attitude of toes and feet; knee-jerks absent. Paralysis of diaphragm followed; temperature irregular—hectic type; cough and expectoration became marked. On June 17th, tubercle bacilli found, but no very distinct physical signs of phthisis detected in lungs up to a few days before tubercle bacilli were found. The course of the phthisis was exceedingly acute; she rapidly became more emaciated, her cough became more distressing, and she died August 18th.

Autopsy.—Well-formed, wasted, anæmic young female; extremities especially thin, with extreme atrophy of muscles of hands; well-marked drop of toes and feet.

Lungs: Right: Extensive tuberculous consolidation, with commencing cavitation in upper lobe. Left: Extensive, diffuse, and apparently recent tuberculosis; apex converted into huge cavity; numerous small cavities throughout greater part of lung. Pleuræ: Left pleural cavity obliterated by pleuritic adhesions; much matting between left lung, chest-wall mediastinal tissue, and sternum.

Pericardium: Adherent, externally, to left pleuræ and adjoining structures. Heart: Slightly enlarged. Myocardium: Soft, flabby, friable, and evidently the seat of extensive degenerative changes. Peritoneum: Normal. Stomach and intestines: Congested. Liver, spleen, and kidneys; Congested, but otherwise presenting no gross lesions. Ovaries: Normal. Uterus: Nulliparous.

Without entering fully, at the present time, into the pathology of this striking association of tuberculosis with alcoholism, attention may be drawn to the following points brought out in these few Manchester cases:

(1) *Number and Proportion of Cases.*—As above indicated, post-mortem examinations have been made at the Royal Infirmary on eight cases of multiple neuritis of alcoholic origin during the last three years. Pulmonary tuberculosis was present in seven. This gives a percentage of over 87.

(2) *Sex.*—All the cases were females.

(3) *Age.*—The average age was 39. The oldest subject was said to be 57, the youngest 24.

(4) *Associated Active Tuberculous Lesions.*—In only one case were there distinct tubercular lesions elsewhere than in the lungs, and then the intestines were involved.

(5) *Old Tuberculous Lesions.*—In one case there was an old tubercular patch at the apex, but here it was doubtful if infection was not from without rather than from this "latent," or so-called "healed" focus.

(6) *Extent of Pulmonary Tuberculosis.*—In five cases both lungs were more or less involved. In two the left was the only one showing any distinct tuberculous process.

(7) *Duration of Phthisis.*—The duration of a tuberculous process in the lungs is often difficult to estimate. Judging from the history and the character of the lesions, it appeared to have run a very rapid course in at least three of the cases. In four it seemed to have lasted for several months. One is stated to have "spat blood" six months before her death. Another had had "cough for some time."

(8) *Character of the Phthisis.*—In one case the infection was evidently recent, and one lung only was studded with small tubercles. In two there was more or less extensive caseous pneumonia. Four presented evidences of softening and cavitation. In two of these four the lungs were also the seat of considerable fibrosis.

In drawing attention to the common occurrence of tuberculosis in these Manchester cases of alcoholic paralysis, I would take this opportunity of pointing out that the liability of the subjects of alcoholic paralysis to phthisis, although definitely recognized by Ross, Dreschfeld, Finlay, Gowers, Payne, and other well-known authorities, does not seem to be so clearly acknowledged in most of our text-books of medicine as appears desirable.

Sir Benjamin Ward Richardson and others have gone so far as to describe a distinct form of phthisis as occurring among hard drinkers.

Professor Delèpine has also shown that drunkards are peculiarly liable to attacks of pulmonary congestion, which, under certain circumstances, may give rise to a pneumonia or hæmorrhagic consolidation of large tracts of the lungs which may afford the tubercle bacillus a suitable soil for further development.

The evidence of these few cases will, I venture to think, tend to show that the conditions met with in chronic alcoholism, at least in the form of "alcoholic neuritis," may strongly predispose to pulmonary tuberculosis of a progressive and fatal character.

Such an admission must of necessity have considerable influence in directing our diagnosis, guiding our prognosis, and indicating lines of treatment.

A consideration of the above cases seems to warrant the following conclusions :—

(1) The subjects of alcoholic paralysis are peculiarly liable to pulmonary tuberculosis.

(2) A recognition of this fact is of considerable importance in arriving at an early and complete diagnosis, and in forming a reliable prognosis.

(3) It is desirable to treat cases of alcoholic paralysis in special hospitals, in country homes, or in healthy private houses, rather than in the almost unavoidably tubercle-contaminated wards of a general hospital.

(4) The necessity for immediate removal of all alcohol from these cases and its replacement by nutritious diet.

(5) The careful avoidance of causes leading to, and the necessity for early treatment of, all catarrhal conditions of the respiratory passages and congested states of the lungs.

THE deaths from alcoholism in Stockholm amount to 90 per 1,000, which is the highest rate in the world.

HABITUAL OFFENDERS IN SCOTLAND. — The Departmental Committee on Habitual Offenders in Scotland have drawn up a unanimous report, which is now published in a blue-book. On the subjects of retreats for habitual inebriates the committee make recommendations practically identical with those made by the English Departmental Committee of 1892, with certain additional recommendations. The inebriate of the police court would be provided for by the "Labor Settlement," to which he would find his way as an ordinary habitual offender. The additional powers which the committee suggest would provide for the compulsory committal of habitual inebriates within the meaning of the Act of 1879, at the instance of their friends, if they could support them, and at that of the Procurator-Fiscal, at the public cost, in cases where their conduct, though not such as to bring them within the category of habitual offenders, was sufficiently objectionable to render them a public nuisance. The definition of habitual drunkard should be extended to cover persons suffering from the abuse of opium and other drugs as well as alcohol.

There are in the Patent Office at Washington eleven hundred and thirty-seven different patents taken out for methods and devices for the manufacture of alcohol.

HYPNOTISM IN THE MANAGEMENT OF INEBRIETY.*

By T. D. Crothers, M.D.

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The impression that the continuous use of alcohol is followed by hyperesthesia and increased sensitiveness and susceptibility to the surroundings is not true, only in exceptional cases. All inebriates who use alcohol, opium, or other narcotic drugs, have diminished susceptibility and impaired sensory activities, extending from slight defects to general paralysis, not only of the functional but organic activities, and extending to the entire organism.

The inebriate is a neurotic, and irrespective of all first causes suffers from starvation and poisoning. The power of control, of reason and discernment, is defective, and beyond all outside influences is swayed by the unknown impulses of a degenerate and defective organism. The power of a dominant idea lasts only as long as it is not in sharp conflict with the morbid impulses of degenerative process.

The neuroses of inebriety is practically paralysis, not of one part of the body, but of the entire organism. If the hypnotic state is pathologic, and the three special phases, lethargy, catalepsy, and somnambulism, are common symptoms, it is clearly possible that the narcotic effects of these drugs may favor these conditions. But in reality the lethargy and catalepsy from poisons introduced from without, and formed within the body, are controlled by conditions that are largely unknown and unforeseen. From inference it seems clear that any defect or disease of the nervous

* Read in the section on neurology and medical jurisprudence at the forty-sixth annual meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

system in which the excessive use of drugs is a symptom, follows a different line of degeneration from that called hypnosis. In one case, general organic degeneration exists; in the other, the power of control is broken up, and follows suggestions from without. Of course no state of poisoning from any of the drugs used in inebriety will permit the power of hypnotic influence to dominate the acts or conduct of the case. When the poisonous effects of the drug have passed away, then the unstable nerve centres will respond to external influences in various degrees.

If hypnotism is a physiologic state resembling sleep, and not an abnormal condition — only a peculiar susceptibility to certain external influences — it would seem that the inebriate seldom would, if ever, be affected by it. The observed facts vary widely, and are not sufficiently clear or well-attested to form the basis of any authoritative conclusions. The few observers in this special field have not found the same conditions even in the same cases ; and at different times widely varying degrees of susceptibility have been noticed. On the cessation of the drink paroxysms or when from any cause the person abstains from drink, the reaction is followed by a period of psychical weakness. In some cases intense melancholy, or hyperesthetic sensitiveness, and fears of their condition, are fertile fields for hypnotic influence.

At this time, there is a degree of prostration and absence of assertive will-power, with strong tendencies to depend on any influences which will afford help. Good illustrations are seen in temperance revivals, where at the command of the enthusiastic orator they go forward and sign pledges, make prayers, recite experiences, and assert positive changes of life and character. These are hypnotic phenomena along coarser lines, and their potency is apparent in the very small number of cases that are permanently benefited. In these cases the impression of a dominant idea has become so fixed as to overcome all other tendencies to use spirits again. Personal counsel, advice, threats, and appeals

are followed by the same obliteration of the drink symptom in an equally small number of cases.

The inference is that at this period in the progress of inebriety, hypnotism skillfully applied may have a marked value. Experience differs widely, and the power of a controlling influence one day is lost the next; and the idea that seems so strongly held at one time disappears later. The case which appears to be controlled by the operator suddenly breaks away and the theories are disproven. There seems to be a struggle between the morbid impulses of a degenerating brain and organism, and the power of suggestive thought. The latter appears to be both physiologic and pathologic: physiologic when the brain naturally turns for guidance and direction to others, and readily accepts statements of facts which are presented in an emphatic way; and pathologic when suffering from adverse conditions and seeks relief in the promises and suggestion of others. The power of hypnotism in the reactionary state of inebriety is apparent in many ways, although not explained or understood, and the permanency of this control is still more obscure. The same power in cases who are away from this period, and are termed restored, used to prevent them from taking spirits again, is equally obscure. In one instance this power gave the inebriate a special repugnance to drink in a certain old circle of friends, but did not stop him from drinking alone. In another case, he claimed he could not drink in his native city, but drank in a distant town. The power of suggestion that one can not drink again, may hold intact for an unknown period, but its permanency depends on the degree of physical vigor and health, and other influences. This is illustrated in the gold cure specifics. The profound impression made on the organism by narcotic drugs, is strengthened by the hypnotic force of a dominant idea; spirits can not be taken again. This in a certain number of cases is real, as long as the person gives unusual care to his physicial condition. If curiosity tempts him to test this statement, the delusion is quickly exposed.

It appears clear that hypnotism is a power in the treatment of inebriety, but its application is limited to cases not under the influence of spirits or drugs. It is not clear that these cases can be so positively controlled, or that command or suggestion will last as long as in other cases. Evidently clearer and more exact studies are necessary on this topic.

Profound hypnosis that is continued from time to time on inebriates varies widely in its action. Some persons assert that its influence is permanent, others say it depends on the presence or proximity of the operator. It is natural to expect that a knowledge of the presence of the operator, and a repetition of the power of control would finally become dominant, to the extent of superseding all other morbid impulses, and in this a cure could be said to follow. It would be a question, whether the susceptibility to hypnotic influence, frequently repeated, is a pathologic condition resembling that which follows the degeneration caused by spirits.

In a case mentioned by Dr. Kerr, in the free intervals from drink in a paroxysmal inebriate, hypnotism was sought and enjoyed. The man was hypnotized often, and the idea that he could not drink impressed on his mind. He was used to show the power of hypnotism on many public occasions. This was kept up for a long time, until the operator moved away, when the man relapsed. This illustrated the fact observed in other circles, that the frequent hypnotic action will take the place of spirits, and is a condition that is akin to intoxication, and in some cases may be agreeable to the person. I have frequently been conscious of a personal hypnotic influence over certain cases of inebriety which was effectual in restraining them from drink at the time. In all institutions a certain small number of cases never drink in and about the building, irrespective of all conditions. Such cases come and go without restriction, but when away from the institution and its influences, relapse at once. It would appear that both managers and the institutions exercise a hypnotic power which enables the

person to keep from drink. The same principle explains the power of faith and prayer asylums, where a dominant idea is urged with great intensity and impulsiveness, and for the time being is made to absorb all other thoughts. In this way the morbid drink impulse is overcome by a class of different ideas, which for the time break up every other thought. This condition has reactions, and the men who are most emotional and absorbed by the suggestions of help and salvation, unbend in private, displaying very opposite traits. This is evidence that the power is hypnotic and depends largely on the operator and the surroundings. It will be accepted as a fact that inebriates are less susceptible to hypnotic influence, and such influence is more transient and uncertain in its duration. Yet this is a power of great therapeutic value in an institution where it can be repeated and made continuous, and where the surroundings are under the control of the operator. To apply it practically it may not be necessary to at once dominate the will of the patient and overwhelm his personality, in abject submission to another's will, only in certain cases. But in all cases the dominance and continuous pressure of suggestion are the essentials. Suggestions that can be carried out and enforced by conditions of surroundings.

By studying these influences on susceptible cases, and forcing their recognition suddenly or slowly, a power of control is built up of practical value. A certain number of inebriates are most clearly held under restraint by the hypnotic influence of certain persons closely associated with them. The death or removal of these persons is followed by a breaking out of the drink impulse.

The special question to be answered is this: Have we in hypnotism a therapeutic power of sufficient general application, in the treatment of inebriety and drug narcotics, to demand a technical knowledge of its application and use? It appears that we have. Irrespective of all theories of either the pathologic and physiologic action of this force, its power over the brain centers is assured and demonstrable

As an anesthetic, its application in many cases has attracted great attention, but how far it can be used to control unstable and psychical diseased brain centers is not well understood. It would seem that from the evidence so far, its power in the treatment of inebriety should be utilized in all cases. The operator should first become familiar with the technique and the general principles of its application, and then put it to practical use and test, the same as any other therapeutic agent.

So far, it would seem the best results may be expected in an institution where the operator can command the surroundings and conditions of the patient. The complexity of all cases of inebriety would most naturally increase the difficulties in the treatment, especially in the application of psychic remedies, and favorable results are not to be expected in the same proportion or degree as that which follows other means. The fact that a few cases are greatly benefited is the strongest encouragement for its more extended use.

In a summary of what appears to be the sound conclusions of the present knowledge of this agent in inebriety, the following may be stated :

1. The inebriate is a neurotic, and not a good subject when under the influence of spirits and drugs for hypnotism.

2. After the withdrawal of the drugs, a period of marked instability seems most favorable for suggestions. This will be transient unless followed up with persistence.

3. Experience points to the wide extended influence of hypnotism in inebriety, although not known as such, in the psychic forces of public meetings, and the power of dominant ideas impressed with emphasis on the mind.

4. Clinical experience furnishes many facts which seem to prove that in certain cases its value is very marked, also promising from more exact studies greater results.

5. Evidently, hypnotism is yet to be studied and tested by the same methods applied to all therapeutic agents. So far, its value in inebriety is established, to what extent and how far it can be used are to be settled by future observers.

THE GENERAL TREATMENT OF HABITUAL AND PERIODICAL ALCOHOLIC, MORPHINE, AND COCAINE INEBRIATES.

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In these latter days every reputable physician approaches with something of dread the subject of the treatment of those classes of patients known as morphiomaniacs and dipsomaniacs. So much has been spoken and printed on this subject; so much has been illegitimately claimed for so many nostrums; it has become such a "fad" with so many grasping and irresponsible members of the medical profession — that the practitioner who attempts to discuss its various features and phases and treatment must make up his mind in advance to undergo malignant misrepresentation at the hands of proprietors of the legions of specifics and so-called "cures." If this were all, however, no one would be in any wise deterred. But the conscientious investigator is met at the outset with hostile criticism and the suspicion of empiricism from indifferent members of his own profession. Nevertheless, I feel that there are certain things which should be said, certain facts which ought to be cited; and, in my capacity as superintendent of the St. Louis City Hospital I have had an experience somewhat out of the ordinary, the results of which I gladly give in the hope that they may prove interesting and valuable to the profession at large, and helpful to victims of the morphine and kindred habits.

Thus far I have taken note of thirty six hypodermic morphine and opium smoking patients whom I have treated. So far as I have been able to learn, only two of these have since

lapsed; and as these were men who seemed to be beyond the pale of influence of a moral consideration, and of whose "staying qualities" I was at no time very sanguine, I am inclined to feel somewhat pleased with my success. It must be borne in mind that these patients were in no sense easy ones to handle. Most of these men and women were chronic "hypo fiends," and had been taking the drug subcutaneously for periods ranging from one to fifteen years. The quantities injected varied from a minimum of 5 grains to a maximum of 80 grains per day. The "hop fiends," or opium pipe smokers, in some cases frequently smoked constantly in every hour of the twenty-four, except the few hours during the day in which they were overcome with sleep.

Of course, all habitual users of opium and its derivatives are difficult to cure of the habit, and I need not tell the profession that the very worst and most distressing cases find their way into such institutions as the St. Louis City Hospital. Not a few of these men and women were absolutely poverty-stricken. For a long time previous to their coming under my care some of them had been insufficiently clad and nourished, having voluntarily deprived themselves of proper clothing and food, and not infrequently gone without lodging that they might procure their favorite intoxicant. As a consequence, I found their intense craving for morphine complicated with extremely low vitality, with derangements of the nervous system, with cardiac and pulmonary affections, and with various rectal troubles. These were certainly complex and discouraging cases to treat, and the very fact of success, despite these obstacles, is an impressive object-lesson, which is a gratification to myself, and ought to be an incentive to the profession generally.

At the outset, I wish to say that I do not claim my success to have been due to any new or startling discovery. I simply took old and proved medicaments, and made such combinations thereof as seemed most likely to produce a given desired result. As a preliminary, I made sure that the fundamental and essential ingredients were absolutely

pure. Then I compounded them personally. The principal medicaments which I used were the old and well-known bitter tonics. I found an efficacious remedy in assayed Peruvian bark (cinchona) select, which contains 3 per cent. of quinine and 8 per cent. of alkaloids. I also found useful in this respect colombo, gentian, and other bitter tonics, with aromatics. It is notorious that the market is flooded with various worthless compounds of these and similar ingredients, and that the proprietary or "quack" companies set afloat an imperfect and unreliable product because they are constantly seeking a preparation in which there shall be a very large margin of profit. They use inferior drugs, and in striving to prepare tinctures they resort to any and every means to save alcohol, on account of its being so expensive.

The usual symptoms following the deprivation of morphia are that all of the secretions of the body are increased; there is running at the nose and eyes; diarrhœa and vomiting; acute gastritis; cramps or excruciating pains in the arms and legs; contractions of the muscles of the face; restlessness; insomnia — in short, all the general conditions which we get in nervous prostration. In general, I administer a dose of one of these bitter tonics every two hours. Sedatives and hypnotics are given according to the special needs and condition of each patient. Nourishing and tempting food is set before him as soon as it is craved, or can be taken without subsequent distress; but there is no forcing. The usual baths and sanitary measures are, of course, enjoined.

In cases of acute alcoholism, where a quick restoration to a normal condition is necessary or desirable, I have devised a plan which has never failed to prove efficacious. This is simply washing out the stomach. The apparatus for this purpose consists of a glass funnel inserted in the end of a rubber tube leading into the stomach. Through this I pour plentiful quantities of salt water, until vomiting ensues and the stomach is thoroughly washed out. The patient is then placed in a hot bath and afterwards immersed in cold water.

In fifteen minutes he is comparatively sober, and the next morning perfectly so, and steady, too. By this device I have been enabled to save for the city a great deal in the way of salts, bromides, chloral, and other drugs. This treatment arrests gastritis, and, in experienced hands, never fails of accomplishing the desired result, though in inexperienced hands it might be attended with great danger.

In prolonged acute alcoholism it is sometimes necessary, or at least merciful, to administer alcohol, but it should always be given in a disguised form. This extension of mercy, however, should not enter into the treatment of opium or morphine patients. There should be no "tapering" in such cases, for the reason that the suffering consequent upon the deprivation of the last quarter or eighth of a grain of morphine, after the "tapering" process, is just as great and just as prolonged as though the administration of the drug had ceased abruptly when treatment commenced.

It is not unusual to find hypodermic morphine users combining cocaine with their preparations, sometimes to the extent of from 12 to 15 grains per day. The soothing qualities of cocaine are well known to the profession. In most cases the cocaine is added to deaden the pain caused by the frequent use of the hypodermic needle.

There recently came under my observation and treatment a peculiar case — that of a young man who was a victim of self-injected cocaine and strychnia. He admitted to me that he had been taking this rare combination for about a year, and had reached a point where his system required 30 grains of cocaine and 2 grains of strychnia per day. He was found unconscious in the street by the police, and brought to the hospital for treatment. To my surprise, he voluntarily told me that he had been engaged in the founding of "institutes" for the cure of the liquor, opium, and morphine habits in various parts of the country for two years. Had it not been for the unwritten law concerning professional secrecy, I might easily have obtained the formulae used from him. I did learn, however, that in the treatment of morphine

cases he "tapered" them, at the same time keeping them more or less under the influence of chloral and bromides. He said that he used the same formulae as those employed by a company of more than national notoriety, which he claimed to have obtained in Europe from the man who sold them to the head of the American company. In all, he (the patient) claimed to have established about fifty "institutes" in this country, and had reaped great financial gain therefrom.

The habit of opium smoking is almost always contracted through curiosity and association — hence, the moral influence is often found to be of great assistance after repairs to the physical system have been made. Contrary to the opinion so long and generally held, this habit is more easily broken up than either the alcoholic or the morphine habit. Those who take morphine through the stomach are, likewise, much more easily and quickly cured than when a hypodermic needle is used.

Permanent cures of those who inject morphia and those who drink alcoholic liquors excessively are by no means so plentiful as they are reported to be. The "periodical" is the most difficult type to treat among the alcoholics. Their attacks seem to recur at certain regular intervals, or in gradually diminishing cycles, preserving, as it were, a sort of rhythm. They can be easily "wound up," and will run without aid of any kind for a certain period. When persistent sleeplessness occurs, during seasons of abstinence, the mind assists the body in overthrowing the enfeebled will. Even in cases where a man yields but rarely, his life is, at these times of restless craving, a hell upon earth. Any physician who makes a study of the "periodical" alcoholic will be surprised at the extent to which heredity enters as a factor. Take the case of the lamented Edwin Booth, for instance. He inherited a strong appetite for alcoholic liquor, which only at rare intervals overpowered him. He knew better than anyone could tell him of this natural tendency, but could not at all times conquer it. His admirers throughout

the whole country were shocked when he pitched forward near the footlights while he and Barrett were playing together in New York. Later, to a sympathetic friend, he said: "I never drink at a social gathering. My start is always a solitary one. The very men who coax me to drink at a banquet are the ones who would first avert their faces, or spurn me with their feet, when they saw me lying in the gutter, where I should eventually and inevitably land." What a sidelight is this on the perpetual struggle that tortured and embittered the life of this great actor — how it adds the element of heroism to the character of the man whom we were accustomed to regard solely as a histrionic genius!

In strong emotional natures, when these periods of temptation occur, there seems to be absolutely no preventive save temporary restraint, isolation in the country, or a long sea voyage, with accompanying medical attention. Will power alone cannot avert the explosion. The patient's condition seems to run its independent course, and must "come to a head" as naturally and inevitably as does a boil. The "periodical" drunkard is sufficiently desirous of leading a life of sobriety to abstain entirely from the use of liquor for a considerable time. As he grows older, however, these periods of sobriety become shorter in length, through gradual mental and physical enfeeblement, until the man who formerly "went on a spree" once a year shortens the intervals to four months, three months, two months, and finally sinks into the condition of the habitual, well-nigh hopeless drunkard.

One "periodical," who came under my observation, puzzled me for a long time. The man was intelligent and apparently sincere in his desire to permanently reform; yet at the very first opportunity he would get stupidly drunk. I despaired of ever effecting a cure in his case, until the thought struck me that perhaps he was afflicted with a nervous derangement distinct from the alcoholic appetite. Inquiry confirmed theory into fact—he had been troubled thus

from childhood. I treated him accordingly and effected a cure; yet he realizes, as I do, that at certain intervals he will have to undergo similar temptations as long as he lives. In this instance, mental and moral as well as physical, forces were at work. Attacked first by nervous indigestion, he soon lost his appetite entirely. After forcing himself to eat, he experienced great distress, and finally his stomach rejected all food. A little later on, insomnia was sure to follow. Protracted loss of sleep produced mental and nervous disturbances which interfered with the performance of his work and caused great irritability. In such condition I have seen him, and really considered him as being for the time mentally irresponsible. Restraint and treatment would alone "bridge over" one of these periods. If these aids were not accessible, he would surely reach a point at which every moral consideration would be swept away, and in a spirit of desperation—expressed by his: "Don't care! Anything is preferable to this"! — he would gulp down half a dozen big drinks of whisky in quick succession, and then continue to drink until he became stupid and sank at last into the long-craved sleep, which always proved to be the precurser of an exceedingly debilitating debauch. "I am afraid to trust myself with drugs," he said to me, "and I know that whisky will 'do the trick,' with some prospect of my awakening again in this life."

There are no doubt thousands of similar cases, and there surely ought to be some refuge for these unfortunates when their "periods" approach. This man told me that he once applied at a private hospital for restraint, and was informed that there was not a single private room vacant. "But you'd take me if I were drunk"? he asked. "Oh, yes," was the reply — and the next night he was admitted as a patient, stupidly drunk. All men have not the moral strength which sustained Edwin Booth, but there are many who possess something of his temperament and are not able entirely to escape the degradation which he so heroically avoided.

The "cycling" recurrence of the appetite is by no means

so marked among the consumers of opium and morphia, yet I have no doubt that it does exist in some degree. This belief is strengthened by the fact that in many towns and cities in the West there are to be found certain peripatetic panderers to "hypo fiends." These peddlers go well provided with the drug and a syringe, somewhat after the style of the "walking liquor-stores" peculiar to Kansas, and have their regular customers among gamblers and prostitutes, whom they call on and "shoot" at certain hours every night. If the "hawker" be even a minute late his customers become restless, and after a five-minutes wait they are almost frenzied. Promptness and reliability are, therefore, the chief and only merits of these morphine-peddlers. Among the classes referred to, alcohol is too much of an excitant, and to carry on their several occupations with ease it becomes necessary that they should have frequent and regular injections of morphia.

Just here I wish, parenthetically, to call attention to a lamentable fact, and one far from being creditable to the medical profession. So far as my observation and inquiries have extended, I have found that less than 25 per cent. of morphine users have become slaves to the habit through curiosity and association. By what means, then, have the other 75 per cent. acquired the appetite? I am compelled to the conclusion that it was through the recklessness of ignorant and unskillful physicians. Of course, there never was a morphine user without a plausible excuse for the formation and continuation of the practice; but I feel that this estimate of 75 per cent. is under, rather than over, the true number chargeable to physicians, and is as nearly correct as it is possible for an estimate to be. These unintelligent physicians are not close enough observers to determine the existing cause which produces a certain pain, and, not knowing what else to do, they prescribe morphia. They are thus, at least, reasonably sure of giving the patient temporary relief. Physicians of this calibre ought to be classified with criminals. Our modern educational system is in some de-

gree responsible for their existence. A large number of physicians now being graduated from medical colleges are men who are wofully lacking in fundamental education. A host of these incompetents is turned loose every year, and their ranks are being constantly augmented. There are too many medical colleges in this country. These must necessarily have students to sustain them. Therefore they enroll nearly every applicant for admission. Not a few institutions offer tempting inducements in the form of lenient examinations and cheap fees, thus encouraging young men of no education or fitness whatever to embrace the profession, and leave the plow — to inject morphine. These are the men who are mainly responsible for the vast increase in the army of unfortunates whom I have been describing. They flourish principally in the new communities of the Far West. The reason for this is not hard to find. In the large, congested cities of the East, and even in the smaller towns and villages, it is tedious and difficult for a young man to establish a practice, except in association with and under the guidance of an old and experienced member of the profession. Hence, the newly-fledged practitioners too often "go West to grow up with the country." The records of the various sanitariums establish the fact that the number of victims who have contracted the pernicious morphine habit in Kansas, Nebraska, New Mexico, Arizona, Utah, Wyoming, Idaho, Montana, and the Dakotas is out of all proportion to their several populations, as compared with those of eastern states. Dissipation, anxiety, excitement, exposure, privation, and hardship render residents especially liable to fall into the hands of these young practitioners — after which, God help them!

In this respect, there is one educational reform which I should like to suggest. Professors in our medical colleges teach too much physiology, pathology, and anatomy — or, rather, too little materia medica, or the application of medicine to disease. Thus unevenly equipped at the outset, these young doctors prescribe morphia to relieve ordinary transitory

pains, and the relief following the practice induces them to persist in it until their clientage of this character assumes alarming proportions. Too often they tell their patients what they are giving to relieve them. I am not one who believes that a physician should thus take his patients into his confidence. There are entirely too many of that sort of pseudo-partnerships.

I have no faith whatever in the so-called "home treatment" theory. Nor do I think it possible to reform a real "fiend" in that manner, be his special intoxicant what it may. Even in sanitariums the patients must be, for a considerable time at least, under the special care and watchfulness of the physician in charge. Visitors must be rigidly excluded, for they, in mistaken kindness, are apt to smuggle in liquor, or morphine, or opium. Mail matter should be opened in the presence of the physician, for opium and morphine have been known to travel in that way, and otherwise honorable men will lie and deceive where their special longings are concerned.

The complications of each case must be studied separately, and the idiosyncracies of each individual noted, and when possible, humored. Gregarious patients should be allowed to congregate if they choose, but others thrive best in solitude. With no other class is it so essential that the physician should possess the confidence of his patients. Each should feel that a special study is being made of his case, and that special treatment is being given him. Every "fiend," of whatsoever description, has a conviction that his own particular case is peculiar and remarkable, and that his sufferings surpass in intensity those of all other persons similarly afflicted. After a few days of treatment, the patient commences to experience relief, heightened by contrast with his recent pain; he takes food with relish, and from this time forward usually gains flesh rapidly.

I do not believe that any remedy has ever been or ever will be devised that will infallibly cure every case. There are any number of so-called "cures," or "substitutes," which will

alleviate or remove present suffering, and temporarily restrain a "fiend" from indulgence; but the percentage of permanent cures is small and variable, and there is no means of accurately determining what proportion of cases treated remains cured. The difficult factor to differentiate — the unknown quantity — is the number of persons who are cured through the influence of the mind, or by what has come to be known to the profession as "suggestion." A man who has remained "cured" for six months or a year, and to whom the vendor of the remedy "points with pride" as convincing evidence of its efficacy, may, through a combination of circumstances, "break out" again at any moment. There is certainly nothing in the medicines given that will prevent a man from drinking liquor, injecting morphia, or smoking or eating opium — if he wants to. In most instances, those who have undergone treatment are told that if they relapse they "shall surely die." In some cases this has proved true — in others it has not. It goes to show, however, that the drugs administered were harmful, or dangerous, and probably produced organic changes which impaired the constitution of the patient. It also illustrates how strong the appetite is in some men, when they will voluntarily resume such a habit in the face of so impressive a warning. If it is simply a question of fighting one poison with another — why, anyone can do that; but when such a combat is arranged by ignorant and unscientific men, who are solely "out for the stuff," the evil becomes an appalling one and demands vigorous repression.

One palpable mistake of the vendors of secret or patented nostrums is in treating all cases alike. There is no universal panacea. There are many reasons why the treatment of these three classes of patients, and even of the different types of the same class, should not be identical, as it is at so many sanitariums. How any sane physician can range scores, or hundreds, of morphine, opium, and alcoholic users in line, give each the same (or approximately the same) medications hypodermically, and identical internal medicine —

and yet hope for success, passes comprehension. The only explanation that occurs to me is that the sway of the mind over the body is much greater than we give it credit for. The more cases I observe the more am I impressed with the psychological influence. The "impressionable" or "sympathetic" natures of some men render them peculiarly liable to contract and be divorced from physical and mental disturbances. In proof of this assertion, I might cite an instance where an eminent neurologist, the head of one New York's great insane asylums, became mentally disturbed through contact and association with the unfortunates under his care. Happily, he was in a short time restored to complete control of his mental faculties. In my own experience I have found a "placebo" to work admirably. Morphine sufferers have implored me to give them relief, and a little distilled water has produced the desired effect. Where a single injection failed, a second, or a third, was sure to bring ease and quietude. It is truly a remarkable exhibition of the power of imagination.

At all large sanitariums the apparent success of the remedy is thus emphasized. Men "imagine" that they have inherited or acquired an appetite, or a tendency toward an appetite, for opium, morphine, or liquor. Being easily impressed, they are just as quick to "imagine" that they are "cured," especially when they hear of and see so many quondam slaves uniting in a pæan of exultation over their new sense of freedom. Alas, that it should so often prove to have been but a Barmecidal feast! Probably the "cures" least likely to be permanent are those of what are known as "village drunkards." Every hamlet has at least one of these. The ambition to be regarded as an unfortunate, incorrigible drunkard has been nursed and indulged so long that it has become a sort of "second nature" with them, and at times amounts to an acute eccentricity. When the public sensation excited by their reformation has become stale, they "feel lost" without their accustomed notoriety, and speedily "fall." And when they do "fall" they "fall hard," else their craving for

public notice would not be completely gratified. These are the men who can be found lounging in sanitarium hallways, or on curbstones, loudly proclaiming, after three or four days' treatment, that they are completely cured and could not take a drink of whisky if they tried.

Other important factors to be considered are age, constitution, present physical vigor, previous habits, temperament, and occupation. A considerable number of these patients will be found to be night-workers, legitimate or otherwise. Sleep can, of course, be induced in such more quickly and easily during the daylight hours in which they have been accustomed to rest. I have had patients who were heavy and "droopy" all day, but who aroused immediately when lights were turned on in the evening, and whose mental activity was greatest between 10 o'clock and an early hour in the morning. In this last-named interval no ordinary hypnotic seemed sufficient to make them drowsy. Their systems would "shed" heavy doses of the bromides, chloral, sulfonal, hyoscyamus, and paraldahyd like water from a duck's back.

One other important aid, available alike to pretenders and legitimate practitioners, is mental rest. By this I do not mean absolute indolence, but a temporary divorce from "business." In some cases this is obtained by a sojourn in the mountains or at the seashore, or a sea voyage or prolonged yachting excursion. I know one of the great financiers of the country, and also an eminent lawyer, who have been nominally "cured" at one of the many sanitariums — the former of the morphine and the latter of the "periodical" alcoholic habit. They have told me that, after having once received treatment they dropped all "business" and returned to the sanitarium when they began to experience a feeling of exhaustion, coupled with a longing for their favorite stimulant. At first they returned four times a year, then three times, and now manage to get along with two visits per annum. They tell me that they do not know how much merit to ascribe to the medicine, but that the change of scene and repose of

the particularly overtaxed faculties certainly aid largely in restoring them to such a state of mental health that they can grapple easily and with self-confidence with hazardous money transactions and legal cases involving many thousands of dollars. This brain rest and repair they cannot obtain at the "Springs," or the fashionable resorts, and to "make sure" of restoration within a month, they give the medicine the benefit of the doubt, instead of going off on a hunting, fishing, or yachting trip. The truth is, these gentlemen are far-advanced victims of nervous exhaustion, and are doubtless benefited by the course of tonics and the general surroundings, which tend to inspire mental repose and confidence in the ultimate result. Before permitting themselves, as hitherto, to become entirely "worn out," they simply "take a rest" and thus avert re-enslavement to their favorite stimulants.

The abnormal craving for liquors or drugs is usually found to be complicated with some organic derangement. Catarrh, bronchitis, and liver and kidney diseases are the most frequent accompaniments. When there is pronounced or chronic disturbance of the brain or nerves, reform is scarcely to be hoped for; with other disorders, the case does not present such great difficulties. Oftentimes a pernicious habit may be broken off by removing the local derangement which precedes or accompanies it. In women the co-existent disturbances are usually of the uterine or spinal nerves.

One of the symptoms most distressing to the morphine or opium patient is the loss of vitality occasioned by frequent orgasms and copious seminal emissions. When first deprived of the drug, male and female alike are not free from these terrific drains on their vitality, sleeping or waking. In some cases they occur every five or ten minutes. It is is not unusual for a patient to have ten or twelve of these emissions through the night and eight or ten during the day. In those not addicted to excessive sexuality, the emissions rarely exceed two per day. These seminal losses are not an invariable accompaniment,

but they may fairly be classed as general. It is necessary to check the emissions as soon as possible, for no relief can be obtained while they continue with such frequency and quantity. Consequently, I administer the most nourishing food — frequently a dozen or more eggs per day, with milk *ad libitum*.

Another popular fallacy is the taking it for granted that all over-indulgence in harmful drugs is due solely to a physical cause. In my experience I have found three factors, any one or all of which may be powerful in a given case. These are the mental, the moral, and the physical. The fact which I wish to make emphatic is that any method of treatment which fails to take cognizance of mental and moral causes and influences will surely prove a failure. In other words, the source of most of these abnormal conditions, appetites, and indulgences is to be sought within not without.

As to the immoral phase of morphine-taking we know but little in this part of the country. The Western states and territories are the places where it can best be studied face to face, and knowledge of it can only be obtained here through conversations with "fiends" from that section of the country. The immorality of the practice will be conceded when we reflect that most of its devotees there are gamblers and prostitutes. For this reason it is extremely difficult to work a permanent cure in one of them unless an absolute moral reformation be accomplished. Hence, I always urge upon my departing patients the importance of breaking off all old associations that are vicious, and of a complete change of environment when possible. I do this because I am convinced that no medicine can entirely renew wasted, weak, and flabby nerve-cells. All that we can do is to assist nature in partially restoring them, and to so change the occupation, diet, social condition, and surroundings that a sufficient reaction may be produced in the nerve-cells of the person treated to enable abstention to be easily permanent.

Continued physical or mental excesses are sure to create a tendency: First, toward the use of a stimulant to flagging mental and moral and physical energies; and, next, toward the employment of a powerful sedative. Hence, the drinking of alcohol is quite naturally superseded by the smoking of opium. This is, at first, found to be deliciously satisfying, and the moral sense is blunted by the reposeful social features incident thereto. The newly-developed smoker at once becomes an active instrument for the propagation of the practice. He begins by inducing his intimate associates, male and female, to "try a pipe." The insidious and powerful nature of the drug renders it both an alleviator of mental anxiety and physical pain and weariness, and a terribly fascinating and soothing sedative. But, after a time, the victim's system becomes so thoroughly impregnated with opium that he can scarcely smoke enough to satisfy him. In an evil hour he takes a few injections of morphia. Thus he "graduates" from a "hop fiend" into a "hypo." The effect of morphine is much more powerful than that of opium, being, when taken subcutaneously, about six times as strong — and "action is had" more quickly by means of it. There is a saving of time, too, and, instead of sinking into a state of stupor for hours, the partaker is nerved to greater achievements without any increase of effort or weariness. In the East, except in a few large cities, the morphine habit is a secret one; in the West, it is an eminently social custom. Groups, or circles, or coteries of congenial men and women get together and "shoot" one another through the hypodermic needle. These people do not regard the morphine habit as an immoral one. At first some of them may have done so, but frequent repetitions soon blunt all moral susceptibility.

Nor is this moral paralysis peculiar to uneducated people — it afflicts the cultured and refined, in the end, also. The standard of right and wrong, after all, is a matter of individual judgment, when not fixed by law.

Most morphine users are without hope of permanent

reformation, while opium smokers and alcoholic drinkers are always sanguine of attaining to a state of freedom. All murderers cherish hopes of being spared from execution on the gallows, but the enthralled "hypo" fully realizes that he cannot escape tortures worse than death, even should he be eventually rescued from the grip of the habit.

A knowledge of the psychological laws governing what we call "Suggestion" is what the medical profession stands in need of. Causative forces are not understood. Scientific men have endeavored to deduce laws governing abnormal conditions of the mind, and have failed. The only thing they have demonstrated is their own ignorance. Many natural laws doubtless exist which are totally unknown to us, by virtue of which the nervous system may become susceptible to impressions not ordinarily received. That the mind has a distinct nature and a distinct reality apart from the body, and yet frequently controlling it, or acting in co-ordination with it, will probably be conceded by most students of mental science. Certain conditions may be absent in some persons, and marked in a few, while between these extremes there may be every gradation, from the faintest impression to the most vivid reality.

Now, these lamentable cases which I have been considering do not "happen" — they "grow" — and they are just as surely the result of evolution from "within" as animal life is. The "within" is hidden from us; we know nothing of so-called "Soul Life;" but we have progressed sufficiently far to be able to assert that every full-fledged action is a lawful sequence of previous incubation, nourishment, and growth. It is also demonstrable that what men dwell upon they become like, which is one way of illustrating the power of mind over matter. There are doubtless special forces which germinate the indulgences under consideration. However spontaneous or impulsive any given offense may appear, the foundation upon which it rears itself has been of slow and gradual growth from miscellaneous, sedimentary immoral deposits. A vent would have been found somewhere.

The tendency of the age is in the direction of abnormity — mental, moral, and physical — or, rather, in the contemplation of abnormal phenomena, and the deducing of general laws therefrom. This brings us into that most delightful domain — psychology. This branch of mental science is entrancing almost to the verge of painfulness. But we find there have been many explorers in this realm before us. The whole world is full of "Suggestion," and hypnotism is only an infinitesimal part thereof. It would be easier for the progressive medical man to write a book than a paper on "Suggestion," as applied to the practice of medicine, especially in the cure of mental and nervous diseases.

We are certainly on the eve of great discoveries in mental science. Only a few years ago many operations in head and abdominal surgery, which are now performed daily with success, were unthought of, the cases pronounced "hopeless," and the patients abandoned to die as comfortably as possible. Who knows but that the incipient paretic may yet be restored to a life of reason by the aid of surgery, instead of being confined to await the awful "explosion" which precedes death! A true understanding of mental science is all that is needed in the various cases which I have been considering. As soon as we comprehend the laws of any force or thing, we have it not only under control, but harnessed for use.

The theory of "Suggestion" is a proper subject for investigation at the hands of the medical profession. Many patients are habitually in the subjective condition; others desiring to be cured can easily bring about such a receptive state of mind. This important branch of legitimate practice must be wrested from the hands of quacks and charlatans. They are not so blameable, after all, for claiming to destroy the alcoholic, opium, and morphine appetites, when they know that they can rely upon that mighty and mysterious agent, "Suggestion," to aid them. True, they employ it ignorantly; but who is there to challenge and expose them, when reputable practitioners are too indifferent to in-

vestigate for themselves? These crude and ignorant pretenders claim to know all about the laws that govern mental phenomena, but educated and experienced investigators know that neither themselves nor the quacks understand anything about them.

"Suggestion" is too powerful an ally of medical science to be ignored, or permitted to be employed solely by ignorant and unprincipled men, whether inside or outside of the profession. I appeal especially to the neurologists — that sturdy and growing wing of our profession — to give the subject more careful attention. In the single department which I have been discussing there is a splendid field for an earnest, sincere investigator, aided by pure drugs and "Suggestion." This fertile ground has been almost entirely abandoned by quacks, with their worthless nostrums, while thousands of victims of alcohol, opium, and morphine are crying unto you, legitimate members of the medical profession, to save them.

I am constantly in receipt of letters asking me if I think I can "cure" a husband or a son. In a touching letter received a few days since from the far West, I am besought to treat the husband of the writer. "The doctor administered morphine when my husband had the rheumatism," writes the wife, "and it seems as though he couldn't possibly give it up. He is a good man, and knows that I am writing to you. Can you not treat him at home? If not, although we are poor, I will go to St. Louis and keep him company until you say he is cured. Somehow, we both have faith in you, but we have none in the ——— Cure, for we have seen too many honest men fall back into their old ways after having taken that treatment." This is a sample of many other similar appeals which I am compelled by circumstances to deny.

The "bunco" physicians are waxing fat and impudent off the woes and credulity of their fellow-beings. Some of them are no better than the Hungarians who wrenched and cut rings from the fingers and ears of dead women just after

the terrible Johnstown flood. They are harpies, pure and simple. Plain language should be used when referring to them, and vigorous action should be taken against them. They cannot follow us in surgery — do not let them precede us in mental therapeutics. I hope to live to see the day when paresis will be regarded and treated as a curable disease, and when the worst morphine slave in the land may be bidden to "take heart."

Do we not, as a profession, owe a great duty to the users of morphine? Have not more or less incompetent medical men, ignorantly perhaps, inoculated thousands of them with the woe-compelling and soul-destroying virus? Is their any other profession on earth whose members are so numerously represented in the hosts of victims of morphia as our own?

I have, however, given this subject my personal attention for a considerable length of time; and I feel it to be my duty to lay the results of my investigations before my professional brethren, and appeal to them to intelligently explore and specialize this branch of medical science, and, while "rescuing the perishing," at the same time analyze and develop that new and powerful ally — "Suggestion."

THE OPHTHALMOSCOPIC APPEARANCE OF THE FUNDUS OCULI IN DELIRIUM TREMENS.

By A. Edward Davis, A.M., M.D.,

Instructor in Diseases of the Eye, New York Post-Graduate Medical School and Hospital; Assistant Surgeon, Manhattan Eye and Ear Hospital, etc.

In the summer of 1894 Dr. C. L. Dana suggested to me that I should study the condition of the fundus of the eye in alcoholic patients while they were in the state of *delirium tremens*. At the same time he afforded me entrance to the alcoholic wards at Bellevue Hospital, where I could make these investigations.

The fact that no such investigations have ever been made heretofore in these cases may be accounted for by the simple reason of the difficulty of making such observations. A man in the state of delirium is not an ideal subject for ophthalmoscopic examination, by any means, and I may say here that my observations have not been altogether satisfactory.

Altogether I examined but sixteen cases, eight of which were in delirium tremens, and eight were acute drunks. While the object of this paper is primarily to give the condition of the fundus of the eye in delirium tremens, yet I incidentally add those of the acute drunks as a matter of interest in this connection, especially as I find but few observations in literature on such cases.

Case I. — J. McD., aged fifty-four years, laborer. Has been in the hospital once before with delirium tremens for a period of four days. For the last three months he has been drinking steadily, whisky and beer being the two beverages mostly consumed. Has not been able to eat for the last two days. His general condition is fairly good, but

now he has gastritis. Was admitted to the hospital to-day, June 15th. No medicines yet.

Condition of the fundus oculi: The arteries and veins are very large, and the veins tortuous; and the blood in both darker than usual. There is pulsation of the veins on the discs, which appear white from contrast with the rest of the fundus. No lesion in either eye. The pupils are small, and react but slightly to light. A second examination the following day, with the eye under the influence of atropine, and after the patient had been given bromides and chloral, showed the vessels somewhat smaller, and no pulsation in the veins.

CASE II. A. J., aged thirty-one years, chemist. His first time to have delirium tremens, and he has them now only in a mild form. He drinks everything in the liquor line. General condition is good, but he has not been able to eat anything for a day and a half. Has been drinking for five years. Admitted to the hospital to-day, June 23d. No medicines.

Condition of the fundus oculi: The arteries and veins both are much larger than normal, and filled with dark blood. Passive congestion is marked. The discs appear white from contrast. No lesion of either fundus. A second examination under atropine the following day showed but little change in the condition of fundus, though he had been given bromides, chloral, etc. Was still in delirium.

CASE III. — C. H., aged thirty-eight years, millwright. First time to have delirium tremens. He was admitted to the hospital three days ago, June 19th. Has mild delirium during the day, and marked delirium at night. Has had large doses of bromides and chloral since in the hospital. Beer has been his chief drink, and he has been a moderate drinker for years.

Condition of the fundus oculi: The arteries and veins are moderately large, with venous pulsation on the disc well marked in the right eye. Evidences of passive congestion. No lesion in either eye.

CASE IV. — C. R., aged thirty-three, barkeeper. Has been in the hospital for two days, and has had large doses of bromides and chloral, but still has marked delirium.

Condition of the fundus oculi: The arteries and veins are but slightly enlarged, but the fundus in each eye is to some extent actively congested. Slight pulsation of the veins on the discs in each eye. A second examination under atropine the following day showed no change in either eye.

CASE V. — A. G., aged twenty-five years, bartender. Drank hard and steadily for two or three months before he came to the hospital. For a week before entrance he would retain but little or no food on stomach. He developed delirium two days after admittance, although he had been given bromides and chloral.

Condition of the fundus oculi: The arteries and veins are both very large and tortuous, with evidences of passive congestion marked. The disc appear white from contrast with the rest of the fundus. No lesion in either eye, though he has a large amount of albumin in his urine, and is known to have a parendhymatous nephritis.

CASE VI. — J. M., aged sixty-two years, laborer. Claimed by his friends that he has been drunk most of the time for the last forty years. He drinks whisky and rum, and has had delirium tremens twice before. His general health is not good. Drinking heavily for the last two weeks, and stopped yesterday simply because his stomach would tolerate neither food nor drink. His delirium lasts for a few hours, stops, then comes on again. Has had one dose of bromides and chloral.

Condition of the fundus oculi: The arteries and veins are both very large, the veins tortuous, filled with dark blood, and with distinct pulsations on the discs. Passive congestion quite marked. The discs appeared whiter than normal, simply from contrast with the rest of the fundus, as in the other cases. A second examination under

atropine the following day showed less pulsation of the veins, but the passive congestion was still well marked.

CASE VII. — M. G., aged sixty-four years, printer. Has been drunk for the last five months on whisky and rum. He is fairly well nourished. Has not eaten anything for the last two days. Has had no medicine yet.

Condition of the fundus oculi: Widely dilated veins and arteries, with pulsation of veins on the discs. The discs are white from contrast. A second and a third examination showed but little change in the fundus of either eye, though the patient's delirium was about gone.

CASE VIII. — J. L., aged twenty-six years, housewife. Has been drinking for the last two years. Went on a protracted spree last week. Rum and whisky were the chief beverages used. Delirium is well marked at night, but mild during the day. Has had bromides and chloral.

Condition of fundus oculi: Large, dark veins and arteries, and discs white from contrast.

Besides the above cases, I examined the fundus oculi in eight patients in the stage of *acute drunk*, two of which were in acute delirium.

Three of these last eight cases had not been drinkers of long standing. The fundus of the eye in these cases was greatly congested, passively so, from the depressant action that the alcohol had on the vaso-motor system. The arteries and veins both were dilated and filled with blood darker than is ordinarily seen in congestions of the fundus. The pupils were contracted in two of the cases, and normal in the other.

Two cases were acute drunks of chronic drinkers. The fundus oculi in these two cases were much like the eight suffering with delirium tremens — that is, the arteries and veins were large and tortuous and filled with dark blood (passive congestion), and the discs appeared more or less white by contrast with the rest of the fundus. In one of these cases both arterial and venous pulsation were present,

although the tension of the eye was normal. The pupils in each case were contracted.

Of the two cases with acute delirium, the fundus in one was greatly congested, passively so. In the other, which ended in stupor and death, the veins and arteries were very large and tortuous, with pupils widely dilated and no reaction to light. This patient had been in acute delirium for four days before he was brought to the hospital. He had to be restrained for the first twelve hours in the hospital, when stupor set in and ended life in the next twelve hours. This patient was a very large and muscular man, weighing at least two hundred and twenty-five pounds.

An eighth case of acute drunk was a dipsomaniac. The fundus of the eye in his case was much congested. The veins and arteries were dilated and darker than usual. The patient went on sprees about every three months ; this last spree had lasted for ten days.

The conditions of the fundus of the eye as observed in the above cases of delirium tremens are not to be accounted for wholly by the delirium. In the study of these cases the physiological and pathological action of alcohol on the whole system must be taken into consideration. The delirium itself, in fact, is only a psychical phase of chronic alcoholism, due to nutritive changes in the nervous system, and brought about, not by the primary action of alcohol, but by its temporary withdrawal from the individual addicted to its abuse. As a condition in itself it is but little understood. "The anatomical lesions after death from delirium tremens shed no light on the pathogenesis of the condition.

"Meningeal congestion, œdema or piameter and of the cortical substance of the brain, scattered minute extravasations of blood, and some augmentation of the cerebro-spinal fluid have been observed. In the greater number of cases no lesions whatever beyond those characteristic of chronic alcoholism have been discovered."

The dilated, tortuous, and in some cases, pulsating vessels observed in the above cases, are not to be accounted for

altogether, therefore, by the psychical derangement of delirium tremens, but are due in part to the toxic action of alcohol on the vaso-motor system of nerves. As is well known, alcohol in physiological doses stimulates circulation, and in toxic doses depresses it. On the vaso-motor system, to which I wish to call special attention here, it acts as a depressant from the first; and this even in small doses, as shown by the flushed face, which is due to dilated capillaries. And if the use of alcohol is persisted in the capillaries become permanently dilated. In fact, this is one of the earliest pathological changes produced by alcohol. A second and graver one is the tendency to atheroma, while a third and later one is sclerosis.

The dilated vessels in the fundus of the eye, in delirium tremens cases, is due in great measure, then, to the depressant action of alcohol on the vaso-motor system, the toxic action of the alcohol lasting for some time even after the drug is withdrawn. The dilated vessels in the acute drunk cases are certainly due to the toxic effect of the alcohol on the vaso-motor nerves, which allows the vessels to dilate.

The very dark blood observed in the arteries and veins in these cases is due to the lessening of oxidation in the blood from the alcohol in the system — a well known physiological action of alcohol; partly, also to passive congestion.

The vessels in the fundus of the eye are subject to the same changes from the action of alcohol and other toxicants, as on the vessels in other portions of the body, although Schulten, cited by Noyes, seems to think: "To a remarkable degree the intraocular circulation is independent of the systemic vessels because shut within a special cavity, yet a slight relation exists." In this view I think Schulten mistaken, as is shown by the changes occurring in the ocular vessels in the above cases, both in the delirium tremens and in the acute drunks. Again: "In cases of *congenital malformation of the heart* with cyanosis, such as defective closure of the foramen ovule or stenosis of the pulmonary artery, the retinal vessels show markedly the general disten-

sion of the veins and the change of color of the blood. Liebreich gives a striking picture of such a case, and Leber remarks that in two cases observed by him the dilatation affects the arteries as well as the veins."

Again, in Graves' disease: "Some dilatation and even pulsation of the retinal arteries is found in some cases."

Furthermore, we know that the vessels in the fundus of the eye are among the first, if not the very first, to suffer from the secondary changes in the numerous forms of Bright's diseases with albumen in the urine. Neither primarily nor secondarily, then, are the vessels of the fundus exempt from the changes of the general circulation, but, on the other hand, in some diseases they are particularly liable to early change.

Where delirium tremens occurs in old alcoholics who have toxic amblyopia, that is, degenerative atrophy of the optic nerves, the vessels may be found normal in size, or, if the degenerative atrophy is far advanced, even smaller than normal. No such cases were observed by me in the above eight. This lessening in size of the blood vessels is due to the atrophy of the nerve and sclerosis of the vessels, and not to the delirium in such cases. Toxic amblyopia, however, and other ocular lesions such as neuro-paralytic keratitis, paralysis of the ciliary muscle, night blindness, paralysis of the ocular muscles, xerosis of the conjunctiva, etc., etc., all of which may be caused by the abuse of alcohol, and be coincident with delirium tremens, are not to be considered in this short paper. Besides, they are fully elucidated elsewhere.

The pulsating veins and in one case pulsating arteries, in the above cases are to be accounted for in two ways: First, by the slight increase of tension produced by the dilated vessels, allowing more blood in the eye than it is ordinarily accustomed to. It is a well-known fact, and one easily verified, that by pressing on the eyeball with the finger, thereby increasing the tension of the eye, while looking into the eye with the opthalmoscope, a distinct pulsation can be observed

in the veins; and if the pressure is hard enough arterial pulsation is produced. This same phenomenon — pulsating veins and arteries —is sometimes observed in glaucoma, where tension of the eye is greatly increased. Second, pulsation in the veins, and even in the arteries of the fundus of the eye, may be caused by an enfeebled heart, or by dilatation of the blood vessels with a resultant decrease of arterial tension. Now, in delirium tremens all of the above conditions — conditions favoring pulsation of the vessels — are present: the weakened heart, the dilated vessels and the slight increase of tension of the eyeball.

Outside of the study of the fundus condition in the above cases of delirium tremens, the one feature and symptom that interested me most was the hallucinations that all of them suffered from — how to account for them. Hallucinations are the one peculiarly characteristic symptom of delirium tremens; and, pertinent to this inquiry, these hallucinations are almost always visual in character, perhaps in ninety-five per cent. of the cases, and always in motion. This last feature distinguishes them from the hallucinations that occur in other conditions, when the objects of the hallucinations are at rest. Not only are the hallucinations of delirium tremens characteristic from being chiefly visual and in motion, but from being confined most of the time to one set of objects — "snakes." These, however, may be distorted into demons or most anything else.

Heretofore, these hallucinations have been attributed to the psychical derangement from which these patients suffer, but I think they are due in great measure to another cause — a *circulatory condition.* To make my position clear it will be necessary to call to mind two points in the anatomy of the retina. First, that the blood vessels of the retina lie in its anterior layers; they never enter deeper than the *internal molecular* layer. Second, the seeing or perceptive layer of the retina, the layer of *rods* and *cones*, forms the posterior layer of the retina; consequently the blood vessels are in front of this layer.

Ordinarily, the retinal vessels are so small and semi-transparent that they are not projected into the field of vision and made visible. But when, as occurs in delirium tremens, the vessels become passively dilated, tortuous, pulsating and filled with dark blood, dark enough, as I believe, to be projected indistinctly into the field of vision and to be seen, they appear as "snakes." The tortuosity of the vessels would naturally resemble in shape a snake, and the constant motion of the blood through them would give the motion always present in such cases.

With a befuddled brain, these objects could be easily transformed into any other objects and distorted into endless forms.

The psychical condition of the patient may play some part in the formation of the hallucinations of delirium tremens, but I believe the true and main cause lies in the circulatory condition of the fundus of the eye.

DIPSOMANIA AND INSANITY.

The current discussions anent these morbid states ignore their complete difference. Dipsomania is a true periodical insanity of which the drink element is a mere phase. The insane acts are preceded by depression, apathy, and depreciatory ideas. The dipsomaniac period itself is characterized by tendencies to impulsive homicide in which the nearest and dearest may suffer. These acts occur in other periodical insanities entirely independent of alcohol, and hence here must be regarded as an expression of the mental state, not of the alcohol, which tinges the mental state. In inebriety the alcohol is the causative factor. In dipsomania the abuse of alcohol is a mere expression of the insane tendency. Dipsomania, as a rule, is one of the degenerative states demarcable from simple imperative conceptions and inebriety. During the dipsomaniac period these patients, like all periodical lunatics, are absolutely irresponsible. — *Dr. Kerman in "Medical Standard."*

Abstracts and Reviews.

THE TREATMENT OF MORPHINISM.

In the *Bulletin général de thérapeutique* there is an article by M. Gilles de la Tourette. According to the author, there are two methods of treating morphinism, the immediate suppression of the poison and the slow suppression — that is, diminishing the daily dose of morphine progressively. Each of these methods, he says, has its indications. Generally, when patients have been in the habit of taking eight or ten grains of morphine a day, immediate suppression is the best way, as the other method requires too long a time to break off the habit.

The patient should be placed under conditions peculiarly favorable to the treatment. Isolation in a hydrotherapeutic establishment, with a special physician attached to it, is essential, as the treatment can be more strictly carried out there than at home. The patient's organs should be examined, for in cases of cardiac affection or angina pectoris immediate suppression may produce syncope. The digestive canal should also be examined, and the digestive functions regulated. The hypodermic injections of morphine must be given regularly, in the morning, at noon, and at night, as these are the three most important hours of the day. For this reason isolation is particularly necessary, for the habitual tendency of a patient to take a hypodermic injection at any time when he feels the need of it presents a difficulty hard to overcome. If the patient has been in the habit of taking fifteen grains of morphine a day, half the dose only should be allowed on the first day of the treatment; generally, says the author, on the first day two-thirds of the dose are suppressed, on the third day it is diminished to two grains and a half, and

on the fifth day no morphine is given at all. During the first twelve hours the treatment does not provoke any troublesome symptoms, and the patient feels comparatively well. At the end of twenty-four hours, however, the following symptoms supervene: 1. Syncope, which, if very serious, is sometimes fatal. If there is no cardiac affection, it is of slight importance. For this symptom an injection of from a grain to a grain and a half of morphine is given. For vomiting in these cases champagne, iced grog, etc., are given. 2. Diarrhœa. This symptom should be carefully observed, for, according to Sollier, the poison is eliminated by the intestinal canal. There are, however, cases where the diarrhœa becomes so intense that it results in true morphine cholera, and in these cases this symptom must be treated. For maniacal excitation and delirium soothing spongings or baths are prescribed. During convalescence the diarrhœa should be carefully watched, as it may persist for three or four weeks, often making it necessary to resort to the injections. It is the same in regard to insomnia. If the patient can remain for a month or two longer in a special establishment, the rest will be a valuable aid in the treatment. Baths, douches, tonics, and good food should be prescribed to insure the repair of the physical condition, and to avoid the troubles of convalescence. The patient should be weighed, for an increase in weight shows the beneficial results and a good condition of the digestive functions. If practicable, it is well to send the patient away in order to avoid all causes capable of provoking a return of the habit.

With regard to slow suppression of the drug, says the author, this method does not give such good results, owing to the length of time required for the treatment, which is from two to three months. It fails, he says, at the least eight times out of ten. Professor Charcot employed this method as follows: The patient is made to give up from the beginning a third of his daily dose of morphine. 2. The thebaic extract is substituted for morphine; for example,

for three-eighths of a grain of morphine from a fourth of a grain to three-tenths of a grain of opium is given, to which may be added from forty-five to seventy-five grains of potassium bromide where there is pain in the legs or excitement.

When the morphinism has yielded to the treatment the use of the bromide and the opium should be stopped, as they are no longer useful. It is then a question only of ten or twelve days before a cure is completely effected.

CANADA'S ROYAL COMMISSION ON THE LIQUOR TRAFFIC.

The report of the Royal Commission of the Dominion to investigate the liquor traffic has handed its report to Parliament. It consists of several thousand pages of type-written evidence and testimony. The commission has cost over $70,000. The commissioners were accompanied by the attorney of the Liquor Dealers' Association and traveled thousands of miles in gathering testimony.

The Rev. Dr. McLeod handed in a minority report. He gives prominence to the disease, pauperism, waste, and crime which have resulted from the licensing of saloons. He says:

"There is no room for differences of opinion in regard to the fact that intemperance and its inevitable train of harmful consequences constitute one of the most formidable evils that afflict society, diminish the wealth of the country, and impede progress of civilization. The fact is universally admitted. Regarding it the commission did not deem it necessary to prosecute extensive inquiry. In Canada, as in other lands, intemperance is the prolific cause of pauperism, disease, insanity, idiocy, excessive mortality and crime, with all the suffering and sorrow which attend those conditions."

Dr. McLeod then proceeds to discuss the evidence regarding pauperism, and says: "Whatever evidence relating

to pauperism was heard in the course of the commission's investigations in the United States was in agreement with the foregoing statements, that nearly all of it is traceable, directly or indirectly, to intemperance."

As to disease, insanity, and mortality, he says: "There is a diversity of opinion among medical men as to whether or not a moderate consumption of alcoholic liquors is in every case physically injurious. A majority of medical men unhesitatingly endorse total abstinence as safe. Many claim that it is essential to the fullest degree of physical health. All the evidence obtainable goes to show that heavy drinking is universally condemned, and also that there is a growing tendency among medical men to discountenance even what is known as moderate drinking."

The question, "Is total abstinence in your opinion compatible with the fullest degree of physical health?" was one submitted to 207 medical men in Toronto by the secretary of the Dominion Alliance, but the commission declined to receive the statement in reply. Ninety-two replies were received, and the question was answered directly in the affirmative in eighty-three cases, and of the remaining nine only three expressed a definite opinion that total abstinence was not safe for most people, and even they did so in a very hesitating fashion.

Dr. McLeod dwells on the terrible results of the habitual use of liquor, and points to the replies to questions sent by the commission to physicians and life insurance companies in Canada as proof of the physical evils resulting from strong drink. Of 1,355 Canadian physicians, 1,068 said that the general health would be improved by total abstinence. Of 1,340 who gave definite answers to a question about moderate drinking, 901 said that the use of intoxicants even in moderation is injurious to health and to an active condition of body and mind. Of 779 physicians a large majority said that the use of intoxicants increases the number of the insane. The evidence is quoted to show that not only many drinkers become insane, but that the mental weakness which under

any one of various forms of excitement is liable to become insanity is in a large degree traceable to the intemperate habits of the parents.

The question of excessive mortality is fully covered in the report, which quotes the statement of Hon. G. E. Foster in Parliament in 1885, that 3,000 deaths per year might safely be set down to liquor in Canada. Vice and crime, engendered by strong drink, are also very fully set forth and sustained by extracts from the evidence. From 1882 to 1892 inclusive the total number of convictions in the Dominion was 383,459. Of these 183,371 were for drunkenness, and probably not one-third of those who drink to drunkenness ever appear in these records.

A conservative estimate of the amount paid annually by the consumers of liquors in Canada is placed at $40,000,000. The cost of prisons, loss of labor, and misdirected efforts should, Dr. McLeod thinks, be added to the expenditures on account of the traffic, and he therefore makes the following estimate :

Amount paid for liquor by consumers, $39,879,854; value of grain, etc., destroyed, $1,889,765 ; cost of proportion of pauperism, disease, insanity, and crime chargeable to the liquor traffic, $3,149,097 ; loss of productive labor, $76,288,000 ; loss through mortality caused by drink, $14,304,000 ; misdirected labor, $7,748,000 ; total, $143,258,716.

Against this he sets receipts from the liquor traffic as follows : Dominion government, $7,101,557 ; provincial governments, $942,652 ; municipalities, $429,107 ; total, $8,473,316. Net loss, $134,785,400.

Many of the things which might properly be included as chargeable to the liquor traffic are omitted in the above statement because of the difficulty of putting them into dollars and cents. He could add 50 per cent. to the balance against the liquor traffic, and at the lowest it is so large that it might well engage the attention of even those who take no other view of the situation than the business one.

over to a wet nurse it began to lose ground rapidly. This he had attributed to the sudden removal of the baby from the influence of the morphine to which it had been subjected *in utero*. In the future, he would be disposed to try the effect of giving the child for a few days after birth small doses of morphine, and gradually withdrawing it altogether.

The chairman described a case illustrating the difficulty in many instances of determining positively that the child is a victim of this drug habit. A child who had been unusually docile and free from excitement while under the care of the nurse, suddenly became almost maniacal when the nurse was called away for a day or two. This outburst was evidently due to the child being suddenly deprived of the drug.—*Pediatrics.*

HYDROCYANATE OF IRON (TILDEN'S) IN EPILEPSY.

By X. T. Bates, M.D., Glade Spring, Va.

Epilepsy is termed an affection of the nervous system, dependent on many causes, and pronounced very intractable if not incurable in the great majority of cases. The more subtle and occult the cause, the more obstinate has been the disease usually, and the more unpromising and unfavorable is the result.

The ordinary approved methods and remedies in my experience have been signal failures, their effect being to produce and hasten the very mental disturbances and physical decay which the disease itself likewise is sure to induce. And in the treatment of epilepsy it is with great satisfaction that we may leave the old beaten track, turning away from the demoralizing bromides to the adoption of hydrocyanate of iron, which has a benign and reconstructive influence on the system, being pre-eminently a neurotic tonic and valuable in other diseases than the one under our consideration, particularly dyspepsia, gastralgia, neuralgia, and anæmia appearing in neurosthenic subjects.

LUNACY AND INEBRIETY.

We are indebted to Mr. Charles Heneage for a translation of two papers on Austrian procedure *re* curatel, with persons deemed to be lunatics and habitual drunkards. By the Austrian Universal Civil Code, par. 21, persons who, on account of extreme youth, or mental infirmity from any other cause, are incompetent to manage their affairs properly, are placed under the protection of the law. By paragraphs 167 and 269, the court has power to appoint a curator or attorney for all those unable to guard their own rights. The Royal Imperial District Court, where the person in question last resided, receives notice from the parish authorities, or the superintendent of an asylum for the insane to which the inmate has been admitted on the certificates of a government physician or of a "Psychiatrische Klinik," the competent tribunal appoints a commission of inquiry, consisting of a government legal commissioner, two government doctors, and a secretary. The medical experts, after a period, short or long as the case demands, report in writing, the legal commissioner appending remarks to the medical report, to the upper court, which decides whether the curatel is to be applied. In the first instance the district court appoints the curator. Legal proceedings to oppose the application of the curatel can be taken, within a time limit, in the upper provincial or in the Supreme Court. Legal procedure can also be taken for the annulling of the curatel, which is carried into effect on the written report of two scientifically educated medical experts. Habitual drunkards, morphinomaniacs, and persons suffering from aphasia or chronic brain disease are liable to the same procedure. Professor Schlangenhausen states that the proportion of habitual drunkards in asylums for the insane varies from 10 to 40 per cent. Drunkards are generally sent to a "Psychiatrische Klinik" or to a hospital for observation, and are thence transferred to an asylum for the insane. While there curatel first comes in, as psychologically degenerated drunk-

ards come under the law, which lays down that curatorship is required for those who are incompetent to manage their own affairs and guard their own rights. When the patient recovers control the curatel may be annulled, though if he break down it is reapplied by a renewal of the former legal procedure. In this way some drunkards have been known to have been put under curatel and to have had it annulled from ten to twenty times, till either permanent seclusion in an asylum or death ended their lives. Inebriates are not proper inmates for an asylum for the insane, as they are apt to smuggle in drink to the insane, and to have a demoralizing influence on these latter, and as they cannot always be suitably treated and looked after. Therefore the government have brought forward a bill for the construction of public asylums for drunkards, to which drunkards can be sent on the order of a judge, on the application of relatives or guardians, of a manager of an asylum for the insane, or of a magistrate based on the written report of experts in lunacy, the final decision resting with the Supreme Court. The limit of the period of detention is two years, with a further like period on relapse. If the habitual drunkard have property a curator must be appointed. Schlangenhausen thinks that the curatel has aided in the treatment of drunkards.— *British Medical Journal.*

CONDITIONS WHICH PRECEDE INEBRIETY

Inflammations, now recognized as proceeding from some specific causes, are in many cases followed by degenerations that naturally lead to impulsive demands for relief, which spirits or other narcotics temporarily supply. Degenerations from toxemias, and poisons formed both in and without the body, fall most heavily on the nerve centers, creating the same demand for relief. Alcohol, while bringing temporary relief, rapidly increases these very conditions by adding new toxines, and new and stronger impulses for help. The brain centers become more debilitated and incapable of recogniz-

ing the danger, and the degree of actual poisoning becomes more and more intense.

In many cases there is inherited a feeble power of resistance, and inability to react and recover from the strains of injurious agents from without or poisons generated within. Shocks and powerful emotional changes leave a permanent impress on the nerve centers. Poisons generated in the body or the first intoxication from spirits leaves degrees of degeneration from which there is no recovery. In a certain number of cases this defective organization shows a marked tendency to develop into certain forms of degeneration or disease processes. Inebriety, insanity, and many of the allied neuroses are common. The tendency to either of these forms of disease may be seen in certain symptoms far in advance of its full development. — *T. D. Crothers.*

TOBACCOISM.

Lewin states that the deleterious effects of tobacco are observable after its use in any form, — smoking, chewing, or snuffing.

Typical nicotinism occurs, as a rule, after a long-continued use of tobacco, sometimes not until twenty years or more. While many smokers reach old age, many people do not live to old age because they are smokers.

In nicotinism the skin is the subject of itching and erythema, the nerves of taste are blunted, an angina granilosa develops in the throat, and anorexia, epigastric fullness and pain, matutinal vomiting and disturbance of intestinal function are common. There is menstrual disturbance in women, and in female cigar-makers abortion is frequent. General sexual power and appetite are impaired, and sometimes impotence occurs.

The most frequent pathological effect is disturbed heart-action, palpitation, rapid and intermitting pulse, præcordial anxiety, weakness, faintness, and collapse, with sclerosis of coronary arteries and left ventricular hypertrophy.

Cigars and cigarettes produce irritation of the nasal mucous membrane, diminished olfactory sensibility, chronic hyperemia of the epiglottis and larynx, sometimes even of trachea and bronchi. Bilateral nicotine-amblyopia is common, with central disturbance of the field of vision, — a central, horizontal, elliptical scotoma for red and green, sometimes, also, for blue in a lesser degree. Often there is swelling of the auditory nerves and its consequences — noises in the ear, etc.

Central nervous function is affected. In higher schools, non-smokers get on better than smokers, children from 9 to 15 years of age who smoke showing less intelligence, laziness, and a craving for strong drink. Adults are liable to cephalic pressure, insomnia, or its converse (sleepiness), melancholy aversion for work, and dizziness.

There may also be atoxic symptoms, paretic weakness of sphincters, trembling, and spasms. Nicotine-psychoses are said to rarely affect smokers, occurring more commonly in snuffers, and still oftener in chewers. The prodromal stage, which lasts about three months, shows general uneasiness, restlessness, anxiety, sleepiness, and mental depression of religious type. After this follow præcordial anxiety, and, finally, the psychoses proper, consisting of three stages:

1. Hallucinations of all senses, suicidal tendency, depression of spirits, attacks of frights, with tendency to violence, insomnia.

2. Exhilaration, slight maniacal exaltation, agreeable hallucinations; after from two to four weeks' relaxation, again followed by a maniacal condition.

3. The intervals between exaltation and depression diminish, the patient becoming irritable, but otherwise not alive to his surroundings, perception and attention being lessened.

It is claimed that the patient is curable in five or six months if he stops the use of tobacco during the first stage. After the third stage the disease seems incurable. Withdrawal of tobacco is an essential part of successful treatment.

Potassium iodide, laxatives, and warm baths hasten elimination of the accumulated poison. Subcutaneous injections of ether are employed against the dizziness; pilocarpine for the disturbance of hearing; strychnine, hyoscyamus, biniodide of mercury, pilocarpine, etc., for the amblyopia.

W. T. Cathell of Baltimore (Dec. 16, '93), divides tobacco-users into three classes; those whom tobacco does not injure, those whom it injures slightly, and those to whom it is a poison.

The pipe might be the exciting cause of cancer of tongue and lips. — *Annual of Medical Science.*

SYPHILIS IN THE MIDDLE AGES AND IN MODERN TIMES. By Dr. F. Buret, Paris, France, Translated from the French, with notes, by A. H. Ohmann-Dumesnil, M.D., Professor of Dermatology and Syphilology in the Marion Sims College of Medicine; Consulting Dermatologist to the St. Louis City Hospital, to the St. Louis Female Hospital; Physician for Cutaneous Diseases to the Alexian Brothers' Hospital; Dermatologist to Pius Hospital, to the Rebekah Hospital, to the St. Louis Polyclinic and Emergency Hospital, etc. Being Volumes II and III of "Syphilis To-Day and Among the Ancients," complete in three volumes. 12mo, 300 pages. Extra cloth, $1.50 net. Philadelphia: The F. A. Davis Co., publishers, 1914 and 1916 Cherry street.

This is an exceedingly interesting study of a disease which has caused a great deal of trouble in the world. Historically, it groups a great variety of facts, which revealed the state of society in the past; and scientifically, it points out the influence of syphilis in the events of the world. The peculiar value of this book is the "side lights" it pours out on the ages, and the methods of treatment, and the opinions of kings, princes, and physicians. Every library should possess this work.

THE MARVELS OF THE BODILY DWELLING. By MARY WOOD ALLEN, M.D. The Wood Allen Publishing Co., Ann Arbor, Michigan, 1895.

This is a school book of physiology in which metaphor, parable, and allegory are used freely to make the facts clear and interesting. While authorities may differ as to the success of this effort, all will agree that the book is interesting, reliable, and very useful in many circles of society. In the hands of wise teachers it may be very valuable in school instruction.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By E. J. HOUSTON, PH.D., and A. E. KENNELLY, Sc.D. Cloth, 412 pages; 128 illustrations. Price, one dollar. W. J. Johnston Company, publishers, 253 Broadway, New York.

This work is one of a series that are intended to give clear elementary instruction in electrical problems. This volume is written for the physician, to give reliable information on the various facts of applied electro-therapeutics. The electro-technics of apparatus, and the laws of electrical currents, and some of the facts which are established are presented with unusual clearness. This treatment of the subject will be of great value to every physician, because it deals with facts not in the medical text books, and so covered up in the larger works on electricity as to be practically inaccessible. For simplicity and clearness of statements, and facts that enable the reader to understand some of the relations of electricity, this book is simply invaluable.

Every asylum and physician who uses electricity should have a copy of this work, as essential for every-day study. Everyone who would know some of the facts of this new problem will find this a great assistance.

DON'TS IN CONSUMPTION. A description of the scientific management of consumption, and how a modern sanitarium may be had at home, and what means should be used to assist nature in recovery, etc. By C. W. INGRAHAM, M.D., Binghamton, N. Y. Published by the author at Binghamton, N. Y., 1896.

This one of the few really reliable hand-books, giving clear, accurate advice to consumptives, that can be commended. The physican will find many general principles outlining the treatment of value, and giving him hints that can be applied in many ways.

While there are many admirable statements and chapters that should be impressed on all who treat this disease or suffer from it, the work will bear careful revision, and should be enlarged and rearranged in many ways. We commend it most heartily as a decided advance over the shifting uncertain therapeutic notions of many physicians.

The value of this work, in many ways, will be inestimable, especially to intelligent victims of this disease.

THE ANNUAL OF THE UNIVERSAL MEDICAL SCIENCE. Report of the progress of medical science throughout the world. Edited by C. E. SAJOUS, M.D., and seventy associate editors. In five volumes. The F. A. Davis Company, publishers, Philadelphia, Pa., 1895.

This is the eighth issue of an annual which gives the reader a very complete review of all the new facts which have appeared during the past year concerning medicine. The first volume is devoted to diseases of the lungs, heart, kidneys, also fevers, and all diseases of the blood; the second is devoted to diseases of the brain and nervous system, also diseases of women and children; the third volume is devoted to surgery; the fourth to diseases of the skin, eye, nose, throat, and medico-legal questions; the fifth to therapeutics, climatology, and anatomy and microscopy.

In these five volumes the reader can find all the new

facts and theories which have been urged and defended for the past year. It is evident at a glance that this is the most valuable addition which can be made to any medical library. With these works the physician can see at once what has been said on the subject all over the world.

These annuals have become established as indispensable, and no library can be complete without them. Write to the publisher for a prospectus.

THE DISEASES OF THE NERVOUS SYSTEM. A text-book for physicians and students. By DR. LUDWIG HIRT, M.D., Professor at the University of Breslau. Translated by AUGUST HOCH and FRANK R. SMITH, A.M. (Cantab.), M.D., Assistant Physicians to the Johns Hopkins Hospital. With an Introduction by WILLIAM OSLER, M.D., F.R.C.P., Professor of Medicine in the Johns Hopkins University. 8vo, 683 pages. With 178 illustrations. Cloth, $5.00; sheep, $6.00. New York: D. Appleton & Co., 72 5th avenue.

This is one of the most readable works on nervous diseases which we have seen. The clearness of style and fresh suggestive methods of expression give a charm to a really difficult subject. There is no padding, no strain to express the idea in technical words that are unusual, but an easy, practical flow of simple words that make ideas clear and unmistakable. The arrangement of the various topics differs from other works, but seems to be a great improvement in many ways. The author is a master of this subject, and a thorough teacher, not only of facts, but the relations they sustain to each other. He is not only a guide, but he points out new paths of study and roads for the travel of future investigators. This work has taken place among the great classics which every physician should possess. — books that are inseparable to every good library of medicine.

KEY NOTES OF HEALTH AND A CENTURY OF LIFE. BY DR. C. W. SCOTT, late professor of anatomy, Kansas City College, etc., etc. Boston, Mass.: Published by C. W. Scott, Jr.

This is a volume of much practical information, designed for both the profession and laymen. It appears to be the conclusions of a close observer, and one with wide experience in practical medicine.

THE NATIONAL DISPENSATORY, WITH SUPPLEMENT, EMBRACING THE NEW EDITION OF THE NATIONAL FORMULARY. *The National Dispensatory.* Containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines, including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to the French Codex. By ALFRED STILLE, M.D., LL.D., Professor Emeritus of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania, JOHN M. MAISCH, Phar.D., late Professor of Materia Medica and Botany in Philadelphia College of Pharmacy, Secretary to the American Pharmaceutical Association, CHAS. CASPARI, JR., Ph.G., Professor of Pharmacy in the Maryland College of Pharmacy, Baltimore, and HENRY C. C. MAISCH, Ph.G., Ph.D. Fifth edition, thoroughly revised in accordance with the new U. S. Pharmacopœia (seventh Decennial Revision) and embracing the new edition of *The National Formulary.* In one magnificent imperial octavo volume of 2025 pages, with 320 engravings. Cloth, $7.25; leather, $8.00. With Ready Reference Thumb-letter index, cloth, $7.75; leather, $8.50. Lea Brothers & Co., publishers, Philadelphia and New York, 1896.

Appleton's Scientific Library is one of the literary events of the year. There are sixty volumes in all, whose scientific value is incalculable. Eighteen authors are represented, among whom are Huxley, Darwin, Spencer, Tyndall, Bain, Whitney, J. W. Draper, Le Conte, and Proctor, to say nothing of as many others only less well known but not less authoritative than these. The books in the library are world-famous. Spencer's "First Principles;" his "Principles" of biology, of psychology, of ethics; Darwin's epoch marking

"Descent of Man" and "Origin of Species," his "Animals and Plants under Domestication," and "Coral Reefs;" Huxley's works, and Tyndall's; Bain's "Education as a Science," Draper's "Conflict between Science and Religion," Whitney's "Life and Growth of Language," Proctor's "Other Worlds Than Ours;" these are only a few of the books that make this scientific library so valuable. This is an *edition de lux* of the best works of science, that will be a rare addition to any library. Send to D. Appleton, New York city, for prospectus.

The Journal of Hygiene continues to bring every month a rare and most useful table of topics, which are helpful to every reader.

Appleton's Popular Science Monthly is literally one of the great magazines of this country. Each number grows more valuable and indispensable to the thinking readers.

The *Scientific American* brings every week a rare table of contents of most stirring work by the leaders of the new science.

The *Homiletic Review* is without a rival in the world of religious thought. Its lessons become more and more valuable and helpful to the readers. Send to Funk & Wagnalls of New York, for prospectus.

"Blood Purifiers," "Nerve Tonics," and Alcohol.— The following so-called "blood-purifiers," "nerve-tonics," and other remedies of similar character were recently examined by the chemist of the Massachusetts state board of health, with reference to the amount of alcohol contained in them:

	Percentage of Alcohol by Vol.
Ayer's Sarsaparilla,	26.2
Thayer's Compound Extract of Sarsaparilla,	21.5
Paine's Celery Compound,	21.0
Hood's Sarsaparilla,	18.8
Greene's Nervura,	17.2
Allen's Sarsaparilla,	13.5
Dana's Sarsaparilla,	13.5
Brown's Sarsaparilla,	13.5
Corbett's Shaker Sarsaparilla,	8.8
Radway's Resolvent,	7.9

These are all vaunted remedies for "that tired feeling."

Editorial.

The twenty-fifth anniversary of the organization of the American Association for the Study and Cure of Inebriety, occurs in November of this year. It is proposed to celebrate it with appropriate ceremonies, a public meeting and dinner. The same room where the first meeting was held has been offered for this occasion.

DELUSIONS IN INEBRIATES.

Periodical inebriates often manifest delusions in the free intervals that are not recognized. In one case the most miserly parsimony and dread of poverty appears. Every thought and effort will be directed towards the accumulation of money, even up to dishonesty, causing distress among all associates. When the drink period begins he is generous, kind, and benevolent. The free interval in another case is a period of contention, suspicion, distrust, and doubt of the reality of appearances and motives, of every one. Pessimism in its most aggravated form appears. A great variety of most complex mental states appear, which are delusions both transient and fixed. The common form is the intense religious fervor seen in persons whose drink craze has subsided. This becomes a burning zeal to rescue others by what is called gospel temperance work; or more recently in wild hysterical praise of gold-cure specifics; or entering upon the work of curing others with unusual credulity, by unknown specifics. These delusions always end in relapse sooner or later. The more prominent they become the sooner they explode. Recently I had a case, that after the subsidence of the drink craze, became insanely slanderous. Nearly all the waking moments were occupied

in finding dishonesty and falsehood in others. Every hint or possible act was construed into treachery and baseness. Corruption was discovered in everything; no one was free from wrong. There was a peculiar maliciousness and insane cunning in this that could not be mistaken. The physical basis for it was manifest in the great improvement from sharp eliminating treatment, by purging and baths. In another case sexual delusions of the immorality of others, and the efforts to entangle the person, would come and go every two weeks.

Delusions of persecution by friends, relatives, wife, or parents are also common, but usually unfixed and changeable.

These conditions are loosely termed "crankisms," but in most cases are organized and systemized into open or concealed beliefs. They are always dangerous, because unknown, and likely any moment to develop into acts that may be serious. These delusions are false beliefs which are in most cases without any foundation or reason from without. They are the workings of defective cell activities, which project themselves to external objects, apparently governed by no known conditions. In all probability they exist in all cases, but are easily corrected and transient in most instances. After a drink paroxysm the senses are defective, and the power of analysis weakened. Discrimination between the true and false is imperfect and misleading. This in most cases can be called unsystemized delusions, while in others it is systemized. The mental peculiarities of reformed men is a new field for the study of these delusions.

CAN AN INEBRIATE BE OF SOUND MIND?

This question has been recently discussed and answered in the affirmative, by several authorities who have made a study of mental disease.

To a specific question of the possibility of a person using large quantities of alcohol and opium daily for years, and

retaining a degree of mental health and sanity, the answer was that it was a common occurrence. Instances were given to illustrate and prove this fact. The evidence of these statements were found to be based on general observation and the opinions of the inebriates themselves or their friends. Why should the assertions of persons who have paralyzed themselves for years with alcohol and other narcotics, be accepted as evidence of sound mind, simply because it sounds reasonable? Why should the statements of such people be accepted without critical inquiry and examination in the same way as the assertions of persons notably insane are studied?

The conduct and opinions of inebriates are pre-eminently subjects of critical study, because the toxic causes are fully recognized. The reason that this is not done in all cases, is the prevalent opinion that alcohol and other narcotics are harmless in small doses, and taken in moderation.

It is impossible at present to draw lines where any drug ceases to be harmful, and say that up to this point it is safe and beyond it is dangerous. The inebriate has visibly poisoned himself; the fact that he displays no common symptoms of insanity or pronounced mental unsoundness is no evidence of mental health.

Serious diseases exist which do not manifest themselves in the ordinary changes of conduct and character. Mental soundness is not established by the presence or absence of certain fixed symptoms. The central fact that alcohol or other narcotics are used daily, is always evidence of two absolutely certain pathological conditions. One degeneration of the higher brain centers, manifest in the continuous use of these drugs. The other, paralysis of all the functional and psychical brain processes.

The continuous action of alcohol and opium, depressing and diminishing cell activities, causing complex changes, chemically and physiologically is always incompatible with mental health. The demand for spirits or drugs, whether explained by any reasoning or possible motives, is always

abnormal and inconsistent with health. It may come from error of judgment in the person or his advisers, but soon it becomes a pathological state, growing more and more fixed Theoretically and practically no inebriate can be of sound mind. Cases that are held up as examples of persons who have used spirits for a lifetime, will not bear the test of critical examination. It is extremely doubtful if any such persons exist ; all the examples of persons who have used spirits twenty years or more are found to be unsound in both mind and body. Up to the present time no exceptions have been noted. The fact that little change in character and conduct was apparent to superficial observation is no evidence. An inebriate who boasted of his immunity from disease from alcohol, was found to have neuritis cirrhosis, mental delusions of suspicion, and illusions of spirits guiding him.

Any careful study of such cases will furnish abundant facts of disease and mental unsoundness. The medical authority who doubts this, has simply to appeal to the facts for evidence which is accessible and convincing.

INEBRIETY IN INFANCY.

Recently a neurologist denied the possibility of the alcoholic craze in young children, and asserted that it could not be proven by actual clinical cases. The JOURNAL OF INEBRIETY has published a number of such cases, and other journals have noted similar instances.

While these cases are rare, or, at least, have not been observed very often, they exist is homes of the wealthy as well as the very poor.

I have met some cases like the following: A boy, two years old, in the family of a wealthy man, who had been kept from tasting any form of spirits, suddenly became intoxicated. He drank a glass of wine found by accident. From this time he was a literal dipsomaniac, whose excessive irritability could only be quieted by some form of spirits. No medicine could take the place of spirits. Medical skill was

unavailable; nothing would quiet the excitement and nervous tension but alcohol.

This was concealed in various ways, but the constitutional proclivity for spirits refused any other means for relief. After two years of persistent effort, the father abandoned all other drugs and gave spirits regularly every day. The child died at eight years of some obscure fever. The father called this a judgment on him for continuous drinking up to the second year of married life, when his wife died, and he partially refrained from all spirits. Such cases are fortunately not common, but the facts they bring out exist in many ways unobserved.

Examples are moderate drinking parents, who use wine on the table, and who insist on total abstinence in children, or permit them to drink small quantities. Such children may suddenly become intoxicated, or develop a craze for spirits, and, after a period of semi-delirious excitement, become chronic inebriates, or die from some intercurrent disease. This craze may appear in infancy and in early childhood, and be covered up by the parents and physician, until death (which usually comes early) closes the scene.

In the very poor the same conditions follow, only the craze seems more dependent on physical conditions and less concealed.

I have seen three cases in children under five years of age, who possessed a maniacal desire for alcohol. One was in a wealthy family, the other two were in mechanics' homes. The parents in all these cases were moderate and excessive drinkers. One child died of pneumonia, the others I have been unable to follow.

I have, through consultation by letter and statements of other persons, heard of a number of cases where this desire for spirits came on suddenly and was a veritable dipsomania. The experience of physicians who see many cases of children confirm this fully. Often a class of most puzzling symptoms in children suddenly disappear, from the use of alcohol,

which may be concealed or combined in some form of a tonic.

After a time it will be apparent that the alcohol is the only drug of value.

Some inherited defect has been awakened, and the imperious demand for relief will not be satisfied with any other drug. Inebriety exists in infancy as an inheritance, as a transmitted form of degeneration, which rapidly runs its course. Of course inebriety can be very easily acquired in early life, but its duration is longer, and the antagonism of growth and development retards its progress until maturity. The inebriety of infancy or early childhood is of short duration, and always an inheritance that ends in early death.

There is no doubt that many cases of this kind are concealed from observation, and that inebriety in infancy is more frequent than it is supposed to be.

LANGUAGE SYMPTOM IN ACUTE INEBRIETY.

The effect of alcohol and other drugs on language and power of expression varies widely. A study of a number of cases indicates a general uniformity in the defects of selection, and capacity in the use of words, which is possible to group and compare. The first action of alcohol in suddenly increasing the circulation of the blood to the brain is apparent in an alteration of capacity, of expression, and change of common language. This is often noted by a tumultuous flow of words, which begins along natural lines and merges into confused statements, with an increasing number of adjectives.

In other cases language changes at once, either to extremely coarse violent words, or to most deferential polite expressions. After a short time the power of expression becomes palsied, and only confused expletives and exclamations continue.

In certain cases a marked aphasic condition begins in the

first stage of drinking and continues to a nearly total loss of words.

Such cases are not stupid, but seem adverse to all powers of expression, and, when forced to use words, select the briefest expletives.

Another class seem to have no power of selection in the use of words beyond the terms which express the lowest animal impulses. They repeat such terms over and over again, manifesting satisfaction at their sound.

Nearly all inebriates suffer from exaltation and deliriums of mental vigor and power. This is dominant in language, which is often bold and extravagant in words.

Often a consciousness of the effects of harsh words are realized, and a shrinking or increasing boldness in their use is manifest.

The mind has not lost its power of selection altogether. Fear or other motives rouses a degree of restraint in words that are remarkable at times.

When extreme volubility appears there is confusion of ideas, beyond boasting of power, and wild, strange adjectives. Language ceases to become mental expressions of anything beyond the lowest animal impulses. This may take on sexual phases, wild combativeness, or miserly selfishness, with suspicion of wrongs from others. Coarse, unguarded words express these impulsive or localized irritations of certain brain centers. In one case wild, threatening words, that seldom merge into acts, are seen. Often these violent expressions are overcome by opposition and fear, or they become intensified into true deliriums. If the sexual brain centers are affected, the language expresses this. Often the concealed, miserly impulses burst out in words at this time. The language is not an expression of the normal condition of the man, but only of some state of general or local paralysis, which may have been existing for some time.

Deliriums of exaltation and grandeur, or of melancholy and depression, manifest in words at first natural and con-

nected, then confused and vague, are common to many cases.

Aphasic states, where words and expressions are used without conception of their meanings, are also common. An instance is that of a business man, who wrote while intoxicated, using words which conveyed a certain meaning to him entirely foreign to their real import.

Extravagant use of words in all circles of life attracts attention to the mental condition. Where alcohol and opium are used defects of powers of expression and conceptions of the value and force of words are common to all cases. In some this is very prominent; in others the finer shades of word palsy are only noted by study. Some very startling facts will appear from a comparative study of this symptom in inebriety.

Clinical Notes and Comments.

CASE OF HEREDITY.

Dr. McClelland, in an excellent essay on "Heredity *versus* Education," gives the following very remarkable study of a case:

"A distinguished judge of Kentucky was for a long time a secret drinker, then became openly addicted, and died from the effects of drink. He had three children, one daughter and two sons. One son died in infancy of convulsions. The other, at the age of 19, was sent to an insane asylum. The daughter married a healthy, temperate man, then became an inebriate and died from the effects of drink. She left six children, two sons and four daughters. One son committed suicide at forty-two years of age. The second son, a physician, was a passionate, misanthropic man, who married and had two children; then broke off all family relations. One daughter is a neurotic, and has hysteria; two other daughters are unmarried, and, while intelligent, are considered queer. The fourth daughter was unusually well-developed, handsome woman, who married happily to a temperate, healthy physician, who lived a long life of great regularity. Six daughters and one son came from this marriage. One of the daughters was feeble-minded from infancy, and was finally burned to death by accident. A second daughter had intermittent attacks of insanity. The youngest daughter committed suicide by throwing herself out of a window. The son became a successful physician, but developed inebriety."

The history of this family is as follows: The first generation, alcoholic excess. The second generation, insanity and dipsomania. In the third generation, hypochondria, suicide, mania, and hysteria. In the fourth generation, imbecility,

mania, insanity, and dipsomania. In the fifth generation, one of the children has already evinced unnatural cruelty to animals. This exhibits a wonderful tenacity of hereditary transmission of degenerative qualities.

INTOXICATED OR DYING?

Of the numerous cases in which the physician is called upon to express a diagnosis, and prescribe treatment, there are none, we believe, more difficult to decide on than those of persons found insensible in the streets. Very frequently there are cases of simple poisoning from excess of alcoholic drinks, especially of an adulterated and deleterious nature, but at times there are cases of disease, or of disease complicated by head injuries, which, if not promptly recognized and treated, may ultimately prove of a serious nature. We are prompted to refer to the liability of errors in diagnosis of such cases, and the necessity of great caution in dealing with them, by the not uncommon occurrence of them, and the fact that they frequently become public, and excite a good deal of comment in the public press. A young man is found insensible in the street; is taken by the police to the nearest station; and is there seen by the medical officer in charge, who gives as his opinion that the insensibility is due to alcohol. In the morning more serious symptoms show themselves, and medical treatment is resorted to, but unfortunately without avail. A *post mortem* examination reveals that apoplexy was the cause of death. In another case a man is brought by the police to one of the hospitals, is admitted there, and after a few hours is once more sent back to the police station as suffering from an excess of alcohol. Soon after his return to the police station it is observed that his condition is not satisfactory; the police surgeon is summoned, and he gives it as his opinion that the man is suffering from some serious head injury, and sends him back to the infirmary from which he had been dismissed only a few hours previously. Such incidents as these cause a painful im-

pression on the public mind, and are calculated to destroy public confidence in the ability of professional men to recognize what is, and what is not, drunkenness, to say nothing of the serious consequences that must accrue to a patient suffering from some disease or injury of the brain from being thus conveyed through the streets at that early period of his illness, when prompt medical treatment might prove of some avail. We can only say, that such cases should serve as an instructive lesson to all those who are connected with the reception of patients at our infirmaries, and should impress on physicians generally the advisability of erring on the safe side, and of not giving a positive diagnosis in any case about which there can be a shadow of a doubt. — *Editorial Mass. Medical Journal.*

Dr. Lobias of Coatesville, Ind., writes in September *Courier of Medicine* as follows, on spirits in typhus fever:

"Of what use is alcohol in medicine? We have a better heart tonic in digitalis; as a lung tonic a vastly better in strychnine; nitrate of amyl acts quicker; atropine warms up better. To tide over a dangerous time we would prefer iron, quinine, and strychnine, concentrated food, and attention to hygiene. Is it capable of prolonging life or in any way assisting nature in throwing off the microbes of disease? The most extravagant claims have been made for it by the laity. It is the one panacea for all the ills to which the human flesh is heir. But when we come to look at its effects in a fair and impartial manner, do not its claims as a therapeutical agent rest on a very unstable foundation? It prevents oxidation of the tissues. Physiologists tell us that when taken into the system the effect of alcohol on the red blood corpuscles — which are the oxygen carriers — is to lessen their power of giving off oxygen, and in this way the oxidation of tissue is interfered with. It does not require any great stretch of the imagination to see that while this condition of inactivity exists, all the organs of the body must suffer, for any interference with the supply of oxygen will

necessarily interfere with evolution of force. In Flint's Physiology it is said: 'Alcohol is capable of being absorbed and taken into the blood, but that it passes out again unchanged. It cannot be regarded as an aliment, and hence cannot take the place of articles that are assimilated.' The fact that those who indulge in alcoholic liquors are unable to endure the same amount of fatigue, is conclusive evidence that alcohol is in no sense a food. Men have been enabled to endure the extremes of heat and cold much better without alcoholic liquors of any kind than with them. The effect of alcohol on the human organism, in either health or disease, is unfavorable, as its use tends to increase the risk of infections in contagious diseases, and the progress is rendered more grave because of diminished resistance on the part of the organism in either health or disease. It is perfectly safe to predict that the time is not far distant when it will be as rare for a physician to prescribe alcohol as it is now for him to prescribe blood-letting, and when a healthy man will no more think of taking alcohol, with a view of preserving health, than he would strychnine for the same end.

MORPHINISM IN CHILDREN.

Dr. J. B. Mattison of Brooklyn read a paper on this subject in which he stated that although the literature of this subject was extremely scanty, he believed that the condition was not very uncommon in children. Among the illustrative cases was the following remarkable one: A baby of seven months when first seen presented the shriveled and wrinkled appearance of an old man, and attracted one's attention by its peculiar, solemn manner. It was learned that the child had been perfect at birth, and had thrived up to the age of four months, when in order to quiet it when fretful it was given paregoric. It very soon became necessary to give laudanum, and also to increase the dose, so that when first seen by the physician, it weighed only seven pounds, was shockingly emaciated, and extremely weak. It was taking

at this time no less than one ounce of laudanum daily. The laudanum was reduced one drop at each dose, and at the end of one month the child had become plump and well again. The speaker said that there were those in the profession who insisted that the chief factor in the causation of morphinism was moral obliquity, but cases like those just cited were in themselves sufficient to show that this theory was wholly untenable. In this experience, children showed a very strong tendency to become victims of morphinism. The consequences of this habit in the young were speedy decline and death, if not promptly treated ; but if there were no structural lesion, and nutrition had not been too greatly impaired before coming under treatment, every case could be cured by judicious management. It was, in his opinion, monstrous to think of withdrawing the morphine abruptly in adults, and certainly it should not be thought of in children. The gradual withdrawal of the drug together with general tonic measures constitute the whole treatment. His reason for thinking that morphinism was much more common in children than the literature would seem to indicate, was the extensive and reckless use of many nostrums for the children, nearly all of which contained opium in some form. If the physician would instruct mothers regarding the great risks incurred in using all such preparations for their children, and at the same time the sale of these nostrums were under national or state control, much would be accomplished in the way of mitigating this terrible evil.

Dr. J. H. Fruitnight said, that in an extensive experience, he had never encountered the congenital form of morphinism in the young, but he had frequently seen the acquired form, as a result of dosing them with soothing syrup and cough medicines.

Dr. E. A. Tucker said that he had seen one case of congenital morphinism in the hospital. It was the offspring of a mother, who, for several years previously, had been addicted to taking morphine, and also to smoking opium. At birth the child appeared to be perfectly healthy, but when handed

over to a wet nurse it began to lose ground rapidly. This he had attributed to the sudden removal of the baby from the influence of the morphine to which it had been subjected *in utero*. In the future, he would be disposed to try the effect of giving the child for a few days after birth small doses of morphine, and gradually withdrawing it altogether.

The chairman described a case illustrating the difficulty in many instances of determining positively that the child is a victim of this drug habit. A child who had been unusually docile and free from excitement while under the care of the nurse, suddenly became almost maniacal when the nurse was called away for a day or two. This outburst was evidently due to the child being suddenly deprived of the drug.—*Pediatrics.*

HYDROCYANATE OF IRON (TILDEN'S) IN EPILEPSY.

By X. T. Bates, M.D., Glade Spring, Va.

Epilepsy is termed an affection of the nervous system, dependent on many causes, and pronounced very intractable if not incurable in the great majority of cases. The more subtle and occult the cause, the more obstinate has been the disease usually, and the more unpromising and unfavorable is the result.

The ordinary approved methods and remedies in my experience have been signal failures, their effect being to produce and hasten the very mental disturbances and physical decay which the disease itself likewise is sure to induce. And in the treatment of epilepsy it is with great satisfaction that we may leave the old beaten track, turning away from the demoralizing bromides to the adoption of hydrocyanate of iron, which has a benign and reconstructive influence on the system, being pre-eminently a neurotic tonic and valuable in other diseases than the one under our consideration, particularly dyspepsia, gastralgia, neuralgia, and anæmia appearing in neurosthenic subjects.

Hydrocyanate of iron (Tilden) some years ago enjoyed quite a reputation in the treatment of epilepsy, engaging the serious attention of many physicians, and its merits along this line elicited considerable literature, but for some reason it did not bear out their sanguine expectations, and consequently fell into disfavor and comparative disuse as a remedy to combat this disease. Of late it has been revived, and again it has come to the front, fulfilling its earlier promise. The maximum value of every remedial agent depends largely upon the perfection of its preparation, and the fact that this medicine now proves more effective and reliable than heretofore may be owing to improved methods of manipulation in the laboratory whereby the manufacturing chemist can supply a better article than formerly. My own experience with hydrocyanate of iron has been most gratifying, and I believe it may well be our primary dependence in all cases of epilepsy save those that come within the realm of surgical interference. I give the following case, which, in this connection, seems to me of special interest and worthy of report in detail, since it had so long baffled all treatment and yet so readily yielded to the hydrocyanate of iron.

A. B., male, aged 35 years, resident of Kansas, occupation house-painter, which he had followed for only two years, when he felt compelled to abandon it in consequence of frequent and prostrating epileptic seizures, thinking, possibly, there might exist between his vocation and his sickness the relation of cause and effect.

Later he engaged in the real estate business, but shortly was obliged to relinquish this also. The attacks had regular periods, coming on every ten days, and were very severe from the outset. In the convulsive stage he would froth at the mouth, bite his tongue, and finally lapse into a quiet, unconscious state, in which he would remain from six to ten hours. With the return of consciousness he would be semi-dazed, and this condition would last for several days, during which interval he suffered with a dull headache. Sometimes eight or ten convulsions would follow in rapid succession.

and then he would be confined to his bed continuously for three weeks.

The history of this person traces his epileptic state to no traumatic origin, nor does it reveal any habit, condition, or inherited tendency sufficient to account for the disease. He was apparently in perfect health when first stricken down. The subtle undermining influence at work in his system may be termed "idiopathic," the least understood and the most difficult to overcome.

The initial seizure was in 1888. He has been treated by several physicians, one of whom was a specialist in New York. The paroxysms were so persistent, obstinate, and progressive both in severity and length of duration, that his medical advisers ceased to give him encouragement, and finally he relinquished all treatment, and came East in 1894 in the hope a change of climate might benefit him. He did this as a *dernier resort*. After having been among the mountains of Virginia for a few months he noticed that the paroxysms, though recurring just as regularly, were somewhat less pronounced, and this revived his hope and renewed his grip on life and prospective business. But his encouragement was of short duration, for soon the paroxysms, instead of being confined to the night season, began to appear without warning during the day also. Disappointment and despondency now came over him because he was forced to the conviction of a gradual decline instead of a radical improvement. His brief and delusive hope was to be accounted for, no doubt, by the kind attention of friends, such as he had not heretofore received in the West. Here they watched him night and day, and would change his position whenever they observed him going into a fit, which would have the effect to modify the attack. From the first his appetite was impaired, bowels constipated and confined, and a purgation was required about once a week. Continuously since the first attack his body has been covered with yellowish blotches about an inch in diameter, which would assume a deep orange color just previous to his taking on a paroxysm.

Patient can give no information as to what the drugs were which he had taken. They always were liquids of a salty taste, and presumably they were bromides. He first consulted me October 20, 1895. I prescribed:

R. Hydrocyanate of iron tablets, 1-2 gr. each (Tilden's).

S. One tablet before meals, and as a digestion I ordered Elixir Maltopepsin (Tilden's) after meals.

At this time the paroxysms were severe and coming on regularly every ten days, and their effect was perceptible on the countenance, which, naturally strong and vivacious, had become dull and expressionless. His memory, formerly good, was now very defective, and from day to day he could barely recall the names of new acquaintances. His whole physical system was decidedly weakened, and his mind comparatively inactive. His native ambition and will power had greatly degenerated, and he was indolent, inclined to eat and lie down, manifestly lacking disposition to take the exercise his health required. In the early part of 1895 he was offered an excellent position in a neighboring city, but he had no energy to avail himself of it.

Before taking my treatment he was nervous and restless every night until toward morning, when he would fall into a deep slumber, breathing heavily, and would awaken with a headache.

December 2d, and frequently since coming under my charge, he has called on me, always reporting progress and exemption from his convulsive attacks, though stating that at regular periods he would have slight monitions of the same, such as a momentary dizziness or passing headache, symptoms just enough to make him apprehensive.

January 1, 1896. About this time I ordered an additional tablet at bedtime. The concurrent testimony of his immediate friends is that he is markedly improved both physically and mentally, and he is now applying for a business situation. His facial expression and entire physique have undergone such alteration for the better as to elicit favorable comment from the most casual observer, and he declares himself

" made over new." His appetite is good, his flesh harder, his weight much increased. He now sleeps easily as a child, with no labored breathing, and awakens rested and refreshed.

January 15th. The blotches referred to have entirely disappeared, and he has had no severe convulsion since the commencement of my treatment. His only convulsive attack occurred December 27, 1895, and was a very light one and of short duration, from which he rallied quickly. The spell now seems broken, for since this there have been no symptoms whatever, and he is now engaged as "weighmaster" and assistant bookkeeper in a large manufacturing plant, having entered upon this position January 9th. In his own confidence he has assumed these business responsibilities without my consent or approval.

I shall advise the continuance of present treatment for at least the space of twelve months, never deeming it wise in epilepsy to relinquish combative measures within a shorter period than this after the malady has ceased to manifest itself.

Listerine has become a standard drug which is recognized in every section of the country.

The Rio Chemical Company will send a trial bottle to any one who wish to test *Celerina* as a mild sedative and tonic in various affections.

We call especial attention to an article on *Hydrocyanate of Iron*, prepared by Tilden & Co., New Lebanon, N. Y.

It is a pleasure to call attention to the new preparation of Reed & Carnrick of New York, called *Protonuclein*. It appears to be a most valuable medicine in many cases, and worthy of a more extended trial. The well-known character of the firm, as manufacturers of reputable drugs, brings great confidence to any preparation which they offer to the public.

We use large quantities of *Acid Phosphate*, and find it is unique and invaluable in many cases, and without substitute in therapeutics.

The various *Maltine preparations*, some of which we advertise, have come to stay, and will go down far into the coming generation as standard remedies for the next generation.

The various preparations of the W. H. Schieffelin & Co., particularly *Trional*, *Sulfonal*, and other new products, are without rivals in the market. Trional is a great standard drug whose use is increasing daily.

The famous spring water called *Arethusa*, put up at Seymour, Conn., increases in value wherever used.

The *Tissue Phosphates* of Wheeler's formula, is a peculiar nutritive tonic of great usefulness.

The drug *Antikamnia* has come into very general use, for its value in controlling pain with the least disturbance to the general system. It possesses other powers in therapeutics of great value.

The curative power of Fellows' *Hypophosphites* is clearly attributable to the combination of iron, manganese, lime, potash, quinine, and strychnine.

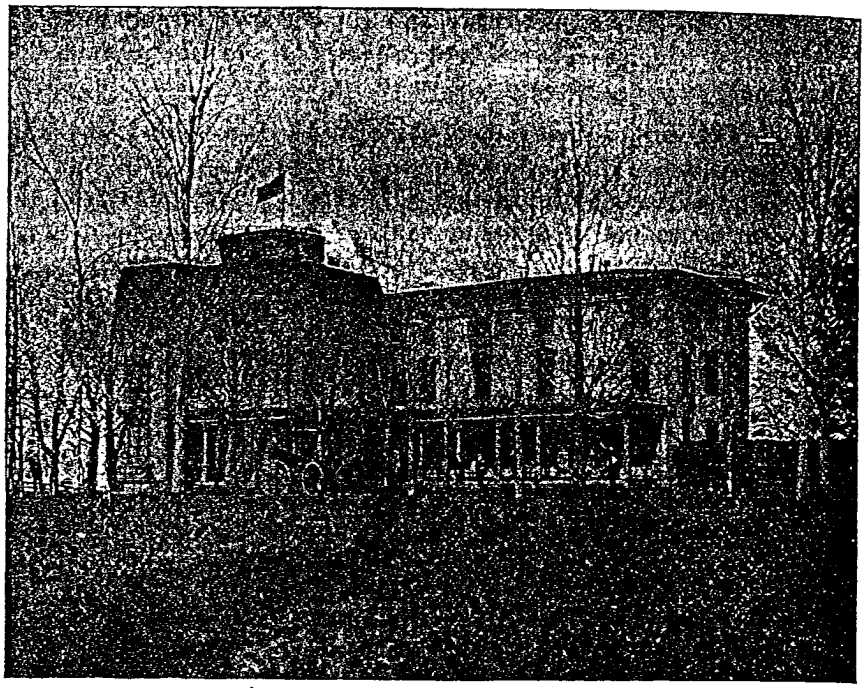
Bromidia, *Papine*, and *Iodia* are three medicines prepared by Battle & Co., that are invaluable to every general and special practitioner.

Parke, Davis & Co.'s, new compound for all forms of dyspepsia, is of great practical value, and becomes a favorite remedy wherever used.

We call attention to a new remedy of great power, the *Arsenauro*, which is worthy of the closest attention.

Walnut Lodge,

A Private Hospital for the Special Treatment of Alcohol and Opium Inebriates.



THIS Institution was founded in 1878 on the modern view that *Inebriety* is a *disease* and *curable*. Each patient is made the subject of special study, and *special medical treatment suited to the exact requirements of the case.* The general plan of treatment is building up the diseased organism and restoring both mind and body to a healthly and normal condition, with *brain* and *nerve, rest, etc.* This is accomplished by *Turkish*, *Russian*, and *Saline Baths*, *Electricity*, *Massage*, tonics, diet, and every other means known to science and experience which have proved to be of value in these cases.

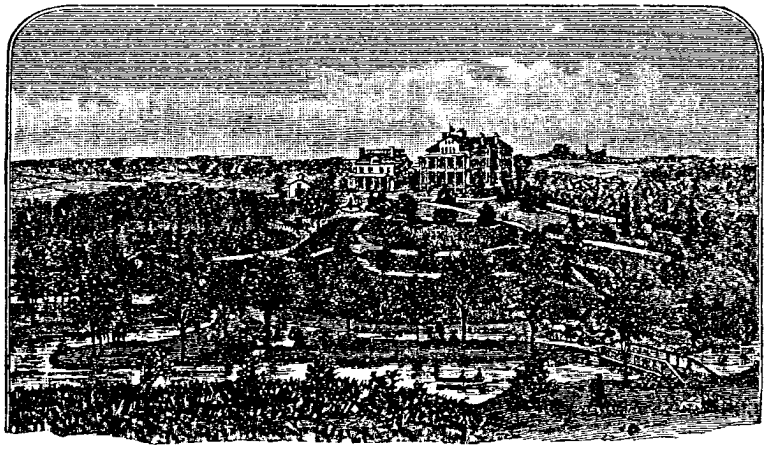
This Hospital is pleasantly situated in the suburbs with the best surroundings, and every appointment of an elegant residence.

Experience proves that a large proportion of cases who come under treatment, and who unite with the physician in the use of all means of treatment, are permanently restored and cured. Each case has the direct personal care of the physician and attendant; and no one is received for less than four months unless by special arrangement.

All letters and inquiries should be addressed,

T. D. CROTHERS, M.D., Hartford, Conn.

Milwaukee Sanitarium for Nervous Diseases.



THE MILWAUKEE SANITARIUM,

WAUWATOSA, WIS.

This private hospital, established in 1885 by Dr. James H. McBride and successfully conducted by him for ten years, is now under the direction of Dr. Richard Dewey; Dr. McBride having retired for the purpose of travel and change of residence.

Dr. Dewey will receive for care and treatment in the two well-arranged houses, cases of nervous and mental disease.

The situation of the Sanitarium is ideal, the appointments home-like, and the equipment is such as to secure for each patient, individually, the surroundings, the atttention, and the form of treatment most conducive to recovery.

The Sanitarium is readily accessible by two lines of street cars from Milwaukee, and by the Chicago, Milwaukee & St. Paul R.R.

The location is in a charming country region three miles from Milwaukee and two and one-half hours ride from Chicago.

The regular terms include medical treatment, a private room, skilled nursing and attendance, and liberal recreations and diversions.

Additional special nurses are furnished where required.

Large and most attractive grounds.

Best sanitary arrangements, steam and hot water heat, and electric lighting.

Dr. Dewey may be seen at the Chicago office of the Sanitarium, Venetian Building, 34 Washington St., Room 1113, Wednesdays from ten to one o'clock, also at same hours Fridays from September to July.

Address for further information,

RICHARD DEWEY, M.D., Wauwatosa, Wis.

THE HIGHLANDS.

A FAMILY HOME FOR NERVOUS AND MENTAL DISEASES.

WINCHENDON, MASS.

This "Family Home" is conducted by Dr. Frederick W. Russell, who has made the study and treatment of mental and nervous diseases, physical and nervous exhaustion, opium and alcoholic inebriety a specialty. The Home is not an institution or asylum. It is to all intents and purposes a "Family Home," where everything is made as homelike as possible. Patients are not subjected to the care of common nurses, but are provided with companions. Intelligent gentlemen are employed as attendants and companions of the male patients, and educated American women of experience are the attendants and companions of the lady patients.

The feeling of social degradation that is commonly felt by patients in Retreats and Public Institutions, who are subjected to the control of uncultivated nurses, is not experienced here. The utmost possible liberty is permitted, under suitable guardianship, to all the patients, and each one is regarded and treated as a member of a private family. Each case receives the attention and study given to private practice, and when needed the ablest medical talent in the country is called into consultation.

The Highlands, so called, is a pleasant mansion with cottages annexed, situated in the midst of ample grounds, on an eminence overlooking the town of Winchendon and the valley of Millers River. From the windows a superb ange of hills and mountains can be seen, reaching from Wachusett in the southeast to Monadnock in the northwest.

A piano room, billiard room, bowling saloon, and ample stabling are provided on the grounds. The drives in the vicinity are considered delightful, and for healthfulness of location the Highlands are unsurpassed.

Dr. Ira Russell is the founder and superintendent of the Home, and letters inquiry should be addressed to Dr. F. W. Russell, the superintendent. For information we are permitted to refer to the following gentlemen:

C. F. Folsom, M. D., Prof. Mental Disease, Harvard College, 15 Marlboro St., Boston.
W. C. Williamson, Esq., 1 Pemberton Sq., Boston.
J. H. Hardy, Esq., 23 Court St., Boston.
Rev. G. J. Magill, D.D., Newport, R. I.
Wm. A. Hammond, M.D., 43 West 54th St., New York.
G. Webber, M.D., 133 Boylston St., Bost'n.
G. F. Jelly, M.D., 123 Boylston St., Boston.
C. H. Hughes, M.D., editor of Alienist and Neurologist, St. Louis, Mo.
E. C. Spitzka, 130 E. 50th St, New York, N. Y.
W. W. Godding, Superintendent National Insane Asylum, Washington, D. C.
Clark Bell, Esq., editor of the Medico-Legal Journal, New York City.
T. D. Crothers, M.D., Hartford, Conn.

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Purest of Table Waters.

FLOWS from a side hill at Seymour, Conn., free from all contaminating surroundings. A truly remarkable water, soft and pure, containing but $\frac{1}{257}$ of 1 per cent. of mineral matter, most all of which is soluble.

Prof. Chittenden of Yale University has made an analysis of "Arethusa" which we are very glad to mail to anyone on application.

"Arethusa" is sold only in glass. Still in one-half gallon bottles and five-gallon demijohns.

Carbonated, in pints and quarts.

The still or natural water is indicated in kidney and bladder troubles.

Carbonated indicated in dyspepsia, diseases of the stomach, and nausea.

Pure water is nature's remedy. If any special drug is indicated, you can use it with "Arethusa" to great advantage.

Our offer of a case of water to any physician in regular practice is open for acceptance.

ARETHUSA SPRING WATER CO.,

SEYMOUR, CONN.

The Treatment of Influenza or La Grippe.

—:—

It is quite refreshing these days to read of a clearly defined treatment for the grip. But in an article in the *Lancet-Clinic*, December 28th, 1895, Dr. James Hervey Bell, 251 East 32d Street, New York City, says he is convinced that too much medication is both unnecessary and injurious. He has few remedies; prescribes them with confidence; and "trusts the rest to nature."

When called to a case of influenza, the patient is usually seen when the fever is present, as the chill, which occasionally ushers in the disease, has generally passed away. Dr. Bell says he then orders that the bowels be opened freely by some saline draught, as hunyadi water or effervescing citrate of magnesia.

For the high fever, severe headache, pain, and general soreness, the following is ordered:

℞ Antikamnia Tablets (5 gr. each), No. xxx.
Sig. One tablet every two hours.

If the pain is extremely severe, the dose is doubled until relief is obtained. Often this single dose of ten grains of antikamnia is followed with almost complete relief from the suffering. Antikamnia is preferred to the hypodermic use of morphia because it leaves no bad after-effects; and also because it has such marked power to control pain and reduce fever. The author says that unless the attack is a very severe one, the above treatment is sufficient.

After the fever has subsided, the pain, muscular soreness and nervousness generally continue for some time. To relieve these and to meet the indication for a tonic, the following is prescribed:

℞ Antikamnia & Quinine Tablets, No. xxx.
Sig. One tablet three times a day.

This tablet contains two and one-half grains of each of the drugs, and answers every purpose until health is restored.

Occasionally the muscular soreness is the most prominent symptom. In such cases the following combination is preferred to antikamnia alone:

℞ Antikamnia & Salol Tablets, No. xxx.
Sig. One tablet every two hours.

This tablet contains two and one-half grains of each drug.

Then again it occurs that the most prominent symptom is an irritative cough. A useful prescription for this is one-fourth of a grain sulphate codeine and four and three-fourths grains antikamnia. Thus:

℞ Antikamnia & Codeine Tablets, No. xxx.
Sig. One tablet every four hours.

Dr. Bell also says that in antikamnia alone we have a remedy sufficient for the treatment of nearly every case, but occasionally one of its combinations meets special conditions. He always instructs patients to crush tablets before taking.

SYR. HYPOPHOS. CO., FELLOWS

Contains **The Essential Elements** of the Animal Organization — Potash and Lime;

The **Oxydizing Agents** — Iron and Manganese;

The **Tonics** — Quinine and Strychnine;

And the **Vitalizing Constituent** — Phosphorus; the whole combined in the form of a Syrup, with a *slightly alkaline reaction.*

It Differs in its Effects from all Analogous Preparations, and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation, and it enters directly into the circulation with the food products.

The Prescribed Dose produces a feeling of buoyancy, and removes depression and melancholy; *hence the preparation is of great value in the treatment of mental and nervous affections.* From the fact, also, that it exerts a double tonic influence, and induces a healthy flow of the secretions, its use is indicated in a wide range of diseases.

NOTICE — CAUTION.

The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, *finds that no two of them are identical*, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, *in the property of retaining the strychnine in solution*, and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing the Syrup, to write "Syr. Hypophos. *Fe lows.*"

As a further precaution, it is advisable that the Syrup should be ordered in the original bottles; the distinguishing marks which the bottles (and the wrappers surrounding them) bear can then be examined, and the genuineness — or otherwise — of the contents thereby proved.

Medical Letters may be addressed to —

Mr. FELLOWS, 48 Vesey St., New York.