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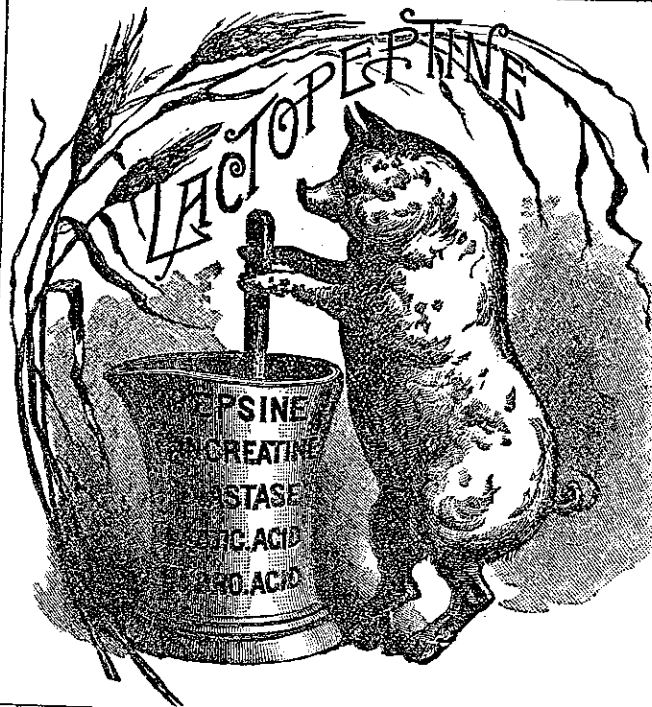
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ALCOHOLIC INEBRIETY A CONSIDERATION OF
THE SYMPTOMATOLOGY WITH REFER-
ENCE TO THE PATHOLOGICAL
ANATOMY.*

A. B. RICHARDSON, M.D.

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Athens, O.*

For convenience of description, and to impress the points which it is desired to discuss in this paper, I have thought proper to divide the subject into four parts, or, in other words, to consider the disease under four forms.

These four forms or stages are: the status inebriosum, or inebriate state; acute alcoholism, which includes both mania à potu or mania ebriosum and delirium tremens; chronic alcoholism; and an intermediate form which has many of the characteristics of the latter, but in pathological anatomy and in prognosis resembles the acute form.

It is not possible, within the limits of one essay, to give

*Read at the February meeting of the American Association for the Study and Cure of Inebriety, in New York city.

an exhaustive description of these forms. The object here will be to limit the review to those features of the disease which have a significance as indicating the seat and nature of the pathological changes.

It will be seen at once that the outline given includes a larger territory than that covered by alcoholic insanity. This is done purposely, and indicates the reason for the use of the term alcoholism instead. Many cases have great interest, psychologically, to the medical profession, and embrace features which it is our duty most carefully to consider, in which the condition of insanity has by no means been reached, and, as we shall see in a consideration of the chronic form, even there are cases where this classification is scarcely justifiable.

Were I to distinguish any one of these four forms of the disorder as being more important than the others, with greater claims upon us for recognition and careful study, I should name the first. It is that variety in which our efforts give more promise of successful results, and is, besides, far more widespread and more inimical, though more covert, in its influence upon the social organization.

The status inebriosum may be considered to exist in any habitual or periodical user of alcohol as a beverage, when a continuous nutritional modification has been developed in the brain cells, manifesting itself by recognizable and characteristic clinical symptoms. It has no recognized pathological anatomy, though there can be no doubt that the clinical manifestations depend upon a pathological tissue change as characteristic of the disease as are these outward evidences.*

In the mind-developing areas of the cerebral cortex, the most vulnerable point to the influence of alcohol are the brain cells. The circulation of even a small quantity of alcohol in the blood modifies the functional activity of the cell, and

*Some authors, notably Clouston of Edinburgh, speak of this stage as that of alcoholic degeneration, meaning, more especially, a degeneration depending upon alcoholic indulgence, exhibiting itself in physical degeneration, rather than in evidence of physical disorder.

therefore, for the time being, at least, disturbs its molecular arrangement. Long before any change can be detected by the microscope either in the cell, the connective tissue or the blood vessels, this nutritional modification and consequent molecular change has become continuous, and is removable only by a prolonged abstinence from alcohol.

The exact nature of this molecular change cannot, of course, be determined, but there can be no doubt that it is directly connected with the processes of waste and repair in the cell; while the great similarity of the symptomatology at all stages of the disease permits us to infer that the underlying tissue change in this early stage is similar in character to that which we see in the more advanced stages.

As before stated, the modification in nutrition is not dependent upon the actual presence of alcohol in the blood, but is continuous, and remains for a variable and comparatively prolonged period after the cessation of its use. The existence of this change is shown by a group of symptoms highly characteristic of the effect of alcohol on the mind-forming tissues in all stages of this influence, and relate to the motor and sensory area, as well as the psychological.

The first evidence of this nutritive change is shown in a change in the affective characteristics of the individual. The most delicate and complex functions are the first to suffer. As Maudsley has so admirably put it: "In undoing a mental organization, nature begins by unraveling the finest, most delicate, most intricately woven, and last completed threads of her marvelously complex network."*

There is, so to speak, a denudation which extends to varying depths of reduction.

In this disorder the first degree of the reduction takes off merely the apices of the prominences in the character-developing areas. Before any mental symptoms become evident, and before the motor and sensory disturbances can be de-

* While alcohol cannot be likened to any process of nature, the changes it induces do bear much resemblance to the normal involution which proceeds with advancing age.

tected, the alcoholic influence is noticeable in a change in the moral qualities of the individual. There is a coarseness in his moral nature. He loses the fine sense of honor and the regard for duty which he once possessed. There is growing disregard for the rights of others, and a loss of that inhibitory force or power of resistance which formerly controlled his desires and gave direction to the motives which lay behind and enforced the activity of his will.

Gradually, this change in moral qualities extends to the purely mental faculties, and the individual begins to show a lack of energy, a feebler innervation, an inability to readily concentrate the attention, and usually more or less impairment of the mental faculties. With these mental symptoms there is a sensory and motor irritability and commencing unsteadiness which shows itself in disorders of general sensation and of the special senses, tremulousness, lethargic movements, and diminished power of endurance. The chief characteristic of both the mental and physical symptoms is the condition of irritability and the explosive and impulsive tendency which is manifested more decidedly in the later stage and more active forms of the disorder. They are the forerunners of these, and show its dangerous character. This is the condition from which crimes against the social organization are so readily evolved, and should serve to remind us that we are, in a very practical sense, the guardians of the public morals, as well as of the public health.

Let us remind you again of the strong tendency of the disorder to extend to the sensory and motor areas of the cortex. It is highly characteristic of the effect of alcohol upon the centres of the pure mental functions, and, as we shall see, has a plausible explanation in the pathological anatomy of the chronic form.

Whether this condition will go on to the more fully developed disease, or remain more or less stationary or entirely disappear, will depend upon the environment of the patient and the inherited or acquired tendencies of his brain activities; or, in other words, to the depth of the grooves which

have been channeled out, or existed naturally, in the cerebral cortex — represented in habit and predisposition. The victims of alcoholism, which goes to the degree that justifies the designation of alcoholic insanity, do not possess the insane inheritance to so great a degree as do the sufferers from other forms of insanity. Of 344 cases analyzed by Dr. Bevan Lewis, of the West Riding Asylum, Waterford, England, 27 per cent. had the history of insanity among their ancestors. Including epilepsy, all other neuroses and parental intemperance, about 37 per cent. showed the neurotic heritage. It is scarcely to be expected that this form of disorder of mind, so much influenced by environment, education, and the transmission of social customs, should show as large a proportion of cases of insane inheritance as do the more permanent and more distinctly racial forms; but that 27 per cent. show the neurotic taint so decidedly as in the possession of an insane ancestry, should direct the attention of all medical men to a study of the subject of alcoholic intemperance with renewed scientific interest and a broader sympathy for its unfortunate victims.

No figures can be given which are at all reliable as to the length of time which will elapse after these evidences of nutritional modification have been noted before the more active disease is developed, or the organic changes reach such a prominence as to justify the diagnosis of the chronic form. The progression may be gradual into the latter stage, the symptoms developing one by one, or there may be a sudden explosion into the form of acute alcoholism, or acute alcoholic insanity. It is well always to bear in mind that the patient is in the dangerous condition of the incipient stage, and that an explosion may occur from any slight additional indulgence or moral shock.

It is not my purpose to go in detail into a description of the symptoms of acute alcoholism. They embrace varieties of mental, sensory, and motor phenomena, and in each variety display the same impulsive and explosive tendency which was seen in the prodromic stage. In the mental area

this is quite pronounced. If the form is mania, there is a dangerous aggressiveness and a tendency to impulsive outbreaks which renders it one of the most treacherous and dangerous forms of mental disorder with which the alienist has to contend. If the form is that of melancholia, there is a dangerously suicidal propensity, and the same uncertainty in prognosing the course of the symptoms. One hour they may seem in abeyance, while in the next they return with renewed force and severity. No less than 50 per cent. of the cases of alcoholic melancholia have pronounced suicidal tendencies. In the chronic forms even, when the brain is in the condition of atrophy and the mental symptoms show an advanced stage of dementia, the suicidal and homicidal tendency continues and is actually increased in intensity. Sixty-six per cent. of these cases were determinedly suicidal, and 83 per cent. possessed dangerously homicidal propensities.

The sensory areas show marked disturbance. Illusions and hallucinations are invariably present, and are usually of a most distressing nature. They are active, fleeting, and what is peculiar to this form of mental disorder, conspicuously invade the nerves of general sensation and of the visceral system. Tingling, pricking, and burning, local anaesthesia and numbness, electric shocks and all sorts of visceral sensations are experienced and give rise to the most extraordinary and diverse delusions in the attempt of the patient to account for the mysterious sensations. These delusive ideas, however, are as fleeting as the illusive sensations which produce them. In the varieties of which delirium tremens is the type, motor symptoms are a prominent feature and display the same irregularity, irritability, and explosive tendency which characterize them throughout the disease.

These acute symptoms, under appropriate treatment, and particularly if the attack is the first, will usually rapidly subside and disappear entirely within a few days, leaving the patient apparently in the same condition as before the out-

burst. This is the usual course, but here also the modification in the nutrition of the brain cell and its molecular disturbance, of which the symptomatology of the prodromic form so loudly spoke, are seen, even more clearly, in the strong tendency to relapse which these cases show. Long before structural change can be detected in the cell, this nutritive perversion induces such an instability and irritability that its functional capacity is greatly modified. Several relapses may occur even before the patient is in condition to be discharged from treatment, and after every new attack following apparent recovery this relapsing tendency becomes more pronounced. These relapses are not always dependent upon the presence of alcohol in the brain and may occur months after the excess which caused the first attack. Thus in one case, mentioned by Bevan Lewis, four distinct relapses occurred during one year, while the patient was in the asylum, and entirely free from the ingestion of alcohol, each attack exactly reproducing the symptoms of the first disorder. In another instance, after a first attack, dependent directly upon alcoholic excess, and from which the patient recovered in a short time, there elapsed a period of nine months during which there was no evidence of mental disorder, yet, after attendance on a series of Salvation Army meetings, there was a violent outbreak of mental disturbance which "reproduced what was previously engendered as the direct result of excessive alcoholic indulgence," showing that "whatever are the centers of the brain, which are prone to disturbance through the agency of alcohol, when once their nutritive equilibrium is upset seriously by this agency, these centers are prone to suffer first in any relapse, whatever be the exciting cause." Could any fact be more significant, or impress more forcibly the necessity of recognizing the influence of this nutritive change and of keeping it constantly in mind in advising as to the future treatment of these patients? The care of this class during the prodromic period, and in the intervals of their acute attacks, should receive more careful study from the medical profession. Sentiment is not the

influence to which I would appeal, but the treatment should be outlined on strictly scientific lines and with the molecular modification of their brain cells constantly in mind. It does not follow that this treatment should be medicinal alone; that would be taking a very contracted view of mental therapeutics. Medicinal agents are of value in most cases, but they must be supplemented by adjustment of environment, re-education of defective faculties, cultivation of corrected motive and direction of desire into the proper channels, all of which are as rightly within the province of the physician, and as vital to his successful management of these cases as is a study of the influence of any agent of the *materia medica*.

This subject is one of such great importance, that I trust I may be pardoned this short digression from the main subject of the essay.

Instead of subsiding promptly and completely, this condition of acute alcoholism may either continue for a considerable period in a more modified form with a diminished intensity of the symptoms, but with a greater impairment of mental capacity, resembling secondary dementia and sometimes amounting to a condition of stupor, and from which the patient slowly recovers only after a period of several weeks or months, or it may pass into the chronic form with permanent mental change and gross organic lesion of the cerebral cortex. The latter course, however, is quite unusual after a first attack, and is seldom induced until repeated outbursts have seriously affected the quality of the blood and the carrying capacity of the blood-vessels of the brain, and greatly increased the interference with the nutrition of the brain cells.

It is the fact of the not infrequent termination of the acute form in the transitional or sub-acute form here indicated, which has induced me to distinguish this as a distinct variety. It scarcely deserves this distinction, but it serves to impress the fact that cases of the acute form may subside into a condition which, at first sight, would be considered

evidence of permanent organic degeneration, in which such an unfavorable prognosis is not justified.

It is, of course, highly important to discriminate these cases, both for the welfare of the patient and the reputation of the physician. There are no pathognomonic signs which will distinguish them, but the inheritance of a decided neurotic tendency, a history of paternal intemperance with the frequent recurrence of relapses will render the transition into the chronic form more probable, while the occurrence of fixed delusions and the permanent character of the sensory and motor disturbances preclude a favorable prognosis. Mental enfeeblement alone, or accompanied more or less by changeable symptoms of sensory and motor disorder is usual in the subacute variety, but if the mental enfeeblement is persistent, with no occasional rifts in the clouds, and is accompanied by equally persistent sensory and motor symptoms, the chronic form is to be feared.

The first outline of chronic alcoholism, as a distinct morbid entity, was given us by Dr. Magnus Huss, a Scandinavian, in 1852. Von der Kolk in Holland, Magnan in France, and Carpenter and others in England, have added definiteness to his description and given the disorder the prominent position which its destructive influence on the human race demands. Dr. Bevan Lewis, in his recent work on mental diseases, with his characteristic accuracy and thoroughness, has contributed valuable information in his researches into its pathology.

While alcohol has a deleterious influence on almost every tissue of the body, it has a particular affinity for nervous tissue and, as demonstrated by Dr. Carpenter, is found in proportionally largest quantity in the brain.

When the functional disturbance, described as existing in acute alcoholism, becomes mingled with the evidences of gross organic changes in the cerebral cortex, chronic alcoholism begins. From this it can be readily seen that there is no high dividing wall that separates this form from those which precede it. The transition is always more or less

gradual, and it is almost impossible to tell when the point is reached at which gross organic lesions may first be found. There is usually a diminution in the intensity of the symptoms of functional disorder, but they become more fixed and permanent. As in the other varieties, they embrace disorder of the purely psychical areas, as well as of the sensory and motor fields. Delusions become more permanent, there is not so evident a causal relation between these and the disorder of the sensory areas, while the hallucinations and illusions occupy a more subordinate position in the symptomatology. A graphic picture might be drawn of the moral deterioration, the mental disorder, and the sensory and motor perversions, but time will not permit, and it will suffice to call attention to the fact that these four elements are combined in a manner highly characteristic of this disease, distinguishing it from all others and pointing to a pathological anatomy equally as distinct and peculiar. The grosser character of the pathological changes are also seen in the gradually increasing depth to which the reduction reaches as the denudation proceeds. There is the same instability and impulsive tendency which was noted in the previous forms, modified more frequently, however, by the gradually increasing mental enfeeblement.

The three elements of amnesia, delusional perversion, and dementia combine to give rise to a great variety of cases, according to the predominance of either element. The amnesic variety is that which lies on the "border land between disordered function and real structural change." The delusional form is much more frequent and is a most interesting variety, in which the destructive invasion of the sensory and motor areas is clearly seen. All cases of chronic alcoholism are not chronic alcoholic insanity, for disturbance of the sensory area, with absence of disordered psychical phenomena, sometimes occurs, and the point at which this merges into the mental disease is an interesting question, not always easily determined in a study of the patient's responsibility. The characteristic feature is the tendency of

the disturbance in the psychical and sensory fields to invade the motor area, causing what has been aptly described by Bevan Lewis as a "disorder of the motor realms of the mind."

Before passing to a description of the pathological changes, let me call attention again to the fact that the symptomatology of all the varieties mentioned shows a similarity which is strikingly significant, and, though gross lesions are found only in the chronic form and occasionally in cases of the acute variety, points to a similar pathology in all. That there are not gross lesions found in the more recent stages simply shows that the point of functional disturbance is reached before the structural changes become so extreme that the microscope can detect them. The symptoms point to a disease of the same tissues, and demonstrate its existence as certainly in the light of the changes found in the chronic form as if the molecular changes were manifest to the microscope.

This paper is already too long, and in my description of the pathological changes I will be compelled to limit my remarks to the changes noted in the cellular elements of the cortex and the blood-vessels. Interesting and characteristic changes are also noted in the blood and in all the other portions of the nervous system, but they must be omitted. It must also be assumed that the later indications of physiological research pointing to special motor cellular elements and their particular localization are understood and accepted, a strongly corroborating evidence of which is found in the pathology of this disease, as well as in that of general paralysis of the insane.

It is probable that the pathological changes are to be detected first in the blood-vessels. The vessels of the pia, the short vessels extending from it into the epicerebral space and into the outer layer of cells, the long straight vessels dipping down through the intervening layers to reach the ganlibonic and spindle cells of the fifth and deeper layers, as well as the vessels of the white substance reaching upwards

from below, all show great structural change and evidences of degeneration. They are enlarged, more tortuous, irregularly dilated and sacculated, their walls are thickened and give evidences of atheromatous and fatty degeneration, the perivascular sheath is distended by lymphoid elements and the nuclei of the sheath have undergone fatty degeneration, often remaining only as a series of oil globules. The vessels are enormously and unequally distended, showing aneurismal dilatations, fusiform in shape, and their walls show great proliferation of nuclei. These changes are particularly noticeable in the long straight vessels of the pia where they dip down into the lower layers. Along the course of the vessels spider or "scavenger" cells, as they are so aptly named by Bevan Lewis, are accumulated, forming a perfect network of fine fibrillary prolongations about the vessels and in the outer portion of the most superficial layer of cells, immediately beneath the pia.

The nerve cells particularly affected are those of the first and fifth layers of the cortex, and especially the latter, which are often found degenerated when even the cells of the first layer show no signs of disease. The cells of the second and third layers usually escape almost entirely, or show but little indication of the degenerative process. There is usually some implication of the fourth layer, but nothing characteristic. In the fifth layer are found the large ganglionic cells, which are grouped so characteristically and abound so extensively in the motor area of the cortex that they may be reasonably held to be motor in function. In the motor areas particularly, but not exclusively, for the indications are found generally throughout the cortex, these ganglionic cells are found undergoing granular and fatty degeneration. Their prolongations have been rounded off or have entirely disappeared. This is especially true of the apical process, which connects these cells with those of the first layer. This has very generally disappeared entirely and may be much swollen and distended for a short distance from the cell, then suddenly diminishing in size and soon disappearing from view entirely. Scavenger cells abound particularly in prox-

imity to the blood-vessels, and are found in all stages of development, from the young cell to those filled with granular and fat globules and to others which have begun to liquefy and disappear. These evidently prey upon the normal tissues of the cortex, and are the vehicles through which the products of the degeneration are removed, they themselves then undergoing liquefaction and removal, leaving the brain in the sclerosed condition which results from the preponderance of the connective tissue elements. The lower process of the ganglionic cells, which becomes the axis cylinder of an efferent nerve, is quite persistent, as axis cylinders usually are wherever found, though they are considerably changed in character. As they enter the white substance they are seen to be without their medullary sheath, are irregularly swollen and show numerous fusiform enlargements. The spindle cells of the lower layers also show considerable granular and fatty degeneration.

These degenerative changes in these particular localities is a most interesting pathological fact, and, taken in connection with the evidence of motor disorder which characterize the disease, are most instructive.

Briefly summarized, then, the pathology of this disease may be stated as follows: a neurotic tendency, either inherited or developed, predisposes the vascular system of the brain to the degenerating influence of alcohol, determining the affection of the vessels in this locality in greater degree than in the other organs of the body.* The circulation of the alcohol in the nutrient fluid of the brain cells modifies the processes of waste and repair in them and disturbs their molecular arrangement. The directly irritant effect of the alcohol on the internal coats of the vessels produces a condition of inflammation and subsequent degeneration. These changes extend slowly to the external coats and the perivascular sheath, and finally, both directly and indirectly, cause the degenerative changes in the cells themselves. These

* This neurotic tendency does not, we may reasonably infer, depend upon any structural peculiarity of the vessels themselves, but upon molecular peculiarities of the cellular elements, which these vessels supply with nourishment.

destructive changes approach the cortex from both the exterior, leading to the degeneration of the outer layer of cells, and from the interior, affecting the two or three deeper layers. The anatomical and physiological connection between the cells of the fifth and first layers, if accepted, would be an additional explanation of their frequent association in disease, noted not only in this disorder, but also in general paralysis, and gives us a plausible theory by which to account for the striking combination of symptoms which characterize the two diseases and the many points of similarity in their manifestations. Assuming further that the apical processes of these motor cells are their sensory connections, may we not liken the irregular, unstable, and impulsive character of the motor symptoms to the increased myotatic irritability of the motor cells of the spinal cord when separated from the controlling influence of the higher centres? It cannot be mere chance which shows, as demonstrated by competent pathologists, the destructive changes described, in these particular localities, in two diseases with such characteristic symptoms as are seen in chronic alcoholism and general paralysis of the insane. Is it possible to infer that irritation of the sensory and ideational areas is connected with irritative processes in the more superficial layers of brain cells in those regions, while the symptoms of motor irritation are due to similar changes in the ganglionic and spindle-shaped cells of the deeper layers? As the process of destruction proceeds, the symptoms of deterioration predominate. Dementia, diminished sensibilities, and paresis take the place of the symptoms of irritation, and the autopsy reveals the gross destructive lesions of these respective areas. The prominent element distinguishing the pathological changes of the two diseases mentioned is that of time. The changes in general paralysis are much more rapid. The inflammatory process in the blood-vessels affects especially the outer layers and the perivascular sheath, and is rapidly communicated to the cell, while in chronic alcoholism it is confined longer to the internal coat, and the nutrition of the cells continues longer unimpaired to the degree which causes destructive change.

THE USE OF ALCOHOL IN PULMONARY AFFECTIONS.*

BY ANDREW H. SMITH, M.D.,

Professor of Clinical Medicine and Therapeutics in New York, Past Graduate School, Physician to Presbyterian Hospital, etc., etc.

Alcohol as a therapeutic agent acts in three ways which are distinct from each other. These are: first, as a food, second, as a stimulant, and third, as a vasomotor depressor.

As a food alcohol has the very important property of being easily digested and absorbed, and of being readily eliminated from the system in case an excess should be taken. As food, however, it must be employed within the limits of the quantity which can be assimilated and converted into tissue. This quantity varies with each individual, and in the same person at different times. Within this limit the alcohol, as such, will not circulate in the blood, but will be broken up into its ultimate elements, and be taken into the structure of the body as oxygen, hydrogen, and carbon. It is only when taken in excess of this quantity that it exhibits its deleterious qualities. The excess then circulates in the blood in its original form, and, as alcohol, exerts its poisonous influence.

Now it is obvious that the amount of alcohol which can be broken up and appropriated by the tissues will vary with the needs of the system at the particular moment. For example, when the blood is already surcharged with alimentary principles, it is able to supply to the tissues all the elements of nutrition required by them more readily than by decomposing into its ultimate constituents any alcohol which might be present in the circulation. On the other hand, when the blood is poor in nutritive material, the tissues lay hold upon

*Read at the New York meeting of the American Association for the Study and Cure of Inebriety, Feb. 18, 1889.

the alcohol, so to speak, decompose it, and appropriate its elements to their own use. Accordingly, we find that when the tissues are being rapidly exhausted, as, for instance, in fever, the quantity of alcohol which can be borne without producing cerebral excitement is often very great; indeed, far exceeding what in health would produce profound intoxication. It is noticeable, too, under these conditions, the odor of alcohol is not perceived in the breath, as would be the case in health, thus showing that it has been decomposed, and has lost its identity as alcohol.

Within these limits, then, I believe that alcohol may properly be considered as a food, and one that is especially adapted to the wants of the system.

Alcohol is also a stimulant, even when it acts as a food. Its first effect, before it has had time to be broken up into its elements, is to quicken the circulation, and to impart a temporary increase of energy to the nervous and muscular systems. When given slightly in excess of what the tissues can utilize as food it continues to produce this stimulating effect. This property makes it extremely valuable when the forces of the system are flagging, and especially when the heart-muscle is in danger of becoming exhausted.

It is well known that alcohol acts to retard tissue change, and thus diminishes the body waste, while at the same time it lessens the amount of carbon dioxide to be eliminated by the lungs.

Lastly, alcohol belongs to the class of therapeutic agents which relax arterial tension. Under its influence the pulse becomes relatively large and soft, and acquires the quality distinguished as the "brandy pulse." This implies a greater capacity of the arteries to contain blood, and, therefore, a diminished fullness of the veins in all parts of the body.

With these facts before us let us consider what are the indications for the use of alcohol in acute affections of the lungs. In all severe cases of this class the question of alimentation assumes extreme importance. The pulmonary circulation being embarrassed, there is of necessity more or less venous congestion present everywhere in the system,

and especially in the digestive organs, where it results in imperfect digestion, with all the consecutive embarrassments which this condition implies. Furthermore, when digestion and absorption have been accomplished, there remains a difficulty of assimilation, for the conversion of the products of digestion into living active blood after they have been taken up into the vessels, depends largely upon the action of the oxygen supply in the lungs. But in these cases the respiration is crippled, and therefore the oxidation of the peptones and other digestion products is liable to be imperfect. The result of this suboxidation is that these substances remain in the blood in the condition of foreign bodies, and as such have to be expelled from the system. Hence, it is not uncommon that in pneumonia, acute bronchitis, etc., we find egg-albumen, peptones, and other albuminoides in the urine.

It is, therefore, of the highest importance in these cases that we should have a food that will oxidize readily, and which will be easily eliminated if taken in excess. Both these conditions are fulfilled in alcohol, and for this reason I regard it as especially indicated as a food in all cases in which the pulmonary circulation is obstructed.

In acute pulmonary affections, especially when accompanied by high temperature, there is generally a rapid exhaustion of the vital forces. Hence, stimulation early becomes necessary, and its employment may be required for a considerable period. For this purpose nothing which has yet been suggested will supply the place of alcohol. Other stimulants may act more quickly, and in cases of extreme urgency may for the moment be more efficient, but their action is not sufficiently sustained, and universal experience goes to show that their true function is to supplement alcohol, not to supersede it. Indeed, all the changes and vicissitudes which medicine has been subjected to, there has never been any serious dissent from the general conviction that alcohol in some of its forms is indispensable when the powers of life are to be sustained against the ravages of exhausting disease.

If, in lung affections, there is added the condition of im-

perfect carbonic acid elimination, it becomes all the more necessary to employ a stimulant which at the same time will retard the metamorphosis of tissue, and thus lessen the amount of carbon dioxide to be thrown off by the lungs. This indication is fulfilled by alcohol more completely than by any other agent of this class.

In all diseases involving a considerable degree of obstruction of the pulmonary circulation, there arises an especial danger, that of failure of the right heart. This organ being required to force the blood through the lungs against an abnormal resistance, is liable to become exhausted in the effort, and from the moment it begins to flag the resistance in the lungs which it has to overcome increases by reason of that very flagging. The task of the right heart thus becomes greater in proportion as its strength becomes less. Herein lies, in my judgment, the chief difficulty we have to deal with in the treatment of pneumonia, capillary bronchitis, etc. The obstruction to the blood current in the lungs leads to overdistension of the venous system, and the pressure of the blood from behind into the right chambers of the heart, while at the same time its exit from these chambers is impeded, brings a strain upon the muscular structure which tends more and more to paralyze it. This peril can be averted only by lessening in some way the venous tension. This can be done by the use of the lancet, and the popularity of venesection in former times had, no doubt, considerable justification. But it was because it relieved the right heart of some of the pressure upon it, not because it "subdued the inflammation."

But, better than the lancet is an agent which will equalize in a measure the distribution of the blood between the venous and the arterial circulation, without removing any of it from the system. There are a variety of such medicines, and prominent among them is alcohol. As already mentioned, it relaxes the muscular coat of the arteries, which otherwise by its tension would tend to empty these vessels into the veins. It is estimated that the capacity of the arteries when fully contracted, compared to their capacity when completely relaxed, is as one to two. A small fraction

of this difference, however, would be sufficient to bring about an immense relief to the distended veins. That this is one of the ways in which alcohol is beneficial in pulmonary obstruction, I fully believe.

Thus we have in this one agent a remedy which fulfills three leading indications in the treatment of acute pulmonary affections involving embarrassment of the pulmonary circulation. I will not say that we could not do without it, but I do say without hesitation, that its value under these conditions is almost inestimable.

But, as if to emphasize its usefulness as a medicine, stands out in strong relief the fact which no one will question, that the habitual use of alcohol as a beverage, even to a so-called moderate extent, puts a person in a position in which the peril from an attack of pneumonia, or other acute affections of the lungs, is immensely increased. Nothing is more discouraging to the physician than to come to the bedside of a patient in whom he recognizes a case of this kind, and to find that he has to deal with a system whose vital resistance has been broken down by the poisonous influence of alcohol. Such a case is doomed, as a rule, almost from the first. Measures that usually give relief fail utterly in the presence of this condition, and even under the most skillful treatment the percentage of recoveries is small indeed. In fact, we may consider it a maxim, that in proportion as alcohol is used in health it becomes useless in disease, and not only so, but it impairs the usefulness of other remedies.

Thus, while I hold that alcohol, like morphine, has its place in disease, I contend that, like morphine, it has absolutely no place in health. Every drop of alcohol, as every particle of morphine, that a well man takes, makes him less a well man.

I believe that clinical facts, accurately observed and correctly interpreted, will bear out this statement in every case. Those who use alcohol and still remain in good health, are enabled to do so by a reserve of vital power which they expend in this way, and which would otherwise be available in another direction.

CAUSATIONS OF ALCOHOLIC INEBRIETY.*

BY ALBERT DAY, M.D., BOSTON, MASS.

Superintendent Washingtonian Home.

On assuming the chair this evening, I propose to read a short paper, the result of my own experience, in which I shall but briefly refer to some of the many causations of alcoholic inebriety.

Undoubtedly, if the question, What are the causations of alcoholic inebriety? were asked of the general public, ninety-nine out of every hundred would answer, and correctly, too, Alcoholic intoxicants. But this answer would be unsatisfactory to the members of this society, and others who attend these meetings, and who gather here for scientific research and investigation, and a more thorough study of the subject. And in order to arrive at a correct solution of the problem we must discard much of the surface matter that is apparent to every one, and go back to first principles,— must penetrate deeper,— to primary causes, which have long existed, and as long been known to careful observers, though not generally admitted, before approaching the more direct causations.

It has passed into proverb that "No man becomes suddenly wicked." No man becomes an inebriate, a gambler or defaulter or a debauchee in a day. To find the cause of anything, we have to look far back of it.

Astronomers learn the specific gravity of the moon, not by contemplating that luminary, but by minutely watching the oscillations of the tides. In like manner we are to learn the seats and causes of disease less by direct than by comparative study of them. We must investigate minutely the early habits of the patient, the influences under which he has been reared, and the constitutional or acquired predisposition to the development of disease.

* Read before the American Association for the Study and Cure of Inebriety, at New York city, March 11, 1891.

With these preliminary remarks I will proceed to the consideration of the subject.

Men become educated into habits of inebriety, just as they are trained to become lawyers, physicians, ministers, merchants, farmers, or mechanics. There is a vast scheme of preparation, a thorough system of schooling, to which every one is subjected, perhaps in many cases unknowingly, before he can become a moderate drinker, a hard drinker, or a drunkard, and one of the primary schools of intemperance is the moderate-drinking family. The winning smiles by which men are led forward from one degree to another, are not to be found in the low grog-shops, nor among scenes of coarse and vulgar revelry. They are first encountered amid the enchantments of luxury, ease, and elegance. In the bosom of moderate-drinking, intelligent, amiable, and often highly-educated families, where so many moralities are practiced, so many sympathies cherished, and so many charities dispensed, there, and not in the bar-room and the groggery, with its miserable horde of vagabond customers, are the primary assemblies from whence many of the drunkards in embryo are sent abroad. In these respectable families, and in those larger circles where they meet socially, temptations in a thousand covert and alluring forms is every day presented, and under innumerable plausible pretences, usages are maintained that tend to create the appetite, confirm the habit, and to carry the victim through all the downward stages of humiliation and corruption, by which one generation after another are gradually transformed into confirmed inebriates.

Let the responsibility of making drunkards be placed where it belongs. Rumsellers do not keep the elementary schools of drunkenness. They serve rather as frightful examples, to make people loathe and abhor the business. The most degraded sot that hangs around the rumseller's door, detests his traffic, even while begging for more of his drink. It is the men and women of high position, who sip their ale or sparkling wine, and long for the advancement of Christian principles at the very moment they are staying their progress

— these are the persons who set examples, and make respectable the pernicious habit of any indulgence, which, but for the protection of their high character, would wither and perish before the light of advancing truth.

It is my firm belief that no family accustomed to the daily use of wine or ardent spirits ever fails to plant the seeds of inebriety, which sooner or later produces a harvest of sorrow and grief.

It is here that the tender digestive organs of children are perverted, and predisposed to habits of intemperance. From long observation, I am convinced that one or more members of every wine-drinking family sooner or later become inebriates. We must remember that in every instance, drunkenness is the simple failure to drink moderately.

Other primary schools of inebriety may be found in billiard rooms and ten-pin alleys, and other resorts of amusements, where the means and temptations to drink are ostentatiously multiplied and displayed, and which may be regarded as "graded schools," which injure and degrade all who habitually spend their evenings at such resorts. These garnished and glittering establishments, with their bewitching attractions, become in process of time to many young men chandeliered and crimsoned hells,— the very maelstroms of moral shipwreck.

For fifty years I have maintained that inebriety is a disease. This is now very generally admitted, but it has taken a long time, and the efforts of many able and eminent men to establish this fact, and the causations are too numerous to mention in the brief time to which I am reasonably limited.

The disease is engendered by countless causes. In many cases it is undoubtedly inherited through taint of blood and mind, as insanity. The theory that the sons of drunkards are apt to be sober men holds good only in the abstract. But, even if it were practically true, the taint, or predisposition, may be traced to the grandparents, or even to more remote progenitors. The craving for stimulation and excitement may be inherited from an ancestor just as neurotic or ner-

vous diseases. The law which visits "the sins of the fathers upon the children, even to the third and fourth generation," still holds good, and many have descended to drunkards' graves in consequence of the grandsires' excesses. Proofs of this pathological fact are numerous, as all who have studied the matter can testify. But there are other and easier discovered causes that produce the same result. The foolish customs of society, speedy gains, disastrous losses, mirth, despair, the want of employment, the press of business, passion, ill-health, crime, unrequited love, family difficulties, overtaking the mind or body, and scores of impelling motives, some of which I shall soon mention, induce men to swallow the intoxicating draught, vainly hoping either to drown their sorrows or increase their joys. We see it at every turn, and many of us know of it in our professional career: for there are comparatively few homes wholly free from the effect of this monstrous evil.

Another cause of inebriety arises from the erroneous impressions that prevail concerning the strengthening and peculiar invigorating properties of alcohol. This popular delusion has been countenanced and fostered by the fictitious names, subtle and delusive in character, which have been appended in a thousand ways to alcoholic preparations. In many cases habits of inebriety have been formed in infancy by the administration of quieting compounds. Hardly any mother will be without paregoric, essence of peppermint or ginger, which is given to infants on the least sign of uneasiness. In fact, habits of intemperance, which in some cases are pronounced hereditary, can be traced back to drunken nurses.

In relation to what are the inherent causes of inebriety, I note among others, a predisposition transmitted. Peculiarities of form and features are known to be transmitted, and why not as well moral qualities?

The history of alcoholic abuse would be the history of society from the most remote period until the present time, and it forms a dark background to the broad picture of

healthful human progress. Some of the influences which predispose to inebriety arise from unfavorable moral, social, and personal conditions. Among the unfavorable moral conditions may be mentioned a want of wholesome public sentiment on the subject in communities. This arises, too often, but by no means exclusively, from poverty and its attendant evils, ignorance and vice. Rum is at once the refuge and the snare of want, destitution, and sorrow. To the vacant and untrained mind it brings a boon not otherwise to be had — excitement and oblivion. That both are brief and bought at a ruinous cost exerts little restraining influence. Of equal, if not greater, importance are the influences that spring from ill-regulated and demoralizing domestic relations, and the absence of motive, and the contentment which properly belong to the family organization.

In the individual, in addition to hereditary propensities, the evil results of a lax, over-indulgent, or vicious early training, as shown in a want of power of application, or moral rectitude, in self-indulgence, craving for excitement, and a weak will, powerfully predispose to the temptations of alcoholic excess.

The administration of alcohol during convalescence from attacks of illness is not unattended by the danger of subsequent abuse. It seems to me a physician ought to inform himself of the hereditary tendencies and previous habits of the patient before assuming the responsibility of administering alcohol in any form, even in the acute stage of disease. I shall not attempt to discuss the medical use of alcohol. I only suggest the greatest care in its use, if its administration is ever necessary in disease.

Irregularities of the sexual functions in both sexes, and especially sexually excesses, strongly predispose to alcoholism. Depressing mental influence of all kinds tend strongly to drinking habits. This is true of persons in all classes of society. Bodily weakness and inability to cope with the daily tasks imposed by necessity, impel numbers of persons of feeble constitution, especially among the laboring classes,

to the abuse of alcohol. Injuries to the head in childhood are apt, in adult life, to develop acute alcoholism.

There are many conditions of chronic disease attended by suffering which are susceptible of great temporary relief by the taking of alcohol. Indeed, in my experience I find a vast number of inebriates who are such by sequence, and not from antecedent causes.

This, gentlemen, is but a brief mention of causations of alcoholic inebriety, but to enter into further details would be but to rob some one else of time that at most is limited. With these remarks, I leave the almost endless subject for your consideration.

HABITUAL drinkers of ardent spirits are always making vain efforts to obtain more oxygen for their lungs. They frequently take deep inspirations, in the form of sighing; are apt to throw windows open on the coldest days, and sleep with the chest thinly covered, and with their hands clasped above their heads, in order to give more play for the lungs. The reason of this lies in the fact that the constant presence of more or less alcohol in the system delays the conversion of venous into arterial blood, by interfering with its power of absorbing oxygen. Thus tissue degenerations are invited, as there is insufficient oxygen to dissolve out the insoluble substances, and their accumulation causes mischief. In such persons, the superficial veins are swollen and distended, and of a deep purple tint, especially noticed on the backs of the hands, through the presence of excessive carbon; and the skin all over has a soft, characteristic feel, resembling velvet.

— *Dr. Lewis in "Medical World."*

PERFORATING ulcer of the foot is occasionally seen in inebriates, and is due directly to the excessive use of alcohol. It is also closely allied to general paralysis, and when it appears is a suspicious symptom of profound degeneration, that should receive careful attention.

THE PHILOSOPHY OF THE ETIOLOGY OF INEBRIETY.*

By J. T. SEARCY, M.D., TUSCALOOSA, ALA.

Men in the world can be very readily graded, as they ascend from the lowest to the highest types, by two very essential qualifications — the one, their degree of *intellectual sense*; the other, their degree of *moral sense*.

By the lowest type of men we mean one both ignorant and immoral; by the highest type, we mean one both intelligent and moral. These two qualifications can, to a considerable extent, be separated: we often speak of the *mental* and *moral* qualities as distinct; and we recognize the fact that in the same individual, frequently, the levels of these two qualities do not correspond. For instance, we can have one person, who will grade *higher* in his morality than in his intelligence, and another, *lower* in his morality than his intelligence. The rule, however, is, — the ability to think is accompanied by an equal ethical ability.

In the gradual advance of a race from savagery to civilization, their progress is occasioned by and marked by gradual improvement in both these particulars.

In any man, his intelligence and his ethical ability are raised to a level corresponding with his previous practice in performing these kinds of action. The savage, compared with the more advanced man, is inherently less *able* to perform these kinds of thought, and as he progresses upwards towards civilization, through generations, there is a gradual improvement in his *ability*, until as a most advanced man he finally has most *capacity to think* and to *do right*.

The first essential in an advancing man, or advancing race, is *activity*. An indolent, idle man or race never

* Read at the meeting of Association for Study and Cure of Inebriety, Feb. 18, 1891.

advances. It is the activity or exercise of the brain that increases its ability. Accomplishments and excellences are acquired only by practice and exercise.

The rapid competitions of active society, therefore, necessitate *activity* on the part of the individual to avoid suppression and elimination. Hence, improvement of individuals is most rapid in active society. The continuous brain-work, which under such circumstances becomes a necessity, improves the thinking ability of the rising man.

In the rising man, because it is a necessity, his intellectual (competitive) ability antedates to some extent his ethical sense. In a society which is advancing from a savage to a civilized grade, competitive ability is acquired *before* general communal interests require the harmonizing of the competitions. The safety and the welfare of society soon demand that the competitions of its membership shall be harmonized. This gives rise gradually to the evolution of higher and higher rules of conduct. Public opinion and moral sense, with laws and government to enforce them, thus become of a higher and higher grade, until the highest type is reached.

In this gradual improvement of society, the advancing man is more and more practiced in ethical observances, until, as an accompaniment to his improving ability to compete, there also grows in him a better ethical sense of the rights of others. A high ethical sense may well be called the *capstone* of human improvement.

In the best communities to-day we find some individuals—in most communities they are few, in no community do they reach a majority—who have a *high* order of ethical sense *inherent* in them. These persons are always inherently intelligent, for it takes the highest order of intelligence to so understand the complexities of civilized competitions as to be able to formulate and maintain high rules of conduct to suit them. Such a high order of man—highly intelligent and highly ethical—is only the result of a long line of generations of this kind of practice.

We speak of civilized countries, and of civilized societies

as though their membership were uniform. This is not so. Every community, even that graded highest, will furnish examples ranging all the way down from the highest type, just described, to the lowest. In any community, in a so-called civilized country, we can find persons who inherently grade very low in thinking ability and in ethical sense. They are at the savage level. A great many have the savage level of moral sense, while they hold a higher level in intellectual sense. This, in my opinion, is particularly the case with deteriorating or degenerating individuals they have lost their ethical sense in advance of their intellectual, — the latest evolved and most delicate goes off first.

We have not yet invented a cerebral *dynamometer*, by which we can test and record a man's intellectual capacity or his moral strength, but in our associations with others we instinctively recognize such information to be very valuable. It is interesting to note how much we are engaged in this very kind of work. We are continually making estimates of this character, and it is astonishing, in a crude way, how expert we become at it.

In making our estimates in society, the position a person holds is one to which he has *arisen* from a *lower* level or one to which he has lapsed from a higher one. Human brain ability is not by any means a constant quality — there is no standstill level. The index rises and falls in the course of the life of the person, and also it varies in the course of the line of descent. In so-called civilized society the *lapses* probably constitute the large majority of the incompetent.

Ability, at whatever height it occurs in an advancing man, is raised to that level solely by previous brain practice. The practice is either personal or ancestral. The person receives his ability at a certain level from his ancestry and raises it or lowers it by his habits of thought. By far the best and most stable ability is that which is the result of practice reaching through a long ancestral line.

While it is true there is only *one* way of improving brain ability, namely, by activity, there are *several* ways of lower-

ing it. There are several ways in which the *lapsed* members of society have reached their levels.

Brain inactivity, I have already stated, is the *physiological* method of lapsing. There are a number of *pathological* methods.

Our pathology is always injured or impaired physiology, so I have dwelt this long upon the physiology of cerebration, in order more properly to approach its pathology.

Whatever injures the structure of the brain impairs its functional action. This impairment is exhibited in altered conduct, in a loss of ability, both intellectual and ethical.

We can go through the wards of our insane asylums and find numbers of men, who once ranked high in intelligence and in morals, now lowered in both. Defect, injury, or disease now renders the brain of each of them *less able* to perform at as high a level as it formerly did.

Insanity, indeed, is only a name we give to a certain degree of brain incapacity. As generally defined, it simply means there is such a degree of incapacity as renders the person an *unfit* member of society. For this reason, for his own or his neighbor's safety, he has to be placed under forcible restraint; his brain is so lowered in intellectual ability that he is unable to compete for his living, so a support has to be given him; and it is so lowered in ethical ability that he is a nuisance or a danger to others, so he has to be restrained.

In society, short of the degree called insane, we have innumerable varieties and kinds of disability, exhibited by the peculiar, the cranky, and the delirious.

Besides the long list of diseases, traumatisms, and defects of the brain, which impair its functional capacity, we also have a long list of drugs, which, taken into the circulation, bring down the brain's capacity to a lower level.

I need not go over the long list, nor point out the peculiarities of their actions, but at once mention *alcohol* as one of them. This agent, from its so general use, probably next to idleness, brings down brain capacity in the world — and it certainly does a great deal to produce the *lapsed members* of civilized society.

If it were not for the fact that alcohol has in the system a special effect upon nerve centers, particularly high-brain structure, men would never have used it as a beverage. In seeking and taking it the alcohol drinker is after its *brain* effect. If its effects in the system rose no higher than his collar, he would never drink it.

The brain is the organ of thought and all conscious action. The partially hardened condition of its delicate structure, that alcohol produces, renders it less capable of cellular motion or action. Its conscious sensitiveness is lessened thereby. It is less able to feel. The alcoholized man therefore says he "feels better" or "feels good," and acknowledges that this kind of lowered sensitiveness is what he likes. He "feels better" if his brain feels less any discomfort or pain he may have. Even in health, if he have no special discomfort, the benumbed condition is a more comfortable one. The well man therefore says he "feels good." The *luxury* of alcohol drinking consists in this condition of the brain.

I wish to draw attention to the fact, that in order to obtain the pleasant comfortable condition of lowered sensitiveness, the alcohol drinker does not avoid or fail to have the other alcohol effects on his brain—there is a general lowering of function. When the brain's ability to feel is lowered, its ability to think and to adjust conduct ethically are also lowered. The keenness of a high ethical sense is probably the *first* thing blunted.

The disability of the alcohol drinker will vary according to the *amount taken*; according to the *inherent strength* of brain structure; and according to the *length of time* the brain-abuse is continued.

For instance, first, according to the *amount taken*, conscious sensitiveness lets down from a slightly benumbed, comfortable condition, to that of complete anæsthesia; intellectual ability varies from being "a little off" to the condition of a temporary dement; the ethical sense varies from slight indecorum to full viciousness or madness. Secondly,

the degree of brain disability under alcohol will vary according to the *inherent brain strength* of the drinker. Weak brains will be lowered in ability more than strong ones, and low grade savage brains, or defective ones, will exhibit their incapacities in the lines of their deficiencies. Thirdly, the disability will also vary in proportion to the *length of time* the brain-drug abuse is continued. A single debauch can be fully recovered from, but long-continued use produces such an injury the full function is never restored.

Sometimes, all three of these conditions obtain in the same person; when this is the case, the degeneracy of brain function is extreme. The *inebriates* constitutes this extreme class, always degenerated to a very low level in intellectual sense and ethical sense. Of course there is a *tendency* to return to previous capacity when the brain-drug abuse is left off; but I question whether an inebriate's brain is ever fully restored to its previous capacity, or ever reaches the level it would have occupied without the injury.

As society advances from a savage to a civilized level success depends more and more on brain strength. The most advanced society pays the highest premium for brain ability. In active civilized society, the safety and success of the individual depend almost altogether upon this qualification. In savage society, the muscle strength suppresses the weak, in advanced society it is the brain strength of the more competent that suppresses the incompetent.

The drinking man lets down in business and loses his money because his thinking capacity is lowered by his habit—his ability is weakened. The drinking man also lets down in morals, *falls* into vicious habits, because his ethical sense is weakened.

In modern society, brain idleness probably puts most men into the *eliminating* level; next to idleness comes alcohol. These two agencies rapidly rid crowded society of their unfit membership. Nothing is so rapid an *eliminator* as alcohol. The least fit, both in the idle wealthy ranks, and in the idle poor ranks, are most given to its use. Under the

light of advancing science, the use of alcohol is becoming more and more confined to the class of the weak-brained and the vicious. The intelligent, for the sake of maintaining this intelligence and superior fitness, are learning to leave it off.

Society is much interested in the intellectual level of its members, but it is most interested in their *ethical* level. The safety and survival of the individual are most dependent upon his intellectual ability; society, though, is principally interested in his ethical ability. The safety and welfare of society depend upon the moral status of its people. The good of society demands this.

Communities, races, and nations, like individuals, are engaged in competitive life. The most successful is the one which has the high intellectual, progressive capacities of its people welded into a harmonious, united whole by a high ethical sense.

There is a very satisfactory scientific explanation, therefore to the fact, that the most altruistic persons, those most interested in public good, have always been opposed to alcohol drinking. They recognized the fact that it lowered the intellectual and moral abilities of the people and tended to weaken and disintegrate society. Probably one reason they have never succeeded better in enforcing their opinions upon the attention of the alcohol users, is because they have not had the advantage of recent scientific knowledge to back their instructions—the brain has been left out of their philosophy altogether.

I have often been made impatient in listening to the lecturer presenting the "scientific aspects of the alcohol question" to an audience, to see him illustrate extensively with charts and spend hours to show the effects of alcohol upon the coats of the stomach, and upon the structure of the liver, the lungs, and the kidneys, and never allude once to *the brain*, when the fact is, alcohol's principal effect is upon this organ; and the functions of this organ so far transcend the functions of all the others, that, I might say, there is no comparison.

When the individual in society is taught the fact, which he seldom knows, that alcohol incapacitates this very organ upon which his safety and success, in the competitive world, depend, he will be very much less inclined to use it. And when society recognizes that with alcohol a low-grade vicious man can be made chemically out its most excellent man, and that this process is continually going on among all its ranks, it will be more alive to spread scientific instruction upon the subject.

MEDICAL MORPHINOMANIACS. — Dr. Rochard, who contributes to the *Temps* a letter on the need of institutions for the treatment of morphinomania in France, asserts that medical men and their auxiliaries, the chemists, constitute a good half of the total number of morphinomaniacs, though they naturally take every possible care to conceal the fact. He attributes the prevalence of this depraved habit among members of the profession and pharmacists, to the facility with which they can procure the drug, and urges that, since this is the case, restraint offers the one possible means of effecting a cure. He points out that in Germany and America special institutions have been devoted to the treatment of this spreading tendency, and he might have added that in England these cases are admitted to dipsomaniac asylums. In France no facilities of the kind are available, and victims to the habit are allowed to go on to the bitter end in their own homes. Suicide is a common termination, and appears to have become more frequent since the cocaine habit has been associated with the other. It was hoped at one time the introduction of the cocaine habit would prove an antidote for the morphine habit, but the reverse has proved to be the case. The effects of the two drugs are in reality superimposed, and the result is a peculiar form of mental alienation manifesting itself by the mania of persecution and its usual concomitant, a tendency to suicide. — *Medical Press.*

INEBRIETY MEDICALLY.

BY J. E. BLAINE, M.D., OF CHICAGO, ILL.

The study of inebriety, scientifically, is yet in its infancy, and beyond the fact that it is a disease, a vast unoccupied field exists, ready for research and therapy. From the advances already made sufficient hope is given that practical care and *cure* of this disease is one of present possibility and future certainty.

It is properly within the domain of medicine, especially in the department of diseases of the mind and nervous system, and to the alienist we look for the rescuing of the victim and the bringing about of a change of the opinion, that has been entertained by the public since the days of demonism and witchcraft, when the insane-hysterical, cataleptic, and epileptic were supposed to be possessed of devils and the feeble-minded old women were witches.

We are all familiar with the results of treatment of the inebriate by non-professionals, expecting a cure by pledging, temperance societies, various forms of punishment, religious enthusiasm, etc. Nor has there been any better success achieved by thrusting them into jails, work-houses, or inebriate homes for a few weeks or months, and then sending them out to encounter the temptations produced by their disease, *without special treatment* to neutralize or obliterate the effects of past habits. No poison, except syphilis, plays so extensive a role in the morbid affections and degeneration of the tissues, nervous or non-nervous, as does alcohol. The problem we have to deal with is that here we have a man, normal in all respects, except that he has no absolute, permanent control over the desire for alcohol. In the periodical drinker weeks and months may pass without an outbreak of the disease, when suddenly, either by disturbance of his men-

tal equilibrium, the accumulated force of heredity, or a nervous, explosive, indefinable something, like an epileptic explosion, an outbreak occurs and our man goes on a debauch.

In the habitual drinker the conditions are somewhat different; on his part there is not that striving to avoid liquor, no self-acknowledgment of his inability to stop, no realization of harm being done by it; the continuous presence of alcohol in the system seems necessary to his physical comfort and the effects of the alcohol on him is a reflex one on the nervous system. Alcohol has the distinct property of coagulating living animal protoplasm; applied to a raw surface produces pain and rapidly coagulates the albuminous fluids covering the part; injected in a sufficiently concentrated state into a vein it coagulates the blood; taken into the stomach undiluted or nearly so produces inflammation; in large, concentrated quantities is an irritant poison, producing deleriant, anæsthetic, and asphyxic effects.

Absolute alcohol is dangerous in almost any dose, by reason of its powerful affinity for water, which it abstracts at once from the tissues to their detriment and destruction. In small quantities, largely diluted, it produces only an agreeable sensation of warmth, and stimulates the secretion of digestive fluids. It is absorbed with great rapidity by the veins of the stomach and intestines, enters the blood *unchanged*, and soon reaches every nerve, muscle, and gland. After its entrance into the blood, a certain amount is oxidized; the amount must be large, for, while it is a fact that alcohol can be recovered from the various excretories of any animal to which it has been administered, yet no one has been able to account for anything like the amount given. Having the alcohol *unchanged* in the blood, it exercises the same effect on the tissues inside as it does outside the body; the tissues with which it is first brought in contact exist in the walls of the blood vessels themselves, and in them the direct irritating effect of the alcohol is first seen, consequently the most notable effects are found in the smallest arteries and capillaries. Mingling in the current of the blood, it comes

in contact with the vascular muscles, first contracting the muscular coats, diminishing the diameter of the vessels, accelerating the heart's action, raising the arterial pressure, paralyzing and anæsthetizing the minute sensory nerves; fibers, cells, and molecules, coagulating the albumen and albuminous fluids, presenting increased heat and functional activity with vascular pressure in the brain, and by saturating the blood corpuscles and liquor sanguinis, the alcohol directly impedes the blood changes by which oxygen quickens nutrition, thereby preventing their oxygenation or taking up the oxygen received in the lungs, diminishing the exhalation of carbonic acid by the lungs, as well as the excretion of urea and the fixed salts through the urine. Now, alcohol being composed mostly of carbon and hydrogen, is, in moderate quantities, compatible with the elements of living protoplasm, but taken in *excess* of what the tissues can assimilate and preserve their normal equilibrium, this *excess* mechanically obstructs the *access* of oxygen to the living protoplasm and may arrest the vital processes entirely. Further, this *excess* of alcohol tends to accumulate in the nervous tissues through the peculiar selective capacity of the nerve centers for this poison, it thereupon expands its primary and most potent influence. Three times as much alcohol has been obtained from the nervous tissue of drunkards as from the blood. The brain being so exceedingly vascular and so richly endowed with cellular elements which are penetrated by every *excess* of alcohol, it becomes appreciably filled with it. The pathological changes, as seen in the examinations at the West Riding Asylum in the alcoholic insane, are but the termination of the changes begun at the first ingestion of alcohol in excess. A few of these changes, as noted by Lewis, 1890, are first in the vessel walls which lead to extensive atheromatous and fatty degeneration of the tunica intima, associated with which is found parallel changes undergone by the adventitial sheath in the increase and fatty degeneration of its elements. Fat emboli are frequently established in the smaller cortical vessels during the progress of these changes, and the exten-

sive dilatation and aneurismal states are probably direct results of the diminished resistance of the vessel and paralysis of its muscular coat.

An extensive *endarteritis* affects the ultimate radicals of the cortex, and with the pre-existing change in the composition of the blood leads to the devitalization of the nerve tissues. The subsequent change in the interstitial tissue around, and the nerve elements themselves apparently depends much upon the subject's predisposition, which seems to be the chief determining factor in engendering the fatty or sclerotic change which characterizes the two classes of alcoholic subjects. However, in all we find a like tendency to a degredation of tissue in the replacement of the normal elements by new connective growth; in some is found a special tendency to extensive fatty change in the nervous tissues, so that the parallel degeneration seen elsewhere, as in the fatty or sclerosed liver, seems to be reproduced here. It is probable that the fatty change is altogether a *more* acute process, and the sclerosis the result of a *much slower* and more *gradual poisoning* of the tissues.

The fatty change is more liable to be induced in senile alcoholics. These changes are undoubtedly indicative of a *very chronic inflammatory action* proceeding in the vessels of the membranes and slowly involving the upper cortical strata. Coincident with this a similar change is found throughout the nutrient supply of the medullated substance of the convolution, which leads to important changes in the lowermost series of nerve cells — the spindle layer and medullated nerve fibers themselves at this site. In the outermost cortical layer is seen the apical distribution of the large, deep-seated cells which it is supposed possesses motor endowments; their poles are in an early stage affected by the sclerotic changes proceeding in outer layer of the cortex; these cells are affected by the degenerative change ere the morbid process extends deeply. Simultaneously with this, an invasion of the cortical elements takes place from the medulla of the gyri; this morbid process extending upward involves both spindle and

motor elements. The deepest cortical layers are more especially affected — cases being met with where the uppermost layers show no morbid indications. The vascular, nervous, and connective elements all participate in the change, tunics crowded with nuclear proliferation. The nervous and connective elements at the site of the large, so-called *motor* cells, constituting the clustered groups of the central gyri show a notable degeneration. The great nerve elements are swollen and rounded, and in place of their usual delicate protoplasm, present a rough granular aspect. Down in the lowest layers, the spindle cell formation, is found a large development of scavenger cells scattered profusely upon the blood vessels. *The spindle cells themselves are covered by heaps of nuclear proliferations*, and the appearance presented is that they are undergoing rapid degeneration, and removed by the scavenger corpuscles, which act as phagocytes and devour nerve elements. When the ingestion of alcohol has been stopped and the quantities taken have not been large or long continued, the system can in many cases eliminate all that is in the body, and through the regular reconstructive agencies of the system, the brain and nervous system can regain their normal state.

But in the vast majority of cases the brain cells, fatigued by their own excessive action, invariably out of all proportion to the strength of the body, excite an intense craving for restorative agents; recuperation through rest and food is a slow process and too irksome to the individual with nerves all unstrung and who has neglected, wholly or in part, nourishing food and rest. He finds in the repetition of alcohol something which has a special affinity for these tired nerve cells, it producing a rapid and pleasurable relief, enabling him to continue his bodily activity without the rest and food really required. Accompanying the above is the well-known anæsthetic property of alcohol, benumbing the moral and intellectual faculties; with weakened will and low resisting power the disease becomes chronic. Now a permanent dilatation of the vessels takes place; cells, molecules, capillaries,

lymphatics and all nervous tissue becomes indurated and changed, thus changing molecular combinations in the higher nerve centers where the character of brain action is determined, the same field where pathological action takes place in the vast majority of nervous diseases that affect the character and mental status of the man. Alcohol is so distinctly poisoning to the nerve centers and cells that once its peculiar influence—like opium and other narcotics—is made on these structures, the desires and cravings for it become permanent, overruling all other considerations.

Desires for alcohol, like other normal desires, primarily are but the indication of the needs of the system. In a healthy man all his desires and cravings can, as a rule, be gratified in some proper way at some proper time, so as to promote the good of the body and mind, none requiring absolute prohibition. The proper way and time to gratify them is determined by the controlling influence of reason, experience, and law. A craving which leads to harm is a *diseased craving*. The strongest and most subtle desires of man arise in the highest centers of the cerebral cortex, *i. e.*, the emotional centers, and are not necessarily connected with any functional activity of the lower nervous centers, as the sympathetic or visceral ganglia. The impulses which guide and regulate these desires must also proceed from the highest cerebral regions. They are not purely of a spiritual nature, but are associated directly with the physical changes in the brain tissue. For the manifestation of hurtful desires there must be present a diseased craving and also a paralysis of control. The peculiar work that a nerve cell must do, requires that it should not be sluggish or stable, but sensitive and unstable. In certain individuals this sensitiveness and instability are carried to excess and the cell acts in an explosive manner. In a motor cell this abnormal condition gives rise to convulsions and exaggerated reflexes; in an emotional cell it causes explosions of passion and diseased cravings. A tendency to this emotional condition is obtained by heredity from ancestors whose brains have been

subjected to undue excitement or have been poisoned by alcohol, opium, or syphilis.

Control over the emotions and over the conduct is the highest function of the human brain. The power to do right and refrain from wrong is earliest seen in good stock, but is slow of development or may never become strong in the children of habitual criminals, drunkards, or insane. The power of inhibition or control is, even in the best stock, destroyed by alcoholic poisoning, and diseased cravings with paralyzed control occur together, the one involving the other. Again, every-day experience shows that personal predisposition plays an important part in the *genesis* of central nervous diseases—it is not actual disease but a liability to disease—a lack of resisting power, in consequence of which certain influences, unable in a normal individual to produce any abiding disease, are capable of setting up disorders of function and often alterations of structure. This predisposition is of special importance in connection with inebriety, which not infrequently results from involuntary causes—such as can truly be called an inebriate diathesis. Under these conditions he is not a voluntary sufferer. Volition is excluded and his inebriety is but the active manifestation of a certain diseased condition which lies at the root of, and *is* the cause of, his inebriety.

In regard now to the specific action of alcohol,—it exists in the blood in an unchanged state; a certain amount serves as nutrition to the vessels taking it up. The remainder or excess serves only to retard the various vital forces which, in proportion to the quantity taken, actually produces paralysis of sensation and motion. In their normal condition the vital phenomena of living protoplasm are dependent upon the permanence of a certain equilibrium in which all its constituent molecules take part. Disturbance of this equilibrium produces a lower degree of complexity in the movements of the molecular combinations, thus producing a lower grade of vital manifestations. This equilibrium may be disturbed by the introduction of matters within or without the body, and every such introduction means a readjustment of this

equilibrium if their living identity is to be maintained. The disturbance produced by the introduction of alcohol into the circulation involves the functions of sensation, reflex action, voluntary motion, respiration, circulation, and distribution of heat. These disturbances are due to the paralyzing energy of alcohol in contact with living protoplasm.

The action is peculiar and characteristic. First, the impressions of sense are disturbed, the intelligent connection between the different cerebral centers is divorced, so that the intimate connection between the will and brain action so changed that a point is arrived at where the will can no longer control the material forces of the brain, in that all power of directing the functions of the brain and body through the medium of the brain is arrested. The individual feels as though he were of a dual nature, one part quiet, dignified, of lofty aims and ideas, apologizing for the acts of the other part, seemingly thus to vindicate the high character of his inner consciousness in contrast to the wild, boisterous and uncontrollable conduct of the other part that is giving way to desires and passions. Physiologically, this is due to the inharmonious and disproportionate activity in different portions of the brain. Psychologically, it is the result of a change of the relation between the material substance of the brain and that immaterial personality which constitutes the conscious, intelligent individual. Therefore, in *consonance* with these anatomical changes and phenomena of alcohol, we have produced the inebriate, no longer a free agent, his moral, religious, business, in fact all perceptions, aims, ambitions, and pleasures lowered and degraded.

My investigation and experience lead to the recommendation of sufficient control to insure regularity and continuity of treatment, in which the eliminatives, alteratives, and reconstructive nerve agents hold out the promise of cure of this almost universal disease.

DISCUSSION.

DR. CHURCH. Mr. President: I will just say a few words. I do not desire to take the extreme ground of the

gentleman who has opened the discussion, nor of the essayist. It is well sometimes to take a middle ground. A great deal of difficulty in the discussion of this subject arises from the plurality of names appended to the condition which throws a haze over the situation. We have heard something of inebriety; formerly we heard something of drunkenness; we hear of alcoholism, and there is delirium tremens and *mania a potu* and alcoholic insanity, and dipsomania, and methomania. Now for each of these several conditions the various reporters will give a more or less indefinite description, and there is a great deal of overlapping, so that it is very difficult to get a clear idea of the specific significance to be attached to the various terms; I do not know exactly what the doctor would imply by the term inebriety, after hearing his paper. I must insist, however, that the continued use of alcohol in large quantities will produce physical disorder, will produce anatomical disorder in the nervous system; and where there is disorder in the nervous system it is natural to find disorder in the functions of that system — any disorder from the merest tremor to the wildest delirium or deep coma. On the other hand there are individuals who take large quantities of liquor and never present any symptoms. Some of our octogenarians have drunk liquor freely for 60 or 70 years, and claim that it does them good. The ability to withstand poisons, is something that depends upon the personal equation.

In regard to heredity, we must remember that it is necessary when we find a man who is an inebriate to examine his father; we must know something of his grandparents and great grandparents, and we must remember the tendency to skip a generation; we must remember that some may not be brought up in a way that gives them a physical tendency to alcohol through deprivations, exposure, or concomitant illness, and which a succeeding generation may have to undergo. I like Dr. Earle's treatment, however; when he shuts a man up for a year he places him in rather good circumstances, as far as the treatment of alcoholism is concerned. It is not

medical treatment exactly, but very much better. It deprives him of his poison, which is the use of the most potent remedy, and at the same time impresses upon the individual a certain amount of self-reliance, and shows him that it is intended he shall exercise that reliance. I am of the opinion that, in a very small percentage of cases, certain drugs are of value; I also believe the surroundings should be of a desirable sort, and that the moral and religious influences, and anything which will give the man self-control, is of value. Each case is to be considered by itself and sweeping generalities avoided.

DR. BROWN. Mr. President: In my opinion the tendency to drunkenness is often hereditary. Fondness for the bodily and mental excitement of intoxication, natural sociability, and complacency, a tendency to neurasthenia, which is relieved by stimulants and finally deficient inhibitory power in general are all important elements in the formation of the habit of drunkenness, and one or more of them will be found to exist more or less prominently in many cases.

It will be generally conceded that these characteristics are frequently hereditary, and it is only in this sense that heredity can properly be applied to the condition.

DR. MOYER. Mr. President: In my judgment, alcoholism simply marks a degeneration in the nervous structure and functions of the individual affected with it, and in that sense it is a disease, the same as criminality evidences a defect in nervous structure, which I firmly believe brings it within the category of the degenerations. I believe that the criminal and the inebriate mark but teratological defects, and belong to the same degenerative type as paranoia and idiocy.

These degenerate beings react upon the social order and the environment reacts upon them; when the aberration reaches a certain degree they are no longer fit to be at large.

All this simply means, that in the upbuilding of the society there has come an evolution in the structure and functions of the nervous system—indeed, the former is but

the expression of the latter. It is apparent that occasionally individuals will present themselves who have not reached the average plane; for a time they may sustain themselves, but ever on the "ragged edge." They eventually slip into the abyss of crime, vice, pauperism, or lunacy. The last two of these society considers a misfortune, while in reality they are quite as often expressions of crime and vice as alcoholism or thieving.

Regarding the question of heredity, I wish to say that no diseased condition is directly hereditary. One does not inherit consumption, epilepsy, or alcoholism, but the structural defects that favors the development of these conditions. So in those unfortunates who inherit primary nervous defects, it is often accident or social surroundings that determine the direction of its expression. The defect in a person of high social position that produces an inebriate, may, in a lower social order, produce a criminal.

Regarding the treatment of these conditions, I think Dr. Earle's position is unassailable. It really makes little difference whether we put these unfortunates away in sorrow or in anger — whether we say to them, "You are a diseased person and must go to an asylum for treatment," or, "You are wicked and must go to a jail." In either event the chief curative indication — that is, detention — is met. Eventually, a philosophical jurisprudence will deal with criminals in this way, place them in detention until they recover moral health — if chronic and incurable, keep them until they die.

DR. J. E. BLAINE, in closing the discussion, said: Mr. President: I have little to say; of course my views were brought out in the paper. I believe, so far as heredity is concerned, that, as I stated, it is not a hereditary liking for alcohol, but there is that in the nervous organization of the persons and their ancestors, who have been addicted to alcohol, or morphine, etc., which will impress itself upon the nervous system and render their children more liable after indulgence in and of the narcotics, to development of the

desire until it becomes a disease. If alcohol is innocent, as Dr. Earle would have us believe, my paper is wrong, but if excess of alcohol in the system produces that change in the system which the best pathologists and microscopists allege it does, then it is only reasonable to look for a permanent effect, or at least a change in those tissues on which the poison acts more particularly.

I knew this paper had to combat with views that have been held for many years — that the alcoholic is a distinctly responsible individual, even after he has been drinking for twenty years. I do not see how he can be made any more responsible, how the holding out of a future punishment will have any influence upon the nervous system that is impressed with alcohol. It is the fact, after knowing so many cases in which treatment by moral suasion and forced abstinence had been tried, and where the failures have outnumbered the successes two to one, and observing that medicinal treatment *cured* a vast majority, led me to know that the medicinal treatment tending to eliminate the alcohol and rejuvenate those damaged structures did bring about a greater success than any other treatment.

INFLUENCE OF OPIUM, MORPHIA, AND CORDEIA UPON THE STOMACH.— Abutkoff sums up the results of his experiment on six healthy men as follows: These drugs visibly diminish stomach digestion; they positively diminish hydrochloric acid secretion; they weaken the general acid condition of the gastric juice; they diminish its digestive power, but do not influence lactic acid fermentation; they do not influence the absorbing property of the stomach; opium has the most, codeia the least effect. Hence, in persons with weak digestion, opiates should not be administered until two or three hours after meals, while they may be used with impunity in cases of hyperacidity.—*Deutsche Med. Zeitung.*

INEBRIETY NOTES, No. II.

BY S. V. CLEVENGER, M.D., CHICAGO.

I was much impressed with the value of Dr. Clouston's suggestion that cravings were often misinterpreted, and while alcohol may seem to have been what was needed, some physiological want really existed which might have been satisfied by some other means than drinking. I know a patient in point, who often hurries to the nearest restaurant and eats heartily of *anything* to appease an appetite that all too often he had ministered to with alcoholics, and he usually finds this expedient successful, but the food repletion makes him uncomfortable and somewhat melancholy.

The relations of alcoholics and foods in general are worth deep consideration, and such a study would well repay the physiological chemist who would not only experiment, but read up what little literature exists on the subject and then *think* over the entire matter. As far as I have been enabled and had time to investigate, I am convinced that just as no two persons are affected exactly alike by the same kind of potations, so we will have to group susceptibilities into less general classes, sub-classes, and varieties, and that the matter of food substitution for drinking will have to be *individualized* very largely.

The spread of a bar-room free lunch has its significance. Concentrated nitrogenous food, such as cheese and roast meats prevail, apparently to supply elements complementary to the hydrocarbon liquids, and we find inebriates who live mainly upon cheese and meats while drinking, with an aversion for vegetables and fruits, especially apples. One dipsomaniac I recall knows that he is recovering when he begins to dislike cheese and takes meats sparingly and grows fonder of vegetables, especially peas. Liebig, many years ago, claimed

that the proper diet for a drunkard during abstinence should be leguminous, as this met to some extent the desire for hydrocarbonaceous diet that had previously been taken in the more concentrated form.

In "Physiological Memoirs," by Wm. A. Hammond, 1863, a chapter records the results of experiments with alcohol and tobacco upon the human system; and, however much the doctor's conclusions may agree or disagree with those of earlier or later investigators, they are well worth citing as being the result of painstaking and conscientious inquiry. He claimed that "alcohol increases the weight of the body by retarding the metamorphosis of the old tissues, promoting the formation of new, and limiting the consumption of the fat." "The use of alcohol," he therefore states, "even in moderation, cannot be either exclusively approved or condemned. The laboring man who can hardly procure bread and meat enough to preserve the balance between the formation and decay of his tissues, finds here an agent which, within the limits of health, enables him to dispense with a certain quantity of food, and yet keeps up the strength and weight of his body. On the other hand, he who uses alcohol when his food is more than sufficient to supply the waste of tissues, and at the same time does not increase the amount of his physical exercise, or drink an additional quantity of water, by which the decay of tissue would be accelerated, retards the metamorphosis while an increased amount of nutriment is being assimilated, and thus adds to the plethoric condition of the system which excessive food so generally induces."

No cast-iron rule, therefore, can be applied alike to the "wealthy inebriate" and the "drunken laborer" for their reformation, than would be applicable to the treatment of surfeit and starvation. Furthermore, the matter is one that does not concern alcohol ingestion alone, but there must be considered a multitude of toxic ingredients in most drinks, such as logwood, anilines, salicylic acid, sulphate of copper, fusil oil, tannic acid, ethers, and essential oils of many kinds.

In fact, average intoxication has ceased to be a simple matter, for there is no guessing what chemical combinations the indiscriminating tippler may have experimented with.

From mistaken motives of expediency, the enemies of alcoholic debauchery have persistently refused to admit that there was any good in alcohol at all, forgetting, ignoring, or ignorant of the fact that there can be no greater harm done to a good cause than through adopting immoral means to foster it. Alcohol has its uses in the world, though its abuses may outnumber them. It may be a "medicine in sickness and a poison in health," its usefulness in debilitated conditions arising from age or illnesses, and its marked sustaining powers must not be ignored if we are to arrive at a true understanding of what it does in the economy, why it does it, and above all *why there is such universal addiction.*

From the evolutionary standpoint the intestinal tract and associated organs have been built up by degrees from the simple gastrulated pouch-like condition to be found in many low invertebrates, and in every animal hydrocarbonaceous substances are more or less perfectly converted into assimilable food for the general tissues. The colonies of cells comprising the organism are adjusted to definite repetitions of feedings; the enteric cells taking some sustenance from the crude materials, the lacteals, hepatic, cerebral, renal colonies, in their turn, feasting upon the peculiar pabulum passed on to them, according to their positions in the economy, their chemical affinities and structures, and their opportunities for supply.

The highly elaborated alimentary apparatus of mammalia has, doubtless, through millions of years of inherited structure adaptations, finally become adjusted to food containing more or less *debris* or innutritious materials, from which it is the united function of the various organs to separate that which nourishes the organism. In other words, the stomach, intestines, liver, blood vessels, etc., have to *work*, to labor, to pick over, treasure up this, and cast out that; and the entire individual is built up to this necessity, and effete matter has

become just as much of a necessity mixed with food proper as is gravel in the digestive apparatus of the chicken. Concentrated "rich" diet, of any kind whatsoever, may at times fulfill a useful purpose, when the general strength is at fault and there is need for instant repair; but when this is long-continued the system revolts and announces that nourishment too easily obtained, and by throwing certain organs out of employment, must be paid for in some other way.

Alcohol is not only a food, but a highly concentrated food, and therein lies the explanation of universal addiction and its danger. Could the cells of the organism speak, we might hear a hurrah from the stomach and small intestines in which the adjacent blood vessels would join over the alcoholic feast which has not been earned by work. The nervous system, with its special affinity for this food, joins in the excitement of having thrust upon it what before it obtained with more difficulty, but calmly and regularly. Part of nature is on a holiday, but structures less favorably situated with regard to the orgie are sullen and finally clamorous; the liver and kidneys and excretory organs generally are off duty, or through many repetitions of the riot conclude to work as little as possible. The surfeited colonies begin to suffer from repletion. Hyperplasiæ, congestions, crazy physiological processes, blocked avenues, some parts engorged and others starved follow, and things in general try to adjust to the revolutionized condition, the liver and kidneys shut up shop, and the brain takes a vacation. Were it possible to easily adapt the animal parts to concentrated chemical food, nothing of this would occur, but that nature does make a sincere attempt to habituate the *race* to a less harmful assimilation of alcohol, I think there is reason to believe.

A few centuries ago, there was most universal drunkenness, pervading all ranks, castes, and degrees. That public opinion has suppressed much of a continuance of this there can be no doubt, but *something* of the lessened exhibition of alcoholism is doubtless due to transmitted adaptation. Savages are readily upset by small quantities of liquor, and prac-

tice enables many individuals to increase the quantity taken before the same effect is produced. So, just as races may be immune from certain epidemics, the descendants of drinkers may not only indulge more freely than their ancestors, but indulgence may become a necessity to the proper working of their (individual) physiological make up. We are familiar with the common theory that drunkards may beget degenerate offspring, but it is not recorded that a physical degeneracy thus entailed may be compensated for by liquor ingestion. Here is a case in point: A talented young fellow was harassed by anæmia, hepatic and intestinal difficulties, insomnia, and the knowledge that the origin of all his ailments was in his father's excesses. He dreaded alcoholics and for long years determinedly abstained, for which he deserved all the more credit as he knew that drink was what he needed. He finally yielded in despair, concluding that it made little difference whether he died from drinking or the want of it, and, presto, away went all his ailments. He is now 30 years old, does not get drunk, but takes whisky in a fixed quantity as a food. The future will determine the issue, but I believe that he may live to old age and preserve the equilibrium he has thus established, particularly as good heredity antedates his paternity, and by "reversion" his offspring may be free from such trouble. The temperance ranter would never admit the possibility of this; but if we are to get at the truth of any complicated question there must be no skulking from facts, and, so far from there being danger in admitting the possibility of such an instance, we may be throwing light on the study, obtainable in no other way. A useful analogy may be cited to explain some psychical features of alcoholic degradation, and analogies have a far deeper significance than is generally supposed; for, as Herbert Spencer points out, many natural laws that apply to nations are directly derivable from those that govern the individual components, and, I still further hold, that the man is what is constituted by his component cells, no better nor worse, and identically, in the aggregate, as they are.

Just as the Chinese suppose that the mind resides in the abdomen, so average mankind thinks that congresses, parliaments, presidents, kings, are the brains of nations. For present purposes we may draw comparisons between parts of the individual and corporate organisms, as follows; nor does it matter that we mix up mechanism and men, the organic and inorganic, for the skeleton is as useful as more highly organized parts:

Merchants, bankers, etc., are the nation's intestinal organ cells, and that they don't eat up everything that passes into their custody is solely due to their not being able to do so.

Common carriers are the blood vessels.

Telegraphs, and other such means of communication, constitute the nervous system.

Laborers, soldiers, are the muscle cells.

So-called rulers and law-makers (whether in republic or monarchy), merely obtain their power from the general units, and serve to correlate the intestinal and vascular operations, as the sympathetic system does.

The professors, authors, and real thinkers generally are the unrecognized brains of communities, however starved and neglected, and, as individuals are usually guided emotionally and think afterward, so the real brains of a community are disregarded in the main. I can hear the usual comment upon this indirect method of approaching a subject, What relevancy has this?

Well, it has every relevancy, identity of import, in fact, but Spencer is the best exponent of this, and has sufficiently defended this method of reasoning. Pathological conditions infest communities as well as individuals, from want of harmonious working of parts. When the elaborating, transferring apparatus of a person or nation, as the intestines and blood vessels, or merchants and railways, either separately or together, become too hoggish, and want to absorb everything, it is an easy matter to induce the intestinal ganglia legislature to adjust means for so doing; but, as this means death to the organism in general, a feverish condition may follow

that threatens the national life until an equilibrium is restored. The intestines are often traitors to the commonwealth, but so may be other associated parts.

Merchants, the marine and railways, discover a short cut to fortune and forsake established methods. "Confound the brain!" says the duodenum. "Blast the bloody liver!" says the stomach, it will have to take what I see fit to let it have—my wants are first." Debility, if not worse, follows, as a matter of course, in which the greedy enteron shares, and the "bloated bond-holder" realizes that he is merely a constipated colon, and prays for a diarrhoea to put him in healthy relationship with his neighbors.

Without carrying analogies too far, I meant to illustrate, in a homely way, why there should be such a psychic and physical revolution wrought in the alcoholic, and in few words the matter can be summed up thus: Millions of years have been occupied in building up the brain and body to its present fairly harmonious working together, and much, if not most, of this is an adjustment to the necessity of *work* on the part of such organs as we possess; and when one part by isolation seeks to take all in its way, we have cancers, tumors, inflammation, etc., with not only danger to remote parts, but threatened destruction of the too selfish tissue itself. Gastritis, gastro-enteritis would be fortunate warnings to the alcoholic, just as were the effects of some rabid tariff increase to fall first upon the instigators; but, unfortunately, the brain may be degraded before the stomach feels the effects so much.

It is precisely because this wonted, inherited, built-up harmony between the organs is destroyed by potations, *by the too dangerous food*, by the too ready and rapid assimilability of alcohol, that the tissues turn traitor to one another. Accompanying other physiological processes, those of the mind are gradually erected, and the latest acquired are the first to decay, from any cause, such as senility, etc.

The short cut afforded to nutrition by alcohol, shuts off further attainment intellectually (I speak of extreme cases);

the natural affections are perverted, the higher sensibilities are blunted, heartlessness, savagery, viciousness, lowered will power and sentiments, follow, as matters of course.

Men and nations must remember that "eternal vigilance is the price of liberty," and that knowledge increase and dissemination are the greatest foes to vice and disease, which are often, if not always, one and the same thing, whether afflicting the person or the people.

RETURNS OF PERSONS "DRUNK" IN LIVERPOOL. — The annual report of the head constable gives very elaborate tables concerning one of the great questions of the day, viz., the drink question. As a rule persons who are merely drunk, but capable of going home, are not interfered with, probably because the Bridewells would scarcely hold them. Consequently persons are "booked" as "drunk and disorderly"; these amounted to a total during the year of 9,251. Those found "drunk and incapable" were 3,515; those who, in addition to being drunk, were also guilty of assaults upon the police, numbered 850. "Drunk and other assaults," and "drunk and other offenses" numbered 1,438, and completed the total of 15,054. Another table gives an even more elaborate return of the days of the week, and of the three hourly periods of the apprehensions for drunkenness. From this it appears that the largest number were apprehended on Saturdays, the next largest on Mondays; while the three-hourly periods which comprised the largest number of apprehensions was from 6 P. M. to 9 P. M. — *Lancet*.

A BILL to prohibit physicians and drug clerks from practicing, who are addicted to the use of whisky or opium, has been introduced in the legislature of Georgia. The first conviction is a fine of two hundred dollars, and the second, the license to practice is revoked.

THE PSYCHOPATHIC SEQUENCES OF HEREDITARY ALCOHOLIC ENTAILMENT.*

By C. H. HUGHES, M.D., ST. LOUIS,

Professor of Psychiatry and Neurology, Marion Sims College of Medicine, late Superintendent of the Missouri State Lunatic Asylum No. 1, etc.

Nothing in neuropathology is now plainer than the retrograde heredity of chronic alcoholics. The alcoholic poison interferes with the highly-organized physiological movements of the psychical centers, arrests and perverts the complex activities of the cerebral cortex, and begins a decadent and perverted neural metamorphosis that goes on from one stage of instability to another, until the final ending of all neural instability is reached (unless fortuitously arrested) in dementia or imbecility and death, when even perverted neural force can no longer be evolved. The evolution of the cerebro-psychical centers, thus arrested or perverted, ends in final dissolution and extinction of type.

The neuropathic thrall of entailed alcoholism is no new theme to neurologists. It was familiar to Benjamin Rush, and the researches of Morel in the field of neuropathic degeneracy sequent to ancestral alcoholic excess have been so often affirmed and reaffirmed by credible medical testimony that no doubt now remains in the medical mind of the power of excessive ancestral alcoholic indulgence to pervert neuropsychic function in the descendants of victims of this vicious disease.

We need not dispute the point as to whether alcoholism is a vice or disease, for it is and it may be both or either, and whether it in the beginning be one or both, its ending is

* Read before the Mississippi Valley Medical Association, at Louisville, Ky., October 9, 1890.

always in disease, which is either the beginning or continuance of a transmitted neuropathic or neuro-psychopathic heritage.

If the first generation, as Morel has observed, shows immorality, alcoholic excess, and brutal degradation, the second one will usually show, as he also observed, hereditary drunkenness, maniacal attacks, and general paralysis or some similar psychopathic affection. The third generation may show sobriety, but instead of the transmitted drunkenness, the hereditary neuropathic perversion will probably reveal itself as Morel saw it, in hypochondria, mania, lypemania, and tendency to homicide and suicide; and we shall see in the fourth and after-coming generations feeble intelligence, stupidity, early insanity, and the beginning of the end of the family in extinction.

All alienists have confirmed this observation of Morel, and the fatal heritage of chronic alcoholic toxhæmia is proven upon those living within the walls of asylums for the insane the world over; and in every walk of life without, and upon the cadavers of those who have died under the power of this neuro-toxic force. We no longer need the extensive clinical observations of Magnan nor the later pathological researches of Bevan Lewis for proof. The diseased arterioles, the granular degenerations of the nerve cells, pericellular and perivascular nuclei proliferation, aneurismal dilatations and exudative and indurative cerebral changes, are too familiar now to be longer doubted and witnesses too many to be here enumerated, embracing all who have clinically studied inebriety, attest the fact that the habitual long-continued use of alcohol as a beverage in excessive quantity in one generation makes an indelible impress upon the nerve stability of the generations that follow.

It has the undoubted power of engendering neuropathic and psychopathic conditions *directly* in the individual, besides a great number of extra-neural morbid conditions, as the oft-observed and no longer doubted delirium tremens,

epilepsy, insanity, and imbecility, paralysis, and the neuritides of drunkards show, and the morbid entailments of alcoholic excess do not stop with the individual, as we have seen. They pass over in greater force to his descendants. This is the gospel of science. These morbid endowments of the drink habit are more apparent in the drunkard's progeny, for the reason that his children come into the world dowered with less power of neurotic resistance to the depressing and perverting assaults of alcohol and its compounds upon the integrity of the ganglion cells of the cerebrum and the nervous centers of the whole cerebro-spinal axis and sympathetic system.

By reason of a better organic heritage and the greater inherent power of vital resistance, the drinking person may show but little of the inroads his alcoholic excesses are making upon the physiological soundness of his cerebro-spinal and ganglionic centers. An occasional or single epileptic seizure during a debauch, or none at all, during a life given to drink, some perversions of disposition or mental depression, or a day or two of trance following a prolonged spree once or twice in a life-time, or none of these evidences of cerebro-psychical damage may so markedly appear. (The subject of alcoholic trance is too extensive to be treated here as its forensic merits require. We content ourself now with a simple note. *Vide finis.*)

None of these positive and more directly perceptible consequences of alcoholic damage may appear directly in the individual. He may go through life moderately full of alcohol, able to attend in a fairly good manner to the routine demands of his business, to be cut off prematurely under some slight extra organic strain (for one of his extraordinary hereditary endowment of nerve resistance), by an apoplexy—cerebral or pulmonary—which another less strongly endowed for resistance by nature would have withstood. His ganglionic centers fail him in some vital crisis, and the "silver cord is loosed" forever.

The nerve mechanism, which never escapes in the

habitual or periodic excessive drinker, but more especially in the regular so-called moderate social drinker (who never sprees, though seldom refuses when asked to drink, who takes his regular evening night-cap and morning eye-opener and tri-daily appetizer) is the vasomotor system. This failure causes the pneumoniac to die from an attack of lung fever of no greater severity of causation than that of which his non-drinking fellow in the next bed promptly recovers. He may die prematurely of an over-worked kidney or an over-taxed liver, by reason of ganglionic paralysis (and I believe that over-distension of the renal circulation from the general vascular hyperæmia of over-brain-strain and alcoholic stimulation combined, are the remote causative factors of Bright's disease), and neither he nor his friends may think that alcohol has done him harm.

But look at the drinking man's children! He may have been himself a very proper and apparently healthy citizen, beginning in early life a regular business, and having acquired and filled a regular and honorable business place in the world, and never seriously sick till the last acute illness that suddenly carries him off before his physiologically appointed time.

Why is one child an idiot or imbecile, another erratic, moody, violent, visionary, melancholic, or insane, epileptic, choreic, or suddenly criminal, despite the best of training and environment; especially among his latest offspring, while only the children born of his loins earlier in life, when alcoholic excess had made no organic impress upon him, are ordinarily healthy in mind and body?

The habitual disturbances of organic function — morbid physiological exaltation and reactionary morbid depression, through increased vascular relaxation and consequent capillary congestion, may not materially affect the integrity of function in the matured cells of the psychical centers of the parent of sober lineage, so as to markedly modify their matured and long-established habit of acting, but in the drunkard's child, who starts unstably endowed by hereditary

neuropathic entailment resulting from an ancestor's alcoholic excess, the resistance power of the parent or parents in early life is not in the child's organism.

He is a step lower than his father or mother, or both, if they were habitual drinkers, in the scale of organic degradation, and has in consequence feebler resistance to the assaults, not only of alcohol from within, but of adverse environments from without, and they reveal this hereditary organic degradation in erratic actions, morbid, insane, and criminal conduct — conduct which in them is always the offspring in whole or in part, of disease — disease within. Upon them, consequently, influences without their organisms, resisted by others, have an overpowering force. Their environment leads them irresistibly into crime, like the extraneous circumstances which cause in them disease their parents had not shown, and crime their parents would have resisted.

The drunkard's child's crime is not all his voluntary crime, nor his vice engendered disease all disease of his own making. His father or his father's father or mother may have deliberately chosen that which, with all its voluntary seeming in the boy, is become to him an inexorable morbid fate, appearing as immoral conduct. "The fathers have eaten sour grapes, and the children's teeth are set on edge."

With this too cursory preliminary review of what we know of the hereditary neurotic enthrallment of alcohol, we record an interesting hypothetical case, which we will suppose to cover the facts in an important medico-legal record of entailed alcoholic disease and crime perpetrated under its fatal sway.

HYPOTHETICAL CASE.

Suppose a young man approaching his majority, naturally kind of heart, not reared in crime nor in the slums of a city's poverty quarters, but in comfortable circumstances, and fairly educated among correct people, commits an unprovoked murder of one of the dearest and nearest of his

friends. In his family the following abnormal traits appear: On the maternal side a grandfather is a man of excess in eating, drinking, etc.; inebriate and melancholy, and he dies of apoplexy. An only son survives him long enough to develop inebriety and die of drink in his youth. A brother is like himself, and dies a drunkard. Sisters and cousins in varying degrees, according to environment, exhibit the same failing. A grandmother at an early age drank liquor to excess, and died prematurely in consequence of excessive drink. All the sons of the grandmother's sisters died young in consequence of drink. Of the remaining ancestry of this alcohol-tainted organism, one uncle was, from early youth, addicted to alcoholic indulgence, his thirst for drink becoming finally insatiable, and he died of delirium tremens in early manhood, after previous attacks of acute alcoholic insanity. Another uncle was also addicted, from his early youth, to the use of alcohol to inebriety, and final melancholia and insanity with delusions of dread and suspicion. Several sisters of these two men were victims of the hereditary failing, among them the mother of the supposed young man we are considering. The boy's father, too, was in early life, before the boy's birth, an intemperate man, and the boy himself was from early puberty intemperate, unstable, and choreic, and had suffered in childhood from a physical shock to his nervous system, caused by a violent fall. This young man in question, when under the influence of liquor, was a markedly changed man, and when the time of one of his periodically recurring sprees would come around, he was likewise very different from his natural self, being moody, listless, drowsy, and melancholy; and after indulging in his inordinate craving and unnatural appetite, he would become exhilarated, reckless of danger, excessively cheerful at times, and extremely violent towards, and suspicious of his best friend, filled with morbid fears, and dreads, and suspicions. When sober he was nervous, restless, and unhappy, and whenever he got a taste of liquor, he would invariably drink to excess — drink-

ing to exhaustion, prostration, and illness in consequence of his excesses. Suppose for five or ten years the life of such a person was almost one continual succession of sprees — suppose such a man after such a life, and at the close of a several weeks' prolonged spree, takes the life of his best friend by manual violence while struggling to get money from this friend who had refused it, and with the aid of an accomplice takes money, jewelry, and other valuables from his person, pawns some of the things for liquor, making no attempt to escape, and not appearing to remember or realize the enormity of the crime committed, remains in the neighborhood of the murder intoxicated until arrested, remembering the fact of the robbery, but not believing the party robbed and maltreated was dead or seriously injured.

This is a common kind of inebriate crime. This picture would answer for the ordinary portraiture of the average inebriate criminal arraigned in our courts of justice. It is of necessity so drawn as not to describe personal cases that have come under my professional care, but it is true to inebriate nature, as I have seen it all too pitifully and painfully portrayed, and will answer well for a composite picture of morbid, as contra-distinguished from purely immoral inebriety and crime. The picture is not overdrawn, but is faithfully true to nature.

I have purposely put in a criminal motive in the above hypothesis that the natural semblance to crime may appear just as it appears in many cases of insanity. The inebriate and the insane person act, unless totally demented, from motive more or less apparent, but the hidden springs of human conduct in both are different from those in the rational and healthy mind. A different combination of morbid influences, ancestral and immediate, in the nervous organism of the chronic inebriate or the periodic inebriate unites with his environment in the drink-enthralled man, from that which influences and determines ordinary human conduct in sane and temperate men.

1st. Assuming the above hypothetical case to be true,

what would be your judgment as to the existence or non-existence of hereditary alcoholic degeneracy and impairment of the brain, and the existence or non-existence of dipsomania, or involuntary and resistless impulse to drink alcoholic liquors to excess, in the case of the supposed youth, and degree of irresponsibility from drink?

2d. What was the mental condition of the supposed person when he committed this unlawful deed?

3d. What is the effect on the mind and on the will of such an inherited taint, united with the state of chronic alcoholism, as in the case of such a supposed youth?

Such, with more or less completeness of specific detail, is the character of the hypothetical case and interrogatories, of late years propounded in our courts to the expert in psychiatry, for the neuropathic entailments of chronic ancestral alcoholism. Thanks to an enlightened judiciary in some of the American States, aided by the wise and judicious efforts of our medico-legal societies, inebriety has become a recognized extenuation and often complete and just excuse for crime perpetrated under its potent and often resistless morbid influence, and the following, or something like them, are still the customary interrogatories propounded, *pro forma*, by the counsel for the State.

1st. Is it your opinion that such a supposed person was unable to distinguish between right and wrong?

Or, perchance, the more enlightened and just interrogatory like the following is offered by the State, and "Will you say that a person so affected could not tell that an act which he committed was wrong, or if conscious that it was wrong — is it your opinion *that he was incapable of resisting the impulse to commit it*, by reason of disease hereditarily entailed or acquired?"

It were fortunate for the unfortunate victim of the faulty and imperiously unstable neuropathic heritage of long-continued or hereditarily transmitted alcoholic indulgence, if a wise, humane, and considerate counsel and court secure such just instructions in such clear conformity with the facts of

clinical observation and experience as the last interrogatory would warrant; for inebriety, either in its periodic or continuous forms, is a disease, as much so as the recognized and acknowledged phases of insanity, epilepsy, idiocy, and imbecility it both directly and indirectly engenders, and while in considering it in its medico-legal relations, we have also to consider the accompanying factor of a once normal volition, we have in the inebriate a mind and will always more or less modified, perverted, deranged by disease. Alcohol being itself a directly toxic agent, in its influence on the brain and allied nervous system, as well as potently poisonous to the blood itself in any considerable quantity, and especially so, as all experience proves, when long continued, in excess, in either the individual or his ancestors.

It is, indeed, a strange phenomenon of the human mind in its forensic relations that an agent which the world recognizes and acknowledges as the parent of pauperism, insanity, and crime, and the chief direct or indirect populator of penal, eleemosynary, and correctional institutions, and the proven cause of so much disease, misery, and death, should be held responsible to the extent it is before our judicial tribunals, when the hapless and often hopeless and helpless victims of its vicious power are arraigned to answer for crime committed through its influence over their involuntarily enslaved organisms — organisms often prenatally predestined to pathological perversion (as most of the unfortunate inmates of asylums for the insane are organically predestined to an aberrant course of life conduct), through the alcoholic excesses or other neuropathic disorders of ancestors, or through a precocious drink-craving, however engendered, whether ancestrally or self-acquired, and prematurely and excessively indulged, to the harm of the delicate machinery of the brain.

The force of physiological habit is recognized in all of our dealings with men. Why, then, should courts ignore the power of that neuropathic thralldom which alcohol undoubtedly engenders in certain individuals, to their harm

and the harm of the world about them, enchaining, enslaving, and perverting conduct, until the unfortunate slave of its vicious sway is no more in harmony with his natural self, unperverted by this disease, than the lawfully and justly consigned inmate of a lunatic asylum is?

The dipsomaniac is as surely perverted and deranged in his brain and connected nervous system as any other lunatic, and the confirmed inebriate claims our sympathy and succor and the kindly consideration of the law, because he is the victim of disease. It is for humanity and law to decide in each individual instance, however, how far on the one hand inebriety should extenuate crime and to what extent on the other it should punish the volition that may have engendered the disease. It is a plain proposition, which admits of no doubtful interpretation, that acute alcoholism voluntarily and premeditatively induced, or even voluntarily yielded to, for the purpose of committing or shielding from crime, is as culpable as any other criminal intent, while, on the other hand, a diseased propensity to drink, indulged in obedience to the promptings of a resistless organic aptitude handed down from father to son, or transmitted through the womb of an alcoholized or otherwise neuropathic mother, should receive a different consideration, just as any other neuropathic heritage causing psychopathic perversion, extenuates even the most heinous of crimes in the eye of the law and in the judgment of courts.

Our ancestors in the medical profession rescued the lunatic from the neglect and violence of ignorance: let us protect and save the nerve-degenerate inebriate.

A correspondent of the *Courrier des Etats-Unis* sends from Paris, under date of September 20, 1890, the following mention of a recent trial for homicide, committed in that city under somewhat peculiar circumstances, and of the prompt acquittal of the accused on the ground of mental irresponsibility. We present to our readers a translation:

On April 20th last, at 11 o'clock A. M., a cry for help was suddenly heard to proceed from a house in Park Royal

Street, an apartment of which was occupied by a widow, aged twenty-seven years, named Bohringer. The neighbors met a man on the threshold of her room, who remarked: "You can enter. It is all over with her. There she is,"— at the same time pointing to the young woman, who lay stretched on the floor in a pool of blood. The victim had been struck with a finely-sharpened cold-chisel. After being conveyed to the Hospital St. Louis, she was able to speak but a few intelligible words, and died after an agony of a few days.

The assassin, named Joseph Hahn, a widower, and the father of three children, had long paid assiduous court to the deceased, with the expectation of marriage. That he had premeditated the crime, was patent from the fact that he had hired a cutler to sharpen the chisel, the day before. It was satisfactorily shown before the court, that Hahn was a skillful workman, that his probity was incontestable, that he adored his children, but that, when drinking, he became violent and brutal, destroying or injuring whatever was within reach.

At first sight, the tranquil face of Hahn in no way betokens insanity; but his attitude before the court and the audience was so singular as properly to raise a doubt in this regard.

The following were his replies to questions by the court:

Court. The police report represents you to be an honest man.

Hahn. Yes, I have always been honest. I have never in my life intentionally done harm to any one. But sometimes I drink too much, and then it affects my head, so that I know no longer what I do.

C. Why do you drink?

H. Because I am obliged to associate with the public in order to procure work.

C. You met the Bohringer woman in a Roquette Street restaurant. Did you know that she had a lover?

H. No; I did not know it.

C. Did you propose marriage to her?

H. No; it was she who proposed it to me. We were to be married at the end of her term of mourning. We had but two months more to wait.

C. Then why did you kill her?

To this question Hahn at first replied: "I do not know;" and then, gesticulating wildly, he said, amid loud sobs, "I loved that woman as I did my eyes. She deceived me. She had an accepted lover, and I did not know it. She gave me by mistake a handkerchief belonging to that lover. She had consumed my money."

Doctor Ball testified to the limited responsibility of the prisoner. "Hahn," he said, "occupies the very borderland of insanity; he is of so hysterical a temperament that he does not enjoy the full possession of his faculties."

The jury rendered a verdict of acquittal. On the reading of the verdict, Hahn appeared astounded and stupefied for several minutes.

THE House Committee on the District of Columbia yesterday reported favorably a bill, which passed the Senate in May last, to provide a hospital and home for inebriates and dipsomaniacs in the national capital, appropriating \$200,000 therefor from the national treasury. Accompanying the report is a letter from General Wilcox, Governor of the Soldiers' Home, urging the passage of the bill in the interest of the veteran soldiers, many of whom are addicted to inebriety, and the easy prey of the liquor-sellers of the District. General Wilcox says: "We find that the laws of the District are totally inadequate to correct the evil, and our only remedy is to dismiss men from the home, many of whom have served their country faithfully for a great many years."

THE legislature of North Carolina has been petitioned to enlarge each of its State insane asylums, and to set apart wards for the treatment of inebriates.

Abstracts and Reviews.

THE EARLY EYE-SYMPTOMS IN CHRONIC ALCOHOLISM; By CHARLES H. MAY, M.D., CHIEF OF CLINIC EYE DEPARTMENT, VANDERBILT CLINIC, INSTRUCTOR IN OPHTHALMOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

As is well known, the organ of vision, like so many other parts of the body, suffers insidiously from excessive and long-continued over-indulgence in alcoholic beverages; it is the purpose of this paper to point out the early symptoms referable to the eye, which occur at a stage of chronic alcoholism when the amblyopia alcoholica has not yet become very marked. Such observations can best be made in the cases of private patients and among the better class of dispensary patients, since the lower classes are very apt to neglect seeking medical aid until vision has become very much impaired.

The eye symptoms produced are quite constant, and are sufficiently well-marked to be observed in quite an early stage of the condition which we call chronic alcoholism — a condition which may be defined as one in which the quantity of alcohol habitually and repeatedly taken exceeds that which can be assimilated, and results in producing toxic effects of greater or lesser intensity and after a longer or shorter period.

It is commonly stated and usually accepted that the maximum daily quantity of alcohol which, if properly diluted, can be indulged in every day without causing evil effects eventually, is an ounce and a half. This would represent about three ounces of whisky, about nine ounces of sherry, about a pint of light wine (claret, rhine wine, etc.), and about two or three pints of beer. But as is the case in the effects

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upon other parts of the body, much larger quantities are taken regularly by persons who never complain of symptoms referable to the eye, and who would not present any such symptoms if functionally examined. And, in like manner, the time during which alcoholic excesses can be indulged in before eye-symptoms show themselves, also varies. The frequent indulgence in non-intoxicating doses seems to favor the occurrence of amblyopia *ad abusu* much more decidedly than does the drinking of large quantities so as to intoxicate, at longer intervals. Whisky certainly causes the majority of cases in this country. In the great majority of cases the condition occurs in the male sex, which is as we would most naturally expect it, considering the much greater frequency with which men acquire the alcohol habit than do women. Almost always both eyes are affected, though the symptoms may present variations in degree of severity in the two eyes.

The symptoms are :

- Conjunctivitis.
- Injection of the ocular conjunctiva.
- Congestion of the iris.
- Spasm of accommodation.
- Contraction of the pupil.
- Photophobia.
- Nyctalopia.
- Glimmering sensation in bright light.
- Scotomata (color and white).
- Amblyopia.
- Partial (temporal) atrophy of the optic nerve.

The *conjunctivitis* is of the catarrhal variety and is of very common occurrence in chronic alcoholism. It is peculiar in its "initiative" nature. Its severity is subject to changes from day to day according to the quantity of alcohol indulged in. The *injection* of the ocular conjunctiva is not merely a part of the conjunctivitis; it may exist independently of the latter, presenting a marked appearance and sometimes accompanied by *congestion of the iris*. There will then be found

a well-marked ring of circumcorneal redness — the condition indicating an implication of the ciliary region in the vascular disturbance. As is the case with the conjunctivitis, these two symptoms depend largely upon the immediate effects of the quantity of alcoholic drink taken, so that they are especially marked after a debauch.

Spasm of accommodation is not infrequent in alcoholic subjects, and becomes noticeable, especially, because male adults are rarely otherwise subject to it. The amount of spasm seems largely to depend upon the quantity of drink on the same or the previous day; it may interfere materially with a functional examination of the eye in testing for errors of refraction, and may therefore necessitate the use of atropine or of homatropine before the accommodation becomes relaxed.

The *pupils* are apt to be *smaller* than usual in chronic alcoholism; during intoxication or after a debauch, the dilated pupils of acute alcoholic poisoning exists.

Photophobia and *nyctalopia* exists quite frequently; and a *glimmering* sensation, especially in bright light, is sometimes complained of. The photophobia may depend upon the conjunctivitis to which in some cases the congestion of the iris and injection of the ocular conjunctiva may be added as additional factors. The principal cause, however, is probably *hypæsthesia of the retina* — a condition which is held responsible for the *nyctalopia*. The latter symptom may be defined to be the ability to see better by dim light than by light illumination — a condition resembling what has been described as *retinitis nyctalopica*. While these patients may occasionally really have an increase in the acuteness of vision when the illumination is less intense, as a rule there is no increase, but rather a slight diminution in the acuteness of vision, with a less bright light; so that the improvement is merely apparent, and not real. But these patients feel very much more comfortable in a subdued light, and hence, imagine they see better. The influence of diminished illumination is quite often marked, and many such patients

acquire the habit of wearing smoked glasses, often resorting to these without the advice of any oculist, because they cause the eye to feel more comfortable.

Quite early the existence of *central scotomata* can be demonstrated; that is, a small part of the center of the field of vision will be defective in its appreciation of color, or even of white. This symptom usually exists quite early, but it may require careful testing in order to be found. The portion of the field which will be defective is almost always a small oval with its long axis, placed horizontally, extending from the point of fixation to the blind spot, and partially or entirely including the latter. At first these scotomata exist only for green and red; later, these may be a scotoma for purple, and later, also, for white, that is, there will be no sight at all over this small oval area. These scotomata, whether for colors or white, are almost always negative or relative — not apparent to patient; they may, however, be absolute, and thus appear as constant spots before the eyes, just as in certain diseases of the retina. They are, however, almost always central. The patients may be conscious of color defect, but usually the color perception is good excepting this central scotoma. If in this early step they are tested for color blindness, as by Holmgren's colored skeins, they will not be found defective, and will match colors well. A number of such cases have, however, complained to me that everything appeared less bright to them than it had formerly, though they could distinguish colors quite readily.

Even though these central scotoma for colors or white are found, there may be no *diminution in the acuteness of vision*; but commonly some amblyopia becomes manifest, when the symptoms already mentioned are found. This reduction in the acuteness of vision again is almost always central, so that the circumference of the field of vision is not usually affected and peripheral vision remains good. The amblyopia does not, as a rule, advance rapidly; very often in the early stages $\frac{2}{10}$ or $\frac{3}{10}$ will represent the patient's sight. Even in advanced stages, total blindness from amblyopia alcoholica

is uncommon, though this is probably because the patient has sought medical advice before such an extreme result has occurred and has reduced or stopped his alcoholic excesses. There is no constant relation between the amount of amblyopia and that of color scotoma. It is quite interesting to observe how quickly the amblyopia will respond to changes in the habit of the patient, and how, after a few weeks of abstinence from alcohol, the vision can be brought up from say $\frac{2}{8}$ to $\frac{3}{8}$, and how quickly also there is a response in the opposite direction when the alcoholic excesses are resumed.

In most cases of amblyopia *ed abusu* (60 to 70 per cent.), the ophthalmoscope reveals a well-marked picture. In the very early stages, no abnormalities of the fundus may be seen, or perhaps only a little hyperæmia of the disc or a slight swelling at its margins, with perhaps the appearance of white striæ along the blood vessels, especially near the margins of the disc. But even before an advanced period there is apt to be a well-marked and characteristic picture—a pallor of the temporal portion of the disc, due to partial atrophy—to a wasting of the fibres constituting this segment. This pallor must not be confounded with a certain amount which is physiological and is found in a certain percentage of normal eyes examined with the ophthalmoscope; there may, therefore, be cases in which it will be difficult to draw the line between the physiological pallor and the appearance of the pathological atrophy. But usually no such difficulty will be met with, and the ophthalmoscope picture will be a characteristic one.

For a long time nothing was known concerning the pathological anatomy of this condition; but this was first explained by Jamelshon and by Vossius in 1882 and confirmed by Nettleship and by Burge in 1884, and then by Edwards and Uhthoff in 1886. All these investigators found an interstitial neuritis—proliferation of connective tissue and secondary degenerative descending atrophy of those fibres of the optic nerve which pass from the temporal

side of the disc to supply the macula lutea. The atrophy affects chiefly the nerve fibres of the fasciculus cruciatus. These spread from the temporal part of the disc to the region of the macula lutea; hence the occurrence of central scotoma and the form of the latter (oval horizontally).

ON PSYCHOSIS CAUSED BY NICOTINE.

Nicotine is the most important chemical substance contained in the West Indian plant, *nicotiana tabacum*; when pure, it is a colorless, easily soluble fluid of strong tobacco odor and very acrid, burning taste, is easily dissolved in water, alcohol, and ether, its reaction being strongly alkaline, and it forms simple crystallizing salts. It is said that Virginia tobacco contains the largest quantity of nicotine. Nicotine acts on the human organism as one of the most powerful poisons; the action of tobacco differs only in degree.

From experiments instituted in Professor Schroff's laboratory it results that the effects of nicotine on the healthy organism are as follows: Taken in doses of 1 to 3 milligrams, the alkaloid produced first an acrid burning sensation on the tongue and in the throat, with increased salivation, and a sensation of heat in the stomach, in the extremities, and in the whole body. Soon after this the phenomena are headache, vertigo, drowsiness, impaired vision and audition, accelerated and oppressed respiration. They were succeeded within half an hour or three-quarters of an hour after ingestion of the poison by an extraordinary feeling of relaxation and weakness, the face became pallid and the whole body as cold as ice; fainting fits and vomiting made their appearance. The symptoms increased to tumorous and chronic spasms of the respiratory muscles. After three hours the symptoms commenced decreasing, but secondary effects continued for several days. Subsequent experiments demonstrated that the first action of the poison is excitation,

the ulterior action is depression and paralyzation. In the beginning the functions of the brain and of the spinal chord are enhanced, but this excitation is followed by relaxation and debility. The whole voluntary muscular system is subjected to this influence, which gradually extends to the heart, and finally to the vasomotorial system. Such are the effects of this redoubtable poison on the healthy organism, when taken in small doses of 1 to 3 milligrams. What may be the effects of the 1,200,000 kilograms of the same alkaloid, constituting the present amount produced on the whole surface of the globe? It is impossible to ascertain in an exact manner the number of men using tobacco, but it is asserted that approximately they number 800,000,000. Each of them consumes on an average $1\frac{1}{2}$ grams nicotine every year, or 4 milligrams every day, some of them less, others considerably more. The fact that large doses of this amount are supported by man proves once more the adaptability of the human nervous system to injurious habits.

The first contact with the tobacco poison is always felt by the cerebral nervous system as painful and hostile, and its repetition requires a certain violence against nature. By not heeding this warning of the attacked nervous cell, and by repeating the essays with the necessary perseverance, the repulsive sensation gradually vanishes and the excitation remains as a stimulus which soon becomes indispensable. At last the irritation and debilitation of the cerebral nervous system reaches a degree in which privation is deemed a real suffering, and the same longing for renewed enjoyment of the poison manifests itself as is noted in alcoholists and morphinists.

The action of nicotine differs considerably, not only according to the different classes of tobacco, but also according to its different applications. Smoking only allows the products of decomposition connected with it to exercise an influence, although several cases are known, not only of nervous erethism, but even of perfect psychosis, caused by excessive tobacco smoking. Kjellberg had several opportuni-

ties of convincing himself that even a too abundant use of tobacco for snuffing may originate psychic phenomena.

But the greatest danger lies in the use of tobacco for chewing. The ordinary shape for this application is tobacco in rolls. It is true that small doses of it may be taken without causing psychic injuries. But as soon as the daily use exceeds 10 to 12 grams of genuine and good tobacco, the field of pathologic phenomena is approached, and the sensation becomes an abnormal one. This transition is effected more rapidly in case pulverized snuff is used for chewing. In the last decades the use of snuff for chewing has considerably increased in various northern countries, especially among mariners, manufacturing laborers, etc.

From a number of cases observed by him, and in which a continued daily use of from 20-27 grams of tobacco in rolls, or in snuff, had been ascertained, Kjellberg has reached the conclusion that the similarity of symptoms points to a specific psychosis caused by the use of tobacco, "*nicotinosis mentalis*," a real primary mental disease with its own peculiar symptoms, which are clinically distinguishable, and which give it a place among mental intoxications. "*Nicotinosis mentalis*" is described by Kjellberg as follows:

Among general symptoms a painful sensation of weakness and impotence is to be noted, accompanied very soon by hallucinations, maniacal ideas and suicidal inclination. The disease has a prodromic stage and three distinct stages differing from each other.

Prodromic stage.—The patient has felt unwell for some time, his general disposition changes, he shows an unusual uneasiness which may pass to a transient state of anguish. He sleeps little, and the ordinary occupations are repugnant to him. He is disposed to indulge in somber reflections, is tormented by palpitations of the heart and unusual anxiety. This condition continues for one and one-half and three months, when psychosis sets in.

First stage.—The patient's attention is seized by lively hallucinations, and he is entirely occupied with these new and

surprising perceptions. He hears voices, visions appear to him, he has a sensation as though something different from himself was inside his body, and strange notions take hold of his conscience, from which he can't free himself. False, fixed ideas often combine suicidal tendencies; his mood is always gloomy; the patient feels tired and exhausted, inclined to loneliness and rest; at times he has short fits of fright. Otherwise he is quiet and obedient, talks little, and never without being previously requested to do so, but then what he says is logical and shows good perception. He complains of painful sensation in the heart, of wearisome insomnia and of voices that give him no peace. Nutrition is not impoverished, for the patient usually eats plenty, although he often speaks of bad appetite and spoiled food. After six or seven months the disease enters a new stage.

Second stage.—The mental disposition improves, and we find the patient talks hilariously of his perceptions. He relates the visit of angels, he has seen heaven, but also hell and the evil spirits. He sings and talks to himself without interruption in a low voice; motions become more vigorous, and he moves about with a certain agitation. The hallucinations of brain and vision are on the increase, and the patient is constrained to execute involuntary motions. This condition is periodic, the periods usually lasting from two to four weeks with intervals of indefinite length. In such times the patient lays down prostrated and lazy, his mood is gloomy and discontented, his attention diminished, his perception very slow, his language distinct and logical, but hesitating. This stage may continue for a long time, but unless convalescence sets in, it passes gradually into a last stage.

Third stage.—The intervals pass each other and periods of raised disposition disappear by degrees; the mental disposition remains quiet, perception is very limited. Hallucinations continue, and the patient gradually sinks into a state of general psychic debility, while his physical condition improves, and he may even be partially serviceable for ordinary occupations.

With regard to prognosis, it is not entirely bad during the first and second stages. But in the third stage recovery is not to be expected any more. Therapeutic treatment requires, first of all, absolute deprivation of tobacco, with the understanding that it should be enforced by degrees, the patient being otherwise subjected to very painful sensations and much suffering. With this, substantial diet, motion in the open air, and use of mineral waters are to be recommended.—*Pacific Record of Medicine and Surgery.*

ALCOHOL IN CHILDHOOD.

The Church of England Temperance Society has rendered a great service by the publication in pamphlet form of answers to the following declaration, addressed to the medical profession: "I fully agree with the principle that alcohol is not necessary or desirable for children as a dietary, but should only be used by them under medical advice." He had already received in reply about 300 answers in the affirmative.

The following are some quotations:

Sir HENRY W. ACLAND, M.D., F.R.S., Regius Professor of Medicine, Oxford: "Alcohol, except in the mildest of possible ways, was not only unnecessary for children, but thoroughly injurious; and he would say, so far as his knowledge went, there ought to be ample evidence to prove that in cases where it had been constantly given to children it was perfectly obvious that it was distinctly injurious to children, and, therefore, that was thoroughly proved. The question to be raised in the afternoon as to the use and abuse of alcohol producing inherited and constitutional injury in children, was one of the most difficult and profound questions of the day."

Sir HENRY THOMPSON, F.R.C.S., Surgeon to the King of the Belgians: "I must deny myself, I confess unwillingly, the opportunity you are good enough to offer me, of expressing in public an opinion concerning the employment of alco-

holic drinks in the dietary of children. My opinion may perhaps be recorded here, and it is based on wide experience, that during the earlier years of life the practice in question is invariably undesirable, indeed, more or less injurious. If alcohol be taken at all during childhood and youth, it ought to be under the sanction of high authority, and should be regarded by the child, as well as by his friends, as a medicine, not as an article of diet, under which latter denomination no child should be permitted to regard it. He will learn soon enough that many forms of it are taken as a luxurious adjunct to diet, but he is badly trained if he does not also learn that habitual indulgence in the habit surely produces more or less serious defects in almost all constitutions. Ill-health in later years is largely due to a life of conformity to the error of regarding alcohol as a necessary article of diet, and one of the first duties of a parent is to secure his offspring from needless evils of that kind. I say nothing of the moral evil associated therewith, not less, but more, important. I will only add that were it within our power to rear the rising generation with the same view and with the same care we entertain when breeding the lower animals—viz., for the purpose of cultivating all their highest qualities, and thus of improving the race, I am certain that no alcohol would be permitted to enter into the scheme of our dietary, or ever be regarded as either food or medicine suitable to be frequently taken at the caprice of the individual."

Sir ANDREW CLARK, M.D., F.R.S., President of the Royal College of Physicians: "I fully sympathize with you in your view of the supreme importance of temperance work among children. Religion, education, and temperance constitute the three closely-related and necessary agents for the building up of a completely developed and healthy human being. There is room for difference of opinion concerning the place, power, and use of alcohol in adult life; there is none in respect of the life of children. The habitual or frequent use of alcohol in their diet is a serious and unqualified evil."

Dr. HACK TUKE, Examiner Mental Physiology, University of London: "I am strongly of opinion that, while alcohol may properly be employed for even the young under medical direction, it is highly undesirable to allow it to be used in any form, as a beverage, by the young of either sex. I have acted on this principle in my own family, and should suppose there is not much difference of opinion in the medical profession as to its propriety."

Dr. LAUDER BRUNTON, Assistant Physician, St. Bartholomew's Hospital: "I feel very strongly that the use of alcohol, in any shape, is inadvisable for healthy children or healthy youth. In disease, even in children, it is sometimes invaluable as a remedy, but I think that great care is required not to continue its use beyond the time when it is absolutely necessary. I have hitherto seen no reason to change the opinion I expressed many years ago, that healthy men, as a rule, are better without it; and this applies still more strongly to children and youth."

Dr. OCTAVIUS STURGES, Physician to Westminster Hospital and the Children's Hospital: "If I had ventured upon any remark at all at your meeting, it would be to protest against the vile decoctions of port wine and 'malt extracts,' or some other stuff, which are so extensively advertised and sold, not only for purposes of secret drinking among adults, but also, as is within my personal knowledge, as a tonic for children. If your meeting were to unite in a protest against this one detestable practice, the authority of the well-known physicians attending it is surely weighty enough to send forth a salutary and much-needed warning to mothers of all classes alike. Of course it will be understood that I am not attacking any 'mixture' in particular, but the practice of mixing alcohol with reputed 'tonics,' especially in the case of children."

J. CROFT, Esq., F.R.C.S., Surgeon to St. Thomas' Hospital: "I entirely agree with the printed form which I have signed and returned. The lessons in total abstinence should

be taught in childhood. Children should be made to look upon stimulants as temptations to be avoided. The mid-day Sunday glass of beer or wine should be particularly attacked. Boys go almost straight from the table to church; under such circumstances the effect of the stimulant is, morally, most injurious. The harmless, as it is often called, glass of beer, becomes the cause of impure thoughts. Make another attack upon the example set by men and parents in taking stimulants between meals; that habit is physically and morally (or spiritually rather) most disastrous. My experience as a surgeon of surgical diseases in children, traceable to alcoholic parents, is very limited. I have seen children who are the subject of stone in the bladder nearly ruined as regards the chances of cure by the gin given them by their parents. The parents meant kindly, but acted under a grievous misapprehension. We at St. Thomas' Hospital do not make stimulants integral parts of the dietary of children. Stimulants (wines) are only given in exceptional cases."

Dr. MORE MADDEN, Physician to the Children's Hospital, Temple street, Dublin:—"The evil resulting from the prevailing intemperance of the young, as well as the old, should induce us to warn those whom our counsel would influence against that custom of giving alcoholic stimulants as a *bonne bouche* to children, which is so general in its practice amongst all classes, and so calamitous in its results. Even in those exceptional cases in which such stimulants may be necessary for children, I would repeat that we should never sanction their administration save under the guise and in the defined doses of other remedial agents—my long experience in hospital and private practice, at home and abroad, having amply confirmed the view expressed in a work of mine published many years since, that it is physiologically wrong as well as morally unjustifiable, even to allow a healthy child to taste alcohol in any form."

Dr. SAMUEL WILKS, F.R.S., Consulting Physician to Guy's Hospital: "I have always held to the dictum that

children should be brought up without any alcoholic drinks, leaving them to judge for themselves when they arrive at adult age. This rule would no doubt be very largely acceded to; but it is in another aspect that the question is forced upon the attention of the medical man. It is whether delicate children need the assistance of wine in restoring them to their natural vigor. Now there is a widespread belief in its efficacy in these circumstances, and especially as regards port wine. Amongst the poor if any lady bountiful bestows upon them a bottle of port wine for a sickly child they regard it as a priceless gift, and having a power which is supreme. Now, I have no reason to say that wine is of any value in affording strength to the delicate child. On the contrary, I regard it as hurtful if it be only by deadening the appetite, and neutralizing the craving for food which is natural. I especially set my face against the too frequent custom of a child being sent to boarding school, and there treated on exceptional principles."

Dr. LANGDON DOWN, Physician to the London Hospital: "The Committee of the London Hospital issues a report of the amount of stimulants given by each physician, and analyzing eight years of such reports. The remarkable outcome is that the physicians who gave the smallest quantity of stimulants have the lowest mortality, and pass more patients through the hospital; that whereas some of the physicians gave 8 oz. of wine per patient, others gave 43.6 oz. to each patient. The mortality of the minor amount is 14.7 per cent.; of those giving the major amount, 18.2 per cent. The average residence of those taking the minor amount of stimulants is 27.9; of those taking the major amount, 31.8 days."

Dr. THOMAS BARLOW, Physician to University College Hospital and the Children's Hospital: "I believe that in certain cases of acute disease in children, given for limited periods, alcohol is sometimes very valuable; but the question as to its employment during prolonged periods of delicate health or convalescence from illness, and as an ordinary ar-

ticle of diet in childhood, requires, in my opinion, a very different answer. There is one reason why we ought to be especially jealous of the prolonged administration of alcohol even in small quantities to children, and that is the risk of evoking the drink craving in early life. We are all alive to the risks of morphia craving, and of the craving for other sedatives, but the aggregate of mischief induced by all these sedatives is trifling compared with that induced by alcohol. The responsibility of starting in a child the craving for this drug becomes much more serious when we find to our dismay that the factor of heredity comes into play either in the direction of alcoholic proclivities or of the spasmodic neuroses."—*Temperance Journal*.

THE opium habituate maintains a semi-physiological condition while under opium influence. It is only when it is taken away from him that the true and pathological condition of his psychical, sensory, and ganglionic nervous systems, especially become apparent. Remotely, it is the poison that has made the trouble. Immediately, it is the repetition of it in quantities and at intervals to which the abnormal nerve centers have become accustomed, that masks the real malady and gives the patients relief.—*Dr. Hughes*.

INEBRIATES have the delusion that they are always able to stop at will, and are not diseased. They have a dread of being deprived of their liberty, and the common delusion of persecution, and fear they will be made to suffer unjustly.

PROCEEDINGS OF THE NATIONAL TEMPERANCE CONGRESS, 1890. 12mo, 425 pp., cloth, \$1.50. New York; FUNK & WAGNALLS.

In this volume of 425 pages will be found every shade of anti-liquor views discussed by many of the leading reformers and pioneers of the temperance cause. The volume as a

whole is a very interesting psychological study, bearing on the history of the cause.

THE BACTERIOLOGICAL WORLD.— A monthly magazine. Price \$3.00 per year. Published by DR. T. J. TURNER, Mexico, Mo.

The editor, Dr. Paquin, of the Missouri State University, Columbia, Mo., is a thorough bacteriologist. The magazine will be devoted to the study of the diseases caused by micro-organisms. It will be a most useful educating factor in the medical profession of America.

THE SOUL OF MAN; BY DR. PAUL CARUS. 480 pages. Price, \$3.00. The Open Court Publishing Co., Chicago.

"The "Soul of Man" treats of the most salient psychological problems, presenting them in their connection with philosophy, physical science, including mechanics, physiology, experimental psychology (hypnotism, etc.), religion, and ethics. The physiological chapters of the book are profusely illustrated, so as to economize the time and save the patience of the reader, who will find the most important facts and results of scientific investigation that have reference to the activity of the human soul, collected and systematically arranged in a comparatively small space and handy shape.

Dr. Carus discusses the psychological problems from the standpoint of positive monism, at present the almost generally accepted view in philosophy and science. The statement of his position is made very clear and even pronounced. Yet this does not restrict the usefulness of the book to those readers alone who will accept his views. The mere collection of materials which can nowhere be found so conveniently compiled and presented, will make the book welcome to all who are interested in psychology, however widely their opinions may differ from those of the author.

As to the importance of psychological topics, no one can

deny it. It has been truly said that knowledge is power, and knowledge of the human soul is power to every one who has to deal with men. Dr. Carus says on page 323: "Psychology is a study too much neglected; it is indispensable for every one who has to deal with people; and who has not? The physician, the clergyman, the employer of labor, the officer in the army, the professor, the merchant, the banker, almost every one has to deal with people, and, above all, the lawyer. Self-knowledge is not sufficient to make us free, it must be self-knowledge *and* the knowledge of other people; it must be self-knowledge in the broadest sense, knowledge of the soul, of the motives that work upon and can be employed to affect man's sentiments. It is only knowledge that can make us free, and knowledge will make us free. And because it makes us free, knowledge, and chiefly so, psychological knowledge, is power."

OUTDOOR LIFE IN EUROPE.—Sketches of Seven Summers Abroad.—By REV. PROF. E. P. THWING, M.D., PH.D., of Brooklyn, N. Y.; 12mo, 280 pp, cloth, gilt back, \$1.00. The fourteenth thousand.

This is a series of picturesque recitals of travel, interspersed with brief biographical, historical, and critical observations, and the whole spiced with a humor that keeps the reader's attention awake to the close. It is a volume of great charm, of unflagging interest and fascination. It shows a wonderful talent for panorama, a rare discernment of vision in these many lands (from Norway to Naples, from Russia to Spain), magic and music in setting it forth. I like it for its broad range in manner and matter; its keenness of anecdote and quotation; its captivating, swift movement; most of all for the constant touch of *reality* we feel in its pages. There is no artificiality, dreary, stiff, catalogue work, into which almost all books of travel fall. It can be had of the author, post-paid, for one-half the publisher's price. A list of Dr. Thwing's other publications, 75 titles, sent free.

TEXT BOOK OF HYGIENE BY DR. ROHE, F. A. Davis of Philadelphia, Pa., publisher, noticed in our last number, has received the most flattering endorsements from the medical press. It is practically the best American work on this subject published.

Homeletic Review, published by Funk & Wagnalls, New York city, is a choice magazine of theological literature that is of much interest to all readers.

The *Popular Science Monthly* for February, March, and April, contain some excellent medical papers of unusual interest. No other publication is so valuable for its general science news as this monthly.

The *Literary Digest*, published by Funk & Wagnalls, New York city, is a carefully prepared summary of everything in literature and news weekly. The best thought of the best writers are culled and put before the readers. No more valuable paper could come into any family. The subscription is only three dollars a year.

The *Evolution of Sex*, by Profs. Geddes and Thomson, Humboldt Publishing Co., New York city, is one of the most fascinating works which has been published. The first part treats of male and female; the second, to analysis of sex-organs, tissues, cells; the third, the processes of reproduction; fourth, the theory of reproduction.

Dr. Daniel G. Brinton of Philadelphia, has now in press a work entitled, "The American Race, a linguistic classification and ethnographic description of the native tribes of North and South America." It is the first attempt ever made to classify all the Indian tribes by their languages, and it also treats of their customs, religions, physical traits, arts, antiquities, and traditions. The work comprises the results of several years of study in this special field.

Editorial.

INEBRIETY IN CHARITY HOSPITALS.

The manager of a large city hospital refused to admit an inebriate, who was ill and intoxicated at a low boarding house. His reasons were, that the hospital was for the sick and unfortunate, and not for the vicious voluntary drunkard. Later, this poor inebriate was turned out of the house, and soon after was found dead from exposure. The coroner's jury found no one responsible. Later, it appeared that the father of this poor victim had given a large sum of money to endow a free bed in this hospital.

Any city hospital that admits the sick and injured, and depends for its support on the benevolence of the public, has no right to make a discrimination depending on the causes, and exclude any one who is sick or injured on the supposition that the disability might and should have been prevented. Railroad accidents are not unfrequently the result of criminal carelessness, and yet the hospital cannot refuse admittance for this reason. Why should it presume to refuse admission to inebriates because apparently their disorder is self-induced? Cases of mania from spirits belong naturally to insane asylums, and a city hospital may not be fitted for this class; but all cases of disease and injury following the excessive use of spirits should be received, and the hospital who refuses to do so has no claim on the sympathies of the benevolent. The drink victims are the products of civilization, and the products of a superstitious public opinion, which permits the free use of alcohol to any one at any time, no matter who he is, or what the conditions may be, to not only pauperize himself, but to bring on incurable diseases of both body and brain.

This very hospital which refused to admit an inebriate because his sickness was brought on by his voluntary acts received several thousand dollars from the licensed fund yearly, and yet they presume to discriminate as to the moral and physical causes of the persons admitted.

Obviously, its medical managers have ceased to be scientific men, and the hospital cannot be called a public charity in any broad sense. Often public sentiment is far in advance of some of these narrowly-managed charities. Recently a wealthy man begged for the admission to a city hospital of an inebriate found in a comatose state in his store. The hospital refused, and the inebriate was sent to an almshouse. The indignation of the gentleman has turned into a bitter persecution, which has most severely crippled the hospital.

There seems to be no reason in this age for any narrow theories of what inebriety is, or is not, in the management of public charities. The only question to be decided is, the present condition of the patient in the question of admission.

MASSACHUSETTS HOSPITAL FOR DIPSO- MANIACS AND INEBRIATES.

The first report of the trustees gives the act establishing the hospital passed in 1889, and the progress up to date.

The act concerning the commitment and control of patients is practically the same as that in force for the control of lunatics.

In section six occurs the following sentence, after stating how such persons shall be committed and the evidence required by the judge. It says, "*that such person or persons are not in bad repute or bad character apart from their habits of inebriety.*"

Such a distinction is a refinement of science that implies very hazy conceptions of inebriety. Should the judge be technical to carry out the letter of this clause, the hospital

would seldom have any patients. The search for inebriates of high moral character and repute would be a most interesting one, and no doubt throw much light on some doubtful questions of science.

The commitment of each person for two years, with provision to go out on parole, is an excellent measure. The power of appeal seems cumbersome, but no doubt in the future this will be changed as experience dictates.

Altogether, the act is very promising and practical. The trustees have bought a farm of ninety acres at Foxborough, Mass., and selected as superintendent Dr. M. Hutchinson, who has had large experience at the Taunton Asylum for insane. The plan of buildings is to be that of cottages for the purpose of classification. The estimates and contracts have been made and let, and the work will be completed by April, 1892. Patients will be admitted at that time.

This is the most important public enterprise for the defective classes that has ever been tried in Massachusetts.

The managers are wisely beginning in a careful way. From experience alone can they learn the practical needs and methods of such an institution.

The care and treatment of insanity, idiocy, and pauperism are practically simple compared with the inebriate. The medical and legal measures, building appliances, and executive skill essential to treat this class, can only come from experience and growth. The board of managers are to be congratulated on the good beginning in this hospital.

A CURIOUS FACT IN HEREDITY.

In a contested will case, it appeared that the testator was never intoxicated except when he drank brandy. He used wine on the table for years, and drank other forms of strong spirits, yet never seemed to be disturbed mentally or be unconscious of his condition except when using brandy. In answer to the question why he appeared sane at all other times, and only insane and intoxicated when using brandy,

it was ascertained that his father and grandfather were inveterate brandy drinkers, and that one brother became insane and died from using brandy. The testator had said that, while he liked the taste of brandy, it always went to his head and made him stupid. The conclusion was reached, that he had inherited from his parents a peculiar sensitiveness to brandy, some peculiar predisposition which favored rapid intoxication from this form of spirits, and not from any other.

This seems to be the explanation of the commonly observed fact, that many drinking men can not use certain forms of alcoholic drinks without becoming intoxicated. In a case of this kind, a man could not drink beer without being stupid, but could use whisky and other strong spirits daily with no such effects. Two grown sons of a man who drank champagne all his life, were always delirious when using this form of spirits. No other drinks seemed to affect them in this way. The transmission of a hyper-sensitiveness to some form of alcoholic drinks is theoretically along the line of many similar facts, and is a perfectly rational explanation of the unexpected and profound intoxications which are seen among moderate drinkers who may change to a new form of drink. Such a case is now exciting much attention in a Western village. A clergyman who had drunk wine at meals for twenty years, and was never intoxicated, was given some hot rum after exposure to a storm. He became wildly intoxicated and produced a great scandal. His father was a West India sugar planter, and a rum-drinker. It is a fact often observed that moderate drinkers of beer, wine, or whisky will change the form of drink and rapidly become abject inebriates, and later have some dim realization that they should not have used these special drinks, and remark, "that father used to take such and such drink, but I could not."

A wine-taster found that cider brandy would speedily intoxicate him, and have a different effect from any other form

of spirits. His father was a New England farmer, and used this form of drink all his life.

It is a common fact that children of inebriates are either very sensitive to all forms of alcohol, or have an intense aversion to its taste and effects. In a few cases the nervous system is very slowly affected by alcohol; a low grade of nerve force is present, and large quantities of spirits have little or no influence for a time. Such a condition appears in descendants from alcoholics where states of race exhaustion have appeared. The field of heredity along this line is rich in new facts and new principles that reveals an exactness and certainty of movement that is both startling and astounding to the observer.

INEBRIETY AT THE SOLDIERS' HOME.

The recent publication of two incidents in the same paper at the same time make it seem probable that such events are not uncommon.

The first incident was the death in the poor-house of a brave soldier who had been recently sentenced to this place for drunkenness. He had served through the war, and was made an invalid by concussion from a shell. He drank spirits soon after for the first time, and continued to drink on to death. He had been expelled from two Soldiers' Homes for this offense, and served many sentences in jails and workhouses for a similar cause.

The second incident gave the history of a brave man who rose from the ranks to be colonel of his regiment. After six months' starvation in a Southern prison he was discharged, an invalid. Then he began to use spirits to excess, and lost his property, and was placed in three different Soldiers' Homes, and expelled from each for inebriety. Finally he led a vagrant tramp life, and was often sentenced to jail for drunkenness in many cities of the North and West. At last he was arrested in a state of great destitution and com-

mitted to jail for six months. The judge delivered a severe lecture to him on this occasion, pointing out the folly and disgrace of his past conduct, and warning him to reform and change his life.

Here were two brave men who became inebriates as the direct result of injuries received in the service of the country. They were expelled from the Soldiers' Homes on the supposition that this disability was voluntarily acquired and could be controlled by the will any time. They were despised, persecuted, and condemned as vicious, willful, criminals, who preferred to drink spirits and live wretchedly rather than have comforts and be respected.

The managers of these homes assumed that inebriety was a moral disorder, to be reached by moral means; and, instead of applying moral remedies such as moral persuasion and religious faith, used force and fear, and disgraced the victim, and increased his pains and sufferings to give him strength to will himself back to health. The managers assumed ability to discriminate between moral and physical disabilities, and decide that the drink craze was a mere moral lapse, under the control of the free will to check at pleasure.

The Soldiers' Homes are provided by the government for the care and protection of its brave defenders, who from misfortune and disability are unable to support themselves. If the soldier is insane he is placed in a special asylum and receives special care. Beyond this no discrimination is made, other than the soldier shall have been in active service and honorably discharged. If he has been disabled by injuries or diseases contracted in the service, he is welcomed at the home. Why should the managers assume that the persistent determination to poison themselves with alcohol by these poor, exhausted inmates should render them unfit for government care and control. The persistent attempts at suicide by any inmate, if treated by expulsion from the home, would rouse great indignation and condemnation. The inebriate is of the same class of cases, only the destruction is slower and more certain. The suicidal impulse may break

away any time from causes unknown, but the drink impulse grows in intensity from each gratification. Every poor soldier expelled from the Soldiers' Home for this cause is turned out to die in conditions of the greatest wretchedness and suffering.

Expulsion of the inebriate soldier for inebriety and insubordination following from the drink effects is stupid barbarism. The real value and power of the home to care for and protect its inmates becomes a farce, and the inmate is destroyed to sustain a voluntary discipline, which is no discipline. The Soldiers' Home which cannot control its inebriates as well as its insane or suicidal inmates, needs reform and change. It in no way represents the scientific intelligence of the day, or applies the principles of humanity which a grateful government intends. Beyond all sentiment, the facts of science show that the privations, irregularities, diseases, and injuries of a soldier's life especially favor and predispose to states of brain exhaustion, for which inebriety is only a symptom. The brain injuries from concussion, from starvation, from disease, from wounds, and many other causes are very often manifest in intense craving for alcoholic spirits.

Some central and psychical degeneration is going on, and alcohol is a most soothing narcotic. The poor victim can get rest and relief from no other source; he is powerless to resist this diseased impulse. Like the suicide, he is driven by an internal force that dominates the higher brain and every condition of life, here and hereafter. He is diseased, disabled, and incompetent to control his life and conduct where it conflicts with this impulse. Such men need restraint, control, and care. They want protection from themselves, and it is the duty of the government to help them. The police court treatment of inebriety is a disgrace to our present civilization, and only tolerated by an apparent need to do something and dense superstition. Hospitals and homes for invalid and disabled soldiers who expel their inmates for drunkenness merit the condemnation of every intelligent citizen.

Science, civilization, and humanity protest against the injustice of turning out the poor, brain-exhausted soldier for such causes, to die on the streets, in jails, and almshouses, and be a burden and peril to all. The two cases mentioned show that, scientifically, a sad blunder has been made; that in view of the teachings of science and the ever-widening humanity of this closing century, such a blunder is inexcusable and demands instant measures for change and relief.

ANIMAL POISONS IN INEBRIETY.

Not unfrequently an inebriate comes under treatment, suffering from deliriums that are intense, obscure, and of short duration.

The patient will be apparently clear and sober when admitted, and in an hour exhibit low muttering delirium, talk to unseen parties, complaining, or laughing at his skill in deceiving others. In a short time this passes away, only to return at uncertain intervals, for one or two weeks. These low deliriums are changeable, going from one topic to another, but usually they refer to deeds of strength and cunning, to be consummated in the future. He will repeat some expression of his power to do this or that in a high tone of voice, then in a lower tone, until almost in a whisper; after a pause some other topic would be repeated in this way. Some of these deliriums would refer to sexual vigor, or muscular power; others would be of capacity to drink more spirits than his companions. In eight cases of this class which I have examined, six were excessive beer-drinkers, and spirit taking had been of recent origin. The other two were wine and spirit-drinkers, all of them were gourmands and plethoric, and suffered from nutrient disturbances.

In one case these deliriums came on after every drink excess, and passed away in two days or less. Pesit's suggestion that the toxic effects of alcoholic drinks were due in some cases to ptomaines or leucomaines originating in the process of fermentation, seemed to be the explanation of

many of these cases. Acting on this hint, some of my later cases have been treated with saline purges, and turkish bath, which seemed to cut short the delirium at once. The recovery was rapid from this time. It seems very rational to suppose the delirium was due directly to the presence of some poison generated in the system, and acting upon the brain other than alcohol.

The delusions and deliriums of inebriates are usually all of a certain class, and run a uniform course, but the symptoms observed in the above cases were different and suggested a different origin. In all probability the cases of inebriety that are associated with nutrient perversions and dyspepsias, are often complicated with animal poisons generated in the body, that peril the cases most seriously.

SOMEWHERE in 1760, a commodore in the French navy, while intoxicated, married a woman at Charleston, South Carolina. After a few weeks he sailed away and never returned. He supported the woman, and educated a boy which was born of this marriage. The boy became a cotton planter, and drank wine freely. His daughter, an only child, ran away and married a tutor on a neighboring plantation, who was from Massachusetts. She was driven from home, and the father drank severely the latter part of his life. The tutor came North and became a woolen manufacturer. He had three sons, who all followed him in this business. Four children of these three sons were inebriates. In the third generation from the tutor, five inebriates appeared. In the fourth generation, two inebriates, and one insane, and one epileptic were present. In the fifth generation there is one excessive drinker and six moderate drinkers. Every generation has had inebriates and neurotics of various degrees. Several women were eccentric and never married. Many of the men have been miserly, and only drank late in life. Three of them attained great wealth, and all were fond of music and dancing and travel. In the third and fourth generations several members of the family followed the sea.

Two very curious facts appear. The inebriety of the French ancestor seems to have made a permanent impression on all the descendants. The tutor's father was a Yorkshire woolen manufacturer who came to New England in 1750, and pursued the same business. In every generation several members of the family followed this business, showing a persistence of similar occupation. In the fifth generation seven descendants are engaged in the woolen manufacture, either as proprietors or workmen. Marriage with other race stocks seems not to have neutralized or changed these hereditary traits to any great extent. The families have not been large, but as a rule they have lived long lives. The statistics are not full enough to sustain positive conclusions, yet the general facts point to a distinct alcoholic heredity, and an inherited predisposition to follow the woolen trade.

DISCUSSION OF INEBRIETY AT THE INTERNATIONAL MEDICAL CONGRESS AT BERLIN.

Dr. Kahlbaum, in the Section of Psychiatria, raised the discussion on this subject as an international subject. The treatment of alcoholism has appeared in a scientific form in several countries and been studied by such scientists as Magnan of France; Baer, Pelmann, and Binz, in Germany; and Huss, in Scandinavia; Kerr and Richardson of England; Parrish, Crothers, Mason, Day, and Wright, of America. He pictured the reputed drunkard, and related the painful position the psychiatrist was placed when asked to advise in such cases. Such cases were either diseased before they became drunkards, or became diseased by the drink. In either case the great misery complained of is insatiable desire for alcohol, which they cannot subdue or avoid.

The usual consequences of alcoholism are tremor, paralysis, epilepsy, partial or general mental disorder, which incapacitate the inebriate for any other place than a medical institution. As soon as these morbid phenomena disappear,

the patient is allowed to leave the hospital under the presumption of being cured, but he has no sooner gained his liberty than he perpetuates the same error. If he were retained longer in hospital there might be more hope of cure, but the institution is usually glad to get quit of him, or the patient has lost all patience with his detention and his own desire is to leave. It is true that the institutions for inebriates are far too limited, and at the same time exposed to danger. The best thing that could be accomplished would be a general consensus to have an island appropriated for these subjects of intemperance. The presumption of this extraordinary thirst for alcohol is based on the theory of a molecular change in the nervous system, which disturbs the equilibrium when the alcoholic derivative is withdrawn after a long continuance of its use. When the unsteady molecular stage has been reached, the alcoholic desire is intense, and nothing short of total abstinence will overcome it. If the organic changes have not extended too wide, this molecular condition may soon be restored to its former equilibrium by its discontinuance. But where changes have taken place a longer time will be necessary for restitution. Absolute denial of alcohol is the rational mode of treatment for alcoholism, but this must be continued long enough to restore the morbid changes. Nothing short of a medical combination with the assistance of restraint such as can be found in well-organized asylums for inebriates. Such places would be equally valuable for morphia and other drug inebriates. In America this most difficult problem has been studied and many eminent physicians have contributed valuable papers which throw great light on this subject. He urged that medical scientists should take up this subject and interest communities and legislators to establish homes and asylums for the medical care and treatment of such cases.

Dr. Phustanos of Greece followed, giving a history of the ancient efforts to check inebriety by the Athenian lawmakers centuries ago, saying that to-day inebriety was the most perilous scourge of the Hellenic lands, where ages ago the

most advanced and heroic anti-scholastic legislation existed. While this discussion attracted but little attention in this great assemblage, it was evident that the subject had come into the field of scientific study to stay.

At the international congress at Washington a paper on this subject was not considered appropriate for the section on mental diseases, and was read in the section of practice of medicine, as the only place for irregular productions. Both the *Lancet* and *British Medical Journal* published this paper before it attracted attention in this country. The anglomania medical men are often far in the rear of scientific advance, when they close their eyes to all American attainments until they are recognized abroad. Many American students of this subject are unknown at home until they are recognized by some foreign paper or authority.

Fortunately, this is dying out, and inebriety, like many other topics, is demanding a recognition and receiving it both at home and abroad.

At the next international congress our association should be represented, but under any circumstances the subject will be discussed as one of the living issues of the medical world.

THE inebriate is always followed by a generation of descendants, that have marked brain defects, lowered morality, vitality, and longevity, with a sharp tendency to exhaustion and alcoholic excess. In the next generation insanity, idiocy, and epilepsy, appear—criminality and suicide are common. In the third generation, drink mania, paralysis, insanity, and criminality end the generation. Unless marriage with a healthier stock follows, the race becomes extinct in the second or third generation.—*Nortet*.

At Marylebone police court in London, a woman was sentenced for inebriety and disorder to jail for one month. It was found by the records of this and two other courts, that she had been arrested and sentenced for similar offenses one hundred and forty-two times before.

Clinical Notes and Comments.

HEREDITY.

The editor of the *Voice* asked advice regarding the statements of a moderate drinker who claimed that no injury could follow his use of spirits. The distinguished editor of the *Alienist and Neurologist*, Dr. Hughes, wrote as follows: The gentleman who speaks thus boastfully of his immunity from the consequences of habitual alcoholic indulgence, and confidently as to his constitutional immunity, utters the boast and expresses the blind confidence of physiological ignorance. He is another illustration of the long-ago proclaimed admonition, that "whosoever is deceived thereby is not wise," for the physical and psychical sequence of long-continued alcoholic indulgence proves with the unerring conclusiveness of Holy Writ that wine is a mocker, for even when it is taken so moderately as not to unfit the partaker during a natural lifetime for the ordinary duties of life, or immoderately by certain extraordinary constitutions of peculiarly strong nervous stability, it makes its lasting impression in neural scars that mar the life of the drinker's descendants. This is seen in the unexpected appearance of chorea or St. Vitus' dance, epilepsy, insanity, and other psychical or physical disorders of the nervous system, for the first time in the family history, after the inebriety of the parents, and in the lesser form of neural instability, such as nervous debility, general nervousness, fidgety disposition, defects of innervation in the trophic nervous system, entailing unequal shortening of limbs, through defective development of certain tendons and muscles, visual defect, etc.

A man may congratulate himself on his capacity to go about full and yet not be perceptibly drunk at any time in his life, but alcohol gets its baneful work in all the same on

his descendants. They will not have the inherent stability of nervous organism, the strongly-knit and powerfully resistive nerve centers bequeathed to him by an abstinent ancestry whose moderate indulgence was every day compensated for by a hard out-door life, in which more sunlight and fresh air and longer hours for sleep and less rush and push and mental strain and business worry enabled the restorative powers more effectually to efface each day the violence done by alcoholic indulgence to the delicate texture of the brain, the spinal cord, and the nerves.

It is extremely difficult for a man to so use alcoholic beverages as to not harm his organism. The worst feature of alcoholic indulgence is that of social drinking and of exciting the heart and brain to renewed activity when it is inclined to rest, as at banquets, thus goading these vital organs to renewed activity, when, in accordance with the natural laws of their being they are pleading for rest. When men resort to stimulants they generally need rest and sleep instead.

The questions have been answered by science for years. Morel has given a correct illustration from nature of alcoholic degeneration. I have seen numberless instances like the case you cite. When men wish to drink whisky every day for a considerable number of years, they should not, at the same time, beget children; for, unless the mother organization has an extraordinary atoning and counter-balancing influence, the children are doomed to some form of neuropathic degeneration, and they will be less capable of enduring what their father did unless their environment should be far more sustaining, as, for instance, the exchanging of the father's city life for a permanent healthy mountain residence or life upon the sea.

I have indicated above the form of heredity. It is not always alcoholism but may be that or any other of the many forms of alcoholic nervous damage. It is not necessary that the parent's indulgence should be carried to the extent of inebriety to endanger the nervous health of offspring.

AVOIDANCE OF STIMULANTS DURING
HEMORRHAGE.

It is customary when the action of hemorrhage occurs for the operator or some bystander to administer wine, brandy, or some other alcoholic stimulant to the patient, under the false idea of sustaining the vital power. It is my solemn duty to protest against this practice on the strictest and purest scientific grounds. The action of alcohol under such circumstances is injurious all round. It excites the patient and renders him or her nervous and restless. It relaxes the arteries and favors the escape of blood through the divided structures. Entering the circulation in a diluted state, it acts after the manner of a salt in destroying the coagulating quality of the blood; and above all other mischiefs, it increases the action of the heart, stimulating it to throw out more blood through the divided vessels. These are all serious mischiefs, but the last named is the worst. In hemorrhage the very keystone of success lies so much in quietness of the circulation that actual failure of the heart up to faintness is an advantage, for it brings the blood at the bleeding point to a standstill, enables it to clot firmly, when it has that tendency, and forms the most effective possible check upon the flow from the vessels. In a case where I had to remove a hard palate that had become carious, in order to reach and twist a bleeding vessel, although the quantity of blood lost during the hemorrhage amounted to over three pounds in the weight, and the syncope was so extreme the patient did not know anything had been done to him after he returned to consciousness, not a drop of stimulant was administered at any stage, and the care to avoid such administration was carefully sustained after recovery in order that the rapid action of the heart might not overcome the resistance of the tenderly sealed-up vessels. I am certain that this rule of avoiding stimulation was far more effective in saving my patient's life than any surgical skill, for the vessel I twisted might have become plugged up nat-

urally during the syncope, but nothing would have prevented the bleeding from breaking out afresh if the heart, instead of being allowed to swing round of itself, slowly and safely, had been whipped for a brief period into violent action. I refer to this case as typical, because if a stimulant were not wanted in it a stimulant cannot be called for in examples less severe. The course followed was simply to lay the patient quite recumbent when signs of faintness supervened, and so long as he could swallow to feed him with warm milk and water freely. Such, in my opinion, is the proper treatment to be employed in every instance of syncope from loss of blood.

— DR. RICHARDSON in *The Esclepiad*.

WHAT BECOMES OF MORPHIA IN THE HUMAN BODY.

The effect of the work of Alt and Tauber will be to revolutionize our ideas about the fate of morphia, as we shall certainly have to regard the stomach and intestines as the channel by which it is excreted and eliminated, and, as Tauber points out in medico-legal cases, where poisoning by morphia is suspected, the fæces, not the urine, is the material which will have to be analyzed; and in post-mortem cases, the stomach and intestines will be the place to search for morphia, even though it had been administered hypodermically. Alt points out a very interesting fact in his paper which Tauber did not quote, viz.: In dogs which had received a large dose of morphia, the symptoms of morphia poison could be held very much in abeyance by washing out the stomach from time to time through an œsophageal tube. This, as a practical point in opium poisoning, should not be overlooked, and Alt has shown that he has saved the lives of one set of dogs on which he practiced this lavage, while another set which had received relatively the same dose of morphia, but were left to themselves, died. An exceedingly interesting point in connection with this is, that stomach

lavage was just as effectual where the morphia was given by the rectum as when it was given hypodermically. This furnishes additional food for thought, and it is not improbable that, pushing along this line of inquiry, we may gain valuable information as to the mode of action of morphia on the stomach and intestines.— DR. KEMP, in *Brooklyn Medical Journal*.

HAVERHILL, MASS., March 7th, 1891.

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— *Weekly Medical Review.*

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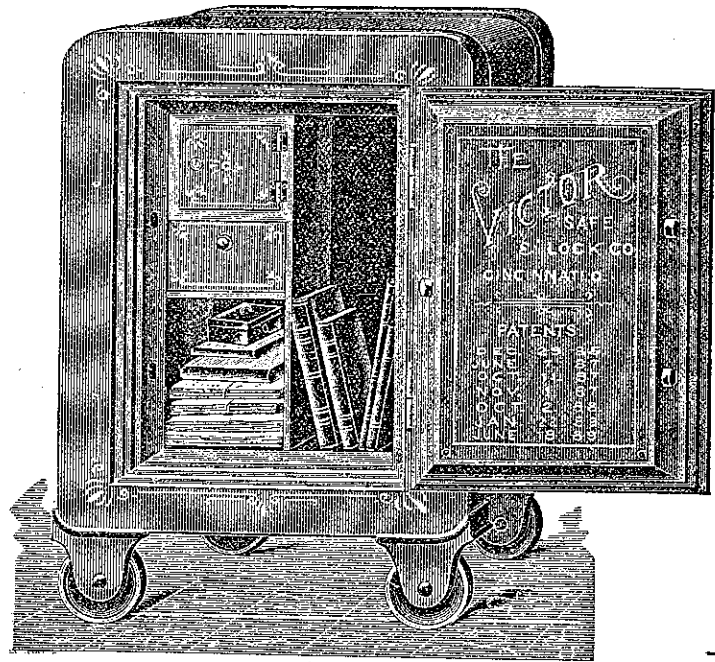
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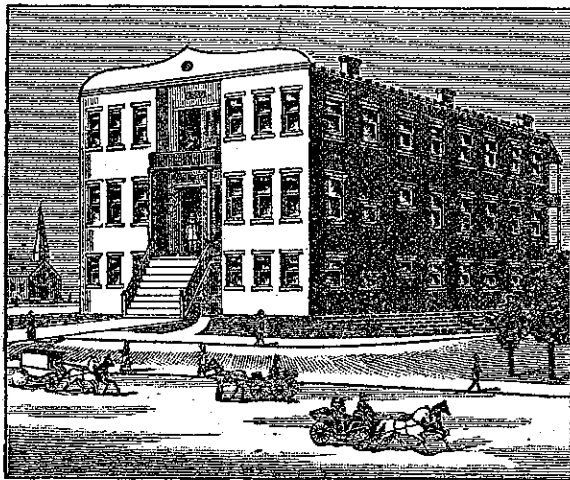
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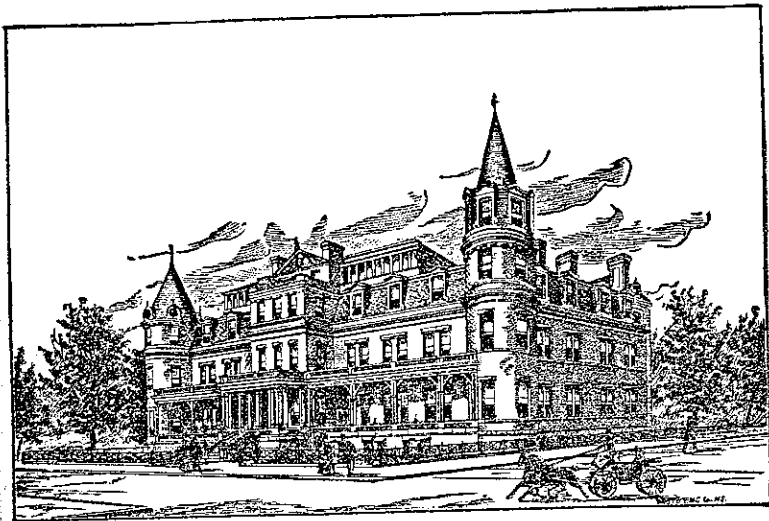
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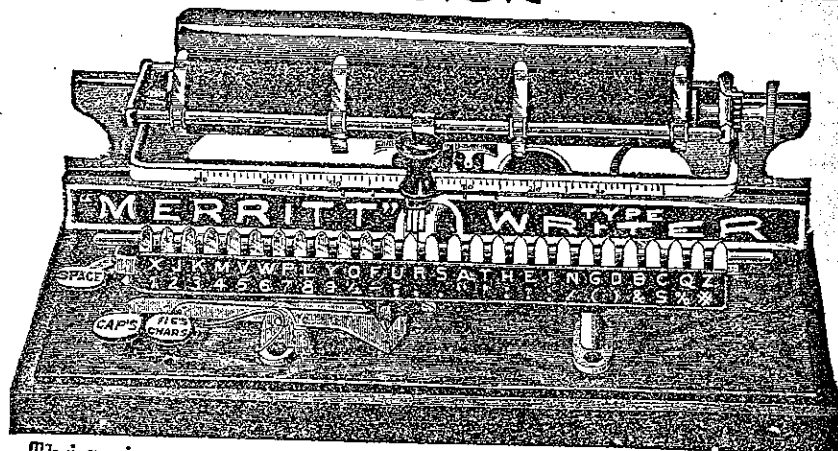
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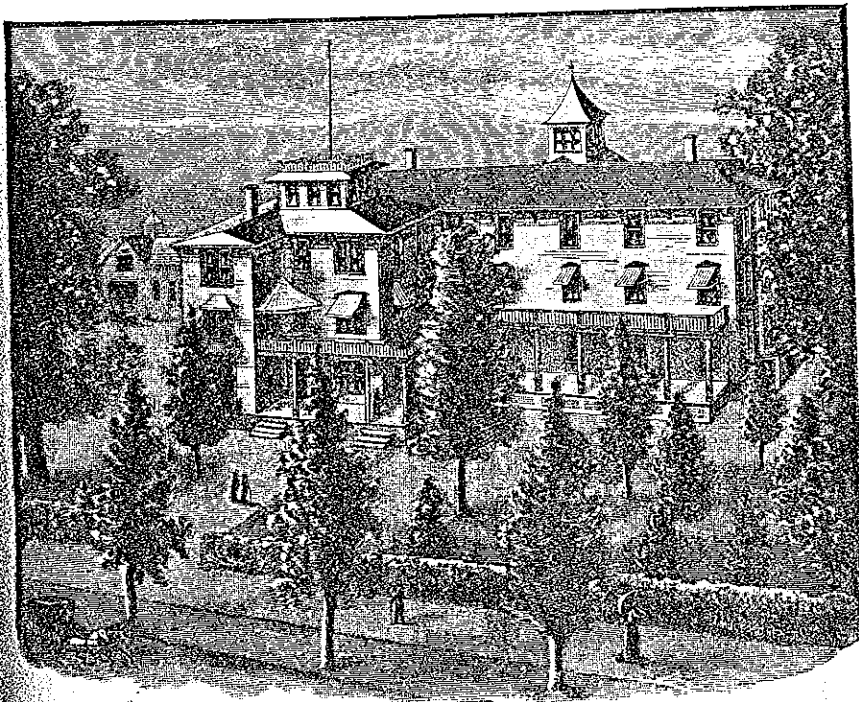
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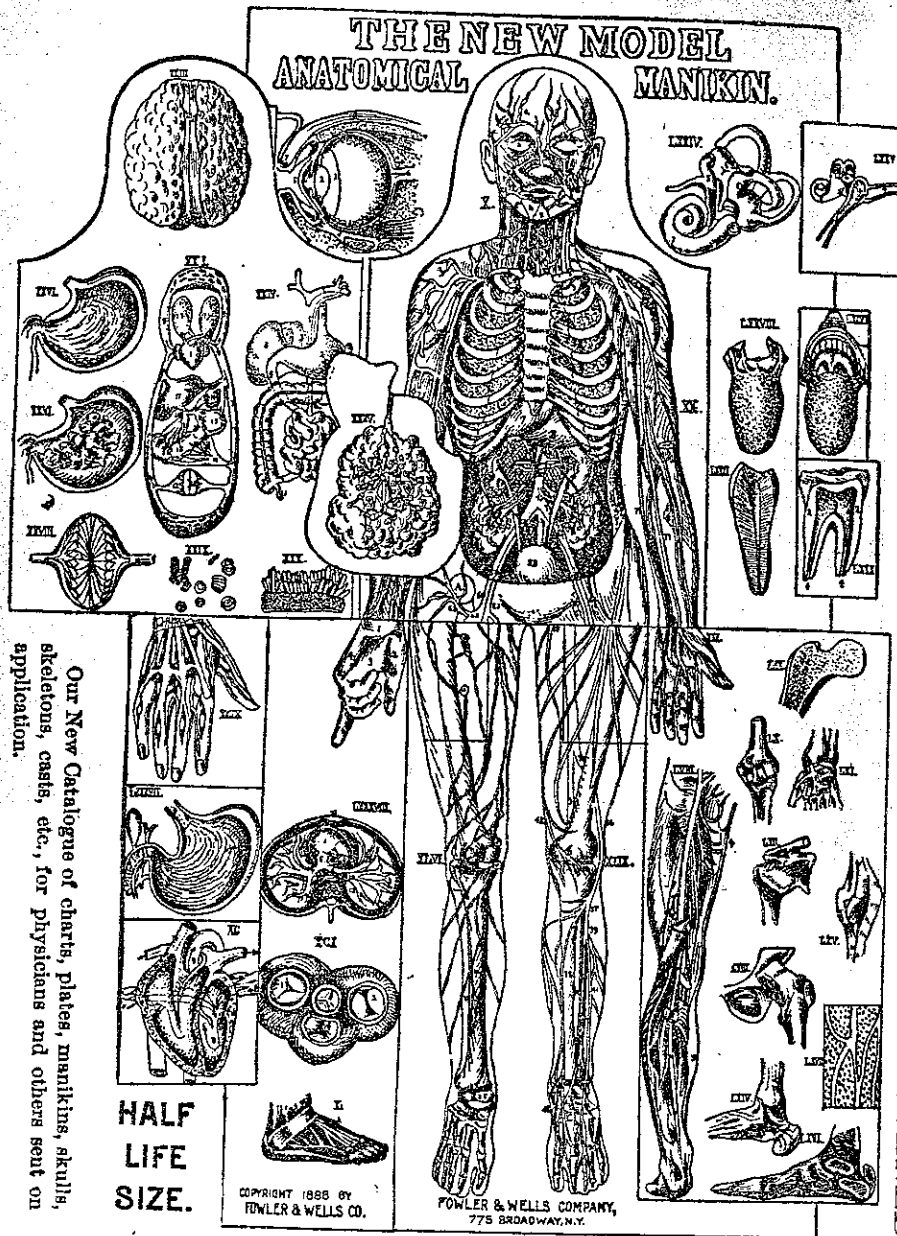
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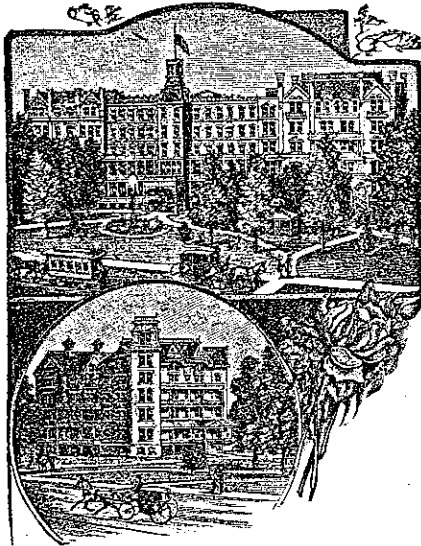
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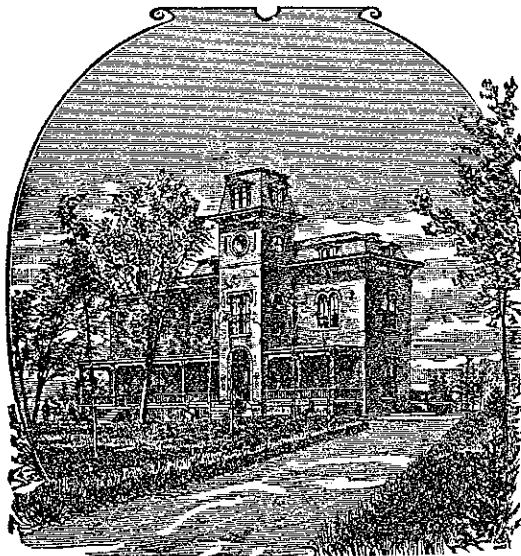
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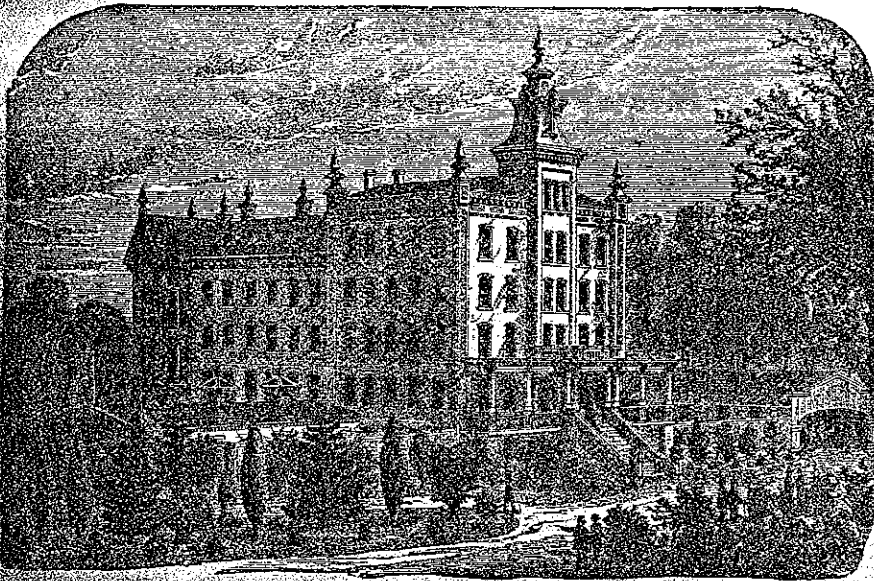
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