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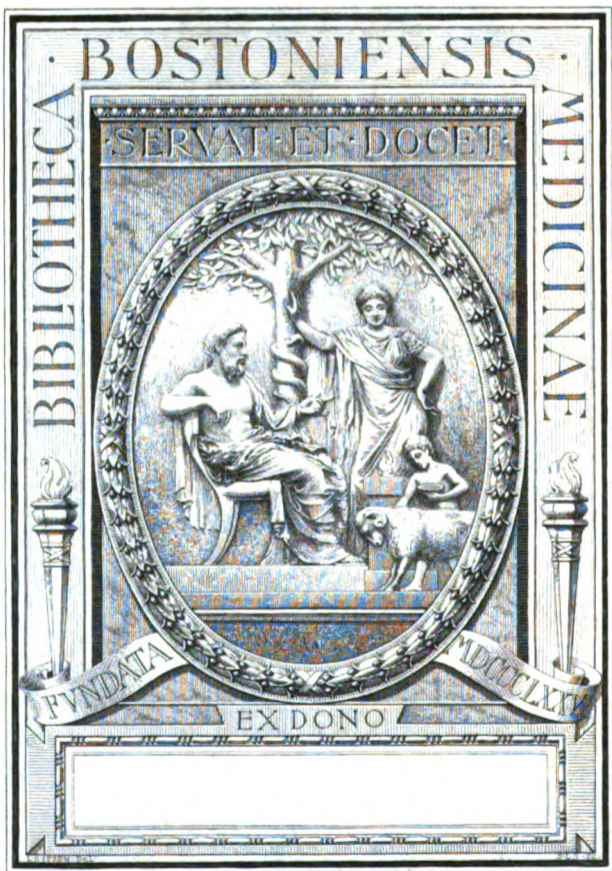
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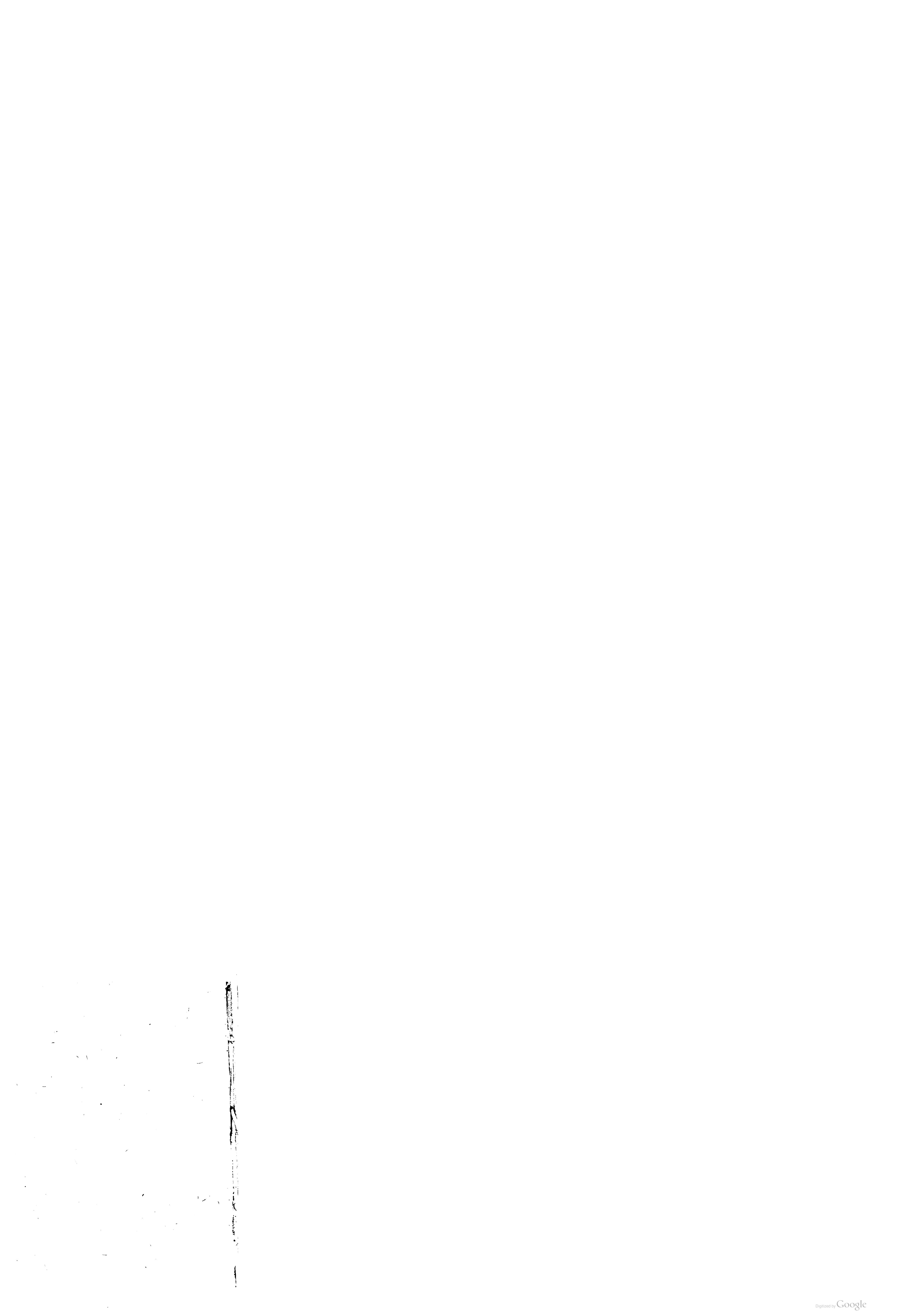
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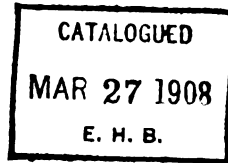
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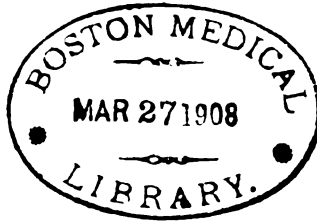
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PERIODICAL DIPSOMANIA AND SOME OF ITS REMOTE CAUSES.

BY P. C. REMONDINO, SAN DIEGO, CAL.

President Board of Health.

The laical mind is neither cultivated nor trained to grasp the many and devious psychic, physiological, pathological, and moral processes that underlie the subject of periodical inebriety, as nothing less than a liberal medical education in the broadest sense of the term will permit one to follow out the subject in all of its mystifying intricacies. And yet, it is the laity who should understand this disease in all of its bearings as its treatment is, or should be, more prophylactic than subsequently curative. To the laical mind, unfortunately, all those pathological processes of disturbed physiological functions, of organic disease, or of pathological psychology, upon which this disease rests, are unknown countries, and it can only see the surface, and to it, this surface only supports a drunkard, who is so from purely wilful perversion, as, to the laical mind, there is nothing that is impossible to the will, and the victim of the disorder, could, if it so willed, remain permanently sober.

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2 *Periodical Dipsomania and Some of its Remote Causes.*

It is a psychological puzzle to observe the deep and impassable gulf that separates the form of thoughts, comparative perception of facts and ideal realization of the true condition of affairs, as existing between the victim of this disease and his relatives and friends; the latter often resorting to means and methods to reclaim the afflicted one, which to the inebriate are clearly seen to be idiotically inconsiderate and irrational in their conception or premises, as they are utterly unphilosophical in their execution, and unprofitable in results.

I have often had patients afflicted with this disorder who had Carpenter, Bowditch, Parrish, Kerr, and kindred authors, well in mind and at their finger points, who knew everything, both theoretical and practical, in relation to their own disorder, while their good-intentioned and well-meaning relatives or friends did not ever possess the beginning of an abecedary knowledge of the condition upon which they most inconsiderately were attempting to force their utterly unpremiered views or ideas of prevention or treatment, a procedure that is most trying and exasperating to the more intelligent and really more rational inebriate, who but for the existence of the neurosis and the immediate and temporary disturbances it produces, is even then, and is later on, most assuredly the more intelligent of the two. The only point that the inebriate is the inferior being in the fact that he cannot overcome the fierce and phrenzied craving for immediate or timely stimulation which in nine cases out of ten must, like a storm, have its full play until its force is spent.

The ancients had their demoniacal possessions, and at all times we read of some men of strong physique and strong minds being periodically afflicted, either with dark vapors or with frenzy. In our own time and country we have the affliction of periodic dipsomania, which humiliates and degrades its victim, and which is the bane of many families, as it destroys their social standing, ruins them financially, and demoralizes their spirits, through the actions of the one afflicted member.

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The well known hereditary or transmissible and atavistic propensities of the disorder, its sudden and unlooked for appearance in probably the most promising of the family, its withering effects wherever it strikes, its destructiveness and seeming irremediability, affect not only the afflicted one in his prospects, hopes, and life, but every one of his blood relations must, like all the relatives of the ancient Egyptian criminal, all come in for their share of the stigma and punishment for the sin, infirmity, or possession of their one relative. Business connections, places of trust, and marriage possibilities open to others, are often, without any further consideration, closed to the victim of periodic dipsomania, and his blood relations are often as studiously avoided in like lines.

Inebriety, in general, was first determined to be an actual disease, and so termed by Benjamin Rush of Philadelphia, who carefully traced out the predisposing and determining history of a debauch, just as he would have traced the various stages and progress of any other disease, as well as he studied out its close relationship to other diseases, notably to insanity. It was also Rush who was the first to point out that there existed a periodic form of inebriety, one that came on "like the paroxysms of many diseases, at certain periods, and after longer or shorter intervals. They often begin with annual, and gradually increase in their frequency, until they appear in quarterly, monthly, weekly, and quotidian or daily periods." Rush was also among the first to describe the transmissibility of the tendency to inebriety as a disease, and to point out the widespread physical, mental, moral, and social evils of intemperance, and the dangers that reside in the abuses of ardent spirits, and the consequent need of some active temperance exertion on the part of those in position to give advice, so as to stop the rapidly spreading ravages of intemperance. He estimated that in the beginning of this century, fully four thousand persons died annually in the United States, from the excessive use of ardent spirits alone.

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Alcoholism is a word that is usually used in too comprehensive a sense; and the terms dipsomania, oinomania, and methomania, which have been promiscuously applied to the victim to the so-called periodic dipsomania, can hardly be said to be in every way, or perfectly applicable to denote the condition in a scientific sense, as the term has no applicability to the incipient physical or psychic conditions that affect the patient in the beginning — sometimes of as long a period of duration as a week or more — before the development of appearance of the actual drinking. The first of the above terms denotes a chronic systemic craving for drink, something which is not present at the beginning of the attack in the majority of cases; and the next two are intended to denote “wine madness,” an acute alcoholic delirium or mania, or the convulsive alcoholic frenzy, the *ivresse convulsive* of the older French writers, a condition occasionally met with in persons when indulging even in their very first drinking bout, but which in the majority of inebriates only occurs later on, and after repeated periods of debauchery; in the classical type of these so-called periodic dipsomaniacs, these are also misnomers, as in the beginning there is no taste or desire, any more than there exists any indulgence in either vinous or spirituous liquors, and where, consequently, there cannot exist at the initial period any oinomania or methomania, or vinous or alcoholic mania of any description.

Although, later on, and after some years of slowing down grade travel, and of gradually shortening intervals of sobriety, this class of so-called inebriates will furnish a large part of their contingent to the great army of the habitual and chronic drunkards that fill our homes with misery and humiliation, as well as our police courts, jails, asylums, and hospitals with criminals through the induced and resulting physical and psychic degeneration, due to the persisted uses or abuses of alcohol, we cannot, in any sense, always be said to be at first dealing with even a drinker, to say nothing of an actual inebriate, when dealing with these cases, as in my experience I

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have met with many cases that had never touched or tasted liquor of any kind until after being fully launched into their first spell, and then, I have known a number sufficiently intelligent and observing, to be able to give an account of the gradually invading processes that led to the final drinking; they realized that for days previously there had existed a period of indescribable malaise, with a sense of restlessness and of depression, against which they could not prevail; in some cases, it would be the sudden outset of a never previously experienced irritability of temper, of some digestive difficulties, or of an unaccountable state of insomnia, and a general inaptitude for business, or for one's vocation, existing for some days and nights before the patient would resort to the inevitable use of any stimulants. Very evidently the diseased or abnormal conditions here existed for some days prior to their being apparent, and for a number of days afterward, when by their irritating presence they produced the sensations of psychic depression against which the patient helplessly and hopelessly struggled before resorting to liquors or drugs for relief.

That this patient was laboring under a diseased condition, having no connection whatever with alcohol at the time, is quite certain, just as it is equally certain that the condition, although one of recent development, was one either acquired or inherited, and that be it either acquired or inherited, from our present knowledge of disease in general, it is as equally certain that every case did not originate in the prior use of liquor either by the individual or his ancestry, so that in justice to the individual, to his blood relatives, and to his ancestry, we should not apply this additional stigma, as the conditions that lead to this form of inebriety, and of which the inebriety itself is but a climax or turning point in the disease processes, may originate in overwork, shock, physical injury, prolonged depressing causes, as a later-in-life result of some infantile disease, or even through faulty ethical education of the morals — in fact, anything that may tend to disturb the proper physiological or

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psychological conditions of the body or mind, and leave or produce a certain amount of future disturbance or pathological action. The same causes that tend to develop in some temperaments and constitutions a disposition to gout, rheumatism, phthisis, or any other diathetic cachexia, will, in the proper soil, soon sow the seeds for the future development of the periodical dipsomaniac cachexia.

This is one of the unfortunate and undesirable attendants upon our race and upon our complex system of civilization. A prolonged season of business worry in the young merchant, an anxious watch by a sick-bed, a long spell of anxiety for practice and then a vehement spell of overwork and of professional anxieties later on in a physician, the uncertainties and perplexities of the struggling politician, reaching or attempting to hold his position, as well as the foolish social worries of our women, or a spell of sudden mental or physical inactivity, after great efforts or exertions, or a serious shock or injury, are all conditions that tend to induce in the future progeny of these, those various conditions of neuroses and neurasthenia that, sooner or later, will develop into some settled diathesis, one of which may be a tendency to a periodic dipsomania. If we consider that for the past century we have been undergoing an acclimating struggle, combined with all the wear and tear consequent upon too much and too frequently recurring political changes and excitement, as well in unformed and forming anxious, civil, business and social relations, and all that in a climate, as observed by S. Weir Mitchell, which makes our feet smaller and our frames taller, with a most marked less rotundity of body and less deposit of fat, we need not wonder that, with us, the growth and frequency of periodic dipsomania should be on the rapid increase.

This increase of the malady and the great destruction caused by its ravages are, in a measure, partly due to our not having sufficiently understood the causes of its developments in its incipency. We have erroneously been pleased to con-

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found it too indiscriminately with the many forms of chronic alcoholic conditions with which it is entirely unconnected, either by the order or class of men affected by environment, social conditions or primary causes, while as to its prophylactic management or treatment, the only rational procedure or manner in which we can hope any form of treatment to be of any avail, it differs again entirely as to its policy, remedies, or manner of application from that employed in cases of chronic alcoholism. The profession has here been unable to assist or enlighten the poor victim of this affliction from the simple fact that it in a measure has failed to take the proper view of the possible primary causes of the condition, and failing in these premises, necessarily in everything else connected with the treatment.

Some years ago a clergyman having charge of a largely attended mission chapel, and one of those broad-minded men who recognize the retroactive relations that exist between the physical and psychic conditions of man, as a result of his investigation and observation, used all possible moral compulsion to induce his charges to have their teeth repaired and afterwards kept in order. As a result of this wise move, he found that after the adoption of the plan, he has had less drunkenness among his charges. Dr. Rush had previously noted the distant affections that had been remedied by attention to the teeth, and when we consider the disturbing influence arising from loss of rest and from the continued nervous irritation to which we are liable to unconsciously suffer from the presence of decayed teeth, we can easily understand how these could be the cause of the initial point from which one may embark on a career ending with drunkenness and dementia. The lesson, however simple, has its value, and much more practical as well as theoretical significance.

Dr. T. D. Crothers of Hartford, in commenting on the above, cites some seemingly extraordinary examples of inebriety due to strange causes, showing how some distant and

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apparently altogether foreign excitant will wander about through the most devious and circuitous routes to produce the most unlooked for and strange results. Dr. Zimmerman of Hanover, the physician of Frederick the Great, relates one of the earliest recorded cases of distant irritation affecting the brain most peculiarly, this being that of a boy coming from an ordinarily stupid agricultural family, whose mental brightness was, from its surroundings, and the dull condition of the rest of the family, the wonder of the good villagers among whom his people lived, the boy presenting such a marked contrast to his brothers, sisters, or parents. On becoming indisposed, a physician was sent for, who diagnosed and removed a tapeworm. With the removal of this parasite fled all his brightness, and he relapsed into the common state of stupidity, in which were immersed the rest of his family. Dr. Crothers relates a similar case of psychic disturbance reported to him by Dr. Harman of Ohio, where a pronounced inebriate was completely and forever relieved from all his dipsomaniac propensities by the removal of a like parasite. The same authority also relates the case of an eminent man who could not indulge in a midnight dinner without drinking to intoxication, but who never dissipated if avoiding all of these very late dinners. Another case was that of a broker who could not follow the business of a broker without excessive drinking. He finally quit the business in self-defense, retired to a neighboring town and went into the mercantile business and experienced no further trouble. A casual return to Wall Street and mingling with his former associates, however, always brought on a spell of inebriety. Another became a temporary dipsomaniac if he ever attempted a railroad journey, or to sit up at nights. Avoidance of these kept him in a continually sober state. An officer of the late war developed pronounced dipsomaniac propensities which persisted for years and resisted all attempts or resolutions to reform. The removal of some necrosed or dead bone from the tibia of a leg wounded in battle, and the com-

plete healing of the wound, completely removed all dipsomaniac desires or habits. Dr. March of Albany once trephined a man who had been an inebriate since a fall on his head, and after the operation the man lived a total abstainer, having no further need or desire for liquor. The above cases belong to what is termed traumatic dipsomania.

In my own practice I once had a patient who was what might be called a classical example of this periodic affection, and this was the case that first led me into a closer investigation of the subject. With the age of sixteen he became the victim of periodical attacks of migraine of such severity at times that he would be obliged to take to his bed. The attacks would come once in six or eight months, and some would be longer and more severe than others. Drinking two or three cups of strong black coffee daily with warm water was the only nourishment he could then take, something which not only nourished him but which also served to alleviate the severity of the pain and shorten the attack. Later on he added lemon juice to the coffee with evident benefit. At the age of twenty-three he married, and the attacks became less frequent and finally disappeared. In less than a year he took to drinking liquor periodically, and drink he would with vehemence, until in common with all periodic dipsomaniacs in their earlier and more widely separated spells of drinking, his stomach would refuse to longer accept or hold liquor. The spells would then come in six or eight months, and between spells he had no inclination, desire, or taste for any form of liquor or tobacco — the latter he never used. During one of these debauched spells, in which I attended him, while trying to remove him from liquor to food, he was suddenly seized with a uræmic convulsion which was supplemented by the development of gouty rheumatism with gouty deposits affecting the joints of some of his toes and two of his fingers. After this he suffered periodically with the latter disease, but the dipsomaniac difficulty never presented itself again. The migraine

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had evidently been here displaced by the periodic dipsomania, and the latter, later on, by gouty rheumatism. The relation to these, one to another, and the dependence of the three conditions upon the same systemic cause are self evident conditions. That this was the case and that this case, like the famous Rosetta stone, was a key well worth investigating, I further assumed by the fact that the mother had been a great sufferer from eczema, and that gout was hereditary in his father's family, while a maternal uncle was a great sufferer from asthma.

I have since then, and in more than one case, observed the peculiarly analogous history existing between the conditions that precede a dipsomaniac attack and in some cases those that usher in an attack of gout in some persons. In our own country and climate we may naturally look for more of these dipsomaniac manifestations than we would in the less exciting and less neurasthenic European climates, especially that of England and of its sister kingdoms, as Englishmen given to drink will develop a tendency to dipsomania and to delirium tremens in our climate on the same amount of liquor that they will continue to drink with impunity in their own country. Gout also runs a dissimilar course in the two different climates, and we can look for vagaries from that disease and for such other nervous or psychic manifestations as we need not look for from the same source in England.

I remember another case wherein the intervention of bleeding hemorrhoids had most effectually removed a periodical dipsomaniac tendency of many years' duration. In spite of more modern views to the contrary, which refuse to look upon these appendages in the light of diverticula to other affections, as the older surgeons were wont to look upon them, it is well never to undertake their removal without looking well backwards into the history of the case in search of some possible more serious pitfall than the one in which the patient finds himself. Upon learning the past history of this case I advised the patient to

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put up with his present inconveniences rather than run the risk of renewing his former affliction. In many instances, dipsomaniac spells can be bridged over in patients, by advising an active purge, fasting, and a restriction to a diet of black coffee or beef tea and dry toast, or to one of crackers and milk, with, if possible, complete rest from all business and other cares and absolute rest in bed. This form of treatment will be found helpful, especially in those cases where the cause is beyond a mere diathesis, and where there possibly exists a positive organic cause for the existence of the dipsomania. In the latter class of cases, where the dipsomaniac tendency is on the increase from the imperative demands for some form of stimulant owing to continued brain weariness, made more pronounced and exacting on the least exertion, the rest cure is not only of great value, but absolutely indispensable.

Unfortunately, patients do not ask for advice in the beginning of the attack, and thus give the physician no opportunity either to learn something of the case or apply proper remedial means for its abortion, so that before he is aware, the poor victim, in obedience to the abnormal impulses which then possess him and which at a certain period seem to rob him of his better judgment or self-control, gives way to the use of stimulants as some do to the use of morphia, cocaine, or to some other narcotics. Opium used at the proper time seemed at one time to have been judged a proper preventive to the spell, and when an attack of dipsomania was imminent, due to depression of spirits from domestic or social causes, Rush did not hesitate, even in his day, to advise the use of wine or opium in preference to a resort to brandy, rum, or gin, but the use of fasts with salicylates and colchicum, or possibly the just opposite means through some good drywine with some brisk aerated waters, taken in moderation, and some thick, well-boiled, and well-seasoned beefsteak, game, or oysters will attain the same end and in a much safer way by stimulating the excretion through the kidneys of the peccant matter. Turkish baths and massage

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are also very useful, if timely employed, in preventing a patient from realizing the drinking period of the malady.

As observed, the laity know very little of the true condition of affairs, and they little realize the dangers that they are running, as they count too much upon their powers of resolving and of exerting the needed amount of resistance, and too confidently look upon every attack that really lessens this power of resistance as being the last to which they will submit. The physician rarely sees them until they are laboring in an attack of acute alcoholism, when their thoughts, desires, and aims all are centered on obtaining more stimulation, and to circumvent by every device all the cares of their family, physicians, and nurses. To prevent their further alcoholic poisoning it therefore behooves the laity to understand the nature of this branch of inebriety in some clear manner, that they may be able to recognize the symptoms of its approach and take proper steps not to allow it to drag them on to the drinking period.

It is useless for any person to attempt any cure of the tendency to this unfortunate disease, unless he makes up his mind to make the necessary sacrifices. Some order of business may have to be given up, or an actual change of residence may have to be advised, as this disease is as capricious and as fastidious as asthma or gout. Persons having any predisposition to the disease and of a nervous temperament; persons who are easily excited or sensitive, should never attempt public life or any position of great nervous wear and tear, a quieter life will do much toward preventing causes for excitement and consequent exhaustion and for its appearance. The old French habit of taking periodical self-treatment of fasting and purging, "to purify the system," as they term it over the water, would undoubtedly, if practiced with us, also greatly mitigate the frequency as well as the severity of the attacks. Above all, let the laity understand that the condition has the same basis as a sick headache, asthma, or gout and rheumatism, and that liquor,

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instead of being the primary or main cause, is only a secondary consideration, and we will then have made a great step forward in the suppression of the so-called periodical dipsomaniacs.

There is one question in connection with this subject which demands our attention, this being the relation that this disease at times bears to continence, as I have met cases wherein, after a thorough analysis of the case from every point, the disease could unmistakably be attributed as being the result of continence as its sole factor, just as a solitary traumatic cause has often produced it in other cases. I have seen celibates — in one case a priest — in whom the spell would break up only after copious nocturnal emissions or after a fall from grace and a perfect bacchanalian orgy with a sacrifice at the shrine of Venus Porcina. To these cases, after well considering it from every point, I would not hesitate to recommend marriage.

On the other hand, one cannot too much deplore the inevitable consequences that follow the attempt of many sympathetic girls who wed confirmed dipsomaniacs under the foolish notion that marriage, lavish affection, and attained ends in life will reform them. If the dipsomania is due to one of those neuroses akin to epilepsy, which often only manifest themselves in a dipsomaniac outbreak or tendency, marriage will often aggravate rather than tend to relieve; and unfortunately it is this order of the difficulty rather than that which is more sexual that appeals to the imagination and sympathies of the young women, as in these epileptically inclined there is a mute appeal for sympathy and love as well as a preternatural brightness of intellect that attracts and irresistibly affects the gentler sex, and that generally leads them to a step that without helping the one ruins and blasts the life of the other.

From a study of the many cases of periodical inebriety that have fallen under my observation I have reached the following conclusions:

1. The disease is a secondary condition due to some physical or psychic defect in the affected individual. Many of the

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cases have absolutely no alcoholic desire nor habit, except after the experiencing of a train of mental and physical disturbances which call loudly for stimulants.

2. A radical change of occupation, climate, or residence will often remove the cause and restore the patient to the normal. The literature on the subject is replete with instances wherein the disease was of a traumatic origin and where the removal of the cause affected a cure.

3. The periodicity may at times be due to a diathetic condition analogous to that upon which is grafted gout or rheumatism. Such cases are the more easily remedied. Those that have hereditary tendencies to the disease, involving of necessity some settled constitution or organic cause with attending temporary psychic derangements, are the most unmanagable class of cases.

4. There is in the majority of these cases a tendency to self-limitation of the disease at certain ages. The age of strongest virility being the period for the greater frequency and intensity of the attacks.

5. Any physical condition that tends to disturb the equanimity of the nervous system may be a factor for this form of inebriety. There exists a form of sexual factor that affects celibates. When this exists, marriage will be of the greatest service.

6. There exists a strong racial proclivity to this form of the disease which involves the offsprings of light or ruddy haired and blue eyed races. Ancestral habits of deep drinking, such as indulged in by the races in the north of Europe during their semi-civilized state, have largely influenced the appearance of the disease among their progeny.

7. American climates, owing to their greater dangers and variability and other tendencies to intensify most nervous diseases, favor the development of the disease where a predisposing cause already exists. A removal to, and a permanent residence in the more humid and variable climates of England

or in the south of France — even to the climates of Italy or of Germany — will often at once remove all possibilities of a recurrence of the disorder.

8. It is useless to attempt a moral treatment with these cases to the neglect of the physical or environing causes upon which the condition depends for its existence. When himself, the patient is fully alive to the humiliation and disgrace, as well as to the social and financial losses that the disease entails when in its activity. The patient has a far stronger realization of all these than any sermonizer who has never been in his place. During the attack he is perfectly helpless and irresponsible.

9. That the disease is liable in proper grounds to end in habitual drunkenness by an extension of the disease processes upon which the original disorder was based and the weakening of the mental and moral caliber of the afflicted one is undeniable. That this danger exists and that the patient may in the end, as a result of the extension and greater wrecking powers of the disease, become an epileptic or a paretic, if not an actual lunatic, should teach us the folly of simply moralizing with such patients, while we neglect those common sense ideas and rational and philosophical suggestions that we bring to bear upon other nervous disorders and which we have learned from our studies in nervous diseases and in pathological psychology.

10. Occupations subjecting the afflicted one to great nervous and mental strain or shock should be carefully avoided. Public life and politics should be prohibited, as well as any position which is liable to bring the person into any prominence. The greater the evenness of the ways upon which such a life can glide, the less liability to an attack or occurrence of the disease. Such a person should at no time assume the burdens of any weighty responsibility if he wishes to avoid danger.

11. Malaria, foul air, badly ventilated rooms, habitual

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night work, irregularity of diet or of the bowels, in fact any blood deteriorating condition, should be carefully avoided. Gross eating and accidental or habitual constipation by the resulting autotoxoemia generated will in the end often bring about an attack in the predisposed, or develop a tendency in a favoring temperament where none previously existed.

12. For the above reasons, bathing, exercise, added sleep, regularity of work, and of the bowels, a purge if depressed or feeling heavy, and a general strict observance of all hygienic laws are indispensable conditions to be observed by those who are disposed to the disorder under discussion. Emotional individuals should avoid any disturbances in their sentiments, as any access of grief or joy, a parting from old friends, a sudden meeting after having long been parted, a death, birth, or marriage, are all elements that may usher in a spell by the induced psychic and physical disturbances they may engender. The victim of this diathetic disorder cannot watch over himself too assiduously if he wishes to break up his predispositions to the disease.

ALCOHOLISM AND SUICIDAL IMPULSES.

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The important part played by alcoholism in the causation of suicide has been abundantly recognized by all observers of both these social phenomena; and so far as debate now touches the question, it is merely to deal with points of detail.

In the present slight contribution to one such detail of the subject I have endeavored to show, by the analysis of a series of cases of alcoholism associated with suicidal tendencies, in what mode and under what special conditions the intoxication determines the development of these tendencies. For this purpose I have utilized, with the kind permission of my colleagues, the clinical records of 142 cases in which persons have been charged in the Liverpool police courts with attempting to commit suicide, and have been sent on remand to Walton prison, where they have been subject to medical observation. As the practice of so remanding prisoners charged with this offence is almost invariable, the figure named represents practically the total number of futile attempts at suicide in the city of Liverpool during the period of eighteen months covered by the records.

I shall first submit in detail the analysis of these cases, and subsequently discuss the inferences which they seem to suggest.

↳ (a) *Proportion of cases due to alcoholism.* — Of the 142 cases, 64 (45.1 per cent.) were in males, 78 (54.9 per cent.) in females. Divided according to the influence of alcohol in their causation, they give this result:

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	Males.	Females.	Total.
Non-alcoholic, . . .	10 (15.6%)	22 (28.2%)	32 (22.5%)
Alcoholic,	54 (84.4%)	56 (71.8%)	110 (77.5%)

The proportion of non-alcoholic cases, if incorrect, errs on the side of excess, for I have reckoned in this category all those cases in which no positive evidences of the drink habit were obtainable. In some of these cases an element of alcoholism was extremely probable, and even in the small number of instances where it could be definitely excluded in the individuals, it may have exercised an influence through the ancestry.* The two following observations are suggestive from this point of view.

(1) Female aged 21, domestic servant of good character, attempted suicide by poison; no distinct motive beyond momentary lack of work. Both parents in asylum, suffering from chronic alcoholic insanity.

(2) Female aged 19, hard-working girl of good character, attempted suicide by drowning; no cause assigned beyond depression, owing to quarrels between her parents. Father and mother confirmed drunkards.

(b) *Influence of alcohol in actual and in attempted suicides.* — We may probably regard 77.5 per cent. as a fairly correct estimate of the proportion of cases of attempted suicide to be attributed to alcoholism. Since we have no means of determining a corresponding local formula for the alcoholic influence in actual suicides, we are forced to fall back upon general estimates of the factors of suicidal ætiology. In different countries and with different observers these estimates show considerable variations. In England Mulhall† attributes to alcoholism about 12 per cent. of the suicides; Brown puts the figure at 13.7 per cent. The statistics of Brierre de Boismont and of Lunier for France give somewhat similar results.‡ In extremely alcoholic countries the proportion is naturally

* Sollier, *Du Rôle de l'Hérédité dans l'Alcoolisme*, Paris, 1889.

† *Dict. of Statistics*, 1892.

‡ Quoted in Morselli, *Il Suicidio*, 1879.

higher; thus in Sweden, before the legislative restrictions of the drink traffic, the alcoholic contribution to suicide amounted (1851-5) to the enormous figure of 65.5 per cent.*

Even if we assume that the above-cited estimate of 12 per cent. for England is somewhat under the truth, there will yet remain a very marked contrast with our figures, suggesting that the proportion of cases due to alcoholism is considerably higher in the category of unsuccessful than in that of actual suicides. Such a result is not surprising, in view of the fact that nearly 80 per cent. of the attempts by alcoholics were made in a state of actual drunkenness, when the power of more elaborate co-ordination was to a large extent in abeyance, and where, moreover, the accompanying symptoms of the alcoholic condition would probably draw attention to the actions of the individual. Moreover, in a certain number of cases reckoned as attempts at suicide the self-destructive impulse aborts, owing either to the development of a profounder degree of intoxication or to some sensory impression, real or hallucinatory, diverting the attention. In several of our cases this is clearly seen.

(3) Female aged 40, chronic alcoholic; father, brother, and two sisters also drunkards. Found asleep on the bank of the canal; recollected being very drunk and going to the canal to drown herself, because the idea "came over her"; could not assign any other motive.

(4) Female aged 48, notorious drunkard. Found at the dock with her boots off, talking to the water; was drunk, and could recall nothing of the incidents, but had expressed the intention of suicide. Probably prevented from following the impulse by some auditory hallucination referred to the water.

(5) Female aged 34, chronic drunkard; made an attempt on her life three months previous to present attempt. Went to the dock, took off her clothes, and put them into the water; was very drunk at the time; remembered having the idea of

* Baer, *Der Alkoholismus*, 1878.

suicide, and going to the dock to drown herself; could not explain her subsequent conduct.

(c) *Frequency of suicidal attempts compared with assaults as results of alcoholism.* — If we assume, according to our observations, that 77.5 per cent. of cases of attempted suicide in this city are due to alcoholism, then of the 117 such cases recorded in Liverpool for the year 1896, 90 would be assigned to this cause.

In the same year 6,146 persons were apprehended in a state of drunkenness, which in 712 cases was associated with violence against the person, thus giving a proportion of 7.91 cases of assault for one case of suicidal tendency; or, expressed in percentages of the number of drunken persons arrested, in 12.4 per cent. the intoxication was associated with acts of violence, in 1.4 per cent. with suicidal tendencies. It is to be noted that this proportion is arrived at by the analysis of statistics regarding drunkenness, and not alcoholism; in statistics dealing with alcoholism, suicidal attempts reach a much higher proportion.*

(d) *Sexual incidence.* — Of the 110 cases of attempted suicide which were due to alcoholism, 49 per cent. occurred in men, 51 per cent. in women. This predominance of females is in striking contrast with the facts of sexual incidence observed in connection with actual suicides. Thus in Morcelli's statistics the maximum proportion of women suicides in any series of years for England and Wales is 28.2 per cent., the maximum in any European country, 28.8 per cent. Comparison with local statistics of actual suicides shows conformity with the general law; thus in 1896 the proportion of women amongst suicides was 33 per cent. The fact that this proportion is a little in excess of the average figures for the country doubtless depends in part on the local prevalence of the drink habit. As we have seen that alcoholism is the overwhelm-

* Serré, in observations on 1500 cases of alcoholic insanity at Ville Evrard Asylum, noted suicidal tendencies in 12.86 per cent., assaults in 14.46 per cent. (*Tr. de Paris*, 1896.)

ingly predominant cause of futile attempts at suicide, it is not surprising to find that the analysis of the total number of attempted suicides in the last five years shows that 50 per cent. of the attempts were made by women, a sexual preponderance similar to that which we have observed in considering our alcoholic cases.*

(e) *Condition at the time of the attempt.* — Classified according to their alcoholic condition at the moment of the attempt, our 110 cases divide thus:

	Males.	Females.
Sober,	16	7
Drunk { Memory retained,	17	16
{ Amnesia,	21	33

According to these figures, 79.1 per cent. of the attempts were made in a state of actual drunkenness. Our figures are too scanty to allow any other inferences; but it is interesting to observe the progression of the numbers, especially in the case of women, when classed as in this table, according to the three conditions of sobriety, drunkenness with and drunkenness without memory, — conditions which, in their relation to suicide, may possibly correspond with degrees of chronicity in alcoholism. Of the 16 cases in which alcoholism in men determined suicidal tendencies without immediately antecedent excess, in 10 instances the suicidal attempt was associated with a state of sub-acute alcoholic insanity with its characteristic delusions and hallucinations. None of the 7 cases amongst women presented these symptoms.

(f) *Age.* — Classing our cases according to age, we get this result:

	Males.	Females.
15 — 25,	10	15
25 — 35,	22	20
35 — 45,	12	12
45 — 55,	9	6
Over 55,	4	3

* In the five years 1892-6 there were 548 such cases evenly divided between the sexes. I am indebted for these figures to the courtesy of the Head Constable of the City of Liverpool.

Thus the decade 25 — 35 shows a very decided maximum, more decided in the males than in the females, in whom the preceding decade is also well represented. In contrast with this result, the maximum period for male suicides in England (Morselli) is the decade 45 — 55, for females 35 — 45. The significance of this fact will be discussed later.

(g) *Chronicity of alcoholism.* — In a large majority of the cases the patients gave a history of alcoholic excess extending over a considerable period prior to the suicidal attempt; taking an average of their statements, the duration of this pre-suicidal stage would be from five to seven years; in only three cases was the alleged time less than one year, and in one of these cases outside evidence and the presence of well-marked symptoms proved the alcoholic habit to be one of old standing. I give a summary of the notes of the two other exceptional cases:

(6) Female aged 23, domestic servant; attempted suicide by strangulation while drunk. No memory of the act. States that she began to drink six months ago, taking chiefly whiskey. Denies hereditary taint; defective intelligence; facial asymmetry; internal strabismus. On admission suffering from acute gastritis with hæmatemesis; had visual hallucinations for a few nights. This patient made a precisely similar attempt seven months later.

(7) Female aged 18, domestic servant; attempted suicide by throwing herself into the dock. No memory of the act. Committed immediately after she had taken a large quantity of raw spirit; no domestic or other troubles; states that she had never previously taken any alcoholic liquor. Intelligent, physically healthy; no evidence of alcoholism, no hereditary taint.

I have not encountered any other case in which suicidal impulses have developed quite early in the alcoholic history under the immediate influence of an acute intoxication. This fact is the more curious seeing that cheap whiskey, rich in

amylic alcohol, is the principal intoxicating agent in the population from which our cases are drawn.

Except in determining approximately the duration of the drinking habit the testimony of the alcoholic, even when given in good faith, is practically valueless, and we are accordingly forced to rely upon another class of evidence, namely, the symptoms of chronic intoxication.

All our cases, with the single exception to which I have referred above, presented in marked degree a number of such symptoms, variously combined, — ovarian irritation, gastric catarrh, tremor, hallucinations of sight, nightmare, insomnia, cramps, and hyperæsthesia of the calf muscles, amblyopia, color scotoma, cutaneous hyperæsthesia of the lower extremities.

With regard to the majority of these symptoms, their relation to alcoholism is sufficiently established to leave no doubt of their diagnostic value. A word of explanation is, however, required in reference to the ovarian irritation; by that is indicated a symptom similar to the “*ovarie*” in hysteria;* there is pain, spontaneous and on pressure, in the iliac region on one or both sides, with corresponding pain under the breasts, and on vaginal examination the ovaries may frequently be found enlarged and tender. This symptom is, no doubt, of common occurrence from other causes; but when it is encountered in the absence of hysteria, anæmia, and local disorders of the genital organs, when even to the observation of the patient its development and aggravation are influenced by her drinking habits, and when, above all, it disappears or decreases with abstinence from drink, we are fairly entitled to regard it as an effect of alcoholism, which we know to be in fact among the most potent causes of chronic ovaritis (Matthews Duncan). This symptom, which is present in most of our chronic drunkards, its severity corresponding with the chron-

* Charcot, *Leçons sur les Mal. du Syst. Nerv.*, Paris, 1877.

icity of the poisoning, was found in nearly all the suicidal alcoholics whom I examined.

(h) *Heredity.* — The existence of insanity (certified) in immediate relatives was ascertained in four of the 54 males who enter into our statistics, and in three of the 56 females; these numbers are probably below the facts, as in the special circumstances there would be an obvious interest in concealing an insane taint. Two of our male cases and three of our female cases were the subjects of epilepsy antecedent to their alcoholism.

Our cases were not all examined as to the existence of an alcoholic heredity; but, so far as the observations go, they show such a taint in at least one half. None of our cases were dipsomaniacs.

(i) *Previous attempts.* — In the cases of three males and six females previous suicidal attempts were recorded — in one case three such attempts, in another two. The interval of time between the attempts varied from twenty-one years to three months.

(j) *Mode of attempt.* — Classified according to the method employed to carry out the impulse, our cases give this result:

	Males.	Females.
Drowning,	11	25
Poison,	11	14
Hanging,	6	4
Strangulation,	8	7
Cut throat,	21	5
Other means,	2	1

These numbers are obviously too small to base any conclusions upon.

After this brief examination of our cases it remains to inquire how far the results obtained serve in any measure to explain the psychological process which issues in the suicidal impulse.

From this point of view, the fact of highest importance is

the almost constant relation between the development of the impulse and the chronicity of the alcoholic poisoning.

In chronic alcoholism the special and constant psychical condition is a dementia, variable in degree according to the intensity of the poisoning and the antecedent level of mental development. But this dementia does not in the majority of instances present itself in the pure form as a progressive diminution of the functional activity of the brain; it is colored by a variety of symptoms of a more active kind in the intellectual and affective spheres.

In the production of these secondary symptoms a large part is to be referred to the extra-cerebral influences of the poison. Obviously lesions of the digestive and circulatory systems interfere in some measure with the nutrition of the brain, and in this manner reinforce the direct effect of alcohol upon that organ. But apart from this mode of action there is another, from the psychological point of view more important. The more or less generalized disorder of function, which alcohol tends to produce in the entire economy, has as its psychical counterpart a profound alteration of the "ego." In the cerebral representations of the body which form the basis of the personality, the vaguely felt pleasurable nerve currents of normal function are replaced by more or less defined sensations of strongly negative tone, expressive of disordered action. The influence of these visceral states upon thought and feeling becomes proportionally greater as the brain grows more enfeebled and the higher forms of mental life disappear.*

There is, of course, in this psychic change nothing peculiar to alcoholism; all the intoxications which cause diffused organic troubles at the same time that they degrade mental function have a similar tendency to produce melancholic alterations of the personality; in morphinomania,† in lead poi-

* Cp. similar process in dreams determined by morbid organic sensations. Rib t. *Maladies de la Personnalité*, 1897, p. 27; Maury, *Le Sommeil et les Rêves*, 1862, p. 75.

† Ziehen, *Psychiatrie*, Berlin, 1894.

soning, in pellagra,* the typical psychic condition is one of depression.

It is, however, in alcoholism that the reaction of the somatic disorders on the emotional and ideational life is seen most clearly and most frequently. Extreme instances are furnished by cases of typical alcoholic insanities; it is enough to cite the delusions of poisoning associated with gastric troubles, the delusions of electrical persecutions associated with involuntary motor discharges, the delusions of recent muscular actions in the immobilized victims of multiple neuritis, etc.

In the earlier stages of alcoholism, when the mental change does not yet amount to actual insanity, the alteration of the personality is seen more on the affective side, in the suspicious, irritable, gloomy character which is distinctive of the chronic toper. At the root of this disposition lie the same organic troubles that in higher degree determine the delirious thoughts and acts of the alcoholic lunatic; the changed nature is the expression of general somatic disorder reflected in an enfeebled brain.

It is in this stage of the alcoholic evolution, with distinct physical signs of the intoxication, that we find the large majority of our would-be suicides; a bout of drunkenness removes the last traces of the higher restraining functions, the "ego" is reduced to the mass of sensations of negative tone, and the conditions for the development of the suicidal impulse are realized.

In a large proportion of cases, as we have seen, there is complete amnesia of the act, and even considerable difficulty on the part of the individual to understand how he came to entertain the suicidal idea. In other cases, though the memory of the act is vague, the suicide can recall a state of con-

* It is interesting to note that this disease, in which, if the dominant lesions are nervous, they are yet extra-cerebral, is associated with strong suicidal tendencies. *Morselli, op. cit.*, p. 398, estimates that in the decade 1866-76, 30 per cent. of suicides from mental disease, or about 16.5 per cent. of all suicides in Italy, were due to pellagra.

sciousness preceding the attempt, when he felt in an undefined manner that life was a weariness to him, or that some precise misfortune made existence insupportable. The misfortune which depressed feeling seizes upon in these cases is frequently remote, and even to the alcoholic's dull sense of proportion preposterously trivial; one individual, a chronic drunkard of eight years' standing, tried to hang himself because he had failed to sell five shillings' worth of race cards; another, a woman of fifteen years' alcoholism, attempted suicide because she was "low-spirited" owing to the death of her mother, which occurred several years previously, and the memory of which never preyed upon her unless she was drunk. These cases form a transition to the group where some external moral impression — a quarrel with a neighbor, a difficulty about money, etc., — determines the act in a state falling short of actual drunkenness; and last of all we reach the cases where the act occurs in the absence of all immediately antecedent excess, under the influence of the melancholia developed by the chronic intoxication.

Though the organic troubles determined by alcoholism in all these cases are generalized in character, and, indeed, owe to that fact a large part of their influence, yet it is natural to suppose that the mode and degree in which they react upon the psychic life may differ considerably in the case of different organs. As Maudsley observes, "it is conceivable that all the visceral organs have their several relations with modes of feeling, as definite and constant in character as the relations which the special senses have with modes of thought."*

We are not in a position to assign to the different viscera their relative degrees of action upon the psychic life. We know, however, that in the emotional sphere the generative functions exercise an influence, the importance of which it would be difficult to exaggerate. This fact — of familiar and universal recognition — touches very nearly our subject; for

* *Pathology of Mind*, 1895.

as the generative organs seem to have a peculiar susceptibility to alcoholic poisoning, it naturally suggests itself that disorder of their activities may be a large element in the negative emotional state in which the suicidal impulse takes its origin.

In the examination of our cases this idea finds support in several directions, and serves to explain some of the curious contrasts which we have noted between the general statistics of suicide and our observations of the suicidal impulse in alcoholism. Thus the greater tendency of women alcoholics to suicide, contrary to the law of sexual incidence for suicides in general, is readily explained when we consider, on the one hand, the special liability of the ovaries to suffer in chronic drink poisoning; and, on the other hand, the predominant rôle of the generative function in women. The same influence of disordered sexual function would explain the marked contrast between our observations and the general statistics of suicide with regard to the period of life, showing the maximum development of the suicidal tendency. For our alcoholics of both sexes, as we have seen, that period is the decade twenty-five to thirty-five, while for the general mass of suicides it is a decade later in women, and two decades later in men. But this earlier age is precisely the period of intensest reproductive activity, when the sexual instinct exercises its greatest sway over the personality, — when, consequently, its disorder might be expected to react most potently upon the mental life. One further observation may be added in the same sense, though I have not yet examined a sufficient number of cases to justify my offering it as more than an impression. It is that the suicidal act very frequently coincides with or follows some process, physiological or morbid, which temporarily emphasizes the sexual function. In several female alcoholics — I cannot yet give numerical expression to the proportion — the attempt was made during a menstrual period; in several others the suicidal tendency showed itself first at the meno-pause, which occurred, as is frequently the case in alcoholism, at a

comparatively early age. In the male a corresponding mode of influence is less easy to determine; in some of our cases, however, the act may have been influenced by painful emotions associated with the recent development of impotence; in a few instances sexual excesses and acute venereal disease were noted. Lastly, as bearing closely upon the subject, may be cited the tendency to delusions and hallucinations of sexual content which characterizes the alcoholic insanities in both sexes.

Conclusion. — The inferences suggested by these observations may be summarized in the following propositions:

1. { The suicidal impulse associated with alcoholism rarely appears until the intoxication has attained a certain chronicity.

2. In a very large majority of instances the chronic alcoholic makes the attempt during a bout of drunkenness; and in considerably more than one-half of such cases there is amnesia of the act. }

3. In the suicidal alcoholic the chronic intoxication expresses itself, on the one hand, by a variable degree of dementia; on the other, by generalized disorders of function — these disorders of function in viscera which furnish the organic basis of the personality determine a depressed emotional tone, from which the suicidal impulse takes its origin.

4. The generative organs, especially in women, are peculiarly susceptible to the alcoholic poison, and their disorders play a very important part in producing these emotional alterations of the personality which precede and determine the suicidal tendency.

ALCOHOLIC HYPNOTISM.

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Of all diseases which have the most numerous incidental and indirect evil effects, none perhaps is more conspicuous than alcoholism. It weakens the normal resistance of the body to most diseases. We used to hear a well-known Paris surgeon say to the students: "Gentlemen, this man has been a drinker, which complicates his chances of recovery."

But alcoholism is a still greater evil on its sociological side. The police-court platitude, "Ten dollars or thirty days," is most often pronounced upon the poor. If the unfortunate wife struggles to furnish the ten dollars, it signifies taking from herself and children their very life blood. If her husband is imprisoned, she loses his support for thirty days; this means less food and raiment, where already there may be criminal deprivation; in either dilemma the innocent mother and children almost forfeit the rights of existence.

But alcoholism also develops criminal tendencies in certain individuals, which they seem to be unconscious of. We refer to criminal acts committed in a condition of alcoholic hypnotism or somnambulism.

Somnambulism may be one of the deeper stages of hypnotism; it may be regarded as auto-hypnotism, where the subject is acting out his dreams.

Somnambulism may be defined as the condition of an individual who seems to act in a normal manner, who performs acts relatively complex, but has no knowledge of what he does, or at least does not preserve any memory of it. As everyone

knows, this state is met with either under color of an accident in some sort of idiopathic condition, as natural somnambulism, or one is under the influence of hypnotism or hypnotic somnambulism.

Alcoholic somnambulism is important from the legal point of view. That alcohol, in certain quantities, can produce at least a fleeting oblivion, an eclipse of memory, is a fact demonstrated by daily experience. Everyone has heard it said, if he has not proved it himself, that when intoxicated a man goes home, opens the door, and goes to bed — all this without the least consciousness or slightest remembrance of it. This same forgetfulness is shown in alcoholic delirium. The phenomena of *amnesia* are much more common than it is thought. Vetault gives a number of facts to show that this is the rule under the influence of profound alcoholic intoxication. When there is violent delirium or an approach to noisy alcoholic frenzy, when homicidal impulses of irresistible brutality have sway, there is, upon awaking, no remembrance of the acts. The forgetfulness is as complete as that which follows the paroxysm of epileptic fury, with which the paroxysm of alcoholic fury has numerous points of resemblance.

Francotte says he has examined several accused persons who, having acted under the influence of alcoholic delirium, affirmed that they had retained no memory of the incriminating act. Their recital, and the circumstances surrounding the deed, tended to demonstrate their sincerity.

In the case in point, the phenomena of drunkenness and the symptoms of alcoholic delirium are a proof, or at least an exterior manifestation, of psychic trouble which has given place to forgetfulness.

We give a number of cases* illustrative of alcoholic somnambulism. The first is a case of amnesia, whose genuineness cannot be suspected. P., twenty-eight years of age, was brought to an asylum on Wednesday in the afternoon. The

* Reported by Francotte, Bulard, and Bouchet.

police found him on Tuesday, in the morning, at a public place in the city. He had amused himself some time by playing on the doorsills of one of the houses with his watch, with pieces of money, and other small objects. In spite of all efforts to induce him to speak he did not reply to a question. He seemed to have lost completely the use of speech and hearing. He had the appearance of an idiot.

The physician called declared that the subject appeared not to hear what was said to him. It was impossible to draw from him a word; general sensibility seemed abolished.

Neither the police nor the physician thought the affair a case of intoxication. There was nothing characteristic in his manner of walking. He was sent to the asylum. On his entrance the brother guardian did not suspect him of alcoholism. The patient could not speak or see. They thought he was blind because his pupils did not stir when a handkerchief was waved before his eyes; his look was fixed; his expression lifeless. They offered him something to eat. At first he refused without speaking or otherwise expressing anything. When they prevailed upon him to drink a cup of coffee and eat a little bread, he seemed to awake from a dream, demanding where he was.

On Thursday he was perfectly himself. He said that on Monday, having already drunk a good deal of alcohol, in the evening he entered a café in a street. There he found a friend, with whom he took several drinks. He left the café, not knowing how, and from that moment memory failed him.

Consciousness only returned Wednesday afternoon. He remembered what had happened since then and previous to that time.

It was in vain that they sought to awaken any remembrance. Memory preserved not the least vestige of any event occurring between Monday evening and Wednesday afternoon. The subject declared that for a long time he had been given to alcoholic excesses. At the beginning, especially, he

had had frequent attacks of the "drink fever." He had been very drunk two hundred times, he said; but nothing like this had ever happened to him. He persisted in the belief that his companion had put something foreign into his drink. It had never made him seriously ill, nor caused any trouble. His complexion was anæmic. There was a slight trembling of the tongue and hands. He showed different signs of degeneracy: ill-formed skull, unsymmetrical ears, etc.

There was no notable point of anomaly in his mental state. One of his sisters had been in the asylum, where she died. She was insane and had nervous attacks.

Here was a state of unconsciousness, of amnesia, brought on by alcohol and lasting nearly forty-eight hours.

Certainly, this case had nothing to do with somnambulism. The appearance of the subject was far from being normal. He was in a kind of stupor. But, on the other hand, he did not present the appearance of a drunken man, and he had preserved a certain motor activity.

We give below a number of examples of alcoholic somnambulism.

A certain man was accused of cheating, committed under the following circumstances: Several times, and in different localities, he entered an inn or café, ate and drank, and then went away without paying his bill, or he refused to acknowledge his account when it was presented to him. His father was a drunkard. At the age of fifteen years the son began to drink and indulge in many excesses. From the beginning, after these errors, the patient had, he himself said, troubled thoughts. He was conscious of this, but, not being incoherent in writing or speaking, no one perceived it.

Later, he showed such marked mental trouble that they thought of sending him to an asylum. It was utterly impossible for him to recall what he had done for fifteen days. He remembered only that at this period of his existence he dreamed of riches, of treasures which he would discover.

After still greater excesses, he told of them himself; he was tormented, disturbed, preoccupied. He imagined people followed him.

At last, one lovely day — he could not recall whether it was evening or morning — he set out for a city where he was to spend the night, then, always possessed by the thought of people following him, he took at the dock-yard a ticket for the first station on the road.

He did not stay there, but went to the country of his father, where he gave himself up to excess in drink. He could not tell how long he remained there. He stayed with a paternal aunt, who drank also. It was, so to speak, a hereditary habit in his father's family. He could not recall how he left his aunt; and from that moment memory completely failed. He could not recall what had happened, and no matter how he was pushed or questioned, having returned to his senses, he did not vary in his statements.

As to other places where they accused him of having been and left without paying what he owed, he invariably affirmed that he had no remembrance of any such thing. "I do not deny it," said he, "since the justice says so; but I do not recollect it at all."

It was impossible for him to recall how he got to a place. He found himself in prison, and from that moment his memory was a little better.

His previous life he related quite well. Persons who had seen him during the period when the incriminating acts had taken place had noticed no sign of mental trouble. During his sojourn at the asylum there was evidence of special hallucinations of a terrifying nature, and ideas of grandeur and wealth.

According to Lentz, epileptics, after violent fits, talk in a coherent way, conducting themselves with every appearance of reason, and yet there exists at the time absolutely no inward consciousness. Their conduct is only a succession of actions entirely automatic, in which consciousness has no part, but

which, as in somnambulism, still preserves some connections and seems at first the result of determinate intellectual combinations.

As an example we give H., a case of Lentz, aged twenty-three years.

The father of H. almost constantly drank; his mother was irritable and violent.

With a companion he spent the whole night going from saloon to saloon. The next day they went to the country. They met a woman seated on the roadside. He drew a knife which he had been using to clean his pipe: "Woman," he cried, "I'll kill you; save yourself, woman, or I will kill you!" The woman was saved; but at the same moment three workmen appeared at the turn of the way. Henry threw himself on them and struck them successively with the greatest rapidity. After this murder Henry was calm. He walked on, and turning to his companion said to him: "Are you going?" But upon cries of "Murder!" and "Assassin!" he threw away his knife, ran from his pursuers, fell an instant before an obstacle, rose, entered the town, went to his home, and there in the greatest confusion undressed and went to bed.

Being awakened from a deep sleep he replied with strong protestations and violent despair.

Henry was not arrested until the next day. He manifested the greatest astonishment and complete forgetfulness of all that had transpired since he left the last alehouse.

He was condemned to ten years of solitary confinement.

In all these observations we notice the presence of somnambulist elements: unconsciousness, amnesia — activity relatively complex joined to a normal appearance. If we closely examine the observations, we find the indication of certain anomalies of conduct and character having existed during the somnambulist state. Doubtless, the subject would reveal disorders more marked still if he could be examined closely by a competent person. Simple somnambulism itself resembles

very imperfectly an individual awake and of sound mind; what characterizes it especially is immobility of countenance, fixed look, haggard and dim eyes. Similar peculiarities are found among hypnotized somnambulists and probably in all forms of somnambulism. Those who have had occasion to observe subjects in a state of hypnotic somnambulism must have been struck by the transformation which the countenance undergoes, the general surprise, at the moment of passing from the hypnotic state to a waking condition.

It is not less true that the appearance of the somnambulist is that of a man awake and conscious. But in legal medicine, the expert not being present at the moment of the crime, we must be satisfied with the deposition of witnesses usually not at all familiar with such delicate observations. It is necessary to be certain; for these normal appearances by no means exclude unconsciousness, forgetfulness, and consequent irresponsibility. A man who acts reasonably does not necessarily act rationally or consciously; he may be in a state of somnambulism.

It is not true that the effect of intoxication may always be one and the same; that the man who stands straight, walks, and performs certain acts with the appearance of reason cannot be essentially troubled in his consciousness and free will, and should be regarded as responsible for all his actions.

Forgetfulness does not necessarily imply absolute unconsciousness. Observation of facts concerning sleep demonstrate the contrary. We are conscious of having dreamed and vaguely conscious of the subject of the dream. If we fix our attention and immediately recall these memories, we can often put together the fragments of the dream. On the contrary, if upon awaking we follow our occupations, the light traces left in the memory by the subconscious activity of sleep are effaced by the conscious acts of waking. In making judgments of such cases one must take account of previous attacks of somnambulism. All incriminating circumstances should

be carefully established. In questioning the witnesses the slightest signs of mental perturbation, such as expression of countenance, look, and attitude, should be noted.

A great many cases of alcoholism cannot be cured by any method whatsoever. The claim of certain charlatans that they succeed in curing 90 to 95 per cent. of cases of this malady shows great dishonesty on their part as well as ignorance and credulity on the part of the public. Experience with many vaunted remedies has shown that, when they effect a genuine cure and not merely a temporary improvement, the result is due to suggestion, which is largely, though indirectly, fused in all these methods of treatment. In the cases cited in Lloyd-Tuckey hypnotism was almost exclusively used. Among the chief causes of alcoholism are :

Bad health, principally when it is accompanied by insomnia and neurasthenia.

Overwork, when the patient resorts to alcohol to stimulate his failing energies.

Anxieties and cares, which he seeks to forget temporarily; influence of environment, and bad example, and hereditary predisposition.

The cause of the difficulty must first be discovered. Attention to the general health, freedom from care, change of associates are sometimes sufficient in themselves to effect a cure. In cases where something else is necessary, hypnotic suggestion may be a moral and mental tonic.

In cases of hereditary dipsomania hypnotism is perhaps the only remedy which has any chance of success.

Of nineteen dipsomaniacs treated by methods other than hypnotic, not one was permanently cured. Of sixty-five cases in which hypnotism was used, twelve were completely cured, thirty-nine temporarily cured, or greatly benefited, and in ten cases no result whatever was obtained.

The governments of several countries have placed obstacles in the way of the use of hypnotism as a curative agent. In

France the practice of hypnotism and all that pertains to it is forbidden to all military physicians. In Russia it is allowed to all physicians without exceptions, on condition that two physicians assist at all the experiments. The operating physician, furthermore, must make immediate report to the medical bureau of the methods he has used, the results he has obtained, or the results he has attempted to obtain, and the names of the assisting physicians. Such restrictions are equivalent to prohibition.

Packiewicz says he is convinced that hypnotism is the most innocent therapeutical agent, and is not in the slightest degree dangerous. Twelve years of experience in hypnotism, during which time he has had more than twenty thousand sittings, have brought him to this way of thinking. The fact that the contrary opinion is current is due, he thinks, to physicians who are incompetent to practice hypnotism properly, and in bad faith preach against it. In nervous and mental diseases hypnotism is a very powerful curative agent, and no specialist ought to neglect to use it. Many competent neurologists agree with him that hypnotism in the hands of physicians is harmless. They are Bérillon, Bernheim, Danilewski, Delbœuf, Dumontpallier, Eulenburg, Forel, Janet, de Jong, von Kraft-Ebing, Liébeault, Moebius, Moll, Morselli, Obersteiner, von Schrenk-Notzing, Tokarski, Lloyd-Tuckey, Wetterstrand, Vogt, Voisin; all these physicians use hypnotism in their practice, and have not met with any serious accidents.

THE CRAVING FOR STIMULANTS.*

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Mankind all the world over show a liking for stimulants in one form or another and not infrequently this liking takes the form of a veritable craving. There is something almost weird in the fascination which stimulants have for mankind. Neither place, nor race, nor epoch makes any difference. From Noah who planted a vineyard, "drank of the wine and was drunk," down to the latest-discovered African savages greedy for the traders' "fire-water"; under torrid zones and amidst arctic snows, among black and brown, and yellow and white, alike barbarian and civilized — always there is the desire, amounting often to a craving, for stimulants in some form or another. Most often the desire is for alcohol, the most protean as well as the most potent of them all, but it is by no means confined to alcohol, as the most extraordinary increase in the consumption of tea and coffee in this country during recent years bears witness. No doubt their agreeable flavor has much to do with the popularity of these, but it is also attributable, and I believe to a much greater extent, to their reviving and stimulating properties. Many people, and especially women, will tell you that they cannot do without their morning cup of tea, and this not so much because they enjoy drinking it as because they are set up and revived by it.

Now, this wide-spread desire for things stimulating cannot be a mere isolated phenomenon having no relation to other facts

* Read before the Society for the Study and Cure of Inebriety, October, 1899, London, England.

of physiology. We should expect it to stand in relation to some physiological principle, and I believe it does — that it is, in fact, the manifestation of a very widely operating physiological principle — namely, that *stimulant substances are normally present in the animal organism and exercise a beneficial influence on function.*

But first we must attach a definite meaning to the word “stimulant.” A stimulant is something which, while it does not yield energy (or, if so, in altogether insignificant proportions, as in the case of alcohol), yet renders it available. In other words, it converts potential into actual energy. Let me illustrate this. When by the whip or the spur we urge on a flagging horse we are making use of a stimulus, and it is clear that we do not increase the stores of energy in the animal; we merely unlock supplies already existing. And in like manner, when by alcohol, digitalis, passive exercises, hot applications, or what not, we stimulate a failing heart, we do not infuse new power into that organ, but rather compel it to manifest energy which it already has.

Something more, however, is needed to complete our definition. A stimulant not only renders energy available, but it has also a very definite effect upon the mental individual — it tends to promote the feeling of well-being and to produce a general exaltation; to cause exhilaration or even mild intoxication. We may therefore define a stimulant as something which, while rendering stored-up energy available, tends at the same time to evoke a feeling of well-being, exhilaration, or even slight intoxication.

Stimulants may be broadly divided into two classes — those which act chemically through the blood, such as alcohol, and those which act in other ways. Among the latter we may mention the following: a sudden sharp sting upon the skin, as exemplified by the whip and spur, the application of ammonia to the nostrils, and the external application of heat or cold (thus, a warm poultice to the region of the heart stimulates,

and cold air acting upon the skin and lungs may be very stimulating after a lengthened sojourn in a stuffy atmosphere). Again, exercise, such as dancing, may be highly stimulating; or the stimulating agent may operate through a mental channel, witness the effect of martial music (Napoleon helped his army across the Alps by means of the big drum), of good news, an exciting story, jovial company, and the return of a long-absent friend.

Exactly how stimulants, chemical or other, effect their result need not detain us. Doubtless, they operate largely by acting on the heart and blood-vessels and accelerating the circulation, notably of the central nervous system; but many of them produce their effect chiefly by their direct action upon the nervous system itself. The thrill of elation excited by stirring music is primarily due to an excitation of the auditory expanse; and the stimulating effect of external cold is not merely due to its influence on the vaso-motor system, but to a direct action on the nervous system through the cutaneous nerves. Again, in the case of the chemical stimuli operating through the blood, the influence of the nervous system is, I take it, mainly a direct one. Thus alcohol, like strychnine, has a selective action on the nervous system and plays upon it much in the same way as a player upon a musical instrument.

In this paper I, of course, deal only with the chemical stimulants. Among them it will be convenient to include not only such stimulants as alcohol, but all substances which tend to brace up the nervous system and to produce a feeling of well-being, even though they do not intoxicate, for it is practically impossible to draw a sharp dividing line between an intoxicant like alcohol and certain non-intoxicating alkaloids of which strychnine may be taken as an example. And the first proposition which I shall seek to establish is that the blood normally contains a number of substances of this description — that is to say, over and above the energy-yielding food-stuffs (albumins, fats, and saccharides), certain salts known to be

essential to life, and the deleterious waste products, the blood contains a number of substances which exercise a beneficial influence on function, and my contention will be this, that except in the case of the "internal secretions," the part which these substances play in physiological processes has been overlooked. For the sake of convenient description I will provisionally term these substances "drug substances."

And, first as to their source: (1) they are taken in with the food; and (2) they are manufactured within the body.

Food contains, in addition to nutrient materials and salines, a number of drug-substances. It is scarcely necessary to remind you of their abundance in vegetable food. I shall refer only to the stimulant substances contained in the food we consume. Many kinds of food contain them in abundance, but of all foods meat is the most stimulating. If we cut beef into small pieces and allow it to infuse in water we dissolve out a number of soluble substances, and the infusion is frequently given to patients, under the name of beef-tea, in the belief that it is highly nutritious. As a matter of fact, however, beef-tea, even when made after the most approved fashion, is only of very moderate nutritional value. It acts essentially as a stimulant. It is clear, therefore, that when we eat meat we not only take nourishment and salines, but a considerable quantity of substances which yield no energy but which yet have a reviving, stimulating effect; and there can be little doubt that the popularity of meat as a food with us Westerns does not merely depend upon its being a highly concentrated food, but also upon its being charged with stimulating substances. It is said that a meat diet is more sustaining than a non-meat diet of equivalent nutritive value, and the statement is so far true that many people feel far more refreshed after a meal of which meat has formed a part than after one from which it has been excluded. Some have sought to explain this on the supposition that meat remains longer in the stomach than other foods and thus gives rise to a more lasting sense of

repletion. But even granting this, it is certain that the reviving effect of meat is largely due to the stimulants which it contains, these being rapidly absorbed into the blood long before the albuminous part is digested. I find that no matter how much nourishment I take for lunch, or how richly nitrogenous, I do not feel properly sustained and capable of close brain-work in the afternoon unless I take some meat. This is, no doubt, a confession of weakness. That it is so is shown by the fact that when in the country doing no brain-work I can quite comfortably forego the midday meal altogether, but under the more artificial conditions of town life, coupled with active mental work, some sort of stimulus seems needful to get the most out of the organism. This in the case of a more perfect organism would, doubtless, not be necessary. How stimulating meat is is shown by the fact that it may induce a veritable intoxication. Dr. Dundas Thompson once saw a tribe of Indians, whose customary fare was vegetarian, actually made drunk by a feast of meat. It was clear, he says, from their gibberings and gesticulations that they were in a state of intoxication.*

Again, the greater ferocity of the carnivora compared with the herbivora is closely connected with the fact that a meat diet is more stimulating than a vegetarian diet. Doubtless, this difference in temperament is to some extent inborn, ferocity being helpful to the carnivora in their search after food; but that the meat diet promotes it is proved by our being able greatly to influence the temper of an animal — a dog, for instance — by regulating the quantity of meat entering into its dietary.

Meat, however, is not the only kind of food containing stimulants. Fish contains them, though in smaller quantities, and some vegetable foods are quite rich in them. I have seen children hilarious and excited — mildly intoxicated, in fact —

* "A Treatise on Food and Dietetics." By F. W. Pavy, M.D., London, F. R. S. Second edition, p. 499.

after a purely vegetable meal. It is well known that maize, beans, and oats constitute a highly stimulating diet for horses. The stimulating value of these foods is about in the order given, maize being the most and oats the least stimulating, and it is an interesting and significant fact that if a horse be offered a handful of each of the three it will eat the maize first, the beans next, and the oats last of all. How stimulating maize is is shown by its exciting effect. If a horse is fed on it for some time and without sufficient exercise, it will simply kick and rear in the stable. This stimulating effect is taken advantage of when it is required to work a horse under high pressure for a short period. Thus, if we wish to trot a horse at high speed for say thirty miles twice a week we should give it some good feeds of maize or beans beforehand; but if we were required to do a steady trot of, say ten miles daily, we should give oats preferentially.

The various articles of diet might, indeed, be classified according to the quantity of stimulants which they contain, and in judging of the value of a food we have to take into consideration not only how nutrient, but how stimulating it is. We must ever bear in mind that the purpose of food is not merely to provide so much nutrient and saline material. Animals select food for its stimulating as well as for its nutritive properties. I have already remarked that it is so in the case of the horse, and I have observed the same with the tortoise, which shows a predilection for such herbs as dandelions and poppies (opium in small quantities is stimulant).

We may refer these to two classes: (a) the internal secretions — *i. e.*, substances of the nature of drugs especially manufactured by special tissues; and (b) substances formed as by-products in the process of digestion and in the vital processes of the tissues generally, such as the animal alkaloids (ptomaines and leucomaines), uric acid and kreatin.

(a) *The internal secretions.*—These act much like drugs. Thus the thyroid secretion produces, when present in excessive

amount, symptoms very much like those which may be produced by drugs — *e. g.*, palpitation, tremor, and flushing. The adrenal secretion, again, is very drug-like in its action. The Pharmacopœia contains nothing so capable of constricting the arterioles and augmenting the blood-pressure.

(b) *Drug-substances formed as by-products during metabolism.* — We are apt to regard these substances as necessarily deleterious or at least negative — *i. e.*, neither beneficial nor harmful — but the assumption does not seem to me warrantable. We hear a great deal about the toxic effects of certain compounds produced in the body, more especially those formed during the process of digestion, but it must be remembered that many substances which are poisonous in large doses, such as strychnine and morphine, may in small doses be highly beneficial, and it is possible, indeed probable, that the admission of a small quantity of some of these so-called toxins into the circulation may likewise do good. These observations apply not only to the by-products of digestion but to a multitude of kindred substances produced during the metabolism of the tissues and hitherto looked upon as deleterious and requiring to be rapidly eliminated or neutralized. If this view be correct we must regard the body as carrying on a veritable drug manufacture by which is produced a number of substances acting much in the same way as the drugs which we administer. These bodies influence function in various and definite ways, and it seems to me highly probable that the organism makes use of them to regulate and control it. Are we to suppose that the vaso-constrictor influence of the adrenal secretion is never utilized by the organism? And does it not seem much more probable that the bodily functions are to a large extent regulated by means of such chemical substances circulating in the blood? To me it seems probable that we have here a partial explanation of the therapeutic influence of drugs, that many disorders, especially the minor ones, are to be associated with some defect in these drug-substances. The

instinct, so prevalent among animals, to seek out drug-containing herbs points in the same direction.

Now, among the drug-substances of the blood are many of which the action on the nervous system are stimulant and tonic. The organism, in fact, produces stimulants. I do not go so far as to say that it is provided with a distillery of its own, although as a matter of fact vinous fermentation may occur and alcohol be produced in the stomach; but I do say that a number of stimulating and tonic substances are produced, and seeing that others are ingested with the food we must conclude that they are normally present in the blood, and if normally then for a definite purpose. That purpose, I suggest, is to exercise a beneficent influence on function, and I believe them to be largely concerned in the genesis of the feeling of well-being.

The feeling of well-being or ill-being, I would first observe, is a purely mental phenomenon, and there is no necessary correspondence between it and the condition of the bodily health. The feeling of strength and vigor is not necessarily the outcome of actual strength any more than is the feeling of weakness the necessary outcome of actual weakness. A person may be weak to a degree and the sands of life almost run out, and yet feel overwhelmingly strong and exuberantly happy; and, on the other hand, when in sound and vigorous health he may feel exhausted and depressed.

Feelings rise into being in connection with the nervous system. Whether a person feels well or ill depends on the structure of his nervous system, and the way in which it is played upon, for like a musical instrument, it may be made to give forth gay music or sad.

Sensory nerves are distributed to practically all parts of the body and terminate in the tissues as so-called end-organs — structures, more or less elaborate, adapted to respond to stimuli of various kinds, the retinæ to waves of light, the auditory expanse to sound-waves, and the various end-organs of the

skin to the stimuli of heat, cold, pressure, and so forth. The end-organs situated in the deeper tissues are less elaborate and are stimulated for the most part by chemical substances dissolved in the fluids bathing them. These various end-organs constitute, so to speak, the keyboard of our sensorial instrument. This keyboard during conscious life is being continually played upon and yields a myriad-noted chord, or cœnæsthesia, which represents the sum total of our sensations at any one moment.

It is true that sensations may be produced by stimulating nerve-fibers in their course — *e. g.*, the optic nerve — or even the sensorial centers themselves — *i. e.*, the cortical visual center — just as sound may be got from an organ by manipulating the connections (equivalent to nerve-fibers) between the keyboard and the pipes, or even the pipes (equivalent to cortical centers) themselves, yet in order to get proper music the playing must be done on the keyboard. Similarly, in order to get the complete and perfect sensorial chords from our sensorial instrument, it is necessary that it should be struck through the sensory end-organs constituting its keyboard. This is especially the case with the organs of special sense, as those of sight and hearing; where the stimulus consists of chemical substances dissolved in the fluids of the body it is probably not so necessary that it should act through an end-organ, and it seems more likely from what we know of the selective action of drugs that it may act upon the sensory fibers or centers.

As the result of the operation, then, of stimuli upon the sensorial nervous system — chiefly upon the end-organs, but in the case of chemical stimuli circulating in the body-fluids upon the sensory fibers and centers as well — a chord of sensation is produced. This, the cœnæsthesia or sum-total of sensations felt at any one moment, is practically the sense of being alive. If we eliminate the special-sense sensations, especially the more intellectual — *viz.*, sight, hearing, touch (of fingers) — we have the sense of mere organic existence. This consists essentially of a chord of organic and cutaneous

sensations, and it is upon it that the sense of well-being or ill-being mainly depends. If a harmonious chord is struck, there is a sense of well-being of which there may be various degrees, from a feeling of comfort and content to one of exuberant strength with its emotional accompaniment of overflowing spirits. If a discord is struck, there is a sense of ill-feeling, with its emotional accompaniment of depression, and in this case also there are many shades.

It will be observed that I attach more importance in the genesis of the feelings to the way in which the nerve-instrument is played upon than to the nature of the instrument itself. Doubtless, the organization of the nervous system and the state of its nutrition to some extent determine what kind of music it shall give forth — *i. e.*, there may be some sensorial instruments prone by their organization to yield gay music and others adapted rather for melancholy tunes; but whether the music shall be sad or gay depends, in my opinion, upon the way in which the instrument is played rather than upon the nature of the instrument. Even though one may be inclined to attribute the native or root temperament to congenital peculiarity in sensorial organization, we can scarcely doubt that the varying modifications of feeling that take place from day to day and from hour to hour depend upon alterations in the playing of it — *i. e.*, in stimuli — rather than upon alterations in its structure. Especially do these remarks apply to sudden and abrupt alterations in the feelings.

These stimuli are, as far as concerns our present inquiry, essentially chemical. By means of chemical substances present in the body fluids, the sensory system of the skin and deeper structures, but especially of the viscera, is played upon, and there ensues a feeling of well-being, ill-being, or apathy, according to the nature of the chemical substances present. These we may broadly divide into the beneficial and the injurious. The former, consisting of stimulating and tonic substances, operate in the direction of pleasure and tend to call forth a sense of well-being with an emotional accompaniment

of happiness and elation; the latter operate in the direction of pain and tend to induce a feeling of ill-being with its painful emotional accompaniments of gloom, irritability, or what not. They each play upon the nerve instrument, and according to the preponderance of the one or the other we have harmony or discord, while if they neutralize one another there is simply apathy or a negative feeling. Chemical stimuli of some sort I believe to be necessary to a definite feeling of well-being. In their absence I imagine there would simply be indifference.

The position, then, which I am inclined to take up is this: — Assuming the normal system to be structurally normal and well-nourished, and the blood to contain the necessary nutrient substances and salines, and to be free from the drug-substances which act as stimuli, the individual will feel neither well nor ill, neither elated nor depressed — he will be in a neutral state. In order to get either the one or the other the sensory nervous system must be stimulated by chemical stimuli. The mere nutritive interchange between the nervous elements and environing plasma does not suffice.

I am not, be it noticed, contending that the chemical are the sole stimuli engaged in the genesis of well-feeling. As I have already pointed out, there are several which act in other ways than by chemical irritation. Thus, music and good company may stimulate and so promote well-feeling and happiness. But there are occasions when no stimulant of this kind will suffice. This is certainly the case when the blood is surcharged with depressing toxins; and I believe that we may go further and assert that not the most exhilarating music or most jovial company can make a man feel downright well and buoyant unless the necessary drug-substances are present in the body fluids.

It is generally acknowledged that a feeling of malaise accompanied by mental depression may result from the presence of poisonous substances in the blood; the facts in favor of this conclusion are overwhelming, and I will merely refer to the

effects of a blue pill and black draught. But the necessary dependence of well-feeling upon chemical stimuli operating in the opposite direction has never been asserted.

That stimulants such as alcohol and tea are capable of generating the feeling of well-being is well recognized, but what evidence have we that such substances are normally present in the body? First, there is the fact, already insisted on, that stimulants are necessarily ingested with the food. Secondly, there is the evidence that the body generates stimulants and allied substances, and that I may not be charged with asserting without giving proof I will now summarize this evidence. The chemical substances produced in the body can, many of them, be isolated and their physiological effects experimentally investigated, and some of them can be shown to act as stimulants. Even uric acid, which is supposed by some to be purely toxic, is found when swallowed to have a stimulating effect. But the most interesting evidence in favor of the view for which I am contending, is afforded by the observation of disease. It sometimes happens that a nerve-storm — *e. g.*, megrim — is preceded by a period of exceptional well-feeling and unusual good spirits. This has by some been attributed to a temporary absence from the blood of some toxin. It seems unlikely, however, that such absence should cause a feeling of preternatural elation; it might conceivably conduce to a feeling of moderate well-being, but surely not to a supernormal degree of it. A much more likely explanation is that it is due to the presence in the blood of some stimulant or stimulants — possibly some toxin which, when present in moderate quantities, stimulates, but in larger quantities depresses and induces the phenomena of the attack; or we may regard the latter as due to “reaction.” This view is in harmony with our knowledge of such a drug as opium. There is first, especially when the drug is given in moderate doses, a stage of mental exaltation, and this is apt to be followed, if the dose be large, by a period of reaction attended by headache and other unpleasant symptoms.

An unwonted feeling of *bien-trê* may attend other diseases.

General paralysis of the insane affords a remarkable example. In typical instances of this disease the patient feels exuberantly well and happy. This was for long a puzzle to me. How comes it, I asked myself, that when the mind-centers are gravely disorganized the patient feels so strong and happy? The answer came from the consideration of the analogy—long since pointed out by Sir Samuel Wilks — between the symptoms of this disease and those of alcoholic intoxication. This analogy seems to me to render it highly probable that the mental exultation of general paralysis is a species of intoxication, and that a poison, or group of poisons, somewhat similar to alcohol, is produced in this disease.

My general thesis that the blood normally contains stimulants, that these stimulants exercise a favoring influence on function, and conduce to, and may even be a necessary factor in the production of, the feeling of well-being, explains the widespread liking in man and beast for stimulating substances. This liking, amounting often to a craving, is the expression of a great physiological principle. When there is perfect health, when the blood is well provided with its proper stimulants and not overcharged with depressants, there is no craving for extraneous stimulants, as alcohol, tea, or coffee. But when it is defective in the one, or surcharged with the other, then is felt the desire for the glass of wine or the cup of tea. In order to obviate this desire we should seek to keep the body at the highest level of health.

The more perfect the health the more perfect will be the composition of the blood, both in respect to physiological stimulants and deleterious toxins. A blood properly constituted in these and other respects will exercise a gentle stimulant action on the nervous system and induce a condition of mild physiological intoxication which expresses itself in a feeling of well-being and happiness — a condition which cannot be bettered. When man ceases to rely on these physiological stimulants and begins to employ artificial ones, he is playing with double-edged tools.

HISTORY OF PROHIBITIVE LEGISLATION.

BY CHARLES MACFIE, M.D., EDIN., BOLTON, ENGLAND.

The crying evils arising from the use and abuse of alcohol are ever present with us, and in no diminishing quantity, and the hapless victims caught in its toils are daily reaching out their hands beseechingly to us to snatch them from the overwhelming embrace of the alluring demon; therefore, we, as a profession, the servants of the public, and yet the masters and teachers of all that pertains to the well-being of the body, whether in health or disease, assume a grave responsibility when we prescribe or countenance the use of alcohol. The effects of alcoholic beverages were as familiar to the B.C. period as they have been since, but we note that the aim of the philosopher and the physician was to promote a condition of body more resistant to the effect of alcohol, or else to help the individual to throw off its evil effects, rather than to encourage habits of sobriety among their clients. We thus have preparatory and recuperative remedies.

In ancient Anglo-Saxon times recourse was mostly had to the treatment of the symptoms of the after-effects of alcohol, such as "swelling of the eyes, unconsciousness, dimness of vision, headache, etc." The methods were mostly derived from ancient Roman practice. The ancient physician, in the treatment of the after-effects had great faith in emetics, and a cold shower bath, followed by a sleep, a shampoo, and the application of various oils or ointments to the head, and a "hair of the dog that bit you," in the shape of various aromatics and stimulants internally — such as in ancient England a small beer, or in more recent times a brandy and soda, or even a

wineglass full of Worcestershire sauce. But governments in ancient times had recourse to repressive measures against the vice of drunkenness. The Egyptians flogged and imprisoned. Nebuchadnezzar, king of Babylon, suffered a peculiar sentence for the sin of drunkenness. In ancient Grecian laws for the wine-bibber the physiological minimum was even then prescribed: "Three cups — one for the health, one for cheerfulness, and one for sleep." Amputation of the legs, and even the death sentence, have been carried out against the excessive drinker. In Turkey molten lead has been poured down the throat of the inebriate, and every form of "iniquity, cruelty, and indignity" has been tried and found wanting. But in our own country many and varied have been the restrictions placed on the lover of his cups, and the powerful arm of the church has been used to enforce them. The law of St. Gildas, enacted at the close of the sixth century, "which sent the drunken monk supperless to bed," was probably the first liquor law in this country; gradually the laws became more severe, until the end of the seventh century, laymen were included in their scope, on whom a punishment of fifteen days' penance was imposed; no drinking was allowed in church or at wakes, and tavern drinking was prohibited to the priesthood.

In the latter half of the tenth century King Edgar instituted prohibition by reducing the number of the alehouses in the villages, and introduced the custom of the peg. The service of the Devil was had recourse to to keep the people sober in mediæval times. In the time of Edward III the most ordinary table comforts were treated as luxuries, even dress was regulated; but it was like stemming the advancing tide with a pitchfork. Local control was then in vogue, and corporations had recourse to all manner of prohibitive measures, such as the Newcastle jacket, the filthy hurdle, ducking in filthy water, the ducking stool, the pillory, the stocks, and the pound, in which three last the culprits were battered with all the filthy token of a jeering public. In the reign of Edward

the First early closing was enforced, and the quality of the liquor assured by the penalties for selling inferior. It was in the reign of James the First that fines were imposed on those who "tarried long at the bar," and the inn-keepers for allowing tippling. Even the use of wines was restricted to those of a certain social status. The dead bodies of drunkards were buried in the highways or else burned. It was in the middle of the seventeenth century that the most repressive measures yet enacted for the reduction of the vice of drunkenness were put in force, and at this time (1662) the excise laws were established, also that ardent spirits came more into use. "O, thou invisible spirit of wine, if thou hast no name to be known by, let us call thee Devil."

From this time onward to the present day there has been a steady increase in the consumption of alcoholic beverages. From the earliest periods to the present day the aim of all the liquor laws has been to control drunkenness amongst the poorer classes. Amongst nations inhabiting the extremes of temperature are now the most sober. Dr. Archdall Reid argues that the most temperate races are the primitive ones who have the dormant desire stirred up to uncontrollable craving after once tasting alcohol, and that the older nations are now temperate because, as he says, "those individuals who most delighted in it (alcohol) were eliminated"; and he instances the Greeks, the Italians, the French, the Portuguese, the Spaniards, as the most temperate of nations. But why not also the dwellers in Arctic regions, who have always been temperate. It is like arguing on the lines of the old Scotchman who denied that anyone ever died from drink, but he had seen many a one succumb in the training. Another author, Bannister, an American, argues much in the same vein that the supremacy has resulted "partly from her system of convict transportation and partly from her drunkenness — the moral and mental weaklings thus shortening their lives and precluding them from bringing into the world other weaklings."

He forgets that the vice of alcoholism takes hold of one mostly at the period when the procreative powers are on the wane. Arguing on the lines of the above one might say why not give the vice a free hand, when it would throttle the weaklings and leave the human race perfect.

My own experience of Portugal is that it is fast being educated in the vice. The wines of Greece are now much less alcoholic than in the past. In Belgium M. le Jeune has introduced a bill in the senate for the diminution of the increasing inebriety by enforcing a reduction of the number of places for the sale of alcoholic beverages, and poor France stands to-day at the head of the "ethylic" nations as the most drunken one. Dr. Debove, as quoted in the *British Medical Journal*, and supported by other officials of departments and jurymen, says that the resources and strength of the country are impoverished by this vice. Quoting figures:

The proportion of alcohol at 100 degrees drunk amounts in Paris to 14½ litres per head (a litre equals 35.196 ounces), in Belgium and Germany, 10 litres; England, 9 litres; Switzerland, 8 litres; Italy, 6 litres; Sweden, 4 litres; Norway, 3 litres; and Canada, 2 litres. France drinks 838,000,000 gallons of wine, 15,787,000 in the United Kingdom, 71,412,000 gallons in Germany, and 32,141,000 gallons in the United States. As to beer, Germany comes out at the head of the list with 1,353,396,000 gallons, the United Kingdom next with 1,251,213,000 gallons a year, the United States with 890,705,000, and France, 199,122,000 gallons a year. Of spirit we drink 40,414,000 gallons; France, 71,895,000 gallons; Germany, 100,364,000 gallons, and the United States, 60,948,000 gallons. In the United Kingdom the consumption per head, taking the average of the alcoholic strength of the different beverages, and calculated as alcohol, was in 1892, 2,392 gallons, and in 1896, 2,447. Last year (1898) whisky was consumed to the amount of 33¾ million gallons, excluding methylated spirit, and that for exportation and for fortifying wines which

amount to at least 9 million gallons more; of beer there was consumed 35 million barrels, and the summary for each man, woman, and child in the United Kingdom in 1898 was $31\frac{1}{2}$ gallons of beer, $\frac{1}{3}$ gallon of spirit of all kinds, and 0.41 gallon of wine, or approximately in money, 68s. to 70s. per head was spent on liquor.

What has been done in recent times to stem the tide of alcohol? Government has shortened the hours of beer houses, and the hours of being open on Sunday for licensed houses have been curtailed; but it has permitted the granting of out-licenses to grocers. This last was introduced at a time when there was a feeling, supported by such men as the late Robert Lowe and Professor Fawcett, that the only way to kill excess in drinking was by having a free and unrestricted right of trading in alcoholic beverages, just as one may in bread and groceries. But the first real step on behalf of the free partaker of alcohol was the introduction by the Legislature of the Inebriates' Act, 1879, followed in ten years by an Amending Act, in July, 1888, our first Act of Parliament on the subject being twenty-five years after an Act "for the Medical Treatment and Control of the Inebriate," passed in the State of New York in 1854. Indirectly from drink, the inebriate may bring himself or herself under the lash of the civil or criminal laws of the country. And lastly, there is the Habitual Drunkard's Act of 1898, which is but yet in its long frock. The medical profession look upon it as a helpful crumb from the legislative table which may lead to a full meal in the near future. Magistrates have suddenly, since the Westmoreland case, awakened to their powers, and having become alive to the fact that a license is but a yearly privilege, are not only more particular as to the character of the applicant for a license, but as to whether the applicant is but the machine of a wealthy company.

In this awakening of authorities, whether parliamentarians, the local powers, or the people, a large meed of the credit of what has been done is due to the medical profession.

The drunkard, no matter the degree, is anathematized by the church, avoided by the world, and condemned by the state; but in the drunkard the medical profession recognizes a state of disease. Unfortunately, law and medicine, looking at alcoholism from different points, have hitherto taken up positions diametrically opposed on the responsibility of the inebriate. It is now more than a century since Dr. Rush in America first advocated legislation for the drunkard. Livesy started teetotalism more than thirty years after, and as the profession in the United States has always since taken a leading part in promoting means for the amelioration of the condition of the drunkard, I will take the liberty to mention the names of Dr. Parrish and Dr. Turner, who organized the first home for the special treatment of inebriates. In 1839 in this country Dr. R. B. Grindrod first set out the physical aspect of intemperance and articles appeared from the pens of Sir Robert Christison and Dr. Peddie, but to the late Dr. Dalrymple is due the credit of introducing in 1870 in the House of Commons the first bill dealing with the inebriate. It failed to pass. Drs. Bodington, Alfred Carpenter, and Stephen Alford, and others, helped forward the movement, and, aided by the British Medical Association, the Habitual Drunkard's Act of 1879 was passed, and by the same association the Amended Act was drafted and passed into law in 1888. These Acts led to the recognition of inebriate homes that conformed to the regulations, and to-day there are about 100 inebriate homes in this country and America, but their usefulness has been checked by the many restrictions placed on the individual and the licensee by these Acts, and above all by the restraint having to be voluntarily submitted to. All honor is due to the untiring efforts in the cause of temperance of Anstie, Parkes, Richardson, and Kerr, who have done so much to guide the profession in the path of duty.

RESULTS OF TREATMENT IN ONE THOUSAND
ONE HUNDRED AND TWENTY-NINE CASES
OF ACUTE ALCOHOLISM. DEATH RATE, ONE
AND ONE-HALF PER CENT.*

BY J. K. BAUDUY, M.D., LL.D., St. Louis.

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For many years I have enjoyed excellent, if not unusual, opportunities for the observation of the treatment of all forms of alcoholism. The *official records* of St. Vincent's Asylum show that during the period just named 1,129 cases have been under my professional care, and that fourteen deaths have occurred. As this record embraces all forms and varieties of this disease, both acute and chronic, including also many re-admissions of the same cases previously treated, in which the mortality ought necessarily to be proportionately greater than in comparatively recent or strictly new cases, it occurs to me that the therapeutic means which have contributed to these results well deserve consideration as of the utmost medical interest and importance.

To the frequent re-admissions I attach much emphasis, as bearing directly upon the results of treatment. As a distinguished author observes, "Very few die of the earlier attacks. Each *successive* one becomes more dangerous, because usually occurring in a more debilitated constitution and associated with a greater amount of organic disease." The object of the present paper, therefore, is to more forcibly combat some old prejudices connected with the literature of this subject, and with

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which, unfortunately, the minds of not a few practitioners are still imbued; and to place upon a more solid basis some therapeutical deductions derived from the observation of the 1,129 cases treated in hospital practice as well as, by an attentive study of the natural history of the disease, to modify practices still extant and fraught with danger to the patient. The cases treated were nearly all admitted in the acute stage of alcoholism, not all pronounced cases of delirium tremens, yet requiring medical care for excesses in the abuse of alcohol.

To better elucidate my position I will enunciate certain principles very briefly, which I consider indissolubly associated with the philosophy of the subject we are considering:

1. The various, nay almost Protean, forms of acute alcoholism have, like most diseases, a tendency to self-limitation. I deliberately apply the word Protean to the manifestations of alcoholism as, according to my experience, very few cases present identical features; age, temperament, habit, sex, hereditary predisposition. Idiosyncrasy mould the characteristics of individual cases.

2. Acute alcoholism as well as the chronic variety of the affection results from excess or abuse of alcohol, *not from the sudden withdrawal of the accustomed stimulant, as was formerly taught.* In doses to produce such disastrous effects upon the nervous system, alcohol is not a *stimulant* but a powerful *sedative*.

3. If the first principle proclaimed be true, it follows as a carollary that the most rational plan of treatment must needs be *expectant*; that *forcing sleep is prejudicial* and dangerous; and that, especially, the systematic *administration of opium* is a practice both unjustifiable and fraught with pernicious results to the patient.

As regards the self-limitation of acute and even chronic alcoholism, we have only to open our eyes and carefully watch cases in order to be convinced. I agree with Osler, who states that delirium tremens is a disease which, in a large majority of

cases, runs a course very slightly influenced by medicine. Just as uncomplicated pneumonia, typhoid fever, the exanthematous and other very similar diseases are known daily to recover with little or no treatment except judicious nursing and hygienic surroundings, so will the various phases of alcoholic toxemia tend to rapid recovery by rest, proper diet, and the withdrawal of the noxious agent whose abuse culminated in such unfortunate consequences.

We will admit, for sake of argument, and we shall recur to this point hereafter, that such a successful termination or solution of the cases just alluded to can be accelerated by the aid of measures productive of or favoring elimination, yet in the vast preponderance of cases the *vis medicatrix* is all sufficient, as all the excreting organs, more particularly the lungs, skin, and kidneys, certainly materially aid in this direction.

In fact, Anstie claims "that there is some reason to think that as much as a fourth to a third of the dose taken leaves the body in an unchanged condition within the course of forty-eight hours." Be this as it may, the probabilities seem conclusive that just in proportion to the functional activity, in different persons, of the various organs whose office consists in the elimination of excrementitious material will be the toxic or innocuous effects of the doses absorbed. It follows that in the absence of certain forms of disease, especially *renal* affections, the natural efforts will serve to eliminate the poison.

Secondly. That the various forms of alcoholism do not depend, as was formerly taught, upon the sudden withdrawal of the alcoholic potations, it seems hardly necessary at the present day to discuss; but as some important features of treatment are inseparably connected with the truth of this proposition, I shall cursorily advert to some essential facts.

Clinical observation will prove incontestably that the patient is usually overwhelmed in the midst or height of his debauchery. Abstinence plays, in recently recorded cases, no prominent feature in the history of the outbreak. *The nerv-*

ous centers in consequence of their elective chemical affinity for the alcoholic poison become more impregnated with it and consequently grow more and more intolerant of its effects. Their functional activity becomes proportionately more and more hypercarbonized, their power for the appropriation of oxygen becoming more and more reduced, a period of culmination consequent upon these conjoined deleterious effects is attained, and the phenomena or symptomatic manifestations of alcoholism are developed.

This occurrence is not to be marveled at when we take into consideration the effects of these increasingly toxic doses of such a powerful depressing agent. If, as Anstie claims, we dissect a nerve or a bundle of nerves, and then immerse it in strong alcohol, we shall find that after a certain period the nerve will no longer be a conductor of nerve force, but will become absolutely paralyzed. If, on the other hand, we take only a weak or diluted alcoholic solution, we shall *not* find the effects so deleterious, the paralytic phenomena which ensues will not become so completely developed.

The non-oxidation of the tissues acts as another powerful factor in the development of the symptoms. The red corpuscles diminish, the hydro-carbon of the alcohol appropriates for its own use the free oxygen of the system to a large extent, the blood becomes surcharged with fatty and effete materials, and the deleterious effects of the excessive retrograde metamorphosis, with the constructive efforts reduced to a minimum, sooner or *later* explode, the nervous system bears the principal brunt of the storm, and the phenomena of alcoholism supervene.

Then again we must recall the fact that alcohol in the quantities in which it is imbibed by the drunkard is in no sense a *stimulant*, but a *powerful narcotic sedative*, overwhelming the nervous system with each additional dose more and more, paralyzing the vaso-motor nervous system, and thus superinducing fluxions or hyperemias of the central nervous system, especially the brain.

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Cerebral congestion, the result of vaso-motor paralysis developed by the immediate action of the alcohol, is the *underlying pathological condition* in nearly all cases, which requires the most of our attention, and upon which we cannot place too much stress.

Therefore, as alcohol is dangerous in proportion to its *quantity*, to say nothing of quality, which correspondingly increases its sedative or narcotic or paralyzing effects; how absurd it seems to talk about the withdrawal of an accustomed stimulant being the all-important factor in the superinduction of the phenomena of alcoholism, instead of the *direct poisonous* and paralyzing effects of alcohol upon the nervous system. In the multitude of instances the acute attack merely exhibits in full development, symptoms which had been partially recognizable for a long time previously.

As a matter of fact it had frequently been observed that the sufferer from delirium tremens had ceased to drink for one, two, or three days before the access of his more acute symptoms, and the exhaustion caused by the loss of his ordinary stimulant was supposed to produce these symptoms. Dr. Ware of Boston (1831) was one of the first writers who pointed out that this statement includes a fallacy of observation. From an analysis of one hundred cases he proved that the cessation of drinking, where this occurs, is in fact produced by a feeling of *revulsion* to strong liquors, which is a part of the early symptoms of the acute disease in many cases; and, on the other hand, that very many patients do not leave off drinking at all, but the delirious attack supervenes in the midst of a debauch. This observation has been confirmed by Dr. Gardner and many other excellent recent writers, and at present the classical theory of exhaustion from withdrawal of an accustomed stimulus has but a few upholders.

The expectant plan of treatment is therefore rational; the disease being a *self-limiting one*. In mild cases very little, if any, special treatment is necessary. In severe cases my usual plan is to administer ten grains of calomel, which has the

action of an eliminant, acting particularly upon the portal circulation, and possesses also a soothing, calming effect upon the gastric disturbance, in the very beginning enabling the physician to administer nourishment and other remedies which would otherwise well nigh be impossible, owing to incessant vomiting. Careful nursing and systematic nourishment constitute powerful auxiliary measures in promoting the patient's comfort and cure.

Lime water and milk, and beef essence highly surcharged with capsicum, are valuable agents. The capsicum possesses decided advantages. It quiets the erethism of the patient, promotes digestion and sleep. Its action is obscure, it possibly has a reflex influence upon the pneumogastric. I prefer its administration systematically with *fluid* nourishment, although in a case treated at St. Vincent's my friend Dr. Hodgen administered it in bolus, which was productive of an equally happy effect.

It is rare that I administer bismuth, hydrocyanic acid, and other stomachic sedatives, the habitual dose of ten grains of calomel rendering such measures *useless*. The bromides are given, of course, systematically, generally three times a day, to prevent alcoholic eclampsia, one of the greatest dangers in these cases, to reduce reflex excitability to the minimum, and last, but not least, to obviate vaso-motor paralysis with its consequent attending *cerebral* hyperemia, one of the most common causes of death, whether directly resulting in cerebral or pulmonary fluxions. *At night*, sulphonal or trional are administered in moderate doses of ten to fifteen grains; sometimes in severe cases of insomnia sulphonal is combined with hyocyamine. The nurse is ordered never to administer over two doses. *In other words, sleep is never forced*. If the patient is reported in the morning as not having slept, I do not feel uneasy or anxious to press the hypnotic remedies the following night. In all forms of acute alcoholism it is a rule, admitting of no exception, to at once withhold alcohol in every form and all doses. Large doses of digitalis, formerly em-

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ployed, are not advisable. Tyson recommends in mania a potu alcohol may be withdrawn at once. If necessary to stimulate, give ammonol, aromatic spirits of ammonia, digitalis, and strychnia.

Recollecting the self-limiting tendency of a disease, of which *insomnia* is only a *symptom*, we feel assured that like all other symptoms it will yield as the case progresses favorably. In other words, it does not constitute the crisis of the older authorities on this subject, *nor is it the field upon which the battle is to be fought and lost, or won.* Like the harassing cough of pneumonia or the angina of scarlatina, or the diarrhoea of typhoid fever, it will yield with the arrestation of the pathological conditions which predetermine its existence.

We believe our very low mortality of 14 deaths in 1,129 cases, or one death in 80 cases, or a mortality of a little over one and one-half per cent., is attributable almost directly to this practice of not forcing sleep, and to carefully avoiding the opium treatment.

Dr. Wood in his work on "Practice of Medicine" gives the following mortality: "Of 1,241 cases of delirium tremens in all its forms and stages, and of *intemperance*, expected to end in delirium, admitted to the Philadelphia Hospital, and subjected to a variety of treatment, 121 cases proved fatal, or somewhat less than one in ten." Dr. Aitkin, "Science and Practice of Medicine," vol. 1, article, "Delirium Tremens," says: "Calmeil states the mortality at 5 per cent.; Bougard at 19 per cent. The most accurate records to be got at are those regarding the British troops at different stations.

The late Sir Alexander Tulloch, in his report for 1853, gives the following percentages of mortality among them:

Great Britain, infantry,	17.6
Great Britain, cavalry,	13.8
Bermuda,	15.0
Canada,	7.94
Gibraltar,	13.6
Malta,	8.8
Nova Scotia,	9.1

When a student of medicine my preceptor taught that two grains of powdered opium was to be administered in such cases every two hours. I concluded forever to abandon the opium treatment, for the following reasons :

The idea that patients in delirium tremens require to be narcotized into a state of repose may now be said to be abandoned by those best qualified to speak on the subject.

Large and successive doses of opium are dangerous, because "it has often happened that the patient without even sleeping at all has passed into a condition of coma-vigil, next to stertorous breathing, and at last sunk, fairly poisoned with opium."

Then again the depressing action of opium upon "the *visceral* nerves is well known, impairing and impeding, as it does, digestion, and rapidly tending to *paralyze the action of the heart.*"

Dr. Anstie contends that "in truth the condition of the brain requires that sort of treatment which shall fortify and stimulate its functions. . . .

"The typical member of the group of stimulants is simple, easily digested food. Food is the best of all stimulants, and the successful treatment of delirium tremens in nine cases out of ten depend on the regular and continuous supply of suitable nourishment, whereby the functions of the nervous system are supported during the struggle toward recovery." In addition to the objections already urged to the use of opium, we would add that it constipates and seals up to a great extent the excrementitious channels, thereby checking elimination, upon which, to a great extent, the safety of the patient depends in the earlier stages, and which is so largely contributed to by the large dose of calomel already alluded to, which I never fail to administer, at least once, early in the case.

There remains but one more question to discuss, which we shall summarily dispose of, as our convictions are very decided

in this connection. Should alcohol be administered during the attacks of acute alcoholism?

I answer unhesitatingly, No.

The mischief is effected when we are called to visit the patient, and the physician is not called upon to aggravate morbid states present by giving additional quantities of the poison which has already produced the pathological conditions he is called upon to remove. With the moral features of the question we have no interest in this paper, as we are simply viewing the question in its medical aspect. There are many cases where we are compelled to administer alcohol in moderate and judicious quantities, because the patient, not being absolutely under our control, will not submit to a total withdrawal of alcohol, and the prejudices of his friends and relatives favor his determination. Under such circumstances administer the minimum amount possible. As regards the objection that the sudden withdrawal is injudicious, it is always in our power to recommence should violent asthenic or adynamic symptoms demand its employment. Its use, in suitable doses, as a stimulant and not in sedative doses, will soon compensate for any obviously injurious symptoms produced by its withdrawal in the early periods. Its use when not needed is permanently injurious and its withdrawal later will hardly compensate for mischief produced. At any rate, in all cases we again urge Antsie's advice, who says: "I wish to express the decided opinion that complete abstinence may always be carried out without any immediate danger to life or health, if proper care be taken to substitute a substantially nourishing diet." In very few, nay, most exceptional cases, will we have to resort to its administration, once we have boldly withheld it from the very earliest commencement of our medical treatment.

"In every case, however, I think it is our duty to abstain as long as possible from the use of alcohol, and, before resorting to a treatment of such doubtful propriety, we ought to try less harmless narcotic stimulants."

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INEBRIATES TREATED IN ST. VINCENT'S ASYLUM.

Year.	Admission.
1880,	130
1881,	162
1882,	136
1883,	98
1884,	150
1885,	132
1886,	111
1887,	110
1888,	100
Total,	1,129
Deaths,	14

Death rate, one and one-half per cent. On the whole, four deaths in 500 cases.

To recapitulate the conclusions of this paper, then, we may assert that practical observation upon the treatment prove that

1. Acute alcoholism is a self-limiting affection.
2. Acute alcoholism results not from sudden withdrawal, but from excess and abuse of alcoholic "so-called stimulants," better called sedatives and narcotics in the doses in which they are taken.
3. The expectant plan of treatment is the most rational.
4. Opiates are dangerous, because they additionally derange digestion, and, acting as powerful cardiac sedatives, tend to paralyze the heart, and, finally, because they check elimination, interfere with the normal secretions and digestion.
5. Sleep is never to be attained at risk or hazard to the patient, but is to be expected as one of the harbingers of a convalescence not to be forced.
6. In acute alcoholism, as in many other acute diseases, the *vis medicatrix* is fully adequate in most cases to produce the happiest results.

BIOGRAPHICAL SKETCH OF DR. NORMAN KERR.

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

In the January JOURNAL for 1891 appeared a notice with portrait of Dr. Norman Kerr, and nine years after we write the closing chapter and review the life of one who has been very prominent in his work and writings, helping on the great evolutionary march of the race. The usual obituary notices, resolutions of condolence, and memorial addresses recalling acts and words have been written and published. The glamour of his personality is receding, and Dr. Kerr and his life work appears from another, clearer point of view. In a brief time much of this will be forgotten, and only known to students who seek to find out the early forces which have been influential in this new field of psychology. Even now the question is raised, What has Dr. Kerr accomplished to clear away the superstition and enlarge the boundaries of knowledge in this field? It may be too early to answer this question, and we may be too near to understand the influences which grew out of his work. We can at least note the facts and the conditions of his life, and trace from these how far his persistent energy overcame the obstacles which gather about every new advance. Pioneers and pioneer work can rarely be understood except from a study of the times and conditions in which they were surrounded. Dr. Norman Kerr was born in Glasgow in 1834, and was the oldest son of a leading merchant. After a thorough training in the city high schools he was employed as a journalist on the staff of *The Mail*. For several years he supported himself and continued his studies, finally graduating in 1861 with distinguished honors at the

University of Glasgow. After graduation he became a surgeon on the Allen line of steamers to Montreal and Portland. He remained here ten years, then resigned and traveled extensively in the United States and Canada. In 1874 he settled in London and began a busy general practice, which continued up to his death, May, 1899. Dr. Kerr was twice married, first, in 1871, to the daughter of Mr. Edward Gibson of Ballendury, Ireland, who died in 1892; in 1894 he married the daughter of Mr. James Henderson of Newry, County Down, Ireland. This lady and four daughters, also a son by his first wife, survive him.

From these general facts of his life we turn to some of the incidents which entered into his busy career. Dr. Kerr said that the death of an acquaintance from drink at the age of twelve years made such an impression upon his mind that he resolved to do all he could to save others from the same evil. This was evidently the starting point which roused him to join in every effort in this direction. In 1857, during his student life, he was prominent in establishing the first total abstinence society among the students of the university. Later he founded the Saturday evening concerts as a part of the exercises of the Glasgow Abstainers' Union, which have been kept up to this time. Long before this, in 1853, his name appears as a member of the United Kingdom Alliance. As a surgeon on shipboard he was known as a temperance doctor, and, while not obtrusive in his views, was always ready to discourage the use of spirits as a beverage. In 1875 he joined the English Church Temperance Society and became prominent as a worker and speaker on all occasions. In all these societies he was an active student of the subject from the moral and sociological point of view. Gradually, and by a natural evolutionary process, he came to recognize the medical and scientific side of the disease and curability of inebriety. This subject came into prominence in England through the efforts of Mr. Donald Dalrymple, a member of Parliament,

who, after a period of active agitation, succeeded in having a committee appointed by the government, called the Habitual Drunkard's Commission. This committee gathered the testimony of medical men and persons familiar with the subject in both this country and Europe. Their report grouped and formulated the first exact literature in the English language. Notwithstanding the opposition of many eminent men the facts became more and more prominent, and the discussions which gathered about them only served to fix their reality. The early death of Mr. Dalrymple was followed by the appearance of Dr. Kerr, who took up his work, carrying on to completion the organization of an asylum called the Dalrymple Home, which was the first asylum in England under the government protection. In 1876 Dr. Kerr became an active member of the society for the promotion of legislation looking towards the control and care of habitual drunkards. The president of this society was the late Earl of Shaftsbury, and the first law passed was the Habitual Drunkards' Bill of 1879. Later, the British Medical Association established a legislative committee for the same purpose, making Dr. Kerr chairman of it. In 1898 these two committees succeeded in having a law passed by Parliament giving towns and cities of Great Britain the right to organize inebriate asylums and forcibly confine such persons for medical care and treatment. This law was a great triumph for advanced legislation, and was largely due to the energy and skill of Dr. Kerr. By many of his friends it is considered the monument that will carry his name far down into the future. In 1884 Dr. Kerr organized a medical society for the study and cure of inebriety, and became its president, in which office he was continued up to his death. This was the second society ever organized, and was patterned after the American association, established in 1870. His inaugural address at the formation of this society made a strong impression on the medical profession of Great Britain. Its papers and proceedings have attracted much attention and

have had great influence in forming public opinion in Europe. In 1876 Dr. Kerr became especially prominent in two papers read before the British Medical and Social Science Associations. One questioned "the Value of Stimulants in Hospitals and Workhouses," the other presented a statistical study of the mortality from alcohol. Both of these papers were widely read, and translated into foreign languages, and brought the author prominently before the world as a vigorous thinker and writer. From this time he became a leading student and lecturer on the medical aspects of alcohol and the disease of inebriety. He urged clearly that alcohol was a dangerous remedy which should not be used as a beverage and that drunkards should be studied as sick and diseased. While these facts were not altogether new to the English public, they were regarded as radical and unsupported by sound conservative judgment and science. Dr. Kerr's presentation of them roused new interest and a wider recognition. In 1881 Dr. Kerr delivered an address on Wines, Scriptural and Ecclesiastical, which later was merged into a volume and recognized as a standard work among scholars and theologians. Dr. Kerr organized, and was president of the First International Congress ever held for the study of inebriety. This Congress held a two days' session in London, and was attended by delegates from all the leading countries of Europe and America. Large audiences were attracted, and the daily papers published detailed accounts of the proceedings which were widely copied by the press. Numerous eminent men read authoritative papers, supporting views which had been contradicted up to that time, and the enthusiasm and interest was intense. This seemed to be the great culminating point which broke down the opposition and disarmed the severe criticism which gathered about the subject. The success of this Congress, due largely to the energy and skill of Dr. Kerr, has been felt all over the world wherever this subject has been mentioned. The numerous demands for papers, addresses, and pamphlets were

so great that Dr. Kerr determined to incorporate them in a volume, which was issued in 1886. This was entitled *Inebriety, its Etiology, Pathology, Treatment, and Medical Jurisprudence*, and was the first medical text-book ever published.

This work has reached the third edition, and has become the leading scientific authority on this subject. The popularity which followed these efforts and his book brought him into great prominence in certain circles. The demand for lectures and address was incessant, to which he responded as far as it was possible. With this came also a large clientage of persons who were either victims of alcohol and opium or came to consult about friends suffering from such troubles. Thus year after year the increasing demands on his time and energy, with the care of the Dalrymple Home, and the public and private duties, gave little opportunity for rest. Added to this was a large exacting correspondence from all sorts of persons with all sorts of theories bearing on the drink question which received careful attention. Numerous foreign societies elected him to honorary membership, and in return begged some contribution from his pen.

As would have been expected, this continuous labor and strain told on an excellent constitution, finally developing diabetes. Giving up business, he went to Hastings, hoping that rest and the sea air would restore him. In this he was encouraged for a time, but finally an attack of influenza brought on a fatal result, May 30, 1899. One less earnest and enthusiastic would have reduced the pace long before and thrown off the work and so lived longer. This, Dr. Kerr could not do. He was so thoroughly imbued with the urgency and magnitude of the work that he pressed forward with the ardor of a contestant on the race track. In early life this dominant ambition to combat the evils following the use of alcohol began and grew with years. It was the spirit of that broad philanthropy and love of mankind which, through all the ages, has ever found its highest pleasure in efforts to help on the upward race-march.

In this evolutionary growth the moral and religious side came first into view. Then, from experience and reflection, the larger scientific aspect appeared, and the laws and forces of causation culminating in disease, were recognized. Later, came the stage of half vice and half disease, and, after a time, the theory of the vice-origin disappeared, and the physical and psychical laws which govern the rise and progress of inebriety were discovered and understood. In all this Dr. Kerr was never dogmatic or intolerant of the opinions of others who differed with him. Assertive reformers whose one view of inebriety and its remedies was dogmatically urged were not antagonized, but turned by quiet suggestion to some point of common agreement. He made no argument or criticism when attacked by these enthusiasts, but was always frank and generous in his recognition of their motives and honesty. In this country, the shrewd reformer welcomes controversy and opposition. If the facts are true, the conflict gathering about them is sure to raise them into prominence as recognized truths. In England and older countries controversy is destructive for a time. The dread of new theories, which are revolutionary to old habits and customs, is common. To call inebriety a disease and the inebriate sick and to imply from this that moderate drinkers are either on the border line or over in the realm of disease, was a startling innovation. As long as this theory was promulgated in America, and repeated by a few persons at home, it was harmless, but when an earnest, tactful man like Dr. Kerr, pressed it into practical service and forced its recognition as a truth in science, a protest was made. But this was in a mild form of open denial and silent contempt. Dr. Kerr knew the English public thoroughly, and slowly and wisely through the medium of the profession and the ranks of reformers, he urged the pressing need of physical means and utilitarian measures for the prevention and the treatment of inebriety. All theories of disease and disputed questions were kept in the background, and only immediate means for present

relief were forced into prominence. The evils from the use of spirits and the necessity for the use of most practical means of prevention were facts upon which all classes could agree. The need of legislation to restrain inebriates and the measures to prevent the evils which followed from this class were urged as questions of paramount importance. While Dr. Kerr was clear in his views on these questions, he carefully avoided conflict and concentrated every effort to secure laws recognizing the legal incapacity of the chronic inebriate and the means for his restraint. It was this rare skill and knowledge of human nature which saved Dr. Kerr from becoming the target of acrimonious criticism. The late Dr. Bucknil and others bitterly condemned the American defenders of the disease theory who replied with keen pleasure at the opportunity to keep the subject before the public. Very few persons realize how rapidly public opinion was changing on this topic by Dr. Kerr's quiet efforts in presenting the facts and their meaning along the physical side. All this time he was in constant touch with all the reform movements and their leaders, and was often consulted when unknown as an active promoter. As a leader in this field, Dr. Kerr was constantly consulted on all the strange and fantastic schemes of reform. Every one coming to London with a new reform idea sought his aid. The same tactful faculty listened attentively and dismissed these nomadic reformers without encouragement, but personally pleased. The same tact enabled him to dispose of the enormous correspondence without offending anyone. When once he became convinced of his position, there was no doubt or hesitation. His convictions were always clear, but never obtrusive, and he never showed pleasure in the discomfort of an antagonist or forcing the adoption of his views on the minds of others. His monumental work on inebriety brings out this phase of his personality very clearly. No reformer's strain for effect, and no conclusions from his inner consciousness, which the printed page did not support, and no conflict on disputed questions, but simply plain, practical array of facts, with

the authorities supporting them, is the special marked characteristic of the book.

Dr. Kerr's work, and the position he sustained, was in striking contrast to those of his confreres on the same lines in this country who were forced to become active partisans. Here every effort to push out the lines of the scientific side of the subject has been opposed by reformers, moralists, and even churchmen. Only by persistent conflict has the truth become known, and yet, the quiet efforts of Dr. Kerr, through his work and papers, have been very influential in this country. Facts asserted here and studies based on large generalities are sure of acceptance when they have the support of foreign authorities. In this way Dr. Kerr's papers were helpful in breaking up the opposition in this country, and hence were circulated very largely. Dr. Kerr owed much of his power to a sunny optimism which, while deeply sympathetic with all great movements and changes, was never awed with doubts and difficulties. Life was a cheery, active day's journey, high noon and sun-down were always in sight. He saw the results of the day's work in the morrow's, and repeatedly urged his friends in the same field to incessant activity, assuring them that the future would bring a rich harvest. Dr. Kerr was really a great man, not in the common acceptation, but in the larger meaning of one who acts his part so well that the theme is raised to a higher level and the limits of human knowledge widened. He has helped on the race-struggle from the lower to the higher. He has left the world better, and given form and direction to the efforts to understand the drink problem and its prevention. While his personality and name will disappear, and even his book will pass into forgetfulness, his life and its work will mark the beginning of a new field of study for the benefit of the race.

Our society, and its officers and members, who had the pleasure of a personal acquaintance, will ever retain the most pleasing recollections of Dr. Kerr, and his work on inebriety will continue to teach and reflect his personality far down the coming years to every student of this subject.

Abstracts and Reviews.

MAYOR'S MESSAGE TRANSMITTING REPORT OF ADVISORY COMMITTEE ON THE PENAL AS- PECTS OF DRUNKENNESS.

BOSTON, Nov. 17, 1899.

This report is of double interest, first, as showing the trend or direction that the conscientious study of all questions of a sociological nature, if undertaken in a proper spirit and under competent and unbiased investigation, must eventually, as in this instance, arrive at conclusions which, assuming the form of practical action, produce results alike beneficial to the individual and the commonwealth; and the second point is that this is the first official report, as far as we are aware of, that has emanated from any municipal body that has recognized at least approximately the true relation of the inebriate to the social economy, and it is further gratifying to note that this report has also the official endorsement and sanction of the chief executive of a municipality whose citizens have been from time immemorial first and foremost in all efforts of reform and progress.

This report considers at first the present state of the law as affecting drunkenness, range of penalties, terms of conviction, investigation of cases, arrests for drunkenness, the evil effect of a radical change of the law, by which in 1891 the law "abolishing fines, and giving police officers authority to release persons arrested for drunkenness without order of the court," went into effect, taking away this power to release and restoring the fine system in 1893, resulting eventually in a sort of compromise between the leniency of the first method and the

severity and stringency of the older method. From page 8 to page 13 we have considered at length juvenile arrests, disposition of cases of drunkenness in the municipal courts of Boston in 1898, and in the Superior Court of Suffolk County in 1898, sex, family, and occupation of those arrested, commitments for drunkenness to penal institutions of Suffolk county in 1898, public cost of drunkenness and income from fines for this offense during 1898. Under this latter head it is of interest to note "that the most expensive part of drunkenness to a city is the police work it calls for." "It seems reasonable to suppose that one-half of the total cost of the police department is necessitated by its miscellaneous work." "The prevention and detection of crime is estimated at three-eighths of the total cost, leaving one-eighth for persons who get drunk." "The average cost of each arrest was \$8.04, which tallies closely with some of the itemized estimates submitted, and is wholly conservative." "Next to arrests, the largest element of cost is the maintenance of persons during confinement in the three penal institutions located at Deer Island, South Boston, and Suffolk county jail," varying from \$84.70, the lowest rate per capita, to \$184.69, the highest rate. "The total cost of arresting persons for drunkenness and maintaining those committed to the penal institutions of Suffolk county in 1898" was . . . \$339,502.86. Income from fines only \$23,490.78, making net cost of drunkenness in 1898, \$316,012.08. These statistics and summary are tabulated on pages 54 and 55, and will well repay a careful study.

Under the caption, "Short Sentences," it is shown that the intimate relation between the fine system and the number of short sentences is clearly established, "and that the severest indictment which can be brought against the habitual fining of offenders is that in a majority of cases it resulted in their being sent to prison for short terms."

The law makes the following provisions: "When a convict has been confined in prison or other place of confinement

eight days for fine or for fine and costs not exceeding \$5; twenty days for fine or fine and costs not exceeding \$10; thirty days for fine or fine and costs not exceeding \$20, he shall be discharged."

"When we remember that in four-fifths of the cases the fine for drunkenness does not exceed \$5, it will be seen that the new law practically reduces imprisonment for this offense to eight days or less for all who are committed for non-payment."

From pages 16 to 20, inclusive, the evils of the "short term sentence" are considered in detail.

"The value of imprisonment as a penalty must be measured by its beneficial effects, including the restraining effect of wholesome punishment upon the offender, the exemplary value of his punishment, as a lesson to others, and the reformatory influence of his treatment in upbuilding character and strengthening him for a better fulfillment of social duties."

The "short term sentence" is the manufactory of the "rounder," and without it the "rounder" could not exist.

"The total number of recommitments, no less than the amazing records of institutionalized 'rounders,' whose recommitments are reckoned by scores, make it obvious that a few days' imprisonment is generally no match for the alcohol appetite."

Twenty-three per cent. (see p. 52) of those previously committed were recommitted from 6 to 15 times.

The merely "preventive," "deterrent," or exemplary value of punishment is not sustained by the "short term" sentence — it "fails signally to accomplish its purpose, either as a social or individual deterrent."

"A large contingent in our prison houses consisting of first or occasional offenders; weak, but in no sense criminal. Forty-three per cent. of those committed are first offenders, that is, have never before been sentenced for drunkenness." To commit such a one to the prison is not only to place upon

him the stigma of criminality in his future life, but to surround him with the baneful influences of prison life. Neither does the "short term" cure the confirmed drunkard; it may temporarily "sober him up," but it cannot cure him, and therefore "it does not protect society against the confirmed inebriate," and, finally, the "short sentence" entails "a worse than useless expense" upon the community.

All students of criminal sociology condemn the "short term" sentence, whatever form of crime to which it may be applied, as not only ineffective, but extremely expensive and detrimental to society at large. From page 20 to 21 fines are more fully considered. When the penalty affects others rather than the prisoner himself, and when the fine imposed in ordinary cases of drunkenness inflicts more suffering upon those who are innocent mothers, wives, children than it does on the real culprit, "a most sad instance of vicarious suffering," if the innocent do not thus vicariously suffer, it is generally either because the offender is relatively well-to-do or the payment of the fine or support of the abandoned family is placed upon the overseers of the poor. Again, in the fine we have that unfortunate discrimination between the poorer and the wealthier classes — the rich man pays a fine; the poor man, because he cannot pay, goes to prison.

And now we come to a most interesting portion of the report — the proposed remedy (a substitute for the present unsatisfactory method of dealing with drunkenness as it appears in our large cities), and this is suggested in the experiment of *Probation*.

"No aspect of the present methods of dealing with drunkenness is so hopeful in its results as the work of probation officers."

The statute authorizing the appointment of probation officers by the judges of the several courts was passed in 1891.

Several pages are now devoted to the exposition of the methods of administration involved in the system of pro-

bation, as well as the good results attained thereby. The functions of the probation officer — his day's work, as a friend of the prisoner — the deterrent effects of probation, divergent practices of the courts, endorsement of probation by public officials, etc., endorsement by judges, police officials, heads of penal institutions and other experts, necessity of extending the system, organization for probation work, a metropolitan probation department, etc. After various considerations, especially concerning the value of a probationary fine (a time allowance in which to pay an imposed fine), as contrasted with the evils of the present system, the proposed system, under an adequate staff of officers, and a business-like organization "would be a great financial and moral gain to the community."

The committee believes "that there would be economy in the increased expenditure for probation." Not only would money in the end be saved, but character and reputation as well, "and that the deterrent and reformatory value of probation has everything to recommend it."

In this connection we would call attention to the fact that the principle of probation, as advocated by the committee, is not a mere suggestion or an untried experiment, except so far as the nature of its application is concerned, namely, as applied to inebriates. The "ticket-of-leave" man or the "trusty" of the prison or penitentiary, and more particularly the *parole*, as granted to certain classes, and at certain times for a special period, is a part and parcel of the administration of our large public lunatic asylums, especially in New York state. Practically, the prisoner arrested for drunkenness and put upon "probation" is placed upon "parole."

Dealing with the class under consideration, those that are arrested for intoxication in every large city, we must specialize. It will be impossible to apply any one method governing the arrest and disposal to all cases. Probation deals necessarily only with a limited number. Those given in charge

of the probation officer by the justice are so committed on the ground that the offense is a first one, or that there are certain extenuating circumstances, and, further, that the person shows or is believed to have a guarantee that he has sufficient will-power in reserve to resist future temptation.

But what is to be done for those who are not fitted for the test of probation, or those whose record is that of frequent relapse? For this class there is only one course to pursue — a fixed or indeterminate sentence to a *farm or industrial colony for inebriates* under the care of a *state charities association*, or a special commission appointed for such purpose by the governor of the state. This only is a practical and possible method of dealing with the confirmed inebriate. Such an institution should have a discipline based somewhat on that of the penitentiary system, without its criminal features or necessary severity, combined with a system of rewards and punishments (the latter being largely a deprivation of privileges) and a method of “parole,” now recognized as of value and in practice in the administration of asylums for insane and incorporated in the laws regulating the same.

Some such system embracing leniency in first cases, and under a probationary method, and a fixed or indeterminate sentence, in incorrigible cases, to a farm or industrial colony, under strict and humane discipline, would largely, if not completely solve the vexed question — that of the care and control of the inebriate in our large towns and cities.

It is somewhat strange that this principle, which is based on the fact that there may be some will-power, some strength of character, still left, sufficiently strong to resist future temptation, and place and keep the individual under its influence in a future zone of safety, has not been applied to inebriates before, but it has been applied to criminals and to some forms of lunacy, and this system has worked well, and there is no reason why it should not act as a strong deterrent force in the *earlier forms* of inebriety. The report (p. 35) considers “the

rounder as the product of the present system." To this we have already alluded. He is indeed the product of the police courts as much as alcohol is the product of the distillery or malaria of the pestilential swamp. "Let no one misunderstand this pitiful wretch. The 'rounder,' physically and morally debauched, is the product of the existing system." On pages 17 and 36 stress is laid on the "separation of drunkards from other criminals," on the ground that, although so legally regarded and classified, drunkenness is not a crime "in the sense that it is an offense against person and property." "Isolation of persons sentenced for drunkenness is a feasible first step towards a rational classification of prisoners. The fact is shown that "in the house of correction on Deer Island at the present time over 80 per cent. of the inmates are serving sentences for drunkenness." Segregation, a vigorous, humane, and deterrent discipline, long terms of commitment, are recommended for the committed class — those not influenced or susceptible to the milder method of probation.

"The question of *diet*, that it might be so graded as to discourage the return of chronic repeaters and rounders," we fully agree to, provided it is *perfectly consistent with physical health*. Hard labor and restricted and unattractive diet carried over an indefinite period "would do something, possibly everything, to discourage the return of the 'chronic repeaters' or 'old rounders.'" Would this be "a desirable result," and, if the result was not fatal, where would the rounder go? The fact is that there is a certain amount of permanency and persistency about the average "rounder" that makes him, like Banquo's ghost, constantly in evidence, and the community would still be facing the problem of the "rounder" in Boston or somewhere else.

The conclusion of the committee — that "rounders," or the incurable or incorrigible class, should be subjected to permanent detention under an indeterminate sentence in some

properly appointed place — is the only solution for the care and control of this class.

The report, in conclusion, divides or classifies the various types of drunkards as follows :

First. Accidental and first offenders.

Second. Occasional offenders, but not habitual drunkards as yet.

Third. The still smaller, but more distinctly pathological group of habitual or periodical drunkards, proper subjects for asylum treatment.

Fourth. The smallest and most pathetic residual group of confirmed inebriates; for the more promising of these a most thorough asylum treatment; for the final majority of incurables or incorrigibles permanent detention under an indeterminate sentence.

Finally, we cannot end our brief synopsis of this report without alluding to the fact that all reformatory measures, all progress in the direction of the emancipation of the community from the great evil of drunkenness which lies like a huge incubus on the body politic, can only be accomplished by wise and just legislation, administered by wise and just men. "Public opinion can do much by arousing to the support of intelligent experiment, innovation, and legislation by emancipating officials from the fetters of partisan pressure and political intrigue."

We recommend this report and its very valuable statistics to which we have but barely alluded to all those who are interested in this great problem.

L. D. MASON, M.D.

The physician who announces that he has a remedy for the positive cure of inebriety, both from alcohol and opium, in a given time, and is unwilling to make a test unless a patient is able to pay a certain sum of money, is working among the camp-followers far back from the front line of scientific advance.

**CASE OF MORPHINISM ASSOCIATED WITH
THEFT.**

BY GEO. R. VILLENEUVE, M.D., MONTREAL, QUE.

I have the honor to submit a few remarks in connection with the case of A. B., said to be addicted to the excessive use of morphine, who was brought before the courts accused of theft, and whom I examined a short time ago. The examination into the mental state of A. B. was ordered at the request of persons who knew him and who represented to the court that A. B. was addicted to the abusive use of morphine. On this ground they alleged that he was irresponsible or at least only partially responsible. I should also add that A. B. had a bad reputation before the courts and in police circles. I was also informed that he had already been implicated in a very crooked affair of attempted swindling. They also told me that he did not lead a very laborious life, that his means of living were not very evident, etc. On the whole, they seemed to consider him, and apparently not without reason, as a common criminal.

However, before this last affair, the only one that caused his arrest, they had never had any doubts as to the sanity or responsibility of the accused. The court was also very skeptical with regard to the allegation of his friends.

I was, myself, very much astonished, for I had known A. B. for several years. I had often had him under my notice. I had met him several times and even had long conversations with him. I had never noticed anything abnormal with him, not even anything particular in his speech or his manner of conducting himself that would give me reason to have any doubts as to the integrity of his mental faculties.

A. B. was accused of having stolen some articles of merchandise from a storekeeper. Previous to his arrest he

had visited this store several times and under various pretexts. As each of his visits had coincided with the disappearance of some object, he was strongly suspected, and special care was taken to watch him. His arrest took place in the store. He was surprised in the act of hiding under his overcoat an article he had just stolen and was at once arrested. There was no doubt about the criminal fact. The court was convinced of it; all that now remained was to enlighten them on the responsibility of the prisoner. In this case it was sought to attribute the theft to the influence of morphine, and it is for this reason that I think it will be interesting to recount the circumstances.

The ordinary psychoses, that is to say, the very perversions of the intelligence which constitute insanity do not give occasion for much discussion. Let the malady be acute or chronic, or let it show itself by paroxysms, or let it be permanent, it manifests itself by particular symptoms and proves itself through them, and entails irresponsibility. It is different with intoxications when the intellectual troubles are relative and do not necessarily appear when the fits are intermittent, separated by lucid intervals under the dependency of the action or from the privation of the agent, and when the responsibility is subjected to various appreciations and subordinated to other questions that we might call prejudicial. That is to say that, in the present case, we should not only ask, was the accused insane? but had his mental faculties undergone a complete obscuration at the time of action, owing to the use of morphine? and if it were due to morphine, that is to say, if he was or was not free to put himself in that condition, if he contracted the morphine habit, driven to it by special predisposition or from an irresistible impulse or from being drawn into it some other way; was he in possession of his free will when he gave way to his penchant? Very often, when the "expert" is called, the troubles have completely disappeared or diminished in a large measure. The expert, who is not then a witness, has only to rely on doubtful testimony, and his

retrospective inquiry has not the certainty that a direct examination would have given.

Taking into account all these difficulties, the following contains in substance the report I made to the court :

With A. B. the abuse of morphine dates back some years, but it is not habitual. He had twice already given way to it, and both times had been under the doctor's care and by his treatment had been cured. He then showed symptoms of grave morphinism — complicated probably by the usage of cocaine — delusions, hallucinations, and even a tendency to prostration; so much so that a priest was called to his bedside. The actual attack goes back several months; it began by the medical usage of morphine during a course of surgical treatment, but it was not slow to degenerate into an abuse and was prolonged far beyond his recovery from the surgical operation. The two former attacks began in almost the same circumstances.

This attack, according to the testimony of A. B., did not appear to be as severe as the others; lately the accused took six grains a day, divided in two doses. He had, during the course of this last attack, but before his crime, taken stronger doses, and had felt symptoms of intoxication, inebriety, disagreeable hallucinations, etc.

From the moment of his arrest A. B. had been deprived of morphine. When I examined him, he showed unmistakable signs of the brusque suppression and forced abstinence from morphine. He was depressed, weak, emotional; he experienced a feeling of disquiet and uneasiness, sensation of emptiness in his head, of cramps and pains in his legs and arms, and he suffered from excessive diarrhoea, profuse sweats, and from insomnia. Such was the condition in which I found A. B. when I visited him at the prison where he was confined.

Besides these signs he showed no trouble that could be properly called mental, and that could indicate in him the

existence of any form whatsoever of mental alienation, and it did not appear from the examination, to which I submitted him, nor from his history, that he even showed such signs at any period in his life.

A. B. is not, then, actually insane, and everything tends to show that he never was insane. It all, then, depends on being able to judge of the action that morphine may have exerted on his intelligence and responsibility in a general manner, but especially at the time he committed the theft.

The following are — after an author who has made a special study of the subject — the ideas generally received on the morphine habit:

“The person addicted to morphine rapidly comes to the point when he commits indelicate actions without comprehending the importance of what he does; there certainly exists in him, either at an advanced period of the habit or at the time he is forcibly deprived of it, a real diminution of free will. The will paralyzed ceases to revolt against certain vicious and criminal tendencies. From the point of view of the legal responsibility it is necessary to know pertinently if the accused had abstained or not from his stimulant at the time of the crime and the stage of his habit. In the case of prolonged morphine intoxication when the system, saturated with morphine, has changed the cerebral functions, when it is shown that it has caused an intellectual weakness and a diminution of the moral sense, the attenuation of responsibility should be admitted as an almost certain rule.

“When the crime is the act of a morphine-user forced thereto by the deprivation of the drug, we should consider it as a pathological impulse and attribute it wholly to irresponsibility. In the state of morphine delirium tremens the patient should be considered a genuine lunatic.”

It is easy from these points to judge of the responsibility of A. B. It cannot be contested that the habit of morphine has not permanently affected the intelligence of A. B. His

conversation is coherent and rational; the details he gave me as to his manner of living are precise, and he appeared to me to be as intelligent as the majority of people of his class, education, and profession. A. B. is, then, sufficiently intelligent to understand in a general way the moral value of his acts and to know the penal responsibility of them; outside the facts directly due to the influence of morphine he never showed any intellectual trouble. A. B. is not, then, a lunatic. It only remains, then, to form a just appreciation of the effect of morphine in regard to the offense he committed.

At the time of the criminal offense, A. B. was in his usual condition, not excited, nothing strange in his manner of eating nor his carriage. His language was noticeable. He was not then in a state of morphine delirium tremens. Moreover, according to his own statement he had not had any attacks for a certain time before his arrest. How does it appear that he was unconscious, for A. B. is accused of having stolen certain articles of merchandise from a storekeeper when in his shop, ocular witnesses testifying to the truth of the fact? A. B. gives the same version of all the incidents preceding, accompanying, and following his arrest immediately after the crime, but with this difference, that he denies his guilt. He asserts that the objects they thought they saw falling from under his overcoat when they forced him to open it really fell from the sample-table. There is here a discrepancy that might call in doubt the veracity of the parties, but not from the consciousness of the prisoner. Actually, he told all the circumstances connected with the affair, but he perverted them in his endeavor to establish his innocence. Consciousness is the faculty that enables a man to take cognizance of a fact at the moment it takes place. Memory is the faculty of recalling a fact and referring it to the time it took place. The prisoner remembers; then, he had knowledge. We can affirm that A. B. was not unconscious at the time of the incriminating offense.

The incriminating offense was not, moreover, the act of a morphine-user urged thereto by want; he had taken his daily dose of morphine; he was in a state of euphoria; that is to say, in a state of satisfaction from indulgence in the drug. He had in his pocket a certain sum of money; he could not, then, have the dread of being immediately deprived of morphine; moreover, he was near the end of his attack and the craving was less acute, since he had himself considerably diminished the dose he took at first.

A. B. does not appear to have given way to an irresistible penchant in giving himself up to the use of morphine, inasmuch as the attack began after taking the morphine in the course of treatment. The morphine did not act in an abnormal manner, since the toxic phenomena only appeared after he had taken strong doses and after a prolonged usage. Taking into account, then, the mental state of the prisoner, from the special point of view of having indulged in morphine, it would be impossible for me to come to the conclusion that he was absolutely irresponsible.

The friends of the prisoner make him out as a degenerate, but they have brought forward no testimony to prove the fact. It is easy to say that degenerates easily fall into all manner of excesses and that they are numerous among the victims of the various intoxicants.

It seems to me that the following conclusions are easily deduced from the report I have just given :

1. There is no proof that the prisoner has become fatally addicted to the use of morphine.
2. It is not proved that he was insane at the time of the incriminating offense nor that he ever was.
3. Nor is it proved that he was intoxicated by morphine to such a degree that he lost all knowledge of his acts.
4. The act committed does not show the signs of a pathological act. Krafft-Ebing, in his clinical treatise on psychiatry, says : " The person given to morphine is a man with-

out force of character, without energy, of weak will-power, a man to whom *in foro criminali* we must always give the benefit of extenuating circumstances." This is an opinion the honorable judge might make use of in sentencing the prisoner, in the light of the judicial information which he has of his antecedents.

It is a certain fact that the usage of morphine more often debases the moral tone of the individual than it affects his intelligence.

In concluding, I should state to the honorable judge that he has actually before him a sick man, and it is the duty of the doctor to implore for him the largest possible indulgence. In consequence of the report the court gave the prisoner the benefit of extenuating circumstances and imposed on him only a light sentence. — *Am. Journal of Insanity.*

INFLUENZA.

This affection seems to be raging, under various disguises, all over the world, among all classes and conditions. It claims the greatest number of victims, however, from those of weakened resisting power, reduced either through some acute disturbance or by some chronic ailment. And while its sequelae and complications may assume almost any phase of acute inflammatory character, its primary effect is upon the nervous system. Hence, it is most important in treating this disease to administer such therapeutic agencies as conserve the nerve force, while aiding the *vis vitae*. We have no hesitancy in saying, no matter what the local inflammation may be, by all means give "antikamnia laxative tablets," one to two every two to four hours. Of course where double treatment is required, which is not often the case, the medicines may alternate. — *Medical Catalogue in Nov. Notes.*

ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and one hundred Associate Editors, assisted by Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-lithographs, engravings, and maps. Volume III and IV. Price, cloth \$5; half-Russia, \$6. Philadelphia, New York, and Chicago: The F. A. Davis Company, Publishers. 1899.

These two volumes of 600 pages each comprise a library of most valuable facts. Volume III takes up dislocations and ends in infantile diseases, passing over all the topics alphabetically between these letters. Several of the subjects are models of excellent condensation, as well as a graphic view of the subjects discussed. No books published give one a more ready view of the literature and treatment up to the present time than these. As we have mentioned before, the plan of treatment is novel and very practical, giving one a good view of the latest facts and theories held by eminent men. The fourth volume goes from I to M, and includes several excellent monographs. Influenza, insanity, diseases of the liver, locomotor ataxia, and malarial fevers, are particularly valuable and group together a mass of facts which are difficult to find in any other form. Both volumes indicate a decided evolution and improvement, and we hazard a prediction that they will become the most valuable, practical works which can be found in any library. The editor, Dr. Sajous, and his co-laborers, have grouped together with admirable skill facts which are most essential in the practice. Such facts are not only clearly stated, but are reliable, and comprise the best results of the studies up to the present time. The volumes are well printed and in perfect keeping with the design and purpose. No physician will regret having these volumes as daily consultants.

BABYLON AND NINEVEH THROUGH AMERICAN EYES. By Rev. Dr. M'Colleston. Boston Universalist Publishing House.

This little book of two hundred pages, illustrated, describes the author's visit to an unknown land of travel. The valleys of the Euphrates and Tigris rivers were long ages ago the center of a dense population and the highest civilization of the world. Now, the great capital cities of Babylon and Nineveh are a mass of ruins. The author describes the appearance of the country and these massive ruins, also the evidences of immense waterworks that are equal to the most elaborate hydraulics of to-day. The vast piles of bricks, in many instances covered with cuneiform characters, actually giving a history of the times in which they were made, await the explorer who will read their story so long forgotten. The author describes these libraries, and the little that has been done to decipher them in a graphic way. As a book of travels it concerns a new region, one out of the line of travel, and one of fascinating interest.

These ruins and the people that inhabit them are described in a charming way. You go with the author and feel the same impressions, and are carried back thousands of years to the civilization that lived and died here, and come to the end of the volume with regret that more has not been said. Such books are decidedly stimulating and create a strong desire for more experiences of this kind. The author has the profound thanks of every reader, and through this volume he is constantly taking an unknown audience over the ground and scenes of this mighty drama in the world's history.

THE ABDOMINAL BRAIN AND AUTOMATIC VISCERAL GANGLIA. By Byron Robinson, B.S., M.D., Professor in the Chicago Post-Graduate School of Gynecology and Abdominal Surgery; Professor of Gynecology and Abdominal Surgery in the Harvey Medical College, and

in the Illinois Medical College, etc. The Clinic Publishing Company. 1899. 261 pages. Illustrated.

This work describes the anatomy, physiology, and pathology of the sympathetic system with special reference to the influence of the abdominal sympathetic nerves upon the animal economy. The main fact of the author's pathology is the reflexes which he defines as disturbances in distant parts due to some local irritation. Disturbances which interfere with the normal function, or, as he terms it, "the rhythm" of the various organs. There are several peculiarities which give this book great prominence, one the division into short chapters, with quotations prefacing the chapter. The division of the topics is very clear, and the conclusions of the subject at the close of each chapter are very attractive. The style is pungent, clear, and graphic, far beyond the average medical book. While many of the author's conclusions may not be convincing to the reader, they are always interesting and reasonable. Chapter XI, on "Motor Neuroses," is a most excellent study of constipation and what the author calls "secretion-neuroses of the colon." Chapter XII, on "Sudden Abdominal Pain" is a very suggestive one. The chapter on "Shock" groups a great many facts not well understood by the profession. The book is, undoubtedly, a most valuable contribution to the study of the sympathetic system, and will well repay a careful perusal. The author is to be commended for his excellent English and condensed, happy style of presenting the facts.

HOMOCULTURE, OR THE IMPROVEMENT OF OFFSPRING THROUGH WISER GENERATIONS. By M. L. Holbrook, M.D., editor of *Journal of Hygiene*, etc. Publisher, M. L. Holbrook, New York city.

This is an epoch-making work, divided into chapters on stirpi-culture, pre-natal culture, heredity and education, evolution, and the promise of a healthier race, germ plasm and its relation to offspring, better children, and fewer of them, theo-

retical babies and their growth. Each chapter is clearly and most suggestively written, thoroughly scientific, and on a plane to be understood by all. No better book could be put in the hands of thoughtful young people, and if the principles laid down here were carried out practically, a better race would soon follow. No subject is more practical, and Dr. Holbrook has contributed a most useful discussion of this topic. It is a pioneer work, and will live in the future. We heartily commend this work.

CLINICAL LECTURES ON NEURASTHENIA. By Thomas D. Savill, M.D., London. A course of lectures delivered at the Paddington Infirmary and at the Welbeck Street Hospital for Diseases of the Nervous System. Contents. — Lecture I. Introductory; Pathology of Functional Diseases of the Nervous System. Lecture II. On Nervousness or Neurasthenia. Lecture III. A. On the Diagnosis of Neurasthenia. B. The Pathology of Neurasthenia and its relation to Gastric Disorder. Lecture IV. The Pathology of Neurasthenia (continued): its Treatment. Lecture V. On the Mental Symptoms of Neurasthenia and Neurasthenic Insanity. Addendum. Views of Authors on the Nature of Neurasthenia. Bibliography. Index. One octavo volume of 159 pages. Bound in muslin. Price, \$1.50 net. William Wood & Company, Medical Publishers, 51 Fifth Avenue, New York.

This work of lectures, and an addendum giving the views of other authors, is one of the most practical monographs which has been published. These lectures were addressed to post-graduate classes, and were illustrated by the clinical history of cases, and hence are of more than ordinary interest to the active practitioner. The author has a very clear suggestive style, and divides the subject naturally, giving a broad general view of each phase of these most complicated maladies.

The book is of special interest to asylum superintendents, and those who have nervous cases under their charge. It is one of the few books which will be read carefully and with profit to anyone. We commend it to all our readers as being both practical and valuable.

The National Temperance Almanac and Year Book for 1900 is a very valuable grouping of statistics concerning the liquor traffic, and the various questions which gather about this subject. A list of temperance periodicals and societies in the United States and Canada is published. A summary of the liquor laws in the several states is also very interesting. The whole is compiled by Rev. Dr. Dunn, Secretary, and published by the National Temperance Society, 5 West 18th street, New York city. Price, ten cents.

THE POWER OF THE TOBACCO HABIT. By Charlotte Smith Angstman, Author of *College Women* and *New Science*. Battle Creek Publishing Co. 1899.

This is a very thoughtful essay on the dangers of the use of tobacco written in a temperate, pleasing style. It is a valuable contribution to the literature of this subject, and contains many facts not well known, and some statistics of great significance. The author attempts with great success to disabuse the mind of the reader who may think that tobacco is harmless. Also makes it very prominent that ignorance and blindness to its dangers are very wide contributive causes. To parents and teachers this book will have a great value and be of inestimable worth in imparting instruction to the young. Send to the author for copies, 227 Putnam Ave., Detroit, Mich.

The *Homiletic Review* comes freighted with a rich table of suggestive thought on biblical criticism. The first paper by Rev. Dr. Ramsey has already created a sensation among scholars. Other topics equally rich and timely make this journal more valuable than ever. Send to Funk & Wagnalls Company, New York city, for a copy.

THE SOUTH LAND.

The Southern Railroad has issued a beautiful volume of two hundred pages, called *The Empire of the South*. It is not an advertisement, but a pictorial encyclopaedia of the Southern states. Over five hundred illustrations of towns and buildings and beautiful scenery are followed by short descriptions, which give one a most excellent idea of these states. The work is really valuable and copies may be had by sending fifteen cents to George C. Daniels, Northeastern Passenger Agent, 228 Washington Street, Boston, Mass.

Appleton's Popular Science Monthly begins the new year with a new dress and richer table of contents. No more acceptable journal for the physician and scientist can be found.

The *Scientific American* is always fresh and new. No other weekly contains more startling facts of wider general interest along scientific lines than this. Munn & Co. of New York are the publishers.

We receive a large number of journals devoted to temperance and reformatory work, all of which are welcome. They are studied as guideboards to point out the direction of the evolutionary movements of the age. There is in sight a great revolution in the current theories of alcohol as a beverage and the inebriate as a vicious, free agent. It is coming rapidly, not always in the thunder and storm of agitation, but in the still, small voice of scientific research.

Dr. Lewis D. Mason of Brooklyn, N. Y., is the only surviving member of the seventeen persons who organized the Association for the Study and Cure of Inebriety in 1870.

Editorial.

1900.

Thirty years ago our association was organized for the distinct purpose of studying the disease of inebriety and its curability and treatment. During these years a generation has come and gone. The facts laid down in the first general principles of the association have been accepted as great truths of science. The association and its members have begun a great work. The early superstitions have been cleared away and prejudices overcome and vast fields of research have been opened up. The conflicts over the disease of inebriety and its curability have very largely passed away. Studies from the moral side are less prominent and the aspect from the side of science is constantly widening. To-day the questions of heredity in inebriety and the influence of nutrition, culture, climate, occupation, and surroundings are new fields for exploration and discovery. Traumatic diseases and psychical influences together with the physiological action of alcohol, are equally unknown. We have come to the frontiers of a vast region where the pathological, psychological, and sociological facts are to be gathered, the knowledge of which will point out a solution of the great problems of the age. Our association needs more active members and more frequent meetings and more united efforts. The early members are gone, and the work they outlined is not taken up as it should be. Inebriety and its evils have attained a prominence and been recognized by public opinion, and the great questions now awaiting solution call for renewed work and effort. Our association should have a larger organization of practical

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students who will occupy this field and show the causes and means of prevention of the most widely-spread disease of the age.

MORPHINISM AMONG PHYSICIANS.

In 1890 I was appointed chairman of a committee to gather statistics of the number of inebriates and drug-takers in this country. Recently I compiled the first report limited to the prevalence of morphinism among physicians. This was read before the New York State Medical Association at their annual meeting, and a summary of the paper was published in the daily press. This has been copied and made the subject of comment by nearly all the leading papers of every town and city in the country. In some instances local physicians have been interviewed by the press and many columns of theories and opinions have been expressed. The medical press has refrained from comment other than to express a hope that further studies will not show the prevalence of morphinism as stated in the paper. The religious press is taking up the subject, and the unusual interest which has been roused is likely to continue for some time to come. The central fact of this report was the qualified statement that from six to ten per cent. of all physicians were using opium and allied drugs. To a number of medical men this statement was considered a personal insult which was denounced in such hysterical terms as to suggest mental defects, which, if not due to spirit or drug-taking, was at least from causes equally serious. Other physicians have warmly welcomed this as a timely effort to bring into notice an evil which in some sections of the country is very apparent. Numerous letters of thanks have been received, giving facts and local statistics showing the prevalence of morphinism among physicians to a greater extent than mentioned in the report. The sudden death of some prominent physicians is mentioned as frequently revealing the fact of secret drug-taking unsuspected before. Other cases are noted

where physicians whose sudden eccentricities of thought and conduct, extending over a few months or years, have ended in death from obscure disease. Later the fact of secret drug-taking was evident although unknown to any except his family. Other cases are frequent where medical men are open spirit-takers, using drugs secretly to lessen the intensity of the effect of spirits, finally dying from some sudden brain disease so unusual as to suggest the poisonous effect of some narcotic. Many cases are mentioned of invalid physicians whose symptoms baffle all efforts at diagnosis, and whose suspicious, changing emotions and mentality suggested the use of opium or its alkaloids. From these and many other facts it is evident that attempts to determine the percentage of medical men using morphia will always be open to doubt because of the impossibility of detection. The unusual interest which has gathered about this topic is due to the vague, uncertain recognition of morphinism and its growth. Hence the reality becomes startling when forced upon the attention of the public. In all this, there is no recognition of the disease of morphinism, but an assumption that the victim is a vicious, willful, free agent. When the facts and complex conditions which enter into the causation of morphinism are understood, there can be no mystery in the knowledge of its presence among physicians. That ten or twenty per cent. of the profession are using morphia or other drugs is no more a reflection on their character than if suffering from typhoid fever or consumption. The alarm which this report has produced also comes from the delusion that the morphinist is a moral delinquent, always able to stop at will, but who persists in this so-called vice for pleasure to himself. Psychopathics, both physicians and laymen, become drug-takers, irrespective of all culture and training. The danger of narcotics is seldom taught in the schools, and the peril is not recognized until it becomes a terrible reality. Considering the delusive theories regarding morphia and the strains and drains of medical men, with their special exposure,

it is a source of wonder that the number of victims is not greater. The assumption that these cases are more ignorant and lower down and defective than others is a sad exhibition of ignorance. The recognition of the disease of morphinism, and the intelligent effort to use all rational means for its prevention and cure is the highest wisdom. The alarm which this report has created should be sounded in every medical college and medical journal and society of the land. The subject of morphinism and drug-taking should be lifted out of the realm of superstition and become a field of practical medical study. The army of neurotics and psychopaths is increasing both in and out of the profession. Morphia self-administered, or in any way except under the care of a physician, is dangerous. There is an urgent need for new studies and researches and a clearer knowledge of the facts and conditions which lead up to this disease. Morphinism is a disease which must be recognized and treated the same as other disorders of the brain and nervous system.

A study of the use of drugs in Philadelphia made by one of the daily papers revealed the fact that only four per cent. of the cocaine sold in the market was used in known and legitimate ways. Of opium, no definite trace could be found of a large amount which was called for beyond the natural demands of hospital and medical practice. All the druggists interviewed asserted that the demand for opium was increasing, also that for cocaine. Customers came regularly to the stores and purchased morphia for periods of two or three years, then dropped out. How far this irregular use of opium and cocaine was called for by physicians either in prescriptions for others, or for themselves, could not be determined. One physician claimed that no more than one per cent. of the profession used morphia or other drugs, either openly or secretly. Another medical man, equally confident, claimed that ten per cent. was a small number of the actual known cases of this addiction, and that the secret taking of drugs by doctors far exceeded this amount.

WORLD'S CONGRESS.

The World's Temperance Congress, to convene next June from the ninth to the eighteenth, promises to be one of the great gatherings of the year. The Bishop of London will preside, assisted by eminent medical and legal gentlemen. One of the most prominent features will be historical papers describing the temperance work of the century along different lines. The many societies, both independent, and of the churches, and of scientific bodies, which have been devoted to this subject, are each to give a summary of their work and its results in historic papers. Over twenty societies, extending over the world, will take part in this meeting. The scientific side was first studied by the American Association for the Study and Cure of Inebriety in 1870. Later, the English Medical Temperance Association took up the alcoholic question as a medical one. Then the English Society for the Study and Cure of Inebriety was organized on the same lines as the American one, and lastly, the American Medical Temperance Association has taken up the subject. All the Continental societies are largely composed of clergymen, laymen, and medical men, and their work has been mostly from a moral and sociological side. The strictly scientific societies are the two English and American ones, one studying alcohol and its effects; the other the disease of inebriety and its causes. These four societies will, undoubtedly, summarize the progress of the century along this line very completely. It is a pleasure to know that this coming Congress is under the direction of the most distinguished pioneer, Mr. Robert Rae, who has been foremost as secretary and active agent for every movement in this direction for over half a century. His rare skill and power of organization will insure the success of this Congress. The proceedings of this meeting will form a volume that will be a foundation from which the work of the coming century must date. The idea is most timely and practical to gather up the desultory work of the closing century and put

it in some form as a guide for future work. Our American societies will be amply represented, and the work done here will comprise an important part of the real advance in this field.

There is something decidedly farcical in the attempt of the New York doctor to prevent a distilling company from using his endorsement of the value of alcohol in medicine as an advertisement for their spirits. The doctor, in a paper read before a state society, praised alcohol as a medicine in disease, and fortified his opinions by many antiquated theories. He took the position that all views to the contrary were unscientific and held by extremists of doubtful wisdom. Having expressed himself so freely he should have been pleased at the free use of his theory. The experience which he will pay for in this suit will undoubtedly add considerably to his knowledge.

A man ninety-one years of age, a farmer, living out of doors, and working moderately, is reported as an example of the harmlessness of the continuous use of pure whisky. He has drunk a pint of spirits daily for sixty years, and is apparently hale and hearty, never having had any illness. His example has been quoted freely in several of the liquor journals, and by the defenders of moderate drinking. In a letter of inquiry from a physician living in the vicinity, the following facts were given: The man was of inferior intelligence, with a large physical frame, and inclined to follow very methodical habits of living. While the effects of his drinking were not prominent in his appearance, they were very evident in his children. Of three children by his first wife, two died in infancy. One became an epileptic, and died at fifteen. Of four children by his second wife, one is feeble minded, the second choreic, the third is dissolute and drinks, the fourth is erratic, passionate, and a wanderer. All are decidedly inferior both physically and mentally.

Professor Atwater is attracting some critical notice by his persistent reiteration of the food value of alcohol. Scientific men are usually careful not to state any new facts or conclusions until they are established on a reasonable probability. Such conclusions are always given to the professional public with full detail, and clearly, to avoid all possible mistakes. To deliver oral addresses on this subject before popular societies and associations, and, when reported in the press, to deny the accuracy of the reports, is very unfortunate for any scientific man. Prof. Atwater's conclusions and statements, with his explanations when examined critically, are found to be technicalities open to so many sources of error as to be only inferences and theories. This explains the constant retraction and restatement of the facts he has given, and suggests to many persons a strong personal bias and feeling. Several critics have claimed that his zeal and dogmatic presentation of conclusions is a paid service in the interest of moderate drinking and the liquor traffic. It is unfortunate that Prof. Atwater did not publish a clear statement of the facts and conclusions, and the experiments supporting them at the start. He would then have escaped the shadows and criticisms which have gathered about him.

Rev. Dr. ———, who twenty years ago published and scattered widely an address condemning our Association and denying its principles, and calling its officers "materialists" and enemies of the truth, has recently died. Among his effects were found morphine and laudanum bottles, showing that he was an opium-taker.

It is a curious fact that among the assertive critics, who have felt called upon to deny the prevalence of morphia addiction among physicians, many are found to be secret and open drug and spirit-takers. One man, who appeared in a long newspaper interview in which he praised the profession for its freedom from vices, and denounced all assertions that morphia existed in the profession to any great extent, is mentioned in a circular as a graduate of a "Gold Cure" asylum.

Clinical Notes and Comments.

GENIUS AND INEBRIETY.

Dr. A. S. Ashmead of New York sends us the following illustrative case: R. A., a tall, well-built man, with classical features, finely dressed, an engraver by profession. He had studied in Paris, and after long travel, decided that his life work was to paint the head of Christ. He gave ten years steady labor to this one subject. The picture was life size. From this he made an engraving on steel. On this engraving he has spent fifteen years, and is still unable to please himself, and continues to correct and change it. He was offered \$10,000 for the painting, but declined. Having exhausted his means, he is obliged to support himself by portrait painting. In the interval he continues his work both on the portrait and plate. During all these years he has had long periods of alcoholic excesses in which he would drink to great stupor, lose his mind, and be taken to the hospital. On recovery, his ideal became more intense than ever. He would go back to work with more energy and concentrativeness, sometimes repainting and altering some features or painting new faces, which seemed nearer the ideal. His wife secured a divorce, and he sunk lower, taking up with an abandoned woman, losing all interest in everything but the one ambition. He will not sell this picture or the plate, and he continues to work at them, saying that in the future they will become monuments of his fame.

Case 2. W. B., for many years the actuary of a life insurance company, a man of great mathematical ability and intelligence. Suddenly he drank to great excess, and only recovered when forced to it. He had a very active brain, was a disciple of Herbert Spencer, and reasoned out all the problems of life on the broadest fields of philosophy. His drink periods were the most insane and imbecile in every particular, and, on

recovery, his old intellectual vigor returned. The only weakness he displayed was carrying about with him many pairs of evening gloves, representing the colors of the rainbow, which he wore at intervals without explaining the reason. He was forced to resign his business, and spent his time as a student of the higher philosophies. He only drank on the receipt of his quarterly annuity. When this was withheld he continued sober. But when he could get any money the craze for drink was overpowering. He continued his philosophic studies for several years. Was abandoned by his family, and finally was picked up in the street of a Western city, and taken to the hospital, where he died.

ACUTE ALCOHOLIC POISONING.

Dr. Baker of Worcester reports the following case: A man, twenty-five years of age, accustomed to moderate drinking, in apparent good health, entered a saloon and made a wager that he could drink a pint of whisky within ten minutes. One and a half pints of cheap whisky was brought to him, which he drank in less than five minutes, and started for home. Having several miles to go, he soon became unconscious, vomiting, and was comatose on his arrival. His face was livid, he breathed heavily, and after four or five convulsions, died in six hours from the time of using spirits. An autopsy was made thirty-six hours after death. The pupils were widely dilated and unequal. There was much engorgement of the sinuses and the pia, the punctata cruenta were very prominent, and the whole brain was edematous. The lungs were distended and engorged, with their lower portions dotted with numerous pleural ecchymoses, such as seen in death from suffocation. There was nothing remarkable about the heart or the appearance of the blood. The stomach contained digested bits of food, and a dark liquid containing an alcoholic odor. A chemical examination of the contents of the stomach showed fourteen and a half cubic centimeters of absolute alcohol. The portion of the liver examined indicated an amount equal to three and a half cubic centimeters for the whole organ. This was pronounced a case of alcoholic poisoning.

NEURITIS.

Dr. Lyman, in a lecture on sciatica, makes the following reference to neuritis: A frequent cause of pain in the lower extremities is due to alcoholic neuritis. You will remember a prematurely old man who came here on crutches suffering from a painful paralysis of the lower extremities. He grew worse and could no longer walk, even with artificial support. His limbs became paretic, and all forms of sensibility diminished. The knee-jerks disappeared. The pupils remained unaffected. It was found that he was taking from thirty to forty drinks of whisky a day before the pain appeared in his feet and legs. The removal of whisky was followed by recovery, and a year later he went about apparently well. The alcohol seems at first to excite active inflammation. This passes away, leaving a morbidly painful state which continues as long as the spirits are used. Alcohol affects the sensory nerves, especially those of the lower extremities. It attacks the nerves of the feet and legs before those of the thighs and hips. This ascent of the pain towards the trunk is a distinction which is characteristic of the causation. The extensor muscles are more seriously affected than the flexors. Hence the peculiar droop and drag of the toes and feet. It is not uncommon to find alcoholic polyneuritis mistaken for tabes dorsalis. The rapid recovery when spirits are removed indicates the poison origin.

Hosford's Acid Phosphate is one of those safe, excellent combinations which won a place among the standard remedies of the world. In a little village in the north of Scotland, it was called for as regularly as groceries over the counter.

Listerine is one of those antiseptic preparations that can be used externally with the best results. It is uniform, and a valuable external application for injuries.

Dionin, the new morphine derivative, is introduced into this country by Merck & Co. It is a white, bitter, crystalline powder which possesses more decided narcotic properties than codein, and seems to be one of the most valuable and least harmful of any of the alkaloids of this class. We have used it in the treatment of morphinism with excellent effect. The morphine can be abandoned at once, the *Dionin* taking its place to a very large degree. After a brief time the reduction of this drug is not followed by the same irritative effects which follow morphine. Its final withdrawal is easy and practically unnoticed. Hence, it fills a most important place in the treatment of morphinism, which, up to this time, no other drug has done. Its usefulness is particularly noticeable when given by the needle, no pain following the injections and no exhilaration or profound narcotism, but rather a quiet sedation without nausea or other symptom. There seems to be no cumulative action. Repeated doses do not concentrate in profound narcotism or gastric irritation. It is clearly superior to codein, and, in all probability, is very largely free from the possibility of creating an addiction. While it does not act so promptly in relieving pain as morphia, its effects last longer, and seem to approach nearer the natural action of sleep. Our experience has been very satisfactory, and we urge its use in these cases, and as a substitute for any form of opium.

Rickine, put out by the G. F. Harvey Co. of Saratoga Springs, has been found of great value in cases of removal of spirit and drug-taking. It is a mild sedative with pronounced effects in some certain cases, and is one of the best of the coal tar series that can be used in neuralgia and many nervous affections.

Wheeler's Tissue Phosphates is a combination of the various phosphates, with calisaya and wild cherry bark, and has a peculiar value in wasting diseases of all kinds.

Bovinine continues to grow in popularity, and its excellence is assured in many ways. As a blood nutrient it supplies an important place unlike any other remedy and cannot be substituted by any drug on the market. *Bovinine* should always be used in anaemic conditions and particularly in cases of tissue poisoning. In the exhaustion from drug-taking it is very valuable, and sometimes acts as a specific. In certain cases the sudden removal of spirit and narcotics has been free from all irritative symptoms when large quantities of *Bovinine* were given. In nervous exhaustion it has had a most excellent effect in many cases. Where it can be made palatable by the addition of flavoring substances its use may be continued a long time with the very best results. *Bovinine* is valuable always, and is one of the few remedies that always should be at command.

Dr. Gustin-Mackie announces a winter excursion for nervous invalids and persons requiring medical care and attention to Southern Pines, North Carolina. It is proposed to take down two or three carloads of invalids with nurses and attendants and settle them in the Piney Woods Inn, a large cottage hotel in the pine woods. The experiment is a very promising one. The change of surroundings and quietness of a forest hotel in a dry, invigorating air, with good water, and many of the comforts, will prove of great advantage to many neurotics and neurasthenic cases. There are a great many invalids who will be greatly benefited by a change of this kind, particularly with acquaintances and under the care of the family physician. We shall watch this experiment with great interest.

It is always a pleasure to call attention to *Fellows' Syrup of Hypophosphites*. In many cases it is invaluable, and is not easily replaced by any other drug combination. Its value is attested by the frequency in which it is substituted in the drug stores of the country.

The *Ammonol Bromide* is one of the harmless hypnotics which has been used as a substitute for morphia without any of its disagreeable effects. In insomnia it is very valuable, and in congestive headaches it is often a specific. As a hypnotic it is superior to morphia and far safer. Ammonal, combined with Codeia, is an excellent combination, and may be used with great confidence where other drugs are worthless. Many of the Ammonol compounds are put up in tablets, making them superior for administration. Samples are sent free to any physician who may wish to try them, and no remedy will give better results in a certain number of cases.

Physicians may differ regarding the best school of medicines, some favoring Homeopathy, some Allopathy, and others the Eclectic school, but *all* schools agree that *Pond's Extract* stands without a rival, as a subduer of pain. Said a prominent physician recently: "If the public knew all the virtues of *Pond's Extract*, and intelligently used it, we would have fewer professional calls to make." A word to the *wise* is sufficient.

Geo. W. Samuel, M.D., Nashville, Tenn., says: "I had a case of a man who had been drinking heavily for several days. I prescribed *Celerina* in tablespoonful doses every three hours, and in a short time he was in good shape again. I also used it in a case of neuralgia, in the following formula:

℞ CELERINA,..... 8 ounces.
 Quinia Sulph.,..... 60 grains.
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It acted like a charm. In a case of impotency I used calomel in connection with *Celerina*, and the patient reports everything standing all right.

We call attention to Blakiston's Son & Co.'s Visiting List as one of the old and tried books which have gone on down the ages, becoming more and more valuable with each year's use.

The *Papaine* of Battle & Co. is an opium alkaloid and superior anodyne. It has not been used very much, and yet it is one of the most valuable of the opium alkaloids. In a certain number of cases it has the advantage of not producing an addiction, and not being cumulative, and can be used in the fluid form disguised. Battle & Co. are the manufacturing chemists.

F. E. Harrison, M.D., Abbeyville, S. C., says: "I have used *Celerina* in appropriate cases, and can heartily recommend it to all who wish an elegant preparation, combined with undiminished therapeutic activity. It is peculiarly fitted to such cases as delirium tremens, headache from debauch, or excessive mental or physical exertion.

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AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY.

(Organized November 29, 1870.)

I. The active membership of this association is composed of the resident, attending, and consulting staff of all hospitals or sanitoriums, private or public, where alcohol, opium, or other drug neurotics are treated, either alone or in conjunction with other forms of nervous or mental disease.

II. All such institutions organized and conducted in proper conformity with the laws of the several states in which they are located are entitled to representation in this association.

III. The active membership of this association is composed of physicians in good and regular standing who are actively connected with such institutions or who have been honorably retired from active service in connection therewith.

IV. Physicians not connected with such institutions, and members of boards of direction of such special hospitals, asylums, etc., are eligible as associate or lay members of this association upon payment of the dues of membership.

V. The object of the association is:

First, to promote the scientific study of alcoholic inebriety and kindred drug habits, and to encourage desirable and special legislation with reference to the care and control of alcoholic and other drug inebriates.

Second, to isolate the chronic pauper inebriate from the insane and criminal class, and secure the erection and maintenance by the several states of institutions for the segregation and special treatment of chronic pauper inebriates, and to incorporate farm colonies, or other forms of institutional relief, which shall combine medical care with proper occupation, judicious control, and discipline.

Third, to secure in all states the special supervision and inspection of all institutions for the care and control of inebriates or other drug habitués.

Fourth, to discourage and prevent all efforts to treat alcoholic inebriety or the opium or other drug habits with secret drugs and so-called specifics, and to prohibit the sale of all nostrums which claim to be absolute cures and which contain alcohol, opium or its alkaloids, or other pernicious and harmful drugs, or which contain substances which are inert and so are fraudulent impositions on the public.

Fifth, to encourage, as an association, every individual and organized effort to study scientifically and practically all the various means and methods of both cure and prevention which may be used in the care and treatment of alcoholic and other forms of drug addiction.

There are many institutions in this country which wholly or in part treat the alcoholic and other forms of drug addiction. These institutions should be organized and follow some general principle and method of practical work. By this means public opinion could be more effectually influenced, and legislation secured, resulting in a great advance in the successful and scientific treatment of this class of cases. Every such asylum and institution in the United States is urged to join this association, and by their united effort lift the subject out of the realm of quackery and unscientific treatment into that of exact scientific work, and to place the status of the treatment of alcoholic inebriety and kindred drug habits on the same level with that of other similar diseased conditions, and secure the same medico-legal and institutional advantages. A membership fee of two dollars is charged yearly, which includes the annual subscription to the *Journal of Inebriety*, the organ of the association.


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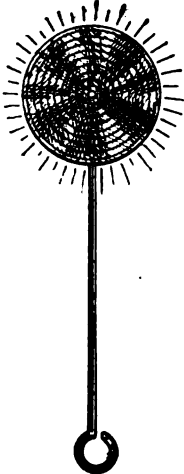
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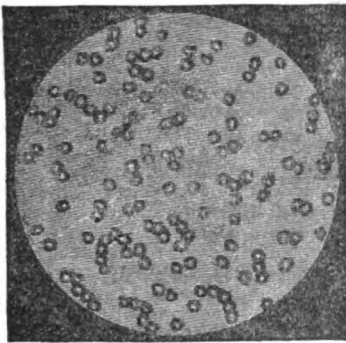
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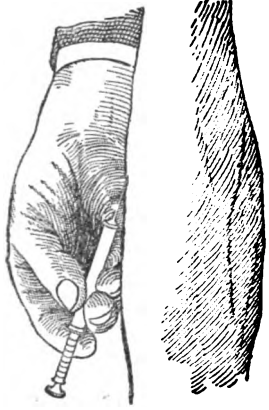
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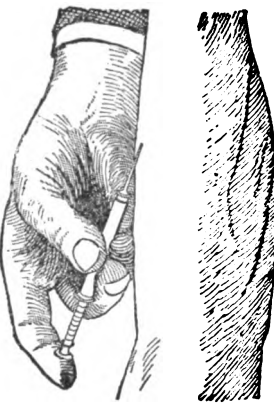
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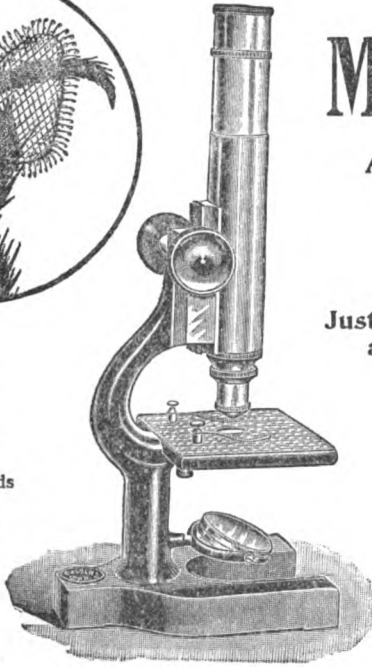


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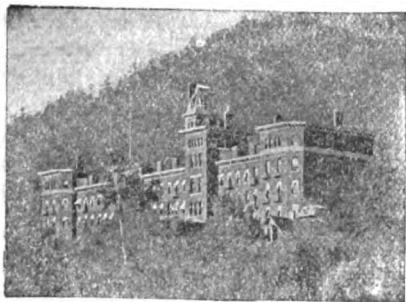
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THE CHILDREN OF THE FEMALE INEBRIATE.*

BY WILLIAM CHARLES SULLIVAN, M.D.,
Medical Officer of Her Majesty's Prison, Pentonville.

In the paper which I have the honor to read before you to-day, my aim has been to bring to your notice a series of observations touching the influence of maternal inebriety on the development of the offspring. These observations I have been led to record, not because their results present any startling novelty — they are indeed largely in accord with the indications of *à priori* reasoning — but because they illustrate in a very vivid and forcible fashion the important rôle which the alcoholism of women may play in racial deterioration.

I venture to think that at the present moment such a demonstration may not be wholly superfluous, seeing that from statistical indications, upon which it is needless to enter here, it would appear that the recent growth of alcoholism in this

* Read at the January meeting of the English Society for the Study of Inebriety.

country has been relatively at least as marked in the female as in the male population.

Before dealing with the details of the inquiry it will be desirable to mention briefly the source and character of our facts.

Our observations were carried out in the women's section of Liverpool Prison, an institution which presents the most extensive field for the study of female inebriety to be found in these countries. As an evidence of its unique position in this respect, I need only refer to the fact that its figures for female recidivism are in excess of those for any other prison in the kingdom. For example, during the year in which most of these observations were made, there were no less than 2,290 instances in which women committed to this prison had already served upwards of twenty terms of imprisonment.

From this abundant material I have selected a series of cases, one hundred in number, of chronic drunkards who have borne children, and from the history of these children, and more particularly from the indications given by the infant mortality, I have endeavored to trace the action of the parental intoxication.

In order to avoid possible sources of fallacy, care was taken to exclude all cases in which the influence of alcoholism might have been complicated by other factors making for degeneracy. Thus all cases were eliminated in which there was a suspicion of syphilis, and all cases where the family history suggested a constitutional susceptibility to tubercular diseases. Those cases were also omitted where the antecedents, the presence of anomalies apart from the drink habit, and the peculiar cerebral reaction to alcohol indicated the existence in the stock of a marked tendency to nervous degeneracy.

Selected subject to these reservations, our cases are fairly representative of the average prison drunkard of the proletariat; of course, the fact that they do belong to a special class, and are, therefore, colored by the characteristics of that

class, and influenced by the environmental conditions normal to it, must be constantly borne in mind in estimating the general significance of our results.

Naturally, with a view to the special objects of our investigation, cases were chosen in which the alcoholic habit was in active operation during the reproductive career. As regards the form of alcohol consumed, the majority of our patients drank both spirits and beer.

In order to define more clearly the scope and value of the information obtainable by the clinical method employed, we may formulate the aim of our inquiry in the queries:

(1) Does maternal inebriety produce a high rate of infant mortality?

(2) With progressive increase of the maternal alcoholization, is there progressive decrease of infant vitality? And if so, do modifications of the normally progressive course of maternal intoxication produce corresponding effects on the progression of the infant death rate?

(3) Amongst surviving children is there any evidence of unusual frequency of nervous abnormality?

(a) *Alcoholic Maternity and the Infantile Mortality.*—Twenty of the hundred women in our series were able to give details of female relatives, also drunkards, who had had children. Of these 120 female inebriates were born 600 children, of whom 265 (44.2 per cent.) lived over two years, and 335 (55.8 per cent.) died under two years, or were dead-born. In over 60 per cent. of the children dying in infancy the assigned cause of death was “convulsions.”

Per se the death rate just stated has no very definite significance; to give it meaning we must have some standard of comparison, and the best standard would obviously be sober families of the same stock. Twenty-one of our patients were able to give information regarding sober female relatives, sisters, or daughters, who had had children of sober males. The drunken and sober families compare thus:

Drunken mothers (21 cases), 125 children, of whom 69 (55.2 per cent.) died under two years.

Sober mothers (28 cases), 138 children, of whom 33 (23.9 per cent.) died under two years.

Thus the death rate amongst the children of the inebriate mothers was nearly two and one-half times that in the children of sober women of the same stock.

It may be of interest to cite one or two concrete instances of this contrast in individual families.

Obs. 1. — S., æt. 42. Prev. impris., 23. Drunkard since first confinement; beer and whiskey; usual symptoms; has recently made grave attempt (automatic) to commit suicide. Parents and other relatives sane and sober; husband sober. Five children; first living, and healthy; aged twenty-two; second died of measles at three years; third died of convulsions at seven months; fourth died of convulsions at six months; fifth dead-born. A sister of sober habits had eight children, of whom six are living and healthy.

Obs. 2. — H., æt. 50. Prev. impris., 53. Drinking over thirty years; beer and spirits; usual symptoms; no D. T., but has latterly had visual hallucinations. Father drunkard; mother sober. Husband drunkard. Has had seven children, of whom all but one, the third, died of convulsions in infancy. The surviving child, a girl, is healthy and sober, married to a sober husband, and has had two children, both living and healthy.

Incidentally it may be noted that cases like the last, where one or two children survive, are sober, and give birth to healthy infants, are a further proof that we are not dealing with degenerate and exhausted stocks, in which the rôle of alcoholism is merely to hasten an inevitable and desirable extinction. Nor are similar cases at all uncommon; even in our series where only a very small proportion of the surviving children had reached the procreative age there were nine such observations.

Of course, our cases were not observed under the condition of laboratory experiment, and we cannot dissociate the direct influence of the intoxication on the organisms of mother and child from the indirect action of the parental vice through deterioration of a *milieu* already unfavorable to infant vitality. Hence we are unable to assign an exact significance to our figures, though they of course represent accurately enough the *practical* result of maternal drunkenness.

(b) *Progressive Death Rate in the Alcoholic Family, and its Modification by Intervening Circumstances.* — In eighty of our cases, omitting instances of mixed paternity, the number of children reached or exceeded three. Classing these children in the order of their birth, we can compare the death rates in the different groups so formed. Combining the figures of the smaller classes, in order to secure groups numerically adequate, our results, expressed in percentages, are as follow:

	Cases.	Dead and Dead-Born.	Dead-Born.
First born,	80	33.7 per cent.	6.2 per cent.
Second born,	80	50.0 " "	11.2 " "
Third born,	80	52.6 " "	7.6 " "
Fourth and fifth born,	111	65.7 " "	10.8 " "
Sixth to tenth born,	93	72.0 " "	17.2 " "

The type of alcoholic family suggested by these results — a type characterized by decrease of vitality in the successive children — is fully realized in many of our observations. We may cite the following:

Obs. 3. — S., æt. 34. Prev. impris., 37. Drinking since first confinement; beer and spirits; usual symptoms; one attack of D. T.; attempted suicide twice; parents sober; husband drinker; six children; first, second, and third living and healthy; fourth, aged six, of low intelligence, suffers from incontinence of urine; fifth, aged four, epileptic idiot; sixth, dead-born; has recently had an abortion.

Obviously, in the course of an individual's alcoholization many circumstances may occur to modify the regularity of its progress. Can any reaction of this modifying influence on the offspring be traced by our test of infant mortality? Clearly this will only be possible in very rare instances, and in respect of the grosser and more obtrusive agencies. In our cases evidence on this point was available concerning two such agencies of opposite tendency. Thus it was found in all the instances (seven in number) where conception was known to have occurred during a state of drunkenness, that the infants died soon after birth or were dead-born, though in several of the cases the children so conceived were the first born, and had, therefore, as we have seen, a relatively good chance of life. In some of the cases subsequently born children survived. These facts suggest very strongly that the reinforcement of the alcoholic conditions at the time of conception aggravated its action on the embryo, reducing the vitality of the latter to a degree usually related to later stages of the intoxication. It is to be noted that in three of these cases this first pregnancy occurred before marriage. Possibly we should not be in error in attributing to a conception in drunkenness a certain influence in the causation of the high death rate of illegitimate children.

Of opposite effect to the condition of which we have just spoken, enforced sobriety by imprisonment during a part of pregnancy appears capable at times of modifying the normal type of the alcoholic family in a favorable direction, the temporary decrease of intoxication enabling the infant organism to acquire a sufficient degree of vitality to survive when earlier born children have succumbed.

This result can only ensue, of course, when the incarceration extends over a certain period, and occurs at a stage of the maternal career when the organic changes of alcoholism are not too far advanced — two conditions which are rarely united. The following observations will illustrate the point:

Obs. 4. — W., æt. 30. Prev. impris., 109. Drunkard before marriage; chiefly spirits; very violent after drink; attempted suicide once. Father fairly sober; mother notorious prison drunkard; husband drinks, and has had D. T. Three children: first born nine years ago, died when a few days old; second living and healthy, aged three (born in prison, where the mother spent last two months of pregnancy, and also eight short sentences in early part of same pregnancy); third, dead-born.

(c) *Nervous Degeneracy in the Surviving Children.* — The facts which we have just cited would lead us naturally to expect that the surviving children in the alcoholic family should show some trace of their exposure to an agent of such obvious potency. Unfortunately the conditions of our investigation did not admit a full determination of this point, and inquiry was, therefore, limited to ascertaining the frequency of major epilepsy in our cases. (Of the children comprised in our series 219 lived beyond infancy, and of these nine, or 4.1 per cent., became epileptic.) Many of the others, moreover, counted here as non-epileptic, had not reached the age at which epilepsy most commonly appears, and some of these may quite possibly have developed the neurosis later. Even, however, if we ignore this possibility and accept our figures as they stand, they give a proportion of epilepsy in our heredo-alcoholics enormously in excess of the most reliable estimates of its frequency in the general population.

Having thus summarized the results of our observations, it remains to deal in a few words with their interpretation.

It has been contended on clinical evidence by many authors since the time of Morel that the condition of artificial degeneracy produced by chronic alcoholization reacts on the development of the offspring of the alcoholic individual; that, as we now express it, the germ plasm is accessible to the influence, direct and indirect, of the parental poisoning, and from that influence there results a deterioration of the stock. As

this deterioration naturally affects most severely the latest evolved parts of the organism, it is in the higher cerebral centers that the defective development of the heredo-alcoholic finds its chief expression ; parental alcoholism produces mental degeneracy in the offspring.

In addition to this mode of action affecting the germ, we have to consider in the case of maternal alcoholism other influences of greater potency, namely, those acting on the developing embryo. These latter comprise, on the one hand, the indirect results of disorders in the maternal organism, whether generalized lesions leading to defective nutrition, or morbid conditions localized in the generative apparatus, and, on the other hand, the direct poisoning of the fœtus by alcoholic excesses during pregnancy. We have further to bear in mind the possible effects of drunkenness during lactation.

Finally, all these modes of influence are reinforced by the malign modification of the social *milieu* which parental drunkenness entails.

Applying these considerations to the facts we have noted, we may advance these propositions :

(1) \ Maternal inebriety is a condition peculiarly noxious to the vitality and to the normal development of the offspring.)

(2) While its influence, particularly as measured by the test of infant mortality, appears to be exercised in considerable degree indirectly through deterioration of the *milieu*, a large part also depends on the primary action of the poison. The reality of this latter mode of influence is evidenced by the tendency to still-births and abortions, by the frequency of epilepsy in the surviving children, by the prevalent mode of death, by the effects of modifications of the intoxication.

(3) \ This primary influence of alcohol is due in part to the effects of the poison on the maternal organism ; in part to a direct toxic action on the embryo, owing to continued excesses during pregnancy and lactation.)

(4) The first of these modes of primary influence is by its

nature permanent, with a tendency to increase. The second mode, while tending also to a constant and constantly increasing operation, is susceptible of temporary augmentation or diminution.

(5) Under these combined modes of influence, the normal tendency of the family with alcoholic maternity is towards a type the inverse of the syphilitic family; that is to say, the first-born children are normal, then come more or less defective children who live beyond infancy, then children dying in infancy, then still-births, and, finally, abortions.

(6) Deviations from this type are probably due in many cases to oscillations in the intensity of the second mode of influence. Deviations originating in this fashion may be seen, for instance, in the death in infancy of the earliest born children of the family as a result of conception in drunkenness, and in the survival of late born children when the mother has been imprisoned during part of pregnancy.

It is hardly necessary to point out, in conclusion, the evidence which these observations furnish as to the social gravity of female inebriety. Our inevitably gross method of inquiry could only detect the extreme and gravest effects of this agency; it is legitimate to infer that in earlier phases, and in more moderate operation, it must also exercise a malign influence, capable of producing other morbid conditions, slighter in degree, less obtrusive in character. And this inference is not a matter of merely plausible speculation; it can be confirmed by appeal to another order of facts. I need only cite one instance: the socially unadapted classes of humanity — the criminal degenerate, the prostitute, the vagrant — are recruited in no inconsiderable proportion from the offspring of the alcoholic; in the genesis of the cerebral defects which underlie the aberration of conduct in these classes, must we not assign a certain rôle to the influence of the parental intoxication?

And this view leads naturally to the indication of social

prophylaxis. In suppressing the female drunkard, the community not only eliminates an element always individually useless, and constantly liable to become individually noxious; it also prevents the procreation of children under the conditions most apt to render them a burden or a danger to society.

COLD BATHS IN THE TREATMENT OF DELIRIUM TREMENS.

Maurice Lettulle, in *La Presse Médicale* of July 8, 1899, describes the case of a man thirty-three years of age, admitted to the Hôpital Boucicaut with a severe attack of delirium tremens, which had begun four hours before. At the time the patient was in intense excitement, but was capable of answering questions. The muscles of the trunk were in a constant tremor, and the limbs were thrown about with great violence. A camisole was applied which, instead of calming, seemed to aggravate the excitement. The temperature on admission was 104.5° F., and the face and extremities were cyanosed. Seven hours after the beginning of the attack he was given a cold bath of 64.4° F. He remained in the bath for thirty minutes, and at the end of that time suddenly passed into a state of collapse, with the pulse remaining at the same rate as when he entered the bath, 108. In the meantime the temperature had fallen to 92.6°. This was ten minutes after the bath had been given. From this extremely low point the temperature gradually improved until twelve hours after the bath had been given, when it was normal. The patient did not have a return of the delirium. The author enters into a consideration of the literature of the treatment of delirium tremens by cold baths. He regards it as a distinct improvement upon the use of opium, chloral, or digitalis. The bath in the case described was administered for too long a time, but he thinks it is justified in these very grave cases, and in the case in question it was followed by a lowering of the temperature and a disappearance of the delirium.

ARE THE USES OF TOBACCO DETRIMENTAL TO
MANKIND?

By T. H. MARABLE, M.D., OF CLARKSVILLE, TENN.

The tobacco plant belongs to the order *Solanaceæ* and the genus *Nicotiana*. The order to which tobacco belongs has rather a bad reputation, as almost every one of this genus contains poisonous plants, and they are generally unsightly or have an unpleasant odor.

Among the disreputable kindred of tobacco are night-shade (*Solanum nigrum*), horse-nettle (*Solanum Carolinensis*), belladonna (*Atropia Belladonna*), henbane (*Hyosciamus niger*), and Jimson weed (*Datura Stramonium*). The character of the order is somewhat relieved by the Irish potato (*Solanum tuberosum*).

The first detailed account of smoking among the Indians is given by Oreido. It was used by them to produce stupor and insensibility. The smoke was taken by inhalation through the nostrils by means of a hollow forked cane in one piece about a span long. When used the forked ends are inserted into the nostrils, the other end being applied to the burning leaves of the herb. This implement is called tobacco, from which the name tobacco is taken. There are four ways in which tobacco is used for its effects by men — chewing, snuffing, smoking pipe or cigar, and smoking cigarettes. You will note that I class

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cigarette smoking as a distinct manner of using tobacco, for indeed it is, and I think the most dangerous form in which tobacco can be used.

Physiological action of tobacco is hostile to all forms of life. On man the effects have been very minutely observed. In small doses it occasions a burning sensation in the tongue, a sensation of heat in the throat, a sense of rawness throughout the œsophagus, and a feeling of warmth in the stomach. The effect produced when used in excessive quantities, faintness, giddiness, nausea, vomiting, gastrodynia, cardialgia, torpor, sleepiness, palpitation of the heart, hypochondriasis, deafness, amblyopia, delirium, general relaxation of muscular system, trembling, complete prostration of strength, coldness of the surface, cold, clammy perspiration, convulsive movements, paralysis, and death. These conditions and symptoms have all been repeatedly noted by physicians and reported in medical journals.

As to the composition of tobacco smoke numerous investigations have been made. Kissling, experimenting on cigars, found that a large proportion of the nicotine passes unaltered into the smoke. Dealing with a tobacco containing 3.75 per cent. of nicotine, he recovered from the smoke 52.32 per cent. of the total nicotine consumed, while in the unconsumed remains of the tobacco the proportion of nicotine was increased to 5.03 per cent. With a second sample of tobacco, having likewise 3.75 per cent. of nicotine, the smoke yielded only 27.83 per cent. of the total nicotine consumed, and the percentage in the unconsumed remains was raised to 4.51. From a tobacco containing only 0.30 of nicotine he recovered 84.23 of nicotine in the smoke.

The composition of tobacco smoke is highly complex, but beyond nicotine the only substances found in appreciable quantities are the lower members of the picoline series. Dudley has made experiments seeking to explain the poisonous

effects of cigarette smoking. He states, besides combustion, destructive distillation takes place in the pipe, cigar, and cigarette as the result of heat, and the exclusion of the oxygen of the air which has been completely used up in passing through the red hot burning tobacco in front of that which the fire has not yet reached. The products of this destructive distillation are ammonia, a yellow and very poisonous substance of disagreeable odor called nicotianin, some nicotine, though most of the latter has been destroyed by heat, and many other products of minor importance. When there is a layer of fire one sixty-fourth to one-sixteenth of an inch in thickness, as the air is drawn through the hot carbon, this is reduced to carbon monoxide, and as such is drawn into the mouth, for when it passes beyond the fire there is no air or oxygen to convert it back to carbon dioxide. Its well-known poisonous effects when inhaled are the results of its affinity for the hemoglobin of the blood, converting the oxyhemoglobin into carbonic oxide hemoglobin, a stable compound not reduced in the circulation; hence, producing permanent asphyxia. Schtscherbak experimented upon animals by forcing them to inhale the smoke from a burning cigar, but permitting them to exhale freely. He found exalted faradic excitability of the motor centers and subjacent medullary substance. When the nicotine was removed from the tobacco smoke by passing it through hydrochloric acid this was not observed. Subcutaneous injections of nicotine (0.50 gramme) also increased the faradic excitability, showing the same symptoms by injection of nicotine as are seen from inhaling tobacco smoke, and proving that nicotine is taken into the system by smoking. The cheapness of the cigarette enables the young to buy and use them. Ninety per cent. of cigarette smokers inhale the smoke. The cigarette is smoked to the end and discharges directly into the mouth of the smoker everything that is produced by the burning. The cigarette is rapidly burned and the smoke inhaled,

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thereby increasing the proportion of the poisonous substance which is drawn into the mouth, and when the saliva is retained the fullest effect of all the narcotic ingredients of the smoke will be produced upon the nervous system of the cigarette smoker.

Coomes of Louisville considers the use of cigarettes particularly injurious, because of the almost universal practice of inhaling their smoke and expiring it through the nose.

Dudley, *Medical News*, 1899, says more injury results from cigarettes than from cigar or pipe smoking, because as a rule the smoke of the former is inhaled.

Cersoy, a French writer, finds smokers' vertigo confined to those who inhale tobacco smoke, and ascribed the injurious effects to its action upon the pneumogastric while it is retained in the pharynx, larynx, and trachea, and that the cardiac, pulmonary, and digestive disturbances are mainly the result of enfeeblement in pneumogastric action.

Hall of Texas holds smoking to be the most noxious form of using the weed.

Tucker, Analyst to the State Board of Health, New York, in his report on cigarettes, says that careful analysis of tobacco and paper failed to reveal other injurious substances than the tobacco itself; the evils of cigarette smoking being due, he thinks, to their cheapness, enabling excessive quantities to be used both by children and immature persons who usually inhale the smoke.

Dumas reports a series of cases from Algeria on the noxious effects of tobacco, among which is a case of angina pectoris ascribed to excessive cigarette smoking, which resulted fatally.

Lewin of Paris, 1895, states that the deleterious effects of tobacco are observable after its use in any form — smoking, chewing, or snuffing. Typical nicotinism occurs, as a rule, after a long-continued use of tobacco, sometimes not until twenty years or more. While many smokers reach old age,

many people do not live to old age because they are smokers. In higher schools non-smokers get on better than smokers, children from nine to fifteen years of age who smoke showing less intelligence and laziness. Adults are liable to cephalic pressure, insomnia or its converse (sleepiness), melancholy, aversion for work, and dizziness.

Kitchen, *Medical Record*, 1890, says that the stimulating and narcotic properties of tobacco have an effect upon the body in moderate use as well as in immoderate use, the effect being simply in proportion to the quantity used, though the effects of moderate use may not be measurable by ordinary means. It is easy to see the effects of large amounts of tobacco in the stunted growth of adolescents, in functional cardiac disorders, loss of appetite, neuroses of motion, intellectual sluggishness, loss of memory, color-blindness, marked blunting of various functions of sensation.

J. W. Seaver of New Haven, 1894, gives particulars of the comparative condition of seventy-seven non-users of tobacco, twenty-two irregular users, and seventy habitual users, at Yale University. In weight the non-users, in 1891, increased 10.4 per cent. more than the regular users, and 6.6 per cent. more than the occasional users. In height the non-users increased 24 per cent. more than the regular users and 14 per cent. more than the occasional users. In height the non-users increased advantage over the regular user of 26.7 per cent., and over the occasional user of 22 per cent. In lung capacity the growth was in favor of the non-user 77.5 per cent. when compared with the regular user and 49.5 per cent. compared with the irregular user.

Huchard of Paris, 1890, cites the effects of tobacco, which form part of a treatise on diseases of the heart. He reviews the chemistry and physiological action of tobacco, showing its effects on the nerve centers, the pneumogastric nerves, the vascular system, and on muscular tissue. He considers the

chief action to be upon the *medulla oblongata*. He describes what is termed the "irritable heart of smokers," in which there may be acceleration or slowing of the pulse, intermittence and arrhythmia of the heart, lipothymia and syncope, angina, præcordial anxiety, palpitation, sudden and distressing arrests of the heart, and extreme irritability of the circulatory functions. This action of tobacco is usually ascribed to its effect on the nervous system in general, and the pneumogastric in particular; but this is not all; much is due to its action on the muscular system in general, and particularly upon the vascular walls. Tobacco is not simply a cardiac poison: it is also an arterial poison. The vaso-constrictive action of nicotine has been thoroughly demonstrated. The effects of tobacco resemble absolutely those produced by galvanization of the great sympathetic; it is probably through the nerves that nicotine acts upon the vessels. The tetanizing process produces, in reality, a muscular ischæmia, which explains in part the tremor, muscular weakness, and paresis observed in nicotinized animals. This vaso-constrictive action produces disturbances in various organs. The nerve centers show signs of ischæmia, cerebrospinal irritation, headaches, with vomiting, morning fatigue, impairment of memory, physical irritation, inaptitude for work, and even transitory aphasia, with incomplete hemiplegia alternating from right to left. The respiratory apparatus, besides serious attacks of dyspnœa produced by the action of tobacco on medulla and respiratory muscles, may exhibit disturbances attributable to contraction of the pulmonary vessels. The diuretic effect of tobacco is also explained by this hyper-arterial tension. But it is upon the heart itself that the most deplorable effects of this vascular tetanization are produced. Certain attacks of angina and disturbances of rhythm may be ascribed to spasm of the coronary arteries and consequent ischæmia. The hard, small, tobacco pulse is also explained by this vaso-constrictive action. At first these troubles are functional, but in

time, from repetition or permanence of these vascular contractures, a sort of peripheral circulatory barrier is set up. Arterial tension is increased, the heart suffers from successive dilatations, which in turn becomes permanent, and there is produced finally a general arterio-sclerosis, which, if it involves the heart muscle, may produce various degenerations, of which dystrophic sclerosis is the most common. We may have two or three different forms of angina pectoris from tobacco: 1. Functional angina, relatively benign, resulting from a spasmodic state of the coronary arteries, and without a myocardial lesion. This is the tobacco spasm. It is rapidly cured by the discontinuance of the tobacco habit. 2. Organic angina, of serious character, resulting from coronary sclerosis — the tobacco sclerosis. It is not curable. 3. A gastric form, which is the most benign of all, a functional angina, resulting from frequent disturbance of digestion produced by tobacco, such as gastralgia, dilatation of the stomach, etc.

Dumas doubts the efficacy of tobacco smoke in arresting the development of the tubercle bacillus from his experiment in the case of a young subject who smoked by inhalation almost continually, but finally developed phthisis, which improved after he ceased to smoke for a time, yet became worse on his resuming it, death finally resulting. The observer considered it a case of phthisis provoked by the abuse of tobacco smoking. I do not believe tobacco prevents tuberculosis. Have seen four cases of tuberculosis within past twelve months, primary involvement in lungs, secondary tuberculosis of throat. These men were users of tobacco, chewed and smoked.

Broomhead records the death of a boy aged 13 following nausea and vomiting after cigarette smoking, terminating in convulsions and subsequent respiratory failure.

The following is what Dr. Bartholow says on the subject: "It is high time something were done to put a stop to this frightful evil which is stunting the growth and ruining the health of thousands of boys. It is just horrible to see these

boys, little fellows, many of them not more than eight or ten years old, not street boys, but well dressed and carefully nurtured boys, gathered in knots in some corner where they think they will not be observed, learning to smoke. Parents see their sons getting thin and yellow and irritable, the family doctor is called in, and without going to the root of the evil, prescribes tonics which do no perceptible good.

“The prodigious increase of cigarette smoking among boys in the last few years is an evil which will tend to the deterioration of the race if it is not checked. But it is not hard to account for. Boys are very imitative. They follow the fashion with promptness and zeal. Cigarettes are the rage at Harvard. It is the correct thing to smoke these poisonous little rolls of tobacco and paper. Whatever is fashionable in a great school like Harvard is sure in a very short time to be fashionable among young men and boys all over the country. Another great cause of the mischief is that boys are very fond of imitating their elders. Smoking in public places ought to be discouraged. There ought to be a sentiment created against it, and the press is the power to create such a sentiment. Every man when he smokes in public ought to think that he is encouraging some boy to smoke. The boy will smoke a cigarette imagining that he will get less tobacco in that way, and ignorant of the fact that cigarette smoking is the most pernicious form in which tobacco is used. Tobacco in any form is a great injury to a growing boy, and the fashion of inhaling the smoke and then forcing it through the nose is deadly in its effects. It causes catarrh in the air passages, throat, and nose, and makes the smoker disgusting as well as puny and stunted. You will find that these cigarette-smoking youths have impaired digestions, small and poor muscles, irritable tempers, and a lack of capacity for sustained effort of any kind, and I believe that you will find that they do not succeed in life. The men who win are men of strong physique. A cigarette-smoking boy will not make a strong man. These are some of

the evils which the individual brings upon himself. But the mischief does not stop with the individual, but is transmitted to his offspring. Nervous peculiarities are just as readily transmitted as physical peculiarities. The acquired irritability, imperfect development, and loss of nervous force of the father is inherited by the child, who in turn further impairs his health by the same process, so that in the course of three or four generations there must be a great deterioration in the race. The sale of cigarettes to boys should be prohibited by law."

It is truly melancholy to witness the great number of the young who smoke now-a-days, and it is painful to contemplate how many promising youths must be stunted in their growth, and a physical and mental wreck before arriving at man's estate. Look at the pale, young face, imperfect development, and deficient muscular power of the cigarette fiend; the action of the heart and lungs is impaired by the influence of the narcotic on the nervous system, but a morbid state of the larynx, trachea, and lungs results from the direct action of the smoke. The voice is observed to be rendered hoarser and with a deeper tone.

The General Assembly of the State of Tennessee in 1897 passed an Act prohibiting the importation or sale of cigarettes, and fixing a heavy penalty for its violation. The law was at once recognized as an eminently proper and beneficial one, and the only question upon which there was any doubt was as to the validity of the clause prohibiting their importation for sale. The question came before Judge Lurton of the Federal Court, and the clause was held to be invalid in that it conflicts with the inter-state commerce clause of the Federal Constitution. The question was also ably presented to the Supreme Court of Tennessee, whose decision outranks that of the Federal Judge, and is the settled law, unless the decision of Judge Lurton shall be affirmed by the Supreme Court of the United States.

Our Supreme Court in the case of *Austin vs. the State* undertakes to settle the question in a very elaborate and strong

opinion by Judge Caldwell. The broad position is taken in this opinion, and very properly so, that any article that is noxious or deleterious to health does not come within the provision of the commerce clause of the Federal Constitution. The fact is cited that the Supreme Court of the United States has held that discolored or adulterated oleomargarine is an article whose importation can be prohibited by the states. Upon this principle there seems to be no controversy, and the only remaining question, as said by Judge Caldwell, is this: "Are cigarettes legitimate articles of commerce?" Continuing, Judge Caldwell says:

"We think not, because wholly noxious and deleterious to health. Their use is always harmful and never beneficial. They possess no virtue, but are inherently bad, and bad only. They find no true commendation for merit or usefulness in any sphere. On the contrary, they are widely condemned as pernicious altogether. Beyond question, their every tendency is towards the impairment of physical health and mental vigor. There is no proof in the record as to the character of cigarettes; yet their character is so well and so generally known to be that stated above that the courts are authorized to take judicial cognizance of the fact. No particular proof is required in regard to those facts, which, by human observation and experience, have become well and generally known to be true. Nor is it necessary that they be formally recorded in written history or science to entitle courts to take judicial notice of them. It is a part of the history of the organization of the volunteer army in the United States during the present year, 1898, that large numbers of men, otherwise capable, had rendered themselves unfit for service by the use of cigarettes, and that among the applicants who were addicted to the use of cigarettes more were rejected by examining physicians on account of disabilities thus caused than for any other, and perhaps every other reason. It is also a part of the unwritten history of the legislation in question that it was based upon

and brought to passage by the firm conviction in the minds of the legislators and of the public that cigarettes are wholly noxious and deleterious. The enactment was made upon this idea, and alone for the protection of the people of the state from an unmitigated evil. Such being the nature of cigarettes they cannot be legitimate articles of commerce.

“ Every state has the right under its police power to prohibit the importation and sale of all articles inherently unworthy of commerce, and unfit for the use of its people. Indeed, an active duty rests upon the legislative branch of the state government to enact appropriate laws for the protection of the public against the hurtful influences of such articles; and in the discharge of that important duty the members of the legislature must be allowed to act in accordance with the dictates of their own best judgment. The right of a state to protect its people in their comfort, health, and safety, against the importation and sale of non-commercial articles has long been recognized and never questioned by the Supreme Court of the United States.”

In support of this decision numerous cases are cited involving adulterated oleomargarine and other articles unfit for public use.

The Supreme Court takes judicial knowledge of the hurtful nature of cigarettes, and very properly assumes that there are none who are ignorant of their tendency and effect.

The output of cigarettes in the United States for February, 1898, was 282,124,590.

THE PILOCARPINE HABIT.

The *Pharmaceutical Era* of July 20, 1899, describes an example of this queer habit. The individual who possesses this unique appetite began some years ago the use of morphine, to which he added later cocaine; a third was added, namely, pilocarpine. His habit was to take an injection of pilocarpine, which was followed a half-hour later by an injection of two grains of morphine, and in another half-hour a grain of cocaine. It is stated that the victim is a physical and mental wreck.

ON MORPHINISM.

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Medical literature is replete with treatises on the remedial management of morphinism and allied ailments; yet their origin, their pathology, should be deemed quite as worthy of investigation.

Is a subject addicted to morphine in possession of the normal mental equilibrium, and, if not, how does this equilibrium differ from the normal?

In the large class of hereditary degenerates the clinician is confronted with a most astonishing variety of mental manifestations. They perform acts of which they are either ashamed, or which they subsequently deplore; and yet, in both cases, they find it impossible to govern or restrain their inclinations. "C'est plus fort que moi" is an expression which gives the correct description of such patients' condition under those circumstances. They struggle against their abnormal desires with all the strength of will they possess, but generally fail to conquer their inclinations. I have a patient under observation, who, coming from a highly nervous and insane family, suffers from a most peculiar impulse, which prompts him to grasp any inanimate object and to squeeze it until he exhausts himself; he then loosens his grip. He is subject to a series of other as remarkable obsessions and impulses, but this one developed to such a degree that he became incapacitated for his work and had himself committed to the Sainte-Anne Asylum. He has an appetite, so to speak, for catching hold of objects and

squeezing them. He is perfectly lucid; understands that he must not give way to his impulse; but when under its influence his will power is reduced to the point of non-existence. At first, this impulse came only at rare intervals, but in 1897 it had become almost constant; no sooner did he loosen his hold upon one object than he would grasp some other, such as a chair, a table, a projection of the wall, a door knob, his mother's skirts, a penholder, etc.

Another patient under my observation at the Sainte-Anne Asylum is subject to an impulse which prompts her to kill her two younger children, the eldest one having absolutely no influence upon her. Yet she actually loves all three of them equally; she mourns her fate; she would do anything in her power to rid herself of that impulse, as she is a devoted mother and wife. She, too, is perfectly lucid mentally, having neither delusions, hallucinations, illusions, nor delusional interpretations.

Such patients, belonging to the class of hereditary degenerates, are not different as a class from the morphinomaniacs. The latter class, as it is understood by M. Magnan, is rather rare. The morphinomaniac is a patient who eats morphine by force of impulse, just as both of the above-cited cases perform their acts through the influence of irresistible impulse. The morphinomaniac is like the dipsomaniac, who drinks alcohol because of the promptings of impulse, although he tries his best to resist it. A dipsomaniac in M. Magnan's service at the Sainte-Anne was so grieved because of her affliction that she put fæcal matter into the alcohol so that the disgust consequent might prevent her consuming the draught, but even this heroic measure failed completely. When the impulse came she swallowed the mixture and satisfied her craving.

The morphine-eater differs from the morphinomaniac just as the chronic alcoholic differs from the dipsomaniac. Both the morphinomaniac and the dipsomaniac absorb their re-

spective drugs by impulse, while the chronic alcoholic and the morphine-eater indulge their craving because of lack of resistive will power, the difference between the two lying entirely in the form. Clinically, however, both belong to the class of mental degenerates.

We are not prepared to localize the cerebral lesion which causes the disease, as one could localize it in a right or left hemiplegia, but the lesion exists, nevertheless. Whether the appetite is too exaggerated, the will too weakened, or whether there is simply a general solution of continuity in the connecting fibres which, by their communicating agency, maintain the psychic harmony, there certainly is a material cerebral defect.

Morphinomaniac or morphine-eater, the subject generally presents quite a clinical tableau, indicative of mental degeneracy, of which the most prominent feature is only one symptom.

The following cases serve to sustain this position regarding the status of the morphine-eater :

Mlle. Anite C., modiste, thirty-four years old, entered the Sainte-Anne on the 12th of April, 1897. She is a natural child. Her father died of an apoplectic attack ; her mother had numerous nervous spells ; she was irritable and unruly, and inflicted bodily punishment upon her children to an unusual extent ; she also drank to excess. She was the mother of nineteen children, the greater number of whom died during infancy, or were still-born. Five children are now living, of whom, besides the patient, there is one sister who is extremely nervous, irritable, and who, like the patient, also has the morphine habit.

From the age of twelve the patient has been of a melancholy turn of mind, and once, while under the unkind treatment of her mother, she attempted to commit suicide by swallowing an infusion made from matches. At the age of thirteen she had typhoid fever in a severe form. At fifteen she, for the first time, had an attack of hysteria, which was preceded by an

aura with hallucinations. Flames flashed before her eyes, and then came a convulsive attack ; but she did not bite her tongue, and there was no foaming at the mouth. These attacks lasted from ten to fifteen minutes. At the age of sixteen she fell in love with a man with whom she lived nineteen months. At the end of this time she found it uninteresting to continue her relations with him and began practicing abortions on herself, which soon caused a metrapéritonitis. As a result of this it soon became necessary for her to enter a private sanitarium for treatment. She secured admission to the Dubois Hospital, where she, for the first time, received hypodermic injections of morphine, and soon became addicted to the drug. Her physician vainly endeavored to suppress the injections ; she bought some morphine herself clandestinely, and after her discharge from the sanitarium, in 1881, she used daily twenty centigrammes of morphine, in ten injections, daily.

She came home incompletely cured, still suffering from pelvic pains, to allay which she soon began to take thirty centigrammes of morphine daily. This continued for a year. Naturally, as a result of this system of life, she lost her appetite, slept badly, and suffered almost continually from oppressive nightmares. The malaise in the mornings was relieved by fresh injections of the drug. Menstruation stopped completely, and she found herself an absolute slave to the medication. She was forced to gradually increase the dose, until she was giving herself from ten to twenty consecutive injections at one time. She made such concentrated solutions that she had to keep them warm in order to prevent crystallization of the morphine salt. The constant puncturing of the skin soon brought on troublesome abscesses, for the treatment of which she entered the Necker Hospital in 1883. She left there, however, after a short stay, as she could not endure the progressive diminution of the morphine doses. In 1884 she was treated at various hospitals, notably at the Charité and the Beaujon. The sudden suppression of the drug in the latter

hospital caused overpowering vertigo, vomiting, and syncope. Not possessing sufficient courage to undergo this strict régime, she soon obtained her discharge. In 1885 we find her again, however, entering the Charité. At that time she presented marked amblyopia of the left eye and suffered from a premature falling out of her teeth. After a lapse of a month she obtained her discharge without having improved to any appreciable extent. She was taking four grammes of morphine in thirty grammes of water, by the mouth. As this had no pleasant effect upon her, causing her, on the contrary, to suffer from headaches and extreme excitement, she again had recourse to the hypodermic injection, taking two grammes and a half of morphine a day. This abuse was followed by a profound cachexia, which forced her again to enter a hospital, the Hotel-Dieu this time. There she again deceived her physicians, secretly giving herself injections, and, upon being discovered, was sent away. As her condition was precarious, she committed herself to the Sainte-Anne Asylum on the 16th of February, 1886.

She was very emaciated, weighed only forty-four kilogrammes, and presented hysterical spots and anæsthesia. There was complete loss of appetite, obstinate constipation, a bleeding gingivitis, and looseness of the teeth, due to a general alveolar periostitis. Sleep was absolutely impossible. The method of gradual diminution was employed, and the patient apparently stood it very well, until it was learned that she received morphine carefully packed in spools of silk or in the candy which was brought her from the outside.

The morphine was then suspended abruptly on March 24th; she became much excited, had incoercible vomiting, diarrhoea, and alarming symptoms of collapse. A few days later, however, she began to feel better, her appetite returned, and she even increased in weight. This improvement became so marked that menstruation, which had ceased entirely during the previous six years, reappeared.

The patient left the asylum on the 1st of June, 1886, in good condition, the amblyopia having completely disappeared. But on her return home she found herself near her sister, who was also suffering from morphinism. The patient, under the influence of her surroundings, again picked up her morphine habit, taking injections of two grammes a day.

In 1887 she was treated at the Salpêtrière. In 1888 she entered Laennec, where she administered to herself clandestine injections, and upon this being discovered, was summarily discharged. On the 9th of January, 1888, she entered the Sainte-Anne.

She then presented hallucinations of a most terrifying nature; she was persecuted by ferocious horned animals, etc.; she slept badly, had involuntary laughing spells, and exhibited suicidal tendencies. These were caused by her despair of recovery from the morphine habit. Her memory was much impaired, particularly in reference to recent events. Her gums were inflamed, her eyes tearful, her general physical condition reduced, and her heart was in such a feeble state that it was necessary to suppress the morphine abruptly. She was given coffee and sparteine to sustain her, and chloral to enable her to sleep. From the 9th to the 18th of January she exhibited alarming symptoms of collapse, diarrhoea, vomiting, and epigastric distress. On the 19th, however, she had so greatly improved that her physician was astonished. On the same day she was discovered giving herself an injection of morphine. She had hidden a syringe and a solution of the drug in her bustle. "I have tried," she said, "every possible means to get along without the morphine, but it was impossible." She left the asylum on April 22, 1888, in good physical condition, but returned on the 15th of October of the same year, and was discharged on the 22d, only to return on the 26th of December. She left on the 5th of February, 1889, but again suffered from indulgence in the drug, and the following

dates of subsequent admissions and discharges to Sainte-Anne :

Entered October 4, 1889; discharged October 26, 1889. Entered April 1, 1890; discharged, April 19, 1890. Entered March 6, 1891; discharged May 23, 1891.

In 1891 she suffered a severe shock, caused by the death of her brother. He was found drowned. "When I saw him at the morgue," she said, "I was like an insane woman; I wished to carry his body home; I refused to believe that he was dead; and on the day of his funeral I did nothing but laugh; I wished to sing all the time; it was all involuntary." This tempestuous grief only served as a new spur to her old habit. She began using larger doses than ever. "I wish to hear no more about a cure," she said, and, fulfilling her declaration, she kept away from the hospitals until the 26th of January, 1895, when she was forced again to seek admission to the Sainte-Anne Asylum. She suffered from highly depressing nightmares, had visual hallucinations, and saw imaginary people, such as a woman with a black veil, etc. She realized, however, that these visions were purely imaginary. She left the asylum on the 10th of November, 1895.

In speaking of her sufferings from deprivation of the drug, she said: "This winter I was at death's door; I took almost nothing during six months, and for eight consecutive days I had absolutely nothing." As soon as she left the asylum she again started her old practice of morphine injections, and continued them until April, 1897. As she then fell into a very alarming condition, she began to diminish her doses, taking only twenty centigrammes a day. In conjunction with this, however, she also took five grammes of chloral and twenty grammes of laudanum daily. This caused insomnia and loss of appetite, and she again came to the Sainte-Anne on the 12th of April, 1897. She then weighed but forty-four kilogrammes and eight hundred grammes. The method of progressive diminution was employed, and the treatment was finally fin-

ished on the 23d of April. She improved rapidly, and in July weighed three kilogrammes more than she did at the time of her admission. She was discharged on the 23d of July, 1897.

Coming from a highly neuropathic and psychopathic family, this patient had manifested from her very earliest age most prominent psychopathic symptoms. She had hysterical attacks, had attempted suicide, and could not accommodate herself to her surrounding circumstances. The appetite for morphine was only one prominent symptom of a disease based upon the deep root of degeneracy which she inherited from her ancestors.

In further illustration of this class of degenerates, I would cite the following case of cocainism and morphinism :

Georges B., twenty-six years old, born in Geneva, entered the Sainte-Anne Asylum on the 26th of March, 1897. The patient's father was a man of high accomplishments, who died of an apoplectic attack. His mother died of heart disease. A grand-uncle on the mother's side was somewhat neurasthenic. The patient, although very intelligent, is singularly lacking in enterprise. During his varied career he exhibited a great lack of stability. In 1886 and 1887 he studied pharmacy; then he determined to change his vocation, and began the study of medicine. He undertook the task of acquiring many languages, and as a result of some whim settled upon engineering as his career. He succeeded in becoming a civil engineer, and even obtained a position as such with a railroad company. In 1889, while in Spain, he contracted syphilis, and subsequently suffered from blennorrhagia. In 1890, while in Malaga, Spain, he suffered considerably from cystitis, for which his physician gave him a hypodermic injection of morphine. The dose of from one to two centigrammes a day was repeated, but had no beneficent effect upon him. On the contrary he only suffered from nausea and headaches. After a continuous use of the drug for some days, however, the unpleasant effect

wore off by degrees, and he began to like its results. "The more accustomed I became to the use of morphine," he said, "the more pleasant its effects became." His physician eventually gave him a hypodermic syringe and a prescription for a morphine solution, thus enabling him to administer the injections whenever he felt the need of doing so; beginning with doses of from one to two centigrammes a day, which, as he put it, made him feel as if he were "floating on cotton." So pleasant was this sensation that he soon made the slightest provocation a pretext for administering to himself an injection. He used the drug for ameliorating the effects of the slightest fatigue or a headache, and particularly to "increase his mental activity." He continued these injections until 1893.

One day he had some unpleasant words with the family of his fiancée, which quite disturbed him, and upon his arrival home he immediately gave himself an injection of twenty centigrammes of morphine. This was the first large dose he had ever taken. His father died soon after, and the shock of grief was another occasion for the self-administration of a large dose of the drug. This time he gave himself twenty-five centigrammes. In describing the effects of this dose, he said that he felt a strong arterial throbbing at the temples, heard singing and ringing in the ears, seemed to see a mist before his eyes, and now and then saw brilliant flashes of light.

In 1893 he lost all interest in his work, and decided to try his fortunes in South America. He undertook the voyage, and went without his beloved drug for forty-five days, the time consumed in making the passage across. On his arrival in Chile, however, he found it difficult to make his living, and became considerably oppressed, ate badly, and slept poorly. He rarely took the injections now because of his pecuniary difficulties, but on the occasions when he could afford to indulge himself he gradually increased the dose until in March, 1894, he found it absolutely necessary to take one gramme and twenty centigrammes a day. Meanwhile he was gradu-

ally failing in health and losing both appetite and weight, as well as becoming more and more depressed. He then attempted to rid himself of the habit by substituting sparteine, but failed in the attempt. He entered a hospital for treatment, but being unable to stand the method of sudden suppression in vogue there, he obtained his discharge. He then contracted typhoid fever, for which he was treated during a period of four months, with opium, wine, and morphine. At the expiration of that time he found himself penniless, but managed to scrape together enough to procure morphine, the drug, as he put it, having "in more than one instance encouraged and sustained him," lending him strength to "struggle against the thought of suicide." In June, 1895, he found himself with absolutely no means of procuring morphine, and while searching in his valise, with the hope of finding some remnants of a former supply, he chanced upon a bottle of cocaine, which he had at one time used upon the advice of a druggist as an antidote to morphine. He had recourse to this drug "in order to sustain my strength, which was failing rapidly, and to calm my hunger for morphine." Within the course of twelve hours he took a gramme and a half of Merck's cocaine without the slightest poisonous effect. "I went out the following morning," he said, "much invigorated, although I had been fasting since the morning before." Soon after this he became intimate with a druggist who generously supplied him with both morphine and cocaine. At first he only took fifty centigrammes a day of each drug. In August, 1895, however, he obtained a position as chemist at the municipal laboratory at Valparaiso, where he remained four months. As he continued using both drugs he soon began to experience auditory hallucination. At night he thought he heard his manager saying to him: "Ah, ah, here you are, I see you; you are not working; you are giving yourself injections instead of doing your work." As he was poorly paid at the laboratory he decided to return to France, and arrived home

in September, 1896. Here he stayed with his uncle, who supplied him with morphine and cocaine. "It was only humane," he said, to do this. But the patient was not satisfied with the small doses supplied him by his uncle, and soon started in selling his clothes to procure money with which to purchase the drugs. Toward March, 1897, he totally lost his appetite, and the ability to sleep, and began to exhibit delusions of persecution. He imagined that everyone was ridiculing him, and was firmly impressed with the idea of everyone's animosity toward him. An increase of the dose of the drug caused his delirium to become more active. On the evening of the 25th of March he imagined that he was pursued by enemies, and cried: "Help, help! Murder!" He ran to the police headquarters, begging for protection. When brought to the *Infirmierie du Depot* he imagined that insects were crawling under his skin. At the *Sainte-Anne* his hallucinations ceased after the first day. The method of progressive decrease was employed, and he was discharged, cured, in July, 1897.

Extracts from the notes of G. B. — "It is a common belief that the use of morphine induces voluptuous dreams and indescribably pleasant sensations, similar to those produced by opium, as stated in the accounts of opium smokers in the East. . . . I have found that morphine calms, cools, and represses progressively any physical desires. It ends even by producing temporary sexual impotency. There is, in connection with the latter, a total indifference to the opposite sex, this indifference sometimes becoming an aversion. The male morphine-eater never thinks of woman. Once the morphine becomes a daily necessity, it is also an irresistible, absolute, and sole passion, excluding any other satisfying agent of the senses, passions, or inclinations. Morphine admits of no rival. It temporarily suppresses all physical as well as moral sufferings. It excites the intellectual functions, and causes a feeling of self-satisfaction that surpasses any other pleasant sensation. I have endeavored, at different times, to

gradually diminish my daily doses, centigramme by centigramme, but I have soon found myself suffering from marked malaise, oppressive anxiety, and neuralgic headaches; my skin became covered with cold perspiration, and I yawned incessantly. I felt unable to move or to do anything whatsoever."

In speaking of the effects of the gramme to gramme and a half of cocaine, which he took daily in connection with his morphine, he says: "These large doses of cocaine plunged me into a condition of drowsiness, hebetude, and ecstasy of a peculiar nature. I gave myself hundreds of hypodermic punctures, which caused me to lose a considerable amount of blood, for I made intravenous injections. I remained in a condition of stupor, hypnotized by the glittering of the needle and the syringe. Sometimes I even experienced cataleptic attacks, falling asleep in an upright position, both arms uplifted, holding the needle and syringe for hours at a time. Once I remained in such a position for four hours and did not feel the least bit fatigued when I regained consciousness. Sometimes I saw small, almost microscopic, animals, which ran back and forth upon my skin, and gave rise to a creepy sensation. My general sensibility became dull; I could not smell as well as usual. But my hearing became more acute than ever, and I at times heard with such intensity that the process became painful; the slightest noise became abhorrent, and I often stopped my work crying for absolute quietness. I soon began to have hallucinations. The howling of a dog in the yard sounded like the voice of my employer, who seemed to be reproaching me. The cracking noise of a panel or window made me imagine that I was being watched, or was to be interfered with in taking my usual injections."

The high intellectuality of the subject does not exclude the possibility of his being a degenerate. M. Magnan in his *Recherches sur les centres nerveux* cites many cases of so-called superior degenerates who, while of a highly intellectual order,

nevertheless manifest most extravagant obsessions and impulses.

A lady of our acquaintance, of a highly cultured mind and nature, is subject to an impulse which prompts her to chew uncracked wheat. If she does not satisfy her craving she becomes uneasy, restless, and unable to perform her daily tasks. "I cannot understand it," she said, "but I simply must chew the grain." She keeps a supply of wheat ready at hand upon her work-table, and no dictates of conventionality can interfere with her indulgence of her strange appetite. She looks upon it as a slight oddity, but the clinician realizes the importance of the symptom and its underlying fundamental hereditary causes.

The morphine-eater's malady differs in no way from this clinical manifestation, except it be in form. There is here, as there, an underlying history of degeneracy, which is characterized by many a clinical feature, the predilection for morphine being the most prominent symptom in the former.

The question naturally arises, are such patients curable? Certain it is that they improve under close supervision. Where, however, as demonstrated in the first case above quoted, the hereditary influence is quite marked, and the unknown anatomical lesion is, inferentially, pronounced, the instability of the mental equilibrium is such that a permanent recovery is almost not to be hoped for.

Dr. Legrain's investigations on alcoholic inheritance are tabulated as follows: In the first generation from inebriety the mental and physical degenerates were seventy-seven per cent. of all. In the second generation ninety-six per cent. were defectives. In the third generation not one escaped, all were idiots, insane, hysteric, or epileptic.

ALCOHOL AND ALCOHOLISM AND ITS RELATIONS TO THE MEDICAL PROFESSION.

By CHARLES MAEFIE, M.D., EDINBURGH, BOLTON, ENGLAND.

It is our duty to help forward any movement that will improve the lot of the fallen and falling alcoholics in the hope of their again becoming useful members of society. It is calculated that 60,000 deaths occurred last year from consumption, and that as many died from the effects of alcohol — two preventable complaints. If we turn to our asylums we find about twenty per cent. of their inmates are insane from drink; to our workhouses, a majority of their inmates have led selfish, alcoholic lives in the past; to our law courts, where we find not less than thirty per cent. of the cases arise directly or indirectly from drink.

In statistics obtained from the United States we have 909 replies from prison governors, which show the proportion of crime in the licensed states due directly or indirectly to drink to be not less than seventy-two per cent., while a similar report from one hundred and eight officials in prohibition states gives a percentage of thirty-seven, and a considerable number of these latter were "boot-leggers," in jail for selling whisky. Out of 1,017 jailers, only 181 placed their estimate below twenty-five per cent., and fifty-five of these were from empty jails in prohibition territory.

I may here inform you that in 1898 the town of Bolton stood at the head of the list of the large towns of Lancashire for sobriety, taking the police-court record of cases as our guide, with 4.21 imprisonments from drink per 1,000 of the inhabi-

tants, while such towns as Bootle and Salford show respectively 20.23 and 15.11 per 1,000 of inhabitants. The state should punish and confine the drunkard and not make him. The mode of admission to inebriate homes should be less strict and should not be voluntary, but in proper cases under compulsion on the oath of two medical men and by the order of a J. P., the licensee should have complete control of the inmates under sufficient government inspection. No doubt the Act of 1898 will do great good, but it only touches the outer fringe of the question. So far the home authorities have been dilatory in putting its machinery into motion, and the weakest point in the Act is that it has left the establishment of homes to the local authorities. By it a court of summary jurisdiction may order that criminal habitual drunkards may be detained in any state or certified inebriate reformatory for a period not exceeding three years. The same can be applied to persons convicted of drunkenness three times within the year, and power is granted to county and borough councils to establish inebriate homes under their own entire control. The Act does not touch the regular soaker who is never drunk, the steady drinker who swallows his week's wages in drink and starves his wife and children, the intermittent drunkard, quiet and unobtrusive, but persistent — as one remarked to me, "Why shouldn't I take what I enjoy?" only the noisy and the criminal. Yet when we read of London calculating to commit nearly 400 and Manchester no fewer than 200 in the year to inebriate homes, we hope for good results to the community as well as to the individual.

Our profession should closely watch the effect of this Act, and when the time is opportune point out its faults and shortcomings, and use every endeavor as individuals and as a branch to extend its scope. But government should be stirred up to initiate laws for the proper control of the trade. It has become such a power in the land that even the church is losing her influence with the people, and the state is in danger of

being controlled by "the swollen tyranny of drink." Here again our profession, with our opportunities, can help to form opinion. We can be agents for good in convicting and convincing the public, showing it how by abstinence disease may be avoided and the span of life extended, for it is dishonoring to a country to have overflowing workhouses and jails. As J. A. Steward puts it in *The Minister of State*, "While justice is justice it is no credit to a state to have overflowing jails." We all know that the Local Veto Bill of Sir William Harcourt died in the birth, but on the question of local veto or direct government control I do not wish to dilate; there are smaller, but yet important, matters that we may influence. There are opportunities of exercising a limited local veto. Landed proprietors have the power of vetoing a license for any building for the sale of intoxicants on their estates; why should not a community have a similar power of veto by a two-thirds or three-fourths majority of the householders when a license is asked for new premises within its borders? Limited local veto has been successfully carried out in the United States and Canada, and the governments of Norway and Sweden have controlled the traffic, though the Russian government has seemingly landed itself in a financial dilemma by attempting to monopolize and regulate the trade.

At the International Medical Congress in Washington in 1887 a statement was subscribed to by many leaders of the profession in which, among other recommendations, the following was made: "We declare that we believe alcohol should be classed with other powerful drugs." The fetching of alcoholic beverages by children should be put a stop to. I am glad to say that the outcry against this custom has reached the trade, and the habit has been considerably curtailed, and the justices have decided to stop it; the giving of sweets is altogether stopped. There should be a stricter enforcement of the law against supplying drink to the already inebriated, and the medical magistrates have a great opportunity.

I know cases difficult of diagnosis will constantly occur, and opinions differ on what is and what is not intoxication. The Duke of Argyle remarked in the House of Lords, when a question about whisky and drunkenness was being discussed, that it was difficult to get a Highlander to confess to his having seen a compatriot drunk. The reply usually came, "Na, but 'ave seen him aften that ye wad jist ken that he had been tastin'."

Under 2,000 death certificates have alcohol as a primary or secondary cause of death, though the registrar-general's last report shows the death-rate from intemperance, both among males and females, to have been the highest on record. Yet it has been calculated that 60,000 deaths result annually from the abuse of alcohol, directly or indirectly. Many place the deaths from this cause at nearer 100,000 per annum. Why this non-conformity of certified deaths with actual deaths from alcoholic abuse? Because the medical man is only called upon to certify the immediate cause of death, which may have been cerebral apoplexy, without necessarily certifying alcoholism as a predisposing cause; because medical men wish to spare the family feelings; as Whiteing, in "No. 5, John Street," says, "Half the certificates we write are mere anodynes for the public conscience"; and because medical men wish to protect the public from the industrial insurance companies through their agents, who in this as in other ailments look to the death certificate as a protection from fraud (?) on the part of the insured or the friends. The forms for insurance are often filled up without consulting the party to be insured; death takes place and the death certificate states that the deceased suffered from some chronic ailment for months or years before the date of the insurance policy. Our certificate thus often becomes the ground to the insurance company for the payment of a fraction of the original sum insured. The state has enacted that the friends of a deceased can demand a death certificate from us free of charge, and that the registrar must

be paid according to fee scale for the registration of death and for each copy of the death certificate. Is it consonant with our dignity or our sense of justice to our profession that we act as the jackals of the industrial insurance companies, and that we, through our endeavor to protect the needy and often innocent friends of the deceased, render the registrar-general's returns on death from alcohol or other ailment worthless? I say "No."

We must impress on the state through our powerful association and the General Medical Council the need for having the death certificate treated as a confidential document, which should be transmitted direct to the registrar.

As units of society the profession can exercise great influence for good in the direction of temperance, and we are greatly helped at the present day by the steady advance in temperance views of the higher and middle classes of society, by the more enlightened working men, and by the immense strides the teetotal movement has made. The opinion of the profession to-day is that a condition of health requires no alcohol, and the like opinion applies to highly-seasoned and indigestible foods. The social board still groans under its load of delicacies, and the custom of passing wine still holds its ground at too many of our social gatherings. As Dr. Grindrod says, "The association of indulgence in the use of intoxicating liquors with the intercourses of social life forms a strong inducement to the formation of intemperate habits." It may encourage the "feast of reason and the flow of soul," but the profession should in their social capacity discourage by example the regular use of alcohol at meals, as one glass lightly taken is apt to lead to another more lightly taken. We should abstain from "treating" with alcohol, whether among our social acquaintances or that ingrained custom of treating workmen to an encouraging glass.

Doubtless, in the first half of this century the medical profession prescribed alcohol without due discrimination; it was

pleasing to the patient and friends, as it too often is at the present day. I regret to say that public bodies and leaders of public opinion do not always give the profession credit for having helped the community to form a truer opinion of the dangers of alcoholic beverages, even in moderate use. I will detain you for a moment to give two illustrations of my meaning. The North Bolton Church Mission issued a leaflet, dated November, 1898, in which among other matters it says: "May we, as clergy, be allowed to beg the doctors to warn young mothers and our young girls against the hideous consequences of the vice of casual spirit drinking?" On their very knees they beseech us to begin what we have been preaching for more than a quarter of a century. Again, in the Manchester Guardian of February 15, 1899, at the annual meeting of the Manchester and Salford Women's Christian Temperance Association and Police Court Mission, Mrs. Gamble, the honorary corresponding secretary, is reported as follows: "In the latter part of the year 600 copies of a letter signed by the office bearers were sent to the medical men practicing in the city and neighborhood, calling attention to the amount of inebriety, for the origin of which 'doctor's orders' was given as the reason or excuse, and urging their responsibility in this matter."

Certainly we have not thundered our views from platforms, nor trumpeted them from the house-tops, nor roused the sympathies of a re-echoing press by measured advertising, but in the silence of the sick chamber, at the couch of the dying, and in the secrecy of the consulting-room, we have by precept and prescription taught what we know of the good or evil of alcohol.

The insinuation is a glaring economy of the truth, and before such insinuations are published to the world one would expect any fair-minded society or individual to first probe the truth about "doctor's orders." There are two sides to a ladder. No drunkard ever takes the blame for his or her de-

graded condition, as the profession so well knows. According to them their own family circle and nearest friends are their direst enemies, and how often has a chimerical "doctor's order" been given as an excuse. I could understand our being urgently requested to avoid prescribing alcohol in any form on account of the moderate use of it becoming a habit and ultimately developing into a craving. The medical profession is as anxious that alcohol should not be abused and that human beings should not suffer in mind and body from its effects as any teetotaller can possibly be.

To quote Dr. Clouston of Edinburgh: "Primarily they (the medical profession) were scientific men — a doctor might be a religious man, he might be a teetotaller, but primarily he was in the world to do certain medical and scientific things — and from the medical and scientific point of view they read this great absolute physiological fact before them: that the first thing that alcohol did in 99 cases out of 100 was to affect the mental working of the brain of the man who imbibed. . . . As scientific men they had to ask what was the ultimate or the general effect — not the immediate effect."

Many of the public and temperance bodies are either ignorant of or blind to what the profession has been doing during the last few decades. Every home in these isles I am sure could give evidence of the trend of the opinion of the profession with regard to the prescribing of alcohol during the last fifty years, and my own experience of the profession during the nearly thirty years I have had the honor to count myself a member of it has been a steady determination to forego the employment of alcohol unless under a conscientious belief that alcohol, and alcohol only, could stay life's ebbing tide. Look at the readiness with which the profession employs the most recent remedies — substitutes for alcohol — in the hope of producing effects as beneficial as alcohol, but without the alcoholic recoil. Note the effect of the mind of the profession on our insurance companies. The scientific facts the profes-

sion has adduced have enabled the insurance companies, according to Dr. Kerr, to prove that while the death-rate in the general section amounts to 98 per cent., that in the temperance section amounts to 70.9 per cent. Many companies that have general and temperance sections accept abstaining lives at a 10 per cent. reduction on their premiums. From last year's report of the Sceptre Life Association there were 66.41 deaths among the moderate lives, and 51.14 among the abstaining, and during the past fourteen years 79.63 per cent. deaths of the former and 57.33 per cent. of the latter. Last year's report of the United Kingdom Temperance and General Provident Institution "confirms the preceding fifty-seven years' testimony" as to the general longevity of assured abstainers. In the general section the expectancy was 411 claims, and the actual claims 373; in the temperance section the expectancy was 380 claims, and the actual claims 247. Take the other side of the picture: The Associated Scottish Life Offices show the annual expected and actual mortality per cent. of males among beer-sellers, inn-keepers, hotel-keepers, etc., to be: expected, 1.47 per cent., actual, 2.02 per cent.; and of females: expected, 2.02 per cent.; actual, 2.25 per cent. The time was when no insurance company would accept a teetotaller.

The profession has been active in the promotion of temperance in our workhouses. Dr. Kerr says, "There has been a diminution in twenty years of nearly 60 per cent.;" and yet pauperism, especially in this part of Lancashire, according to Sir John Hibbert, is on the increase. I had a certain confidence that I would be able to place before you detailed statistics of the consumption of alcohol in the chief British hospitals, but I have failed to get a reply to my request for information except in a few cases. St. Thomas's Hospital in 1888, with an average daily number of patients amounting to 374, spent £1,063 in alcoholic beverages, and in 1898, with a daily

average of 407 patients, spent £241. The Hospital for Sick Children, Great Ormond Street, shows:

Year.	Number of Patients.	Cost of Alcohol.
1873	572	£ 106 1 7
1888	1100	23 10 8
1898	2067	43 2 2

From the establishment of the London Temperance Hospital to December, 1897,—this hospital received its first patient Oct. 6, 1873—alcohol had been given twenty-five times among 13,984 patients, and last year it was given six times among 1,290 in-patients. As far as I can calculate from the report the total would only amount to a few ounces altogether, and yet the returns of the London Temperance Hospital compare favorably with those of other London general hospitals, with its seven per cent. in twenty-four years to ten per cent. fully in the others.

From Scotland I have two reports, one from Edinburgh and the other from Glasgow, which show a diminution in the amount consumed per patient per annum. In the Presbyterian Hospital, New York, the consumption of alcohol during 1898 was 3.67 oz. a head, the total of patients having been 20,190. One of the hospital secretaries writes me in reference to the great diminution in the amount of alcohol consumed at his hospital to-day and in the past: "Either the secretary and staff drank it, or the children must have had alcohol baths." To go outside these islands: Surgeon-General the Hon. F. H. Lovell reports a decreased consumption of alcohol in the hospitals of Trinidad amounting to no less than 60 per cent. Dr. Dawson Burns says: "I believe it is true with regard to the hospitals of London that the amount of alcohol given now is not more than one-half what it was twenty-four years ago." Lord Lansdowne, secretary of state for war, says: "In the last twenty years the number of court-martials, minor punishments, and fines for drunkenness in the army had approximately diminished by one-half."

We have, therefore, confidence in proceeding on the lines of recent years, and are encouraged to prescribe alcohol in diminishing amounts.

It is not necessary in health, and can be looked on as a luxury with possibilities for local and far-reaching secondary effects. But in "deviation from the healthy standard," we must bear in mind the need for the utmost caution when we turn for help to alcohol. In convalescence from disease it has been proved useful by encouraging the appetite; in acute disease and threatened collapse, many have found it successful in staving the failing powers until the crisis; and in old age the flickering flame has been steadied by small doses of alcohol. My opinion is that we should abstain from prescribing alcohol until other and harmless remedies have failed to produce the desired effect. Even a small dose, well diluted, is sufficient to produce an inflamed appearance of the stomach, as Dr. Beaumont pointed out, while Parkes and Wollowicz showed that one ounce increased the heart pulsations by 8,172 in twenty-four hours; both Richardson and Ridge, the one on the hearing and the other on the sight, showed that even a two-drachm dose well diluted impaired them, as well as muscular sensibility. Congestion of the retina with a similar dose was noted by Nicol and Mossop, and Krapelin found that the color sense, in discrimination and speed, was impaired under moderate doses of alcohol.

In sudden emergency, and often far removed from other potent remedies, we may have to employ alcohol, as when threatened heart failure from loss of blood or other cause. No matter, in such cases, what temperance views we may hold, a serious responsibility rests on each one of us. But when there is other material and opportunity, in face of what is known of the silent and insinuating influence of alcohol, we should have recourse to them. Hot water as an aid to digestion and as a stimulant is not prescribed with that frequency it ought to be, while we are apt to forget that hot diluent drinks are much

more useful than alcohol in warding off a chill, and we should strongly denounce the use of alcohol in these, pointing out how the warmth of the hot drink does the good, and not the alcohol that is too frequently added. How often does a hot saline enema stir up the failing heart after severe hemorrhage! Then properly-prepared and administered food, either given by the mouth or rectum is the most powerful stimulant to flagging energy, and it is as important to have foods carefully prescribed at the commencement of an illness as at the end, when perhaps all the resources of our art may fail if the feeding of the patient has not been carefully attended to in the first instance. In the tinctures of the various carminatives, such as of cardamons, capsicum, etc., combined with a bitter, we have efficient and ready stimulants that will aid many a drooping appetite and encourage a sluggish stomach to overtake its duty.

But I need not weary you with too much detail, for in turning to our Pharmacopœia and our Extra-Pharmacopœia for substitutes for alcohol, we are at once impressed with the fact that most drugs have more or less stimulant properties, either local or general, for example, phosphorus, arsenic, and iron, chloroform, and the ethers, and the various alkaloids — all stimulant in medicinal doses.

But we have to deal with substitutes for alcohol in those diseases where alcohol has usually been prescribed. For this we have the various preparations of ammonia, as the carbonate and the aromatic spirit; also the alkaloids — strychnine, digitalin, and strophanthin; oxygen gas and hyoscine. The use of alcohol is to “restore flagging vital actions and check excessive or irregular movements.” The stimulant action of those named is followed by no “recoil,” only what is implied in the gradual cessation of their action, requiring or not a repetition of the dose, according to circumstances, and the repetition of a stimulant dose does not result in any morbid craving. On the subject of carbonate of ammonia, Anstie says, in com-

paring it with alcohol, "that precisely similar benefits (though less in degree) may often be obtained by the use of carbonate of ammonia"; and further: "This general agreement of two such remedies as alcohol and ammonia in the effects they produce in acute disease attended with severe exhaustion is very significant." They remove coma, check delirium, arrest convulsions, and restore sound natural sleep. With the carbonate of ammonia or the aromatic spirit we may combat the effects of a disease exhausting to the nerve centers or the heart.

In strychnine and digitalin, employed especially subcutaneously, we have much more powerful aids to flagging nerve power or failing heart vigor than alcohol, and both quantity and effect can be much better regulated than in the usual mode of alcoholic administration, care being taken in giving digitalin to combine it with a nitrite. Oxygen also may be employed as a helpful substitute, especially in chest affections, and I am glad the profession is recognizing its usefulness and giving it its proper place in medicine.

But alcohol has been proved a powerful soporific in febrile states with sleeplessness; yet we need not turn to it for aid as in hyoscine or that, with a minimum dose of morphine or heroin to counteract the first disturbing effect of the hyoscine, we have, while a cardiac stimulant, a useful calmer of disturbed cerebration, and much more powerful and certain than alcohol. Of course, in cases of immediate urgency, sulphuric ether may be subcutaneously employed.

But some may ask: What about alcohol as a food, which these remedies are not? With our present knowledge of the requirements of the body, and the most recent modes of preparing readily assimilable foods, administered per os or per rectum, and with our certain knowledge of the poor dietetic properties of alcohol — though these are denied by a few — that point need not enter into our consideration. Intravenous and subcutaneous alimentation are but in their infancy, and have not arrived at that certainty in administration that their

employment can be undertaken by every medical practitioner. Though it is twenty years since Zuntz and Meering first suggested the direct injection of nutriment into the venous circulation, it is only recently that Lilienfeld has shown that alkaline solutions of grape sugar and conglutin can, in nutritive amounts, successfully be so introduced in the lower animals. According to von Leube, alkali, albumin, and syntonin "are alone suitable for subcutaneous injection." Recently alkaline solutions of the yolk of egg have been injected subcutaneously with advantage in children suffering from malnutrition. But to those of the profession who conscientiously believe that alcohol and alcohol alone is the remedy, let me impress on them the need to prescribe it on the lines that Sir B. W. Richardson did, and with a due sense of their responsibility, in measured quantities of absolute alcohol or spirit of wine as a prescription, never as a last resource or promiscuously, because it will please the patient and friends. Our duty is to discourage its being looked on as a useful article of the household economy on the same level as Epsom salts and castor oil, to be employed as occasion arises.

There is a form of medication much in vogue at the present time by means of wines of various remedies — such as coca, quinine, kola, beef and malt, etc., and the makers of these impose on a credulous public by their attractive advertisements and misleading recommendations. Even medical men are called in to encourage the use of these medicated wines by a judicious presentation of a small bottle and a promise of further samples on request. Whatever may be the advantage of the medicament, one thing is certain, that few of the public who quack themselves with these proprietary articles are aware that the basis of the solvent or preservative is alcohol, often port or sherry.

Whatever malt may be capable of doing it is certain meat extract has no sustaining effect, but when these are combined with a stimulant of doubtful composition I consider no

medical man is justified in prescribing them, for should there be an imaginary success from their use, as will so often happen in convalescence from any disease, the patient will prescribe it wholesale to friends. Should any of us have a case where one or other of these medicaments may be considered useful, let it be prescribed in aqueous solution flavored with some harmless ingredient; or if a malt let it be a standard malt extract.

But prevention is better than cure, and the medical profession has always taken the lead in that, exercising often great self-denial in initiating and encouraging means to prevent, alleviate, or cure the ills flesh is heir to, always striving for the good of humanity, though often discouraged and harassed by the whimsical acts of a pliable government or the taunting sneers of a clique of fanatics.

But with all precautions in the prescribing of alcohol there will still remain a large class who will claim our help to quench the irresistible desire for stimulants. So far no remedy has been discovered that will aid us in the efficient cure of drunkenness, but many have been recommended, and it is a field from which rich harvests have been reaped by the omnipresent quack. Many of their nostrums owe their activity to alcohol or aromatics. One of the oldest and most esteemed in religious circles was a dipsomania cure, the daily allowance of which was equal to about an ounce of whisky a day; another cure contained alcohol, a mercurial salt, and sugar. It is supposed that the original mixture contained apomorphine muriate in sufficient quantity to produce a nauseating effect. Under the wing of religious institutions a third cure enjoyed much popularity, but a government prosecution gave it its quietus.

It contained 0.11 per cent. of strychnine. Various powders containing ginger, capsicum, etc., have been employed; there was Dr. D'Unger's cure, where an extract of red cinchona bark macerated in proof spirit was employed in daily diminishing doses as a certain cure in seven days. Even liniments

were employed, and the various wines of cinchona, coca, kola, pepsin, and quinine. Each has had its day and ceased to be. Hypnotism, of course, has been tried. But among the profession strychnine and the essences — for example, of capsicum, ginger, or cardamoms, have enjoyed the greatest reputation as aids or substitutes, not as cures. Great things were hoped for from coca and its alkaloid, but they also have been found wanting. My own experience of these was negative, except in one case, and the only one, where I was certain the treatment was carried out persistently. The wife was entrusted with the adding, surreptitiously, of a solution of the hydrochlorate of cocaine to the husband's tea, coffee, or beer. At the end of a month he complained to his wife that his desire for beer had gone.

Electricity, massage, and cold baths have all been tried, and in some cases with advantage, as an aid to other means. In my own practice I have not yet found anything of avail in the case of the confirmed drunkard except confinement in a home or asylum; but with the intermittent I have found personal influence of most account and by impressing on the delinquents the fearful consequences of a continuance in the same course, picturing in the darkest colors the pains and penalties that result, have brought back to light many who had entered the downward path.

A strict diet I have always enforced with sufficiency of exercise, of which cycling is one of the best, and mental occupation, and where necessary an occasional soporific in the shape of a chloral draught. I debar meat, except tripe, sweetbreads, calf's head or sheep head, and prescribe chiefly a milk and vegetable diet with fruit, and even these in moderation, as I consider excess in eating, by creating digestive troubles, often creates a desire for stimulation and tends indirectly to alcoholism. If a smoker I allow tobacco in moderation, as I agree with Sir Henry Thompson that tobacco in moderation is an ally of temperance. Yet I am aware that Dr. Talbot of

Chicago, who has made a special study of the subject, considers tobacco more toxic and productive of more serious degeneracy than alcohol or opium. In the present state of the law I have often availed myself, where there has been an element of lunacy in the case, of a lunacy certificate, and in this connection the profession in Bolton owes a debt of gratitude to our present courteous and open-minded chief magistrate for his willing readiness at all times, without infringing the law, to aid the profession in saving to future usefulness a fellow creature.

But, government having moved to help the helpless, we look forward to great opportunities for good, both as regards drink and the drunkard, but there are but two sure measures for the cure of the inebriate: Want of easy opportunity in his daily life to obtain drinks, and power to enforce complete abstinence once the craving is established.

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ALCOHOL AS A REMEDY IN DISEASE.

Dr. J. H. Yarnall, in Medical Summary, does not think much of alcohol as a medicine.

He says that alcohol is not a food, and that even as an emergency stimulant it can be replaced by something better. Alcohol does not warm the body, the apparent warmth of the surface being at the expense of the internal organs. Travelers in the far North have found that by total abstinence they were able to endure greater hardships and to walk longer journeys.

Dr. Yarnall thinks that alcohol, instead of preventing disease, really makes the system more susceptible. The soldiers in India who used no alcoholic beverages were less in the hospital, endured fatigue and exposure better, and were less liable to disease than those who drank even moderately.

He quotes Dr. Kellogg as saying that alcohol could be dispensed with in the compounding of medicines. A number of authors and authorities are quoted to sustain the objections against this agent as a medicine, and the author concludes that we should no longer use alcohol either as a preventive or as a curative medicine.

MORPHINISM INFLUENCING THE DISPOSITION
OF PROPERTY.

A case came before the court in Pittsburgh, Pa., in which the question was raised of the impairment of the mind from morphine in the disposition of property by a will.

The following statement and opinion of the judge was given to show cause for presenting the case for a trial by jury:

Prior to the death of Mr. Callery, who was husband of the woman who made the will, Mrs. Callery, the testatrix, was strong and vigorous in body and mind. She was her husband's helpmate, as well as companion; he consulted her about every important business matter, gave her credit for his success, and showed his respect and confidence by bequeathing her his whole estate. She was an excellent mother, and took a keen interest in household matters, charities, and social duties. But after her husband's death in 1889 a gradual change took place. An appetite for morphine, whose use began in a prescription given to relieve the torture of rheumatism in 1883, grew until she was in complete subjection, and culminated in death from morphine poison in 1897. Her craving became so strong at times that she would beg and cry for her dose in anticipation of the regular time. Repeated and persistent efforts were made under the direction of experts towards relief, and these in the earlier stages of the habit were aided by Mrs. Callery, but without any permanent results. The habit steadily grew, and a marked change soon became apparent in body and mind. She lost one-third of her weight, her skin assumed an ashy hue, her lips became blue, and the pupils of her eyes contracted, she lost interest in matters which had formerly given

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her pleasure, and stayed most of her time in her room. Her moods changed frequently and rapidly. At times she was quiet, at other times excited and angry; at one time rebellious, and at another submissive and passive. She had periods of melancholia and apathy, during which she would for hours sit with her eyes closed, not noticing the surroundings, refusing or declining to respond to the physician, her family, or attendants. She opposed the marriage of her only daughter, who had been her devoted nurse, because she did not wish to lose her services. She failed to visit her eldest son, though she knew he was lying next door at the point of death for three weeks, and she left for New York without any special urgency when her daughter was in hourly expectancy of confinement.

It was while in this broken mental and physical condition that Mrs. Callery made the will in controversy. Drs. Ayers and Emmerling, neurologists, who are deservedly recognized as high authority in such cases, were emphatic in their opinion that she could not at that time have had an intelligent comprehension of the business in hand. And there is in the will a discrimination shown against her daughter which seems on the case as presented grossly unjust. Property variously estimated as worth from \$65,000 to \$200,000, which had been Mrs. Callery's separate estate, was given the daughter, while the estate received from her husband with its accretions, estimated to be worth one million four hundred thousand dollars, was given the three sons. If Mrs. Callery had undertaken to make a will when in her prime, the presumption is that she would have given equal shares to her children. If she had made any discrimination at all it is natural to suppose that it would have been in favor of the more dependent. If she had foreseen her daughter's unselfish devotion during her long illness, it is but natural to suppose that marked appreciation would have been shown. If basis for such presumption be asked it will be found in Mr. Callery's declaration that he had given his wife his estate in the confidence that she would do justice to his chil-

dren, and her acknowledgment after his death that she had accepted the estate in trust to make equal distribution, followed by the will of 1892, making equal division. It has been suggested that the discrimination shown in the subsequent will may have been the result of the marriage of the daughter, but a complete answer to this is that Mrs. Callery's opposition to her son Charles's marriage was much more violent, for reasons which did not involve her personal comfort, yet a few months afterwards, in the same will in which she discriminated against her daughter, she gave him a share equal with his brothers. The case as presented shows then that notwithstanding Mr. Callery's confidence in his wife's sense of justice and her confession that equality was his measure of justice, not one dollar of his estate was given this contestant, his daughter, for, as has been seen, the devise to her is of Mrs. Callery's separate estate; and no reason for discrimination is shown other than is attributable to the impaired condition of testatrix's mind. The explanation may lie in unreasoning and perhaps unconscious resentment against the daughter on account of her long-continued and anxious attempt to restrain the mother in the gratification of a morbid appetite for morphine. The plausibility of its existence is strengthened by reference to the fact of her frequent change of physician and nurse. Assuming then this to be the case presented, the next question is whether or not testatrix had an "intelligent comprehension of the business in hand"? If she had, the issue demanded must be refused; but if she had not then it must be granted.

OPINION BY THE JUDGE.

It is essential to the exercise of testamentary power that the testator shall understand the nature of the act and its effects, shall understand the extent of the property of which he is disposing; shall be able to comprehend and appreciate the claims to which he ought to give effect (*Banks vs. Goodfellow*, 5 Law Rep., 2 B., 565; *Grubbs vs. McDonald*, 91 Pa., 236); and

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with a view to the latter object, that no disorder of the mind should poison his affection, prevent his sense of right, or prevent the exercise of the natural affections; that no insane delusion shall influence his will in disposing of his property and bring about a disposal of it which, if the mind had been sound, would not have been made. Here then we have a measure of the degrees of mental power which should be insisted upon. If the human instincts and affections or the moral sense become perverted by mental disease, if insane suspicion or aversion take the place of natural affection, if reason and judgment are lost and the mind becomes a prey to insane delusions calculated to lead to a testamentary disposition due only to their baneful influence, in such cases, it is obvious that the condition of the testamentary power fails, and that a will made under such circumstances ought not to stand (*Banks vs. Goodfellow, supra*). It is obvious that in an inquiry of this kind the evidence ought not be confined within a narrow range; but that everything which tends to show testator's mental condition should be received (*Bitner vs. Bitner, 65 Pa., 347*).

"The fact that a man's will," said Mr. Justice Agnew, in *Bitner vs. Bitner, supra*, "is unaccountably contrary to the common sense of the country is not sufficient, *ipso facto*, to set it aside. The testator's will is the law of his property. But certainly that which outrages common feeling and displays a want of ordinary natural affection is a fact to be considered along with other evidence on the question of unsoundness or delusion." Where, therefore, a will is impeached for want of testamentary capacity the intrinsic evidence of the will itself arising from unreasonableness or injustice in its provisions, taking into view the state of testator's property, family, and the claims of particular individuals, is competent and proper; it is not only proper, but in some cases, in connection with other circumstances, it may be evidence of the most decisive kind: *Baker vs. Lewis, 4 Rawle, 356*. Taking into view this testatrix's property, family, and the claims of Mrs. Jackman, both

on her natural affection and gratitude, the disposition made is manifestly unreasonable and unjust. So far as appears Mrs. Jackman had not only done nothing to forfeit her natural right, but her self-sacrifice had merited a marked recognition from her mother.

Another important consideration is the total revolution which seems to have taken place in the character of Mrs. Callery. Her failure to visit her son when lying at the point of death, and leaving her daughter at a critical point in her married life, evince a painful weakening of natural affection: *Bitner vs. Bitner, supra*. The change which had taken place in Dougal, whose testamentary capacity was in question in *Wilson vs. Mitchell*, 101 Pa., 495, was perhaps greater than here; from having been keen and strong he had become so weakened by reason of age at the time of the alleged will that he failed to recognize his old friends, would repeat questions again and again at short intervals without reasons, and was unable to leave his room without assistance, and yet an issue was refused, but his condition and environment were different from those of Mrs. Callery; he had no children, no morbid habits warping his mind, and rightly made those to whom he was under obligations for care-taking the objects of his bounty. The case carried the right of testamentary disposition farther perhaps than any previous decision, but was followed by a reaction whose latest expression was given in *Miller's Appeal*, 179 Pa., 645, in favor of liberality in granting issues. The flood of contests which has arisen since the later decision shows the meaning drawn from it by the profession.

So Mrs. Callery's total disregard of the trust for equal division among the children under which she had acknowledged she had accepted her husband's estate, is another indication of want of testamentary capacity. Mere change of intention taken in connection with other circumstances is evidence admissible to show want of capacity: *Titlow vs. Titlow*, 54 Pa.,

216; much more should a change made in disregard of moral obligations.

So assuming that the facts as presented suggest that the will grew out of a delusion, this furnishes a very important element. Conceding that testatrix was competent in all other respects, if her treatment of her daughter was the result of a delusion it must fail. "An intelligent consciousness of the nature and effects of an act," said Mr. Justice Agnew in *Bitner vs. Bitner, supra*, "is not plainly inconsistent with the existence of a delusion leading to and producing the act." A testator may have been perfectly conscious of the nature of his testamentary provision, and aware that its effect was to disinherit some of his children, and yet laboring under a delusion of fact as to their conduct which led him to consider and do the thing which he contemplated consciously and intelligently. He may have an apparent right use of his faculties in many other respects, and yet such delusion so strongly influences his conduct toward those against whom he exhibited this new trait of character as to make his disposition invalid.

If these considerations be viewed in connection with the character of the morphine habit which dominated Mrs. Callery, against whose insidious growth she had struggled so long in vain, and the opinion of the experts called, testamentary capacity is more than doubtful. No attempt was made to show that the former had used any undue influence to induce their mother to make this will; indeed, so far as appears, they do not seem to have known of its existence prior to their mother's death. It was conceded that the brothers had on another occasion interfered to prevent the execution of a will drawn to disinherit their sister; and so far as appears she has as much right now as she had then to an equal share in her father's estate, and to their recognition of the justice of her claim.

This case came before a jury for trial in January last. Dr. Samuel Ayres of Pittsburgh, Pa., and Dr. T. D. Crothers of Hartford, Conn., swore as experts on the mental impairment

which would follow the use of morphine, and the strong probability of incapacity to realize her duty in the equitable division of her property.

The case was suddenly closed by a private settlement and taken out of court.

POINTS IN FAVOR OF THE USE OF ALCOHOL AND THEIR REFUTATION.

Dr. Bienfait (*Gaz. Hebd. de Méd. et de Chir.*) examined point by point the various objections to total abstinence:

1. Is alcohol a digestive? No; its ingestion produces a passing excitation, interrupts the proper action of the muscles of the stomach because alcohol acts as an anæsthetic after having irritated the walls of the stomach, and it drives the blood to the skin and so hinders the action of the gastric juice.

2. Is alcohol an appetizer? No; it produces an excitation of the stomach which causes a sensation taken for hunger.

3. Is alcohol a food? No; it does not correspond to the definition of a food, and the heat that it seems to produce does not serve as an actual warmth.

4. Is alcohol heating? No; it causes a flow of blood to the skin and a lowering of temperature.

5. Is alcohol a stimulant? In no case, either physical or intellectual.

6. Is alcohol a protector against contagion? No; it predisposes the body to contagion.

7. Can we live without alcohol? This idea that we cannot live without alcohol is a prejudice that numerous facts contradict.

8. Is alcohol good for children? It should never be given to children.

9. Does alcohol increase longevity? According to reliable statistics alcohol diminishes longevity. — *Med. Rec.*

ANNUAL ADDRESS ON THE SOCIETY FOR THE
STUDY OF INEBRIETY AT JANUARY
MEETING, 1900.

By WILLIAM WYNN WESTCOTT, M.B., D.P.H.,
President.

Ladies and Gentlemen: Nearly sixteen years have passed away since the learned and enthusiastic Dr. Norman Kerr founded this Society for the Study and Cure of Inebriety, and ever since its institution the Society has never failed to have its regular meetings for the reading of lectures and for discussion upon the subject of inebriety — its history, causes, prevention, and cure.

The lectures which have been read have all helped to throw light into the dark corners of our research; they have been representative of the most varied opinions, and have treated of the causes of inebriety, both public and personal, of the symptoms, diagnosis, and chances of the cure of the inebriate. And there have been essays on the treatment of individual cases; but the greatest amount of time has been spent upon discussions relating to the suppression of intemperance by legislative measures, and the rescue of inebriates from their surroundings, and their cure by confinement in asylums, homes, and state institutions.

It has been in this direction that the work of Dr. Norman Kerr, and the earnest support of this Society, and of its individual members, have been of the greatest use, for it is impossible to doubt that the amendment of the Habitual Drunkards' Act passed in 1888, and the Inebriates' Act of 1898, were

both largely the result of the labors, personal energy, and untiring industry of Dr. Norman Kerr, and was ably supported by the Councillors of our Society, and by many of those who had contributed by their lectures to our knowledge of the subject.

The first attempt to cultivate public opinion in favor of temperance legislation by means of medical men and their associates united in a Society was made in New York in 1870; your late president visited the United States and became well known to many of these pioneers of inebriate reform; at his request the president of the American Society, Dr. Parish, and the secretary, Dr. Crothers, have visited us, and have addressed our meetings, and they gave much valuable advice and information.

As a temperance reformer Dr. Kerr established a world-wide reputation, both by means of his lectures and his printed works.

Our Society has also at various times been assisted by other eminent foreigners from Norway, Austria, and Poland; the aged Mr. Wieobycki will be remembered by many, and Axel Gustafson, as will the Chevalier de Preskow Marstoff, who gave important data as to drunkenness in Moravia.

Our own members and associates have contributed most valuable information, results of research and statistics; mention must be made of Dr. Alfred Carpenter, Dr. W. B. Carpenter, Sir Benjamin Ward Richardson, Dr. George Harley, Dr. G. K. Poole, Dr. Usher, Dr. H. W. Williams, Dr. F. R. Lees, Dr. C. R. Drysdale, Dr. J. J. Pitcairn, Dr. W. H. Kesteven, and Brigade Surgeon Lieut.-Col. Pringle.

During the last year we have been very much excited over Dr. Archdall Reid and his contentions on the temperance fallacy, so called; this discussion was initiated by Dr. Norman Kerr himself, who declaimed against Archdall Reid on the subject. In reply to this Dr. Reid kindly gave a new statement of his views here in January last. In April we listened to Dr.

Crothers on Treatment; in July to Prof. Sims Woodhead, one of our vice-presidents, who, by his address on "Heredity as a Factor in Inebriety," caused so great an interest in this branch of the subject that a special committee on "The Heredity of Alcoholism" was appointed, and has been holding regular meetings for research, and the collection of facts and opinions. A summary of these proceedings will be laid before the members in a future quarterly report. In October last very great interest was shown in the lecture given by Dr. Harry Campbell on "The Craving for Stimulants," and a useful discussion followed.

The society has, however, not restricted its researches to alcohol alone, for papers have been read upon cocaine habit and ether inebriety. In this last case again the attention called to ether-drinking by our Society and by the late Dr. Ernest Hart, resulted in an immediate check to the practice, excise regulations being the means.

Our friend and member Dr. W. L. Brown gave us in January, 1898, a most valuable summary of "Intemperance among the Ancients," and he pointed out the absence in those times of any organized public scheme for the promotion of temperance, adding that their efforts were directed rather to the production of a state of immunity in the individual, so that he might become able to drink any amount rather than that he should be discouraged from drinking.

Until this century was well into the thirties there was hardly any attempt made in this country in the direction of total abstinence as a virtue, and great credit for this new departure must be given to a Roman Catholic priest in Ireland, Father Matthew, who led a crusade against the excessive whisky drinking among the Irish. His eloquence and enthusiasm in the cause caused a universal awakening of the public conscience in condemnation of intemperance; this occurred in 1838, and from that date onward teetotalism became a by-word, and total abstinence a public virtue.

The pendulum of opinion swung in the direction of the formation of national and local societies, designed to make our people abstainers, and much success have been obtained. Even in the present year, however, there is a terrible amount of drunkenness, and its evil effects not only on drinkers but on their families are constantly before our notice.

Temperance reformers, finding much success in the combat with intemperance as a personal indulgence, then turned their attention to the province of medical treatment, and boldly declared that all disease could be cured without alcoholic preparations of drugs, as well as with them. A few eminent physicians subscribed to this opinion, but the idea has never freely permeated the medical profession.

Failing in obtaining widespread acceptance of their doctrine, the teetotal reformers then called public attention to the assertion that beyond the needlessness of alcohol as a medicine there was a further mischief done by doctors, inasmuch as by advising the use of alcoholic drinks as means of hastening recovery from illness, they often founded in their patients a love of alcohol for its own sake, and so created many inebriates.

So wide an assertion, involving so large a proportion of our population, produced, of course, a considerable number of recorded instances of the occurrence; but the medical profession as a whole repelled the insinuation, and your late president, an ardent abstainer and a doctor in extensive practice, denied the prevalence of the evil, and boldly stated to our Society that the charge was an exaggerated one, and that his large experience showed that the prescription of alcohol as a medicine could only be accountable for an inebriety of half per cent. among 4,000 recorded cases. See Society Report, April, 1897.

Earnest reformer as he was, Dr. Kerr bravely insisted on truth even in urging reform; his great experience taught him that exaggeration is apt to meet its own condemnation.

Our late president was a man of the widest sympathies, and we shall never replace him. From the first founding of our

Society he invited into its ranks all who were interested in the study of inebriety and its cure, without reference to the personal habits of the candidate, and at all times every visitor has had the right of free speech whatever his or her views may have been. That the total abstainer has very largely figured in our annals is obvious, and the largest share of public reform has been attained by such members, but no good could ever come from the making of the Society into a total abstinence coterie, for truth can mostly be found in the assembly of persons of all views. Our Society consists of medical members who must be the more learned in the knowledge of the evils of intemperance than are laymen, but we invite by our associates a tender of the results of the investigations of all others, who have really the cure of intemperance at heart, for our consideration. The people of our nation cannot be made temperate by argument alone, but by education and by legal pressure, and our principal object must be the consideration of the best modes of restraint, and of regulations which tend to limit the opportunities for free drinking, and we must teach the cultivation of habits of personal cleanly life. Judging by analogy, the moderate drinker cannot be exterminated. Let us devote our energies to the restraint of the moderate drinker within limits defined by the medical profession, and to the absolute cure of those who have passed the borderland of moderation, who are ruining their own lives and the lives of those dependent upon them; for such must be deprived of their personal liberty until they have survived the craving which ruins them body and soul.

In Minneapolis the sale of spirits is restricted to a single section of the city. It is found necessary to have two-thirds more policemen in this section than in other parts of the city.

ALCOHOLISM.

By DR. JULES MOSEL, MONS, BELGIUM,
Directing Physician of the State Asylum for the Insane.

The history of heredity conducts us to alcoholism, and these two should be considered the principal causes of degeneration. Authors are unanimously agreed that there is no way of controlling alcoholism without total abstinence from alcoholic liquors. Alcoholic victims are innumerable. We encounter them in all classes of society, as well in the asylum as in the privileged classes. Alcoholism is not merely dangerous in relation to mental diseases, but it is a public evil, because it affects different functions of the human being. France, as well as Belgium, holds the record in this matter. The only good use of alcohol is as an anæsthetic to diminish the sensation of fatigue. It also produces a cerebral excitement which momentarily antagonizes moral pain, which dissipates annoyances by inducing an artificial quiet, and this is desired with avidity by those who do not know its consequences.

The popular belief that alcohol imparts energy is a gross error. The proof has been given by many experiments during recent years. Alcohol gives strength to no one. Workmen who believe that the use of water enfeebles and that alcohol sustains them for labor give a wrong interpretation to facts. It is true that, if we stop the use of alcohol as a habitual stimulant, we induce feebleness, but the same thing occurs with morphine-takers, with whom deprivation of their poison plunges them into a pitiable state. That which we have affirmed of spirits is true of wine and of all other drinks which

contain alcohol. The civilization which developed inside the Græco-Roman world, that of the Arabs, does not know alcohol and its results because its legislator and prophet, Mahomet, forbade the use of wine. Alcohol, as Gladstone has said, makes in our day worse ravages than the three historic plagues — famine, pestilence, and war. It decimates beyond the pestilence and famine; it kills more than war; and it does worse than slay — it dishonors. Famine has become rare. Medicine has vanquished the plague. War is an intermittent evil. But alcoholism is a continual and degrading evil. Some nations release themselves from it by energetic measures, but there is need of a similar energy and courage in other nations to annihilate the greatest enemy of the world. To conquer alcoholism would be to reduce the hereditary causes of nervous and mental disorders to a minimum, and to diminish the number of asylums for insanity, crime, vagabondage, and pauperism; and also, consequently, the orphanages, hospitals, and hospices for the aged. This would be a notable contribution to the physical and moral welfare of the people, and to the happiness of numberless families.

Professor Delman of Rome has made a very interesting study of hereditary inebriety. One woman, named Ada Jaske, born in 1740, deceased at the beginning of this century, was an old drunkard, a thief, and a vagabond. She left a progeny of 834 persons, of whom 700 have been studied in their history. Of this number there have been 106 illegitimate children, 142 mendicants, 64 sustained by charity, 161 women gave themselves to prostitution, 76 members of this family were criminals, and among them seven assassins. In seventy-five years this single family, according to official estimates, has cost for maintenance, expenses of imprisonment, and interest, a sum of five million marks.

This statement deserves special notice; it confirms the importance of improving social education. While many governments and other institutions busy themselves with trifles

of instruction and also impose intolerable burdens on teachers who desire progress, they leave untouched the great questions to which we have called attention.

Many physicians to the insane, and they among the most celebrated, have abandoned the prescription of wines and spirits. Other practitioners have ridiculed the assertion that wines are tonics, and declare that they are more hurtful than helpful. Dr. Koch, who has written splendid and immortal works on degeneracy and prophylaxy of mental diseases, insists strongly on the uselessness of wine in therapeutics. Dr. Wearanden and Dr. Toulouse, celebrated French alienists, take the same view. Hereditary neuropaths especially manifest very often inability to endure alcoholic drinks. And since neuropaths are quite numerous, and among them many are predisposed to insanity, it is indispensable that they should abstain from every drink of this nature.

It is important to note here the objection one may make to abstinence from alcoholic liquors for neuropaths. Many of the predisposed remain apparently insensible to alcohol, while in reality this poison unconsciously inflicts upon them ravages which at a certain stage of the malady they are powerless to control. One should show himself much more severe in the recommendation of total abstinence when he deals with persons who manifest neuropathic symptoms. It should not be forgotten that generations issued from neuropaths will be more predisposed to insanity if their ancestry have used alcoholic drinks freely.

At the end of the last century medicine, assuming a scientific character, began to undertake the study of alcoholism. Legions of authors have occupied themselves with this problem, and all without exception agree in recognizing the danger. It is impossible to cite the names of all in that illustrious company of workers and fighters who see in inebriety a menace against the very existence of the rebellious nations.

The injury done by alcohol in addition to causing insanity

and degeneration is proved not only by the medical profession, but also by the insurance companies. It is important to notice these results. M. Jaquet of Bale, in a work on the English insurance companies, declares that three companies for insurance against loss of work by reason of sickness have had between 1884 and 1889 an average of twenty-six weeks of sickness to each individual, while the treasury of the Sons of Temperance, a society which admits only abstainers, has had during the same period only seven weeks of sickness to each individual; an enormous difference if we consider that the first three companies are not recruited among the intemperate. These happy differences are also found in certain English companies which make a distinction between the temperance section and the general section; the premium is 28 per cent. lower for the abstainers than for the others. These figures have their value because a good part of the results may be involved to prove that alcohol is a cause of degeneration.

In respect to the proportion of insanity caused by alcohol one cannot appeal to the statistics of Belgium, which in general do not merit much confidence. French tables mention a proportion of 38 per cent. with men and of 12 per cent. with women. It is evident that this is under the truth, since many cases of alcoholism are not officially mentioned. In fact, there are many inebriates who manifest mental disorders without on that account being shut up in asylums; and there are many insane inebriates who, under the influence of alcohol, have become licentious, quarrelsome, ill tempered evil-doers, but whose troubles are not judged to be important enough to make confinement necessary. Not all these insane inebriates figure in statistics; but we encounter many of them in prisons, work-houses, etc.

Many of these victims might have escaped this destiny by means of a wholesome mode of living if alcohol had not diminished their power of resistance in their nervous system. If alcohol has not induced in them insanity there is no doubt

that it has subjected the drunkards to a mental defect which they will transmit to their posterity in the form of imbecility, idiocy, moral insanity, hysteria, epilepsy, future inebriety, criminality, etc. It is sufficient to say that the struggle against inebriety is the most certain prophylactic measure, not only against different kinds of mental disease, but also against various other maladies of the body, against crime, vagabondage, mendicity, etc. The prisons swarm with inebriates, as the hospitals and workhouses abound with vagabonds and mendicants. The orphanages count numerous victims of the inebriety of parents, as well as the asylums for the aged. The French attribute a part of the diminution of births to alcoholism, and it would not be difficult to prove the exactness of their assertions. Dr. Debone, in his chemical lecture on alcoholism, recalled these good words of Plutarch: "Those who wish to approach a woman to beget ought to do it before drinking wine, or at least after very moderate use, because those who are begotten of drunken parents ordinarily become drunkards, as Diogenes once said to a disorderly and debauched young man: 'Young friend, thy father begot thee in his drunkenness.'"

Observations made in Belgium and in France contrast in a remarkable way with the statistics where alcoholism is decreasing. In Sweden from 1830 to 1834 the annual consumption of alcohol being about 23 liters to a person, there were 59 homicides, and 2,281 thefts. From 1875 to 1878 the consumption being reduced to 5.5 liters, there were 18 homicides and 1,871 thefts. In Norway in 1814 there were consumed 5 liters to the person, and there were 294 crimes to 100,000 inhabitants; in 1876 the consumption being reduced to 2 liters, there were only 180 crimes. Sweden and Norway, therefore, prove that the reduction of alcoholism reduces crime. Mental alienation and other maladies and vices due to alcohol have also diminished. We regret that we cannot state the figures of this decrease. Inheritance of evils caused by alcohol has not been

merely discussed by physicians. Before them the moralists saw in the ancestors a bad example. To-day physiological heredity is admitted without a doubt. Professor Debone proclaims it aloud. Alcoholism destroys the race in two ways: by augmenting mortality or by producing degenerates. The conviction is supported by indisputable figures cited for countries where increase of population is very high. Germany doubles its population in ninety-one years, Sweden in eighty-nine years, Denmark in seventy-three years, Austria in sixty-seven years, Norway in fifty-one years, while France would require 334 years.

What remedies may be proposed for this frightful evil? Debone says they are of two kinds: counsels given individually to those who are willing to hear and coercive means applicable to all.

One does not know how to approve too strongly the wisdom of those who are content to drink pure water. But if one does not possess this virtue, he can drink hygienic drinks — boiled milk, tea, coffee. Whatever is said it is not possible to determine the quantity of alcohol which one can drink with impunity, since we must take account of individual susceptibility. That which seems harmless for one is an abuse in another. It is difficult to say when the quantity is innocent, for a slight excess which may not be noticed, even if it does not affect the brain, may expose other parts of the body to serious injuries.

Alcoholism may be considered one of the capital causes of mental disorders and human degeneracy. It is against this evil that all should labor with united forces and by all means which tend to annihilate it.

Also the societies for preventing the abuse of alcoholic drinks have great reason to be congratulated. In Holland Dr. Buysch, inspector of asylums for the insane, and in Belgium Dr. Frank, have become valiant champions of the noble cause, and have made appeal to woman and have taught her

to comprehend the grand part she can take in social reform by contributing to the contest against alcoholism.

Alcoholism being a public danger it is necessary to use in combating it public measures, that is, laws and reforms which assist in the struggle. It has been proposed to raise to the highest point the duties on alcohol, to increase the price of licenses to wine merchants, to limit the number of drinking-places, and to forbid the sale of unwholesome drinks. Thus far none of these reforms has succeeded. Candidates as well as electors have an interest in maintaining present conditions. Dr. Legrain has demonstrated by statistics that in France there are about four millions of inhabitants who derive some profit from the trade in alcoholic drinks. These millions of alcohol dealers, says Dr. Debone, have an admirable understanding with the other millions of alcohol drinkers whose deepest desire is to increase their malady rather than to cure it.

In America, England, Denmark, and Switzerland numerous women of generous hearts have been found to enter the conflict. It is indispensable that the other civilized countries should follow the beautiful example. Woman is able to act as a mother, as sister, as friend. In the home which she exalts by order and delicacy she will provide a center of attraction for her husband, her children, her friends. She will be trusted by the friends of the family, and especially by those who are characterized by an orderly life. She will put forth every endeavor to persuade the members of her family and her acquaintances who abuse or are tempted to abuse alcoholic drinks, and in case of despair of success will reject those of them to whom she has no special obligation.

Woman will not only by her social position be able to exercise a great influence on her family, but even when heredity has struck the children she may be able by careful education to induce total abstinence from alcoholic drinks to diminish the tendency to degeneration, and to ameliorate the mental and moral life of those who are dear to her. The

moment has not come for a radical law against alcoholism. It is necessary to prepare the people by popular writing and conferences. It is necessary to reach the public before knocking at the door of the legislature. The contest with alcoholism should form a part of political programs, for all parties will accept this article when the multitude has once comprehended the permanent danger and destructive nature of this plague. It is necessary that the physicians and public men should make known their opinions far and wide, that there be unanimity among them, and that they affirm the urgent need of measures which tend to restrict the consumption of alcoholic drinks, and to restrict the use of alcoholic drinks to those which are entirely pure.

History teaches us that it is not unreasonable to seek a conquest over a vice by suggestions, and condemnation to a legal penalty is one of the most powerful means. The law should authorize the forfeiture of the rights of a father or mother who is an inebriate; this would be a social protective measure of incontestable value, and one which would cause many husbands and wives to reflect.

Dr. Jouffroy divides the alcoholics into several categories: The category of simple drinkers who do not manifest any mental trouble or any grave visceral lesion. Being strong they might be helped by a method which would establish an active habit in a house of abstinence and labor. Among these patients we should find the most of the proselytes who, once healed, would go out to speak a good word to others. The second category includes alcoholics affected by mental troubles and who suffer from affections of the stomach, liver, or kidneys. Dr. Jouffroy proposes to confine the former in asylums of abstinence and the others in hospitals of abstinence. The celebrated professor of the faculty of medicine at Paris does not recommend sending all the insane alcoholics to a special asylum, but he proposes to send the incurable, the general

paralytics, and demented cases into asylums for the insane in order not to crowd the special inebriate houses.

Dr. Serieux proposes to collect in a single establishment all alcoholics by classes, according to their physical and mental state, even taking account of their social rank and positions.

Dr. Toulouse in his excellent book, "The Causes of Insanity," limits himself to recommending as conditions of admission to a special institution the absence of mental disorders or their cessation. This measure, says the author, appears at first sight strange, and yet if one reflects that the purpose of those houses is essentially to correct habitual alcoholics it is important to undertake this work under the best possible conditions. It is for this reason that most authors agree on the principle that the disturbances provoked by alcohol are curable. When a person is attacked by a sub-acute delirium he is sequestered. He is subjected at the asylum for the insane to a régime of abstinence, which is not so rigorous as it will be in an asylum of abstinence, but is sufficient to permit him to become sound in mind, if this termination of the malady in a certain cerebral condition is possible. Observe that so long as he is delirious he usually remains in confinement, where it is difficult to procure alcoholic liquors at least in quantity to bring on his disorder. When he is cured comes the moment to send him to a special asylum, where he will be an abstainer, and where he will learn to form habits which will assure against future falls.

The asylums for abstinent, says Dr. Magnan, ought to be a field of suggestion. The physician and his assistants, the employes and nurses, ought to give the example and should drink water alone. It is important that there should be no discordant note, no jesting from any source, to interfere with the action of treatment. The reading of papers, conversation, conferences, all ought to be employed to strike the attention of the sick and to reassure their good resolutions. And when they go out the treatment is only begun, not completed. It belongs

then to another institution, to boards of relief, to help and watch over them.

Awaiting further legislative measures the temperance societies are doing vast good, and in several countries of Europe their number and influence increase from day to day, and their crusades are by no means near the end. It is necessary to arouse from indifference members of the higher social classes. The inferior classes will not be long in following them.

We merely remind the reader of the abuses of morphine and other drugs which contribute to the increase of insanity. The remedy here is easily found. It would be sufficient to impose a fine on all druggists who dispense such medicines without the prescription of a physician.

AN ANTI-TOBACCO CONGRESS.

The second International Congress Against the Abuse (which is here synonymous with "use") of Tobacco will be held in Paris during the summer of 1900. The work of the Congress will be divided into seven sections, dealing severally with (1) history, statistics, various methods of the employment of tobacco; (2) chemical and physiological researches on tobacco; (3) diseases caused by tobacco; (4) hygiene and sociological questions; (5) education as a means of restricting the use of tobacco; (6) the morality and criminality of tobacco users; (7) miscellaneous. Papers may be read in English, French, German, Spanish, Italian, or Russian. Those desiring to become members of the Congress are requested to signify their intention to the president of the Committee of Organization, M. E. Decroix, 20 bis, Rue Saint-Benoit, Paris. The subscription to the Congress, which has been fixed at five francs, should be sent at the same time.

ALCOHOL IN ACUTE PSYCHOSIS.

Dr. Knapp, of the Harvard Medical College, in the Boston Medical and Surgical Journal, makes the following suggestive reference to alcohol in psychoses:

The almost hopeless confusion which the effort to reconcile various opinions in regard to the so-called acute psychoses produces may naturally lead us to consider, if not to take refuge, in alcohol. The pathological changes produced in the cortical nerve cells by alcohol have, of late years, been carefully studied, and it is recognized that alcoholic poisoning causes degenerative changes in the cortical cell. In acute alcoholic poisoning, however, in the "simple drunk," we are familiar with various mental states. The intoxicated man may be verbose, jocose, lachrymose, morose, bellicose, or comatose. The mental conditions due to chronic alcoholic poisoning are also of various types. One of the most familiar forms is, of course, the ordinary delirium tremens, — an acute hallucinatory delirium with ideas of persecution, of short duration, and often terminating fatally; a condition which, clinically, is not unlike acute delirium.

A short time ago I saw on the same day two patients who presented two familiar types of mental disturbance due to alcohol. One was a young man of thirty-two who, for ten or twelve years, had indulged in alcohol to excess. The family history and previous history were not remarkable. Three months before he had had a light attack of "the horrors," lasting about a week; since that time he had had the delusion that his enemies were influencing him with an electric machine; that he could hear them talking about him, threatening to arrest and kill him. They knew his thoughts and everything

which he did. Certain muscular twitchings, due perhaps to a very slight neuritis, were interpreted as taps from the electric influences; after which he heard his own name and the names of his enemies spoken. His enemies repeated everything he thought, and told him they would kill him with electricity. Their suggestions were often indecent. He never had any hallucinations of sight. At times he recognized the voices as false, but more frequently they were real. In consequence of his persecutions he was depressed, irritable, and unable to keep his mind upon his business, but there was no failure of memory or judgment, no confusion, and no other mental impairment. After three weeks of total abstinence the delusions and hallucinations were much diminished.

On the same day I saw a woman of forty-four, possibly approaching the menopause, who had indulged very freely in alcohol. For three weeks she had had some bronchitis, with digestive disturbance and elevation of temperature, for which she entered the hospital. She was found to be very weak and tremulous, and somewhat delirious, getting out of bed frequently at night, but never becoming especially violent. On account of her getting out of bed, restraint became necessary. On examination she was found to have a moderate degree of neuritis, and to show very marked mental confusion and loss of memory. She gave the characteristic account of having made several visits to her friends outside during her two weeks' stay in the hospital, with circumstantial statements as to the events which had happened during those visits. There was much confusion as to dates, and much of the time she was not certain where she was. After total abstinence from alcohol she improved so much that in the course of a month she was able to return to her friends.

In yet a fourth type, which is seen only in more advanced cases, there is still more marked dementia, great muscular weakness, more marked loss of memory and confusion, disturbances of speech and occasional convulsions, the whole

suggesting general paralysis. The course is protracted, the prognosis grave, and complete recovery is rare. In this last form we find edema and opacity of the pia, atrophy of the cortex, and more marked atrophic changes in the cells and in the glia, the familiar "wet brain" of chronic alcoholism. Other forms might be described, and mixed transition types exist.

In all these types of mental disturbance, — which, clinically, are distinct, if we disregard the transition forms, which spoil our classifications, — the etiology is the same, the anatomical changes differ only in degree, but the clinical aspect is widely different. Is it not fair to suppose, therefore, that the difference in the symptoms is due to the difference in the extent of the cortical changes, or, perhaps, to a difference in their localization? In other diseases of the brain — hæmorrhage, abscess, tumor — we know that the extent and location of the lesion are of much greater importance than the etiology or the precise anatomical nature. Is it not probable that the different manifestations in general paralysis are dependent upon the extent and localization of the changes in the cortex, excepting, of course, those manifestations clearly referable to changes in the spinal cord? The paralyzes and convulsions of general paralysis are probably to be referred to local changes, and, although we cannot as yet accept Flechsig's speculation that disturbances of personality are due to changes in the anterior association center, the clinical differences in the mental symptoms of general paralysis are more satisfactorily explained by differences in the part of the cortex affected and by differences in the extent of the degeneration than by any other causes. At any rate, both in alcoholism and in general paralysis it seems safe to claim that the degree of the dementia is dependent upon the number of cortical neurones that are put out of function; the rapidity with which the dementia develops depends upon the rapidity with which these neurones are affected by the morbid process; and the permanence of the dementia depends

upon whether the neurones are wholly destroyed or are capable of repair. The study of the pathological changes in the cortex in the early and late stages of general paralysis establishes this point beyond dispute.

Let us now consider for a few moments the so-called psychoses. What they are it is hard to say, since, as I have said, the list varies with each treatise on psychiatry consulted. They would include, however, many of the cases now classed as acute mania, acute melancholia, acute dementia, dementia precox, katatonia, acute delirium, acute paranoia, and acute confusional insanity. The pathology of these conditions is defective, and any satisfactory pathology in mental disturbances is at present wholly impossible, yet, in a few instances, an acute degeneration of the cortical neurones, occasionally in the severer cases associated with proliferations of the glia, has been found. These changes are not unlike those produced by certain poisons such as alcohol, or those produced as a result of acute infectious processes. In fact, it is generally admitted that, with our present methods of research, it is impossible to detect from the anatomical differences in the affected cortical cells whether the degeneration be due to alcohol, other poisons, acute infection, or acute mental disease.

Clinically, these psychoses resemble each other in that they often seem to be produced by toxic causes, that they may affect the healthy brain, that they are of comparatively rapid onset, and that they may run a tolerably acute course. Furthermore, one cause may produce several different clinical types of psychosis. I have already referred to some of the varying conditions, with probably a similar pathological basis, produced by alcohol — acute delirium, acute delusional insanity, an acute confusional condition, and a more marked and more chronic form of dementia. As a result of child-bearing, or more probably of the acute infection associated with the puerperal state, we see various types of puerperal psychosis — mania, melancholia, and the acute hallucinatory confusional in-

sanity so often confounded with mania. Manifestations of febrile delirium, when not associated, as it often is, with alcoholic poisoning, show a similar variety in the mental symptoms. All these psychoses, moreover, show certain likenesses in their course; they may vary, of course, in severity, but we must admit that in all the so-called types of mental disease to which I have referred, even in katatonia and acute delirium, recovery is possible. The cases which do not recover, however, either die of exhaustion after a comparative short illness, or they end in one of two ways — they either pass on to a more or less marked dementia or to a state associated with hallucinations, and not very well systematized delusions, with considerable mental impairment. We may explain the course by imagining that the cell degeneration has in some cases been slight, and that a process of repair has followed, leading to a complete recovery. In other cases there may have been a sudden and widespread degeneration of many cortical cells, causing death, or there may have been a more complete degeneration of a greater or smaller number of cells, from which repair was impossible; and in case of the destruction of these cells, either mental impairment with delusions or a more complete dementia would be the inevitable result.

Many of these cases, if studied throughout their course, present various changes in their psychical manifestations. The old descriptions of mania and melancholia used to tell of the stages of depression or exaltation, respectively, preceding or following the period of excitement or depression that gave the name to the disease. This description may have been founded upon the cases of unrecognized circular insanity, but the fact remains that in so-called mania and melancholia, as well as in other affections, we may have various changes in the clinical picture — what Ziehen calls the polymorphous psychoses, which often present a course beginning with depression, going on to excitement, then confusion, and finally dementia. Other cases may begin with vague delusions of persecution

and hallucinations, which may be permanent or go on to the more marked confusion and considerable dementia, and yet make a good recovery. Often the depression or excitement is merely a secondary condition, the consequence of delusions, fancied ill-treatment, the bad effects of environment in the violent ward of an asylum, and the like. In a very large number of cases of acute psychoses recent studies have shown the existence of marked mental confusion going on to stupor.

The conclusions to which these various facts tend is that in these acute psychoses we have to do, not with a variety of different diseases, but, after all, with one single affection, whose anatomical basis may be an acute degeneration of the cortical neurones, and — if we adopt Wernicke's suggestion (which seems to me the most sound one) that insanity is a disease of the association system — a degeneration which causes a greater loss of function in the association neurones of the cortex than in the neurones which belong to the projection system. This affection may vary in its severity and in its clinical manifestations. It is most frequently due to some toxic process such as alcohol, post-infectious toxins, or, perhaps, autotoxins, or to exhaustion (toxins of fatigue). It is often attended at the onset with some febrile disturbance; a slight rise is not uncommon in milder cases, and a marked rise is the rule in delirium grave. Under certain conditions (perhaps a marked virulence or a very large dose of the poison) the symptoms are of sudden onset, with stages of active delirium which may speedily cause death by exhaustion. Under ordinary conditions, states of confusion or hallucinatory delusion are produced, which may remain through the course of the disease or which may go on more or less rapidly to dementia. If the changes be not too complete and too extensive, recovery may ensue, or, in some cases, recovery with some persistent mental defect. The variation in the clinical picture is due to the varying extent and severity of the morbid changes, or, perhaps, to a varying localization.

REPORT OF WALNUT LODGE HOSPITAL.

A private asylum where special, personal medical care and study of each case can be made approaches very near an ideal place for the restoration and cure of inebriates. To combine in a home the best appliances of a large asylum and concentrate them in the treatment of a few cases is the highest achievement of medical science. Personal treatment, not only by drugs, but by the removal of the exciting causes and building up the brain and nervous system, is the only practical road to a possible final cure. In all inebriates there are poison states to be removed, and conditions of exhaustion to be overcome by elimination, rest, and nutrition. States of mental, muscular, and organic fatigue, with irritation and degeneration, must be treated by special personal remedies adapted to each case. The causes and conditions of inebriety are more complex than insanity and require more personal care, with a greater variety of means and measures. Patients often expect elaborate medication from drugs and by other appliances, and are disappointed when they find that natural measures are used of which tonics, hygienic living, baths, and nerve rest are the principal means. Regulation of the surroundings, with regularity of eating, sleeping, and exercise, also the correction of errors of living, are often of more value than other measures. No restoration can be permanent unless it begins and includes the hygienic conditions of life and living. The first step is to have all surroundings and external conditions helpful as well as medicinal. Then, with the removal of the exciting causes and all conditions which weaken and depress the organism, the cure can be effected. An asylum or hospital is not a hotel for luxurious living and indolence. It is a home for the best scientific care and conditions which will develop health and

vigor, and antagonize disease and disease tendencies. It is a place where the degeneration from alcohol and the injuries of which the demand for alcohol is a symptom, can be antagonized and removed. The experiences of many persons in the study and treatment of a large number of cases agree that there are no specific remedies, and that the subsidence of the desire for spirits is not evidence of cure. Each year's history in this hospital brings these facts into greater prominence, and the recognition by the patient that serious changes of the brain and nervous system are the result, as well as the cause, of his craving for drink is a hopeful promise of final restoration.

The purpose of this hospital is not to create a temporary mental disgust with alcohol with a delusion of final cure, but rather to ascertain the causes which provoke the desire for drink and to remove them, and to create an intelligent appreciation necessary for a normal life. The increasing number of persons who yearly go out from this hospital comprehending the gravity of their disease and the need of a vigilant use of means to keep up vigor and health is most gratifying evidence of the real success of this work. The following records of some general facts show that statistically the same class of cases, with about the same conditions, have been treated during the past year. The proportion of periodical drinkers is much larger; also the number of educated men who come under treatment. Physicians as usual are more largely represented than men of other professions. During the year 1899 one hundred and one inebriates were received and treated. Eighty-eight were discharged. Of this number fifty-six were periodical inebriates or persons who drank at stated intervals, with distinct free periods of total abstinence. The return of these drink periods in some cases is exact as to time, and often can be predicted in advance. As an example, in one instance, sixty-four days and six hours was the length of the free interval, with no intermissions of the attack up to

within an hour of its recurrence. In most cases a premonitory symptomatic period precedes the drink storm. Frequently these symptoms are noted in emotionalism, unusual benevolence, or extreme selfishness, and other reckless conduct. This form of inebriety resembles epilepsy, and frequently merges into this form of mental disease, and is curable only after a long, careful treatment. Thirty-one inebriates were classed as constant drinkers, persons who used spirits at all times and occasions, and often with great regularity as to time and quantity of spirits drank. In many cases the time was irregular, often only at night or early in the morning. One man never drank until the work of the day was over. Another seldom until late at night and just before retiring, abstaining the rest of the time.

This class always suffer from the delusion that their use of spirits is moderate and safe. They seldom realize that any injury could follow or that they are not able to stop at any time. Delusions of sight and hearing are much more common with them, and while seldom intoxicated, they are more feeble mentally and physically, and recover slowly when spirits are removed. Twelve persons used morphine and cocaine and other drugs with spirits. Only six were simple opium-takers; the others were complex users of spirits and narcotic drugs. Two were chloral and bromide takers who found opium more pleasing, and returned to it. Several of these cases began the use of narcotics from conditions of exhaustion, insomnia due to malaria, and other states. In the history of the ancestors of these cases, fifty-four had inebriate and moderate-drinking parents. In twenty-one instances both parents used spirits. In twelve of these cases the parents were wine drinkers, only using it at the table, and not regarded as inebriates. In two cases the fathers were clergymen, using wine and spirits as medicines and tonics. In twenty cases there was a history of inebriety in the grandparents and in collateral branches of

the family. Ten persons began to use spirits following severe illness and profound injuries which seemed to have changed and damaged the brain centers. Nine cases were clearly due to the contagion of surroundings and general states of debility, and in six cases no clear trace of any special causes could be found. In all probability farther and more exact studies would have revealed physical or psychical influences which developed into this use of drink. In the other instances the causes were so prominent there could be no mistake as to the natural consequence in inebriety. In hereditary a predisposition or tendency to find relief in drugs for every ache and pain and feeling of discomfort is inherited. Often this tendency may take on other forms and be latent, and only burst into activity by the accidental use of spirits or narcotic drugs. A low vitality and weak resisting power to suffering and pain is inherited, and alcohol or any narcotic is a most grateful remedy. The fact that over one-half of all inebriates have inebriate ancestors is very significant. It also shows that a certain proportion of their descendants may escape and live temperate lives. A study of the descendants from such parentage who do not drink reveals the presence of many allied diseases and neurotic troubles, of which consumption, hysteria, epilepsy, and a great variety of nervous troubles are common. These hereditary cases are curable, but often require a radical change of surroundings, occupation, and living, with continuous counsel and direction of the family physician for a long time. Many unknown and very obscure facts of atavism are noted, in which the peculiar form of drinking passes over two generations, then reappears. In one instance a strong, vigorous, temperate man suddenly drank to stupor on the Fourth of July. At all other times he was a teetotaler, but on the recurrence of this holiday the drink storm broke out. A great-grandfather of this man drank in this way and at no other time. He was a Revolutionary soldier, and his excesses on these occasions did not attract much attention. In

another case a temperate man became intoxicated at the wedding of his son, and from this time only drank on such occasions. It was found that his great-grandfather and two uncles drank to excess on like occasions, and were total abstainers the rest of the time. These and other curious facts in the history of cases enable the physician to understand some of the obscure causes and predispositions which enter into the drink craze. In a study of the social condition of these cases sixty-four were married and living with their wives. Eight were widowers, twenty-one were single, and eight were married and separated from their wives. The occupations of these patients were as follows: Of physicians there were nine, two lawyers, one artist, one actor, one musician, three engineers, four druggists, six spirit dealers, four mechanics, three agents, four hotel-keepers, two barbers, one author, two speculators, nine manufacturers, three bankers, three railroad men, two farmers, four clerks, ten drummers and merchants, four horse-men, six capitalists, and ten without any business. Seven women were treated during the year: six were married and one was single. In the education of the patients: forty-one had a college training, twelve had a university education, and twenty-one had passed through academies, and twenty-five had common school training. The ages of these persons were as follows: Two were under twenty, thirty were from twenty to thirty, and forty-four from thirty to forty, and eighteen were between forty and fifty, and five were between fifty and sixty, and two over sixty. In the duration of inebriety, ten persons had been drinking less than five years, forty-six had been using spirits from five to ten years, thirty-one had been drinking from fifteen to twenty years, and ten had been drinking over twenty years, and four over twenty-five years. In the former treatment, forty-five had taken some form of gold cure, seventeen had been treated in hospitals, thirty-nine had never taken treatment before. The results of treatment may be summarized as follows: Fifty-two persons were discharged as

recovered, thirty are noted as only temporarily improved, one died, and five were removed for treatment elsewhere. Of those marked as recovered, many of them gave every promise of permanent cure, especially where the exciting causes were found and removed. The withdrawal of alcohol frequently revealed sources of irritation and diseases not suspected before, and the treatment of these conditions was literally removing the causes at the fountain head. The mental treatment is also found to be valuable, and along these lines the prayer, the pledge, and hypnotic suggestions, are very practical. The power of these means increases with the restoration of health and the removal of alcohol, and in some instances proves to be very effective. In all these cases the object of remedial measures was directed to the entire man, including his moral, physical, and mental states, aiming to build up an all-round degree of vigor and health. The statistical facts of the effects of the poison of alcohol on certain organs of the body bring additional evidence of the value of the Turkish bath in treatment. The very common condition of all inebriates who are poisoned not only by alcohol, but the retention of the waste products in the system, and other palsied and congested conditions, point out the necessity of elimination by the bath as one of the most practical remedies. The failure both of the friends and of the patient to realize the injury from alcohol and the organic changes often manifest in the desire for drink, continues to be a very serious obstacle to permanent restoration. As a result, the patient considers the subsidence of the drink craze to be a cure and his delusive confidence in his ability to stop drinking sends him away from the institution long before any permanent changes are or can be made. When this is followed by relapse the patient and his friends blame the asylum and its management for the failure. Some of these cases go to different asylums, remaining a few weeks, going away and relapsing, then going to another institution. Finally, after several years of this experience, they are taken to insane hospitals and

die. Had they remained long enough in one place for full restoration, this unfortunate experience would have been averted. Each year's experience brings additional evidence of the curability of inebriety. This can only be accomplished by the use of scientific, practical means adapted to the needs of each case, and continued with the full co-operation of the patient and his friends. There is no mystery in this or secret drugs or mysterious application of unknown means. The usual scientific studies of heredity and the damage inflicted by alcohol on the organism have been continued during the year with most gratifying results. Some of these studies have been published in the *JOURNAL OF INEBRIETY* and other publications, and the intention is to embody them in a volume in the near future. While the work of this hospital is growing along many lines, the central object and purpose to study the inebriate scientifically and adapt exact treatment to each case has made most gratifying advances during the year. New means and appliances are being tested and adopted whenever found useful, and a continuous effort is made to enlarge and improve the work in this direction. For many years a large number of persons have been continuously submitting for examination and opinion new prescriptions of medicines and new formulæ for treatment. These efforts are treated with scientific fairness and frankness, and tested on their merits purely. Whenever any new discovery of more exact means and methods are found they are used, and the work of this hospital is open and free for the study of all students in this field. In this and many other ways Walnut Lodge Hospital is doing double work in educating the public, enlarging the bounds of scientific knowledge, and restoring individuals to health again. The year's record of patients treated, while it is practical, scientific, and replete with promise, is only an outline which will be seen in clearer detail in the future. The constant effort to widen the frontiers of exact scientific knowledge is the slow movement of evolution, apparent and traceable, and the change of pub-

lic sentiment recognizing the disease of inebriety and its curability becomes more prominent and personally hopeful. Walnut Lodge Hospital has become a center for the study and treatment of inebriates, and its work and influence is steadily widening and growing with each year.

ALCOHOLIC MULTIPLE NEURITIS.

Larkin and Jelliffe make an important contribution to our knowledge of this condition in a paper recently contributed to the *Medical Record*.

They report a case that was carefully examined and watched for two weeks, when an autopsy was held, especially looking for changes in the nervous system. The case was simple and uncomplicated, and the pathological picture showed the effects of sudden acute alcoholic poisoning. All other factors in the case could be excluded. She was admitted suffering from paralysis of, with excruciating pains in, both arms and legs, slight catarrhal jaundice and gastric disturbance. She had always been a moderate drinker; one year ago, having family trouble and bereavement, she began a series of periodical debauches, lasting for weeks at the time, taking no food at all during these sprees.

The autopsy was held three hours after death. Some hypostatic congestion and œdema of the lung, slight hypertrophy of left ventricle, liver in a condition of beginning mild cirrhosis.

Marked ganglionic degeneration from the upper cervical cord to the conus in both horns. Nearly every described grade of chromatolysis was observed, but central chromatolysis so characteristic of axonal degeneration was most prominent.

The cell involvement was much greater on the left side.

Marked degeneration of the entire column of Clarke.

Portions of the brain examined; degenerative changes in the anterior central convolution and irregularly scattered throughout other parts of the brain.

The authors conclude that "in fatal alcoholic multiple neuritis grave variations from the normal structure of the ganglion cells of the anterior and posterior horns, the columns of Clarke, the nucleus of Stilling, and the nuclei of the medulla, are always to be found when studied by appropriate methods."

Abstracts and Reviews.

AN APPEAL TO TRUTH. An Analysis of Prof. Atwater's Statements regarding the Nutritive Value of Alcohol and of his Tables in Bulletin 69, based on the Results of Recent Scientific Investigation. A Study of the Question presented to the public, Jan. 1, 1900, by the Committees of Fourteen Different Societies. Published 23 Trull St., Boston, Mass.

This pamphlet of sixteen pages represents the criticisms of committees of four church societies and eight temperance societies, and three other bodies in which total abstinence is the central object. The spirit and judicial fairness in which Prof. Atwater's conclusions are criticized is admirable. The conclusions of Prof. Atwater are examined scientifically and their errors pointed out in a most convincing way. The enthusiastic credulity which welcomed Prof. Atwater's defense of spirits is clearly dispelled in this examination, and the errors which have grown out of it are made clear above all sentiment and theory. It is a good evidence of the value of this paper to find it so kindly welcomed by the press reviewing it at length and publishing large parts of it, showing that The Appeal to Truth was not a partisan reply, but a dignified answer and examination of so-called facts. As a contribution to the literature of this subject it is invaluable. As a study of the latest teaching of alcohol it is a most timely, useful contribution, and is warmly welcomed. Copies of this publication can be had by addressing the publisher, 23 Trull St., Boston, Mass., and inclosing ten cents.

DIAGNOSIS BY THE URINE, OR A PRACTICAL EXAMINATION OF URINE WITH SPECIAL REFERENCE TO DIAGNOSIS. By Allard Memminger, M.D., Professor of Chemistry and Hygiene and Clinical Professor of Urinary Diagnosis in the Medical College of the State of South Carolina. Second edition, enlarged and revised. P. Blakiston's Son & Co., Philadelphia. 1900.

This hand-book of one hundred and twenty pages considers the subject of the value of the physical diagnosis of the urine with the purpose of dealing with the characteristics in the simplest manner possible. To this end, first of all the urine in health is described, after which its deviations from the normal are taken up. The tests for the normal and pathological constituents are taken up according to their relative value, and the sources of error pointed out. Both quantitative and qualitative tests are provided for in the case of all the more common constituents and morbid products. The microscopical appearance of the sediment receives due attention. The results of the examination of the urine of Bright's disease are given in tabular form. Illustrations are used where necessary. There is a list of all the apparatus required for the conduction of the analysis given, together with the formulæ for the requisite solutions. The contents include about all that is necessary for the general practitioner. Taken as a whole, it is a compend of what one wants to recall for immediate use.

ALCOHOL A DANGEROUS AND UNNECESSARY MEDICINE—HOW AND WHY. WHAT MEDICAL WRITERS SAY. By Mrs. Martha M. Allen, Supt. of the W. C. T. U. Dept. of Non-Alcoholic Medication. Charles C. Haskell & Son, Publishers, Norwich, Conn. Price, \$1.25. 1900.

This book of 425 pages, farther divided into nineteen chapters, is an admirable grouping of the testimony and widely-

varying statements of physicians who doubt the value of alcohol as a medicine. The object seems to be to give a fair view of all the leading physicians in this country and Europe concerning the value of alcohol in medicine. This literature has been gathered from a very large mass of papers, lectures, and books which are not readily available to the ordinary reader. Care appears to have been exercised in quoting only reliable authorities and avoiding extreme statements so common among partisans. The book will be a surprise to not only the ordinary physician, but to the philanthropist, who is supposed to be familiar with the temperance literature of the day in showing the extent of the revolution of medical theory concerning alcohol as a medicine. Much of this matter is given in the author's own language or summarized in a popular form by the editor, and the aim of the book is to furnish facts for study and quotation. The author has no doubt done a real service to the cause of medicine and reform, and while some critic may find fault with the arrangement of topics and the quotations, it cannot be denied that great fairness and justice is done in the compilation. Such works are really valuable as indications of the literature and the change of public sentiment up to the present time. We heartily commend this book to all our readers, as both a valuable and welcome addition to every working library. The publishers have brought out a very attractive volume.

THE SOUL OF MAN. An investigation of the facts of physiological and experimental psychology. By Dr. Paul Carus, Chicago, Ill. The Open Court Publishing Co. Cloth, \$1.00; paper, 50 cents.

Those who are interested in psychical studies should read this work, for while it does not give a clear definition of man's spiritual nature, yet many of its thoughts may act as guide-posts to the student, bringing him nearer to the spiritual elements in man's dual nature. More we cannot expect at the

present stage of our knowledge. Yet, if we cannot see the land it is something to have ideas presented to us that, like the birds that came to Columbus, demonstrate that it is near.

THE SURGICAL DISEASES OF THE GENITO-URINARY TRACT, VENEREAL, AND SEXUAL DISEASES. A Text-Book for Students and Practitioners. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphiology in the Medical Department of the State University of Illinois; Professor of Criminal Anthropology in the Kent College of Law; Surgeon-in-Chief of the Genito-Urinary Department of the West-Side Dispensary; Fellow of the Chicago Academy of Medicine; Fellow of the American Academy of Political and Social Science; Delegate from the United States in the International Congress for the Prevention of Syphilis and the Venereal Diseases, held at Brussels, Belgium, September 5, 1899, etc. Illustrated with 233 engravings. $6\frac{1}{2} \times 9\frac{3}{4}$ inches. Pages xvi-1024. Extra cloth, \$5.00 net; sheep or half-russia, \$5.75 net. The F. A. Davis Co., Publishers, 1914-16 Cherry St., Philadelphia.

This is an exceedingly practical work, covering a wide range of topics, and giving general principles more than exact details. The author is a clinical teacher of unusual clearness and happy power of expression. The chapters devoted to the general topics are the best in the work, giving a broad outline which is very helpful to both physician and surgeon in their application to the particular case. Some of the methods urged are original and indicate a fertile mind, able to adapt itself to any conditions which may arise. Altogether the book is by far the best single volume which has appeared in the English language. The reader will have before him a library of facts from which he can draw conclusions which will apply to every case. Both the style and the clearness are to be commended. The arrangement of topics and the preparation of each is

happily apportioned. The printer has done his work well. The clear type, good paper, and the excellent illustrations make a volume very valuable to all surgeons and physicians who are called to treat cases of this class.

DER ALKOHOLISMUS is the title of a new quarterly published in Dresden, and edited by four leading scientists and medical men of Germany, of whom Dr. A. Baer of Berlin is chief.

This is one of the most ambitious efforts made to discuss the problems of alcohol from the scientific side. The journal is well printed and contains 112 pages of closely-printed matter. The object as announced on the title page is to study the scientific explanation of the various questions which gather about alcohol and alcoholic problems. The first paper discusses the Battle Against Inebriety in the Nineteenth Century. The second paper is on the Alcoholic Question viewed from the popular standpoint and its influence on individuals and communities. The third paper points Some Harmful Effects of Alcohol on the Organs and Functions of the Human Body. The fourth paper calls attention to the Influence of Alcohol in Life Insurance. The fifth paper points out the necessity of amalgamation of all efforts in Germany to study and regulate the question of inebriety. The sixth paper describes in detail the various asylums for the treatment of inebriates, and urges them all to unite in an association for the purpose of better study of the means and methods of cure. The rest of the journal is made up of quotations and items of general interest. We learn from this journal that there are twenty-four asylums or special homes for the treatment of inebriates. All of them seem to be prosperous and successful in the treatment of cases. This journal evidently is trying to concentrate the efforts of these asylums the same as our journal did in 1876. There is something very pleasing in the thought that after thirty years of battling for the medical treatment of inebriety

and its study as a disease we find the stolid German scientist taking up the same idea and beginning on the same lines, and attempting in this journal to do what we have been so many years trying to do. The American Association for the Study and Cure of Inebriates and its organ, the *JOURNAL OF INEBRIETY*, sends its warmest greetings to *Der Alkoholismus* as the first journal to join us on these purely scientific lines. It is a pleasure to know that its editor in charge, Dr. Baer, has been an honorary member of this society for many years.

In February last a new medical society was organized in New York city for the special purpose of studying the alcoholic problem in all its many phases. It is called the New York State Medical Alliance. The following officers were elected: Andrew H. Smith, M.D., president; C. A. Kinch, M.D., first vice-president; C. H. Sheppard, M.D., second vice-president; W. N. Hubbard, M.D., recording secretary; T. A. MacNicholl, M.D., corresponding secretary; A. Y. Reid, M.D., treasurer; executive committee, F. B. Carpenter, M.D., W. L. Stowell, M.D., W. D. D. Garmo, M.D., G. H. Cocks, M.D., A. T. Hussey, M.D., C. R. Allison, M.D. This society will hold monthly meetings for the presentation of papers and the discussion of alcoholic problems and facts along these lines.

CYCLOPEDIA OF CLASSIFIED DATES. By Charles E. Little, compiler of *Biblical Lights*, etc. Funk & Wagnalls Co. New York and London. 1900.

This is a very rare book with a special object of grouping facts and events relating to the histories of various countries of the world from the earliest recorded dates. Each country is grouped by itself, and mention is made of all the different events under sub-titles, of which the following are prominent: Settlement, Discovery, Exploration, Society, Church, Science, Nature, Letters, Births, Deaths, Army and Navy, and other topics. Events occurring in each year are grouped under

these different heads, so that one can read a statistical history of the country from year to year under these various titles. Great care seems to have been exercised in noting only those events and persons who have occupied a prominent place or been influential in the history of the country. Under different heads one can find the birth and death of nearly every prominent man, as well as special laws, accidents, and changes of affairs in society and government. In the index a very elaborate grouping of events is arranged alphabetically. As an example, under the head of Temperance there are nearly five hundred separate references. Under the word Library are three hundred titles. Under the word London there are over two thousand references. This gives some idea of the great value of the work to every scholar or person who wishes to know the date of an event in the history. Such a book has a value equal to and more important than that of a dictionary, and constitutes a library of itself. The publishers have brought out an elegant volume of clear type, fine binding, and a beautiful book for the office table. This is one of the few books which is a library of itself that should be owned by every scholar and reader of this Journal.

The *Scientific American* is a most welcome weekly to every scholar and person interested in the advance of practical science.

The *Homiletic Review*, published by Funk & Wagnalls Co., is a very pleasing record of the religious thought of the day by the great theologians and clergymen. It is especially a minister's magazine, addressed to ministers, but has additional interest to all intelligent readers. Theologic thought, like that along scientific lines, is rapidly widening, and it is very interesting to the common reader to watch this movement. The April number contains some excellent sermons, as well as classic reviews. The Easter Sermons, Texts and Thoughts, is a very suggestive department, as well as the other section — Side

Lights from Various Sources. These topics are very helpful to all readers, and this journal should have a place and be read by all scholars and thinkers.

The *Medical Temperance Review*, under the editorial care of Dr. Ridge, is a very valuable monthly devoted to the study of alcohol as a medicine. As the organ of the British Temperance Association it publishes a large variety of statements, opinions, with statistics on this subject. Copies can be had by addressing Dr. J. J. Ridge, Carlton House, Enfield, England.

The *Bulletin of the American Medical Temperance Association* is the organ of a similar society in this country. Like its English prototype it seeks to group the opinion of physicians on the alcoholic question and the value of alcohol as medicine. Some very interesting papers have been published during the past year, and the journal as a whole gives promise of filling a very large place in the literature of this country in the future. Dr. Kellogg of Battle Creek is editor, assisted by Drs. N. S. Davis and T. D. Crothers.

The *Temperance Record*, published in London, the organ of the National Temperance League, is a weekly, giving a great variety of temperance news covering all departments of this most important study. Its comments and criticisms are very generous and fair, and its attention to the medical side contrasts very strikingly with that of some of the medical journals in this country of the same class. It is no doubt one of the most influential temperance publications abroad. It is under the editorship of the well-known reformer, Mr. Robert Rae, who has done more to awaken public sentiment along moral and philanthropic lines than any man in England.

The Bookman, the well-known literary journal published by Dodd, Mead & Co. of New York city, has a very strong serial story by Dr. John Uri Lloyd, which is exciting a great deal of

interest. The scene is laid in Kentucky, and is called "Stringtown on the Pike." The characters are not creations, but actual persons put on the stage with slight changes, and the literary setting of action and scenery. So far the story has strong character tracings, with natural dramatic grouping of persons, and very marked local interest. Such a story in this magazine is evidence of its high character and literary excellence.

Gould's Pocket Dictionary, fourth edition, containing thirty thousand words with pronunciation and definition, is really a marvel of compact, useful book so much in demand by the busy physician. The type and arrangement, as well as the fullness of practical words, plainly show that its author is a genius in lexicography. No more valuable little book for one dollar can be put on the office table. P. Blakiston's Son & Co. are the publishers.

The *Popular Science Monthly* grows with each issue in practical interest and value to every physician. No more valuable monthly can come to the office table of the physician. Send to D. Appleton & Co. for a year's subscription.

AN OPIUM HABITUE OF NINE MONTHS.

W. F. Boggess, in the *Archives of Pediatrics* for May, 1899, reports a child nine months old, small, weighing but eight or nine pounds, but bright and well nourished. Six months before coming under observation the mother had begun administering laudanum for colic. The dose administered varied from four to twenty drops, and the daily quantity was from one to two drachms. While under the influence of the drug the infant was bright and apparently quite comfortable, but as soon as it was withdrawn there was pain and fretfulness. The drug was rapidly reduced in quantity, and was followed by a prompt recovery. The report is of interest from the fact that it is the earliest case of opium addiction on record, and the remarkable tolerance of the drug shown by so young a child.

Editorial.

THE EXPERIMENTS OF PROF. ATWATER.

Researches in the realm of exact science are valuable in proportion to their accuracy and freedom from error. While it is impossible to eliminate all sources of error and mistake, it is the aim of every scientist to reduce these to the lowest fraction. When this is done the facts are still open to farther correction from new studies along other sides of the subject. In astronomy no observation, however accurately made with the most precise instruments and by the most expert scientist, is accepted as final unless it is confirmed by other researches. In this the most important question is to find and correct the possible errors, mistakes, and misconceptions which impair the value of the discovery. In physiological chemistry the search for facts must be equally exact, and no conclusions from any one class of experiments can be trusted until they have been confirmed by others and all sources of error reduced down to the smallest limit. Prof. Atwater has conducted a series of experiments on two men to test and compare the value of alcohol as fuel with that of fats, sugar, starch, and ordinary food. The results from these experiments have been widely published and defended by Prof. Atwater as authoritative and final facts. It has been assumed that as the apparatus was novel and exact and the experimenter expert as a chemist the sources of error were insignificant and the conclusions must be true. A very general examination will show that the reverse is the case, and that there was no recognition of the most common sources of error in these experiments; also that no attempts were made to verify the conclusions and to elimi-

nate the physiological and psychological factors which would enter so prominently into the results. Thus the physiologico-chemical changes are in a general way uniform in their action on the body, yet in individual instances there are wide variations both in the man and at different times. This variation is due to personal idiosyncracies and physiological states of the body, and also to many complex external influences and degrees of health and organic activity. The results from the study of one or two persons however carefully made can never be accepted as final and authoritative facts. Only from the examination of a large number of persons at different times and under different conditions will any general facts appear which may be considered as reliable. The study of any one person many times at intervals will reveal a general average of facts from which to draw comparisons with other researches in different conditions. In this way the effects on the body of drugs and different foods are ascertained. Such studies extending over many years in widely differing conditions bring out facts which are authoritative by continued correction and revision. No ultimate or final conclusions are ever reached; they are always facts from the present point of view, subject to continued change. The energy from certain foods and waste products thrown off always vary in each person, and when alcohol or other drugs are added the chemical and physiological changes will be increased, retarded, or diverted, and so altered that no conclusions from any small number of cases can be trusted. The general results from a large number of experiments can never do more than approximately point out facts which must be confirmed by repeated examination and test. Psychologically, the influence of the mind on the metabolism of the body is always a very prominent factor. This is seen from psychological studies and measurements by instruments of precision in which the heart's action, nutrition, energy, and waste of the body, the senses and mental activities, are found to vary markedly from the influence of the mind. This is also recog-

nized in its influence upon digestion, retarding or checking it, causing an increase or diminution of the waste products and energy evolved. The effects of remedies on the body are dependent largely upon this factor. In all persons there are widely-varying degrees of susceptibility to mental and physical surroundings which alter the chemical changes of foods in the body. In some persons this is very marked and must be recognized in all exact researches. The same food used under different circumstances, both mental and physical, varies in its effects, and only from the study of these variations in a large number of persons can any general facts be obtained. Experiments on two men in new surroundings and unusual conditions would of necessity bring into activity this mental factor which consciously or unconsciously would seriously alter the chemical changes of heat and energy. This factor could only be determined by a study of the person in normal surroundings, and from this a basis for comparison with the results obtained in the calorimeter would appear. Giving alcohol in these conditions without taking into consideration the mental and physical elements of the man would negative all results. To tell the person experimented on the purpose and object of the experiment would rouse the element of expectation and seriously affect the natural results. The fact of having used spirits or being an abstainer would vary the action of alcohol on the body materially. The quality of foods used, the character of exercise, hereditary tendencies, and other factors in the history of the man would be very influential. In these experiments the numerous possible errors unless eliminated would invalidate no accurate conclusions. The study of two men would give no reliable data, for the reason that the same experiments at different times on the same men would differ. No calorimeter studies can be accurate unless these sources of error are eliminated, and even then they must include a large number of persons. The statement that alcohol in small doses is always oxidized or lost in the body is open to so many exceptions as

to be practically worthless. Both chemical and physiological experience show that the elimination of alcohol through the breath and otherwise varies widely with each person. In some cases a very small quantity is apparent in the exhalations, the system throwing it off unchanged with great rapidity. In others it is cumulative and not apparent in small doses. No researches have indicated any fixed condition or uniform absorption of alcohol in the body. Here the accuracy of facts must depend upon the observation of a large number of persons and the recognition of exceptions and of obscure conditions unknown at present. Here, as in other fields of science, the results from any one or more series of experiments, although conducted with skill and accuracy, are insufficient to determine the truth. Repeated studies by other observers and repeated correction of errors, personal equations, and faults in the observations, are necessary to establish the facts. The chemico-physiological action of foods is unfortunately largely a field of theory and speculation at present, hence all dogmatic conclusions from narrow researches only confuse and increase the mistiness of the subject. Prof. Atwater's experiments are only obscure data, giving little or no intimation of the actual facts or even pointing out possible sources for future discovery. His assertions made in defense of his conclusions have such a strong personal bias as to destroy the scientific aspect. The effort to use these doubtful experiments to support opinions and force convictions on the minds of others degrades the subject to the level of partisan controversy unworthy of all scientific recognition.

INEBRIETY IN THE NAVY.

Some recent inquiries made at the Navy Department regarding the losses of government ships have brought out the strong probability that many of these cases were due to the failures of officers who were spirit-drinkers. It has been known

semi-officially that at least the disasters occurring to two government ships were intimately associated with and followed from the drink excess of the officers. In one instance where a subordinate officer was in active command, and at the time using large quantities of spirits, the ship was wrecked. The inquiry did not disclose this fact because of the responsibility of the superior officer. A number of instances have occurred of the wrecking of warships belonging to other countries, whose officers were intoxicated at the time of the disaster. Officially grave errors of judgment and blundering stupid conduct appeared entirely unusual for officers of experience. Probably one of the most prominent disasters was the capsizing of the English battleship "The Royal George" many years ago. The officers had been intoxicated the night before and were still drinking.

The extraordinary behavior of an English admiral who went down with his ship from a stupid blunder was explained by his alcoholic excesses the night before. In many of these cases official inquiry covers up the real facts to save the reputation of the officers and the management of the navy. Several great liners have gone down in mid-ocean whose captains were known to be alcoholic drinkers. At least three ships have disappeared manned by the same class of men. One of these recent ships loaded with passengers, which disappeared in mid-ocean, was officered by moderate drinking men. The merchant marine has for many years suffered so much from this possible cause that the underwriters are becoming more strict in refusing insurance to any ships which are not officered by total abstainers. Two of the great Atlantic lines have issued strict orders that no officer shall use spirits on duty or off duty under pain of dismissal. One of the leading underwriters in New York asserts as his opinion that fully half of the ships wrecked are due to the alcoholism of the officers. The fact is becoming recognized that both the moderate or occasional drinker is unfitted for accurate work.

Such persons have defective judgment, do not think quickly, and are confused in times of excitement and peril. On shipboard the incompetency of such men is fatal and cannot be corrected. The delusions which grow out of the palsy of the senses from wine with the unhygienic conditions of life on shipboard unfit officers for exact duties of any kind. The teaching of the danger of alcohol in a naval academy is carried on with a great deal of enthusiasm, and already the graduates realize the importance of this study. In the Navy Department the former drinking officers who spent most of the time while ashore under the influence of spirits are rapidly disappearing and a new class of men who are total abstainers, not from any sentiment or theory, is taking their place. It is understood in the department that the losses and wrecks due to the carelessness of drinking officers are to be severely punished in the near future, and no farther attempts will be made to conceal and cover up the real facts.

We are startled at the fact that all but two states in the Union have passed compulsory laws, making it obligatory to give temperance instruction in common schools. This fact is eloquent in meaning, and indicates a public sentiment rapidly concentrating along lines of scientific instruction against the drink evil. The perils from the use of alcohol must be taught to the children and pointed out as of equal importance to that of abstract truth of any kind. It is an educational topic which cannot be ignored or put aside. This is recognized in the rising sentiment which demands such instruction. In view of these facts how childish the objections to the school books and the assertions that they teach error. How startling the statement that any one man has discovered facts which show ignorance and delusions on the part of those who support and recognize the value of instruction in the schools.

There is something sad in the disappearance of the "Gold Cure" discoverers down the same road which they emphatically claim to have found a cure and "switch-back." Such persons starting out from the dissolving armies of inebriates, asserting that they have discovered some specific cure with wonderful results, and after a time fail to apply the remedy on themselves, then sink back and are lost with the submerged. A few of these specific promotors have sought relief from other sources, others have abandoned all hope and have dropped out on the same road. The last kindly diagnosis of "heart disease," "Bright's disease," or pneumonia, falls like a flash of sunlight over the name and memory of the specific discoverer. Behind this are drink storms and strains to conceal and explain the mysteries of curing others and failures to cure themselves. The motives may be concealed, but the realities can never escape the searching test of time.

In a recent address before a graduating class of medical students occurs the following most sensible advice: "While fewer physicians become insane than members of other professions, a larger proportion become addicted to the use of morphia. Opium in any form is exceedingly dangerous when self-administered. No physician should attempt to treat himself, but always take the advice and follow the direction of another physician."

Is the use of morphia increasing among physicians? This question was answered by an old traveling man from a noted drug manufactory as follows: "Within ten years my orders from physicians for morphia have rapidly increased. I have a number of regular customers who order from two to five thousand one-fourth grain and one-half grain tablets of mor-

phine for hypodermic use every month. Some of these physicians buy for their patients, others clearly use morphia themselves. Many of these doctors have a large practice, and are not known to be morphine-takers. Other physicians buy very largely of deodorized tincture of opium and opium pills. In a small village of five thousand, where seven doctors practice, one physician bought over five gallons of tincture of opium every year. In another town where the practice was limited, large quantities of opium pills and preparations of codeine were sold to two of the physicians. Other narcotics, such as chloral hydrate, hyoscyamin, and cannabis Indica, are called for in large quantities beyond the natural demand of practice."

The decline and disappearance of the "Gold Cure" asylums brings into greater prominence a class of incurables who are more degenerate and importunate than ever. They come to asylums demanding positive medication and are dissatisfied, except when under the influence of some narcotic. At the Gold Cure asylums it was found by repeated experiment that alcohol was distasteful and nauseating. The same experiment is tried while under treatment at other places, and not finding this condition, they lose all confidence in the treatment. After a brief time they become clamorous to leave, claiming to be cured or doubting the value of this kind of treatment. Most of these cases are degenerates who should be in an insane asylum or locked up and forced to pursue some rational course of treatment. These are the men who go to every new asylum, and if freely treated with narcotics, are satisfied and are extravagant in their praises of the value of such treatment. They are neurotics of a very low type, who are always seeking medical relief for physical and mental conditions, and are willing to take anything that is offered from any source or in any way if it only brings relief.

Two religious papers which have warmly defended Atwater's experiments to prove the food value of alcohol are both edited by wine-drinking clergymen, and these conclusions are most grateful testimony in support of their personal habits and conduct. This is repeated in almost every circle where any new conclusions are in accord with the habits of the critic or person who gives opinions.

SOME IMPORTANT MEETINGS.

The World's Temperance Congress, which convenes at London on June 9th, and holds over to the 18th, gives promise of being a gathering of great importance and scientific interest. The Bishop of London, assisted by the Archbishop of Canterbury, will preside. The special feature of this convention will be the historic addresses of the work done during the past century. Few persons, even those deeply interested, realize how much effort has been made to check the great evil and how large the literature of lectures, sermons, pamphlets, and books. The central purpose to summarize this work in historic addresses will give new interest and point out new paths for future progress, making it easier for all efforts to carry on this evolution and revolution of the race. The work done in this country will be clearly given by members of our association and others prominent, and we shall look forward with great interest to the published volume of transactions as marking a new era in this field.

The annual meeting of the American Medical Temperance Association at Atlantic City, June 6th, will be a most notable one. The subject of alcohol has become more prominent than ever during the past year. Medical men are called upon to decide questions which are coming into prominence in every community in the land. They are appealed to for informa-

tion concerning the value of alcohol and its dangers more than ever before. The Atlantic City meeting promises to be very popular. A number of prominent men will read papers, and the discussion following will materially contribute to the advancement of this question.

Our Association for the Study and Cure of Inebriety will hold a semi-annual meeting at Greenwich, Conn., June 20th. It is the object to gather all the superintendents of private asylums and to organize them into a closer relation for the work of the future. The "Gold Cure" asylums have called new attention to the asylum treatment of inebriates, but unfortunately have propagated the delusion that drugs can cure in a brief time and restore the patient to health again. The study of inebriety and its treatment is more imperatively demanded than ever, and our Association has now a great opportunity to unite all efforts in this direction more fully than ever before. The union of the German asylums into a society called The Association of Physicians for the Study of Alcoholism, is a move of the same character, and is very encouraging. Our Association, while working on this line for many years has failed to enlist but a limited number of institutions into a confederation. The purpose is now to broaden these lines and to enlarge our work so that we may act in concert on the great questions which are constantly appearing. This field meeting at Greenwich will gather nearly all the prominent men in this country who have private asylums, and we anticipate a great impetus to the work. Programs and circulars will be sent later.

Clinical Notes and Comments.

BROMIDIA IN THE TREATMENT OF EPILEPSY.

The *New Albany Medical Journal* for November, 1898, contains an article on "Epilepsy Treated by the Use of Bromidia," by T. Edward Converse, M.D., of Louisville, Ky., which, after discussing the use of medicines chiefly relied upon in the treatment of that disease, and giving the needful hygienic measures in considerable detail, concludes by referring to "the question often raised: How long will the patient have to keep up the treatment?" If the bromides are given they should be continued for at least two years after the last convulsion, or if combined with the chloral hydrate in the form of bromidia, a year and a half is sufficient in most cases. If the patient is having several attacks during the day a teaspoonful of bromidia after the attack and repeated in an hour will abort the next attack; but, as a rule, one teaspoonful will be sufficient — *Sanatarium*, April, 1899.

CAUTION REGARDING HEROIN.

The April *Druggists' Circular and Chemical Gazette* says in substance: Under the above heading we mentioned in our March issue two cases in which persistent vomiting followed the use of this drug, in one of which a fatal termination was at least partly chargeable to this action. These cases, as we stated in our note, were reported by Dr. Thomson in the *New York Medical Journal*. This report has brought to the journal from Dr. Wm. J. Robinson a statement of two cases in his own practice of a similar nature. Dr. Robinson suggests that there is a possibility that heroin, which is diacetyl-morphine, may in such cases have become transformed into apomorphine or some

similar body. Dr. Manges calls attention in the same journal to a statement of his in a report on a study of heroin, that "vomiting might occur after its use." He makes it a rule to tell patients that when vomiting does occur to discontinue the drug. The doses given in the case that ended fatally he thinks were excessive. These new statements add further proof to the uncertain action of the drug; and we think that it is quite plain that it needs more watching than opiates in general. The untoward and even serious after-effects of heroin bring forcibly to mind the many excellent and time-tried remedial qualities of codeine — always safe, always certain and uniform. The combination of codeine with antikamnia presents a most desirable mode of obtaining the full value of these two excellent remedies, and there is no better form in which to exhibit them than in the well-known antikamnia and codeine tablets, each containing four and three-fourths grains antikamnia and one-fourth grain codeine.

According to Van Laer, who has been studying the special diseases or bacteria which affect beer, there is such a thing as beer disease. It appears that a bacillus develops in beer associated with viscous fermentation and converts practically the carbohydrates into lactic, acetic, and butyric acids. This practically destroys the quality of the beer, and makes it in the language of beer-men "double-faced." Its flavor may be increased, but its effects are depressing and resemble those of narcotic poison. It is said that many beers on the market are injured by this bacillus, whose presence is largely unknown. It is evident from this that beer is not the simple, harmless beverage supposed.

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Ammonol has the unusual combination of being both a stimulant and a hypnotic. Its stimulant qualities are noted in the distressing influenza cases so common at this season of the year. As a hypnotic its value as a substitute for morphia and the various congestive headaches is very prominent. We take great pleasure in calling attention to this coal tar product, and believe when its value is known it will be used very extensively, not as a proprietary drug, but as a prescription which is applicable to a large number of cases. Send to the Ammonol Chemical Co. of New York for samples.

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The new morphine derivative, *Dionin*, fills a very important place in the withdrawal of morphia, particularly in removing the withdrawal symptoms and lessening the irritation which follows. It is one of the alkaloids of opium which has come to stay, and will have an equal place with morphia and codeia and other derivatives. Merck & Co. deserve the gratitude of the profession for introducing it into this country.

The Test of Time and Experience is the name of a little pamphlet issued by J. I. Fellows, devoted to the Syrup of Hypophosphites. It seems hardly possible to write anything new on this line, particularly wherever the drug is used, and yet its value is increasing in unexpected directions and its use is widening everywhere. In debility caused by the poisons of alcohol and opium it fills a very large place, and seems to be of great value in certain cases.

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(Organized November 29, 1870.)

I. The active membership of this association is composed of the resident, attending, and consulting staff of all hospitals or sanitoriums, private or public, where alcohol, opium, or other drug neurotics are treated, either alone or in conjunction with other forms of nervous or mental disease.

II. All such institutions organized and conducted in proper conformity with the laws of the several states in which they are located are entitled to representation in this association.

III. The active membership of this association is composed of physicians in good and regular standing who are actively connected with such institutions or who have been honorably retired from active service in connection therewith.

IV. Physicians not connected with such institutions, and members of boards of direction of such special hospitals, asylums, etc., are eligible as associate or lay members of this association upon payment of the dues of membership.

V. The object of the association is:

First, to promote the scientific study of alcoholic inebriety and kindred drug habits, and to encourage desirable and special legislation with reference to the care and control of alcoholic and other drug inebriates.

Second, to isolate the chronic pauper inebriate from the insane and criminal class, and secure the erection and maintenance by the several states of institutions for the segregation and special treatment of chronic pauper inebriates, and to incorporate farm colonies, or other forms of institutional relief, which shall combine medical care with proper occupation, judicious control, and discipline.

Third, to secure in all states the special supervision and inspection of all institutions for the care and control of inebriates or other drug habitués.

Fourth, to discourage and prevent all efforts to treat alcoholic inebriety or the opium or other drug habits with secret drugs and so-called specifics, and to prohibit the sale of all nostrums which claim to be absolute cures and which contain alcohol, opium or its alkaloids, or other pernicious and harmful drugs, or which contain substances which are inert and so are fraudulent impositions on the public.

Fifth, to encourage, as an association, every individual and organized effort to study scientifically and practically all the various means and methods of both cure and prevention which may be used in the care and treatment of alcoholic and other forms of drug addiction.

There are many institutions in this country which wholly or in part treat the alcoholic and other forms of drug addiction. These institutions should be organized and follow some general principle and method of practical work. By this means public opinion could be more effectually influenced, and legislation secured, resulting in a great advance in the successful and scientific treatment of this class of cases. Every such asylum and institution in the United States is urged to join this association, and by their united effort lift the subject out of the realm of quackery and unscientific treatment into that of exact scientific work, and to place the status of the treatment of alcoholic inebriety and kindred drug habits on the same level with that of other similar diseased conditions, and secure the same medico-legal and institutional advantages. A membership fee of two dollars is charged yearly, which includes the annual subscription to the *Journal of Inebriety*, the organ of the association.

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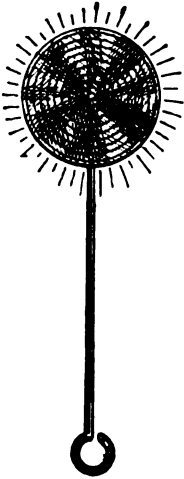
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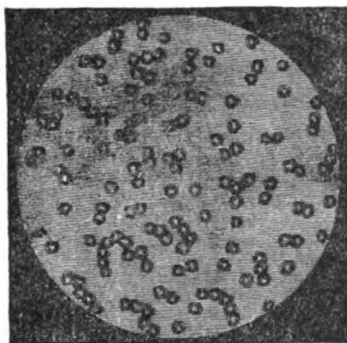
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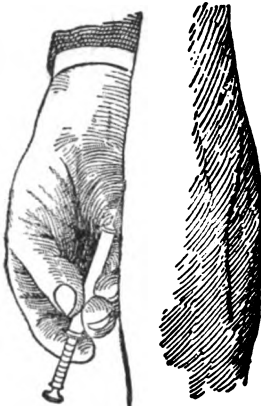
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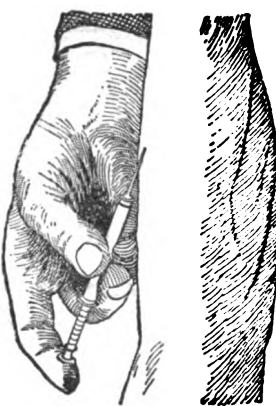
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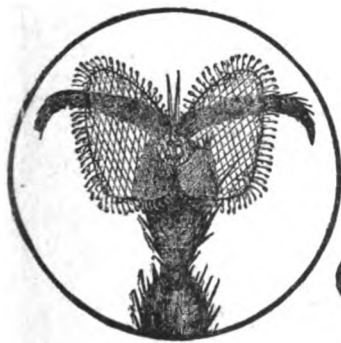
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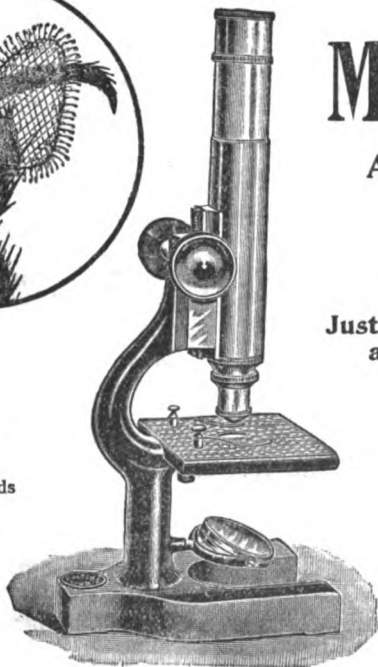
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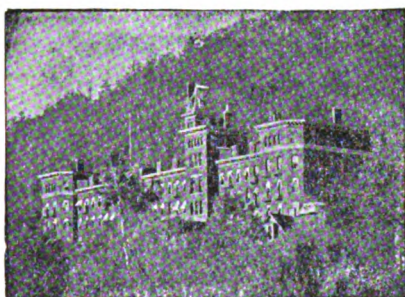
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HISTORY OF EXPERIMENTAL INVESTIGATIONS
CONCERNING THE INFLUENCE OF ALCOHOL
AND ALCOHOLIC DRINKS ON THE FUNC-
TIONS AND STRUCTURES OF THE LIVING
ANIMAL BODY BY AMERICAN INVESTIGA-
TORS.

BY N. S. DAVIS, M.D., OF CHICAGO, ILL.

Prepared for the Tenth Annual Meeting of the American Medical Temperance Association in Atlantic City, June 6, 1900.

So far as my knowledge extends, the first experimental investigations concerning the effects of alcohol on the living body in this country were devised and executed by me during the last half of the year 1850. They constituted part of a more extended inquiry concerning "the influence of different kinds of food and drink on the functions of calorification and respiration, as indicated by the changes of temperature and the variations in the quantity of carbonic acid gas exhaled during expiration in the healthy human system; and the changes which the several constituents of the blood undergo in their relative

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proportions during the passage of that fluid through the secreting organs and some of the non-secreting structures of the human body." The results of the whole inquiry were embodied in an essay read by me in the annual meeting of the American Medical Association in Charlestown, S. C., May, 1851, under the following title: "An Experimental Inquiry Concerning Some Points in the Vital Processes of Assimilation and Nutrition." The facts and deductions set forth in the essay were listened to with marked attention, but were so much at variance with the popular doctrines of the day that I received only a vote of thanks without a reference of the paper for publication in the Transactions of the Association. It was published, however, in the *Northwestern Medical and Surgical Journal*, Chicago, September, 1851, Vol. 4, pp. 169-190. It should be noted that the Experimental Inquiry under consideration was executed less than nine years after the publication of the celebrated essay of Baron Liebig in 1842, "On Organic Chemistry in its Relations to Physiology and Pathology," which was the real foundation of modern Organic or Physiologic Chemistry.

On strictly theoretical grounds he divided all food, or ingesta, into two classes called carbonaceous and nitrogenous. In the first he included the articles composed chiefly of oils or fats, starch, and sugar, and the alcohols. In the second he included those composed of vegetable and animal albumen, fibrin, etc. As those belonging to the first were composed essentially of only the three elements, oxygen, hydrogen, and carbon, they were regarded as incapable of entering into the nutrition or growth of the organized structures of the body, but were supposed to unite with the oxygen furnished through the lungs, and to be converted into carbon dioxide and water with the evolution of heat to sustain the temperature of the living body, or deposited in the form of fat in the tissues. Consequently they were very generally designated as "respiratory food," and alcohol was placed at the head of the list. Those articles

belonging to the second class, being composed of the four elements, oxygen, hydrogen, carbon, and nitrogen, were regarded as the only ones capable of assimilation and of entering into the nutrition and growth of organized structures. The classification was so simple, and the theory on which it was based so plausible, that it was almost universally accepted and quickly incorporated into all our literature, both medical and secular. Lehman, however, a contemporary of Liebig, and equally eminent as a chemist, denied the correctness of the latter's chemico-physiologic doctrines. While a student of medicine, the subject of animal heat and its connections with the respiratory function, attracted my attention, and a discussion of the subject constituted my graduate thesis in 1837. When, five years later, the important essay of Liebig made its appearance, I read it with much interest, and during the next few years I met with so many apparently well authenticated facts, not in harmony with his claim that foods composed essentially of fat, starch, sugar, and the drinks containing alcohol, were simply oxidized, and converted into carbonic acid, water, and heat in the living body, that I planned and executed the "Experimental Inquiry" of 1850-51. It embraced five distinct series of observations and tabulated records.

The first was instituted for the purpose of ascertaining the temperature and the amount of exhaled carbonic acid in a healthy adult man at 7 A. M., before breakfast; at 10 A. M., two hours after breakfast; at 12 M., before dinner; at 3 P. M., two hours after dinner; at 5 P. M. and 8 P. M., two hours after supper; while living on an ordinary mixed diet of vegetable and animal food. The objects sought were to ascertain the variations of temperature before the regular meals, and when digestion was in its most active stage, and the average for the twenty-four hours, and the same in regard to the proportion of carbon dioxide exhaled. The observations on a mixed diet were continued more than two weeks. The second series consisted of the same detailed observations on the same individual,

while limited during three full days to a diet consisting of pure boiled rice with a little white sugar. After a return to a mixed diet for a week, the same individual was limited for three days to a diet consisting exclusively of egg albumen and a very small amount of dried beef, and the same detailed observations were made as in the second series. We thus gathered the data concerning the temperature and exhaled carbon during an ordinary mixed diet, one exclusively carbonaceous, and one equally exclusively nitrogenous.

They all showed the lowest temperature in the morning before breakfast; an increase of from 1° to 2.5° F. after each meal, reaching the maximum about two hours after a one o'clock P. M. dinner. The average temperature for the twenty-four hours was 0.5° F. less under the strictly carbonaceous diet, than either the mixed or that exclusively nitrogenous. The proportion of carbon dioxide in the exhaled air also varied, but not strictly parallel with the variations of temperature. Under the carbonaceous diet the proportion of exhaled carbon reached its maximum about 12 M., under the mixed diet about 3 P. M., and under the nitrogenous not until 7 P. M.

The fourth series of observations were made on the same individual under the influence of alcohol, and with the same apparatus. Having learned from the preceding experiments that the temperature of the body was uniformly increased during the active digestion of ordinary food, the time chosen for testing the effects of alcohol was from 9 P. M. to 12 P. M., the supper having been taken at 6 P. M., and consequently its digestion completed before the alcohol was taken. In a room well aired and kept at a comfortable and uniform temperature, at five minutes before 9 P. M., the temperature, proportion of carbon dioxide in the exhaled air, and pulse rate were noted, and at 9 P. M. four ounces of brandy diluted with water were taken at once. At 9.45 P. M. the pulse rate had increased ten beats per minute, the proportion of exhaled carbon dioxide diminished, but the temperature had remained the same. At 10 P. M. the

pulse rate was only five beats faster than natural, the exhaled carbon was further diminished, and the temperature slightly less. At 11 P. M. the pulse rate had returned to its natural standard, the temperature had decreased 0.2 F., and the amount of exhaled carbon had perceptibly increased. At 12 P. M., three hours after the alcohol was taken, the temperature had fallen 0.5 F., and the proportion of carbon dioxide in exhaled air was the same as when the experiment began.

On another evening this experiment was repeated with the same results. During the first two hours after taking the alcohol there was a sensation of exhilaration or dizziness in the head, a sense of lightness or less consciousness of body weight, and less tactile sensibility in the hands and feet. Previous to the foregoing experiments Dr. Prout of London had shown that the presence of alcohol in the system diminished the exhalation of carbon dioxide, and his observation had been corroborated by M. M. Bouchardet and Sandras, but they did not note the effect on the temperature at the same time. The result of all these experiments "compelled me to suppose that all digestible substances, whether carbonaceous or nitrogenous, are assimilated and appropriated with more or less facility to the nourishment of the organized textures of the body," and "that the *carbonic acid* from the respiratory process, like the secretions from the skin and kidneys, is a true product of the disintegration or metamorphosis of the structures of the body, while the *temperature* depends directly on those changes that take place in the nutritive and organic actions." (See N. W. Med. & Surg. Journal, Vol. 4, p. 180.)

In October and November, 1852, I repeated the experiments with alcohol in the form of both brandy and wine, in connection with Dr. Henry Parker, then a resident of Chicago.

The same precaution was taken to avoid having the action of the alcohol complicated by the presence of ordinary food in the stomach at the same time, as in the previous experiments. October 18, 1852, at 8.30 P. M., the temperature under the

tongue was $98\frac{1}{4}$ degrees F., pulse 76 per minute, respirations 17. Three ounces of brandy were then taken diluted with water, the temperature of the room being kept uniform at 70 degrees F. *Thirty minutes* later the temperature was 98 degrees F., the pulse 84, respirations 17. In thirty minutes more, or one hour after the brandy had been taken, the temperature was $97\frac{1}{4}$ degrees F., pulse 77, respirations 17. Two and a half hours after the brandy, the temperature had fallen to $97\frac{1}{2}$ F., pulse to 75, and respirations to 16. Directly before taking the brandy, and at the end of every half hour, a given quantity of exhaled air was collected in a graduated glass tube over mercury, and then transferred to a solution of caustic potash. The quantity of carbon dioxide markedly decreased during the first two and one-half hours, and then slowly returned to the same amount as before the experiment began. On November 8, 1852, the foregoing experiment was repeated with the same apparatus and regulations, except that the alcohol was taken in the form of *eight ounces of port wine* instead of three ounces of brandy. The effects were the same in kind, and nearly the same in degree. In both, the sensations recorded were those of dryness in the mouth and fauces, a feeling of exhilaration and some dizziness in the head, some general feeling of numbness or lack of sensibility throughout the whole system, and a sense of heat in the stomach and face. These various sensations continued for nearly three hours, after which they slowly disappeared. The experiments with alcohol in October and November, 1852, were included by Dr. Henry Parker in his "Prize Essay on the Difference Between Stimulants and Tonics," presented to the Illinois State Medical Society at its annual meeting in La Salle, June, 1854, and published in the Transactions of the Society for that year, pp. 55 to 107. A careful noting of all the experiments thus far noticed will show that the physiologic effects of such hydrocarbons as starch, sugar, and oils on the living body, and those of the alcohol class, are radically different.

The first when taken were digested, assimilated, and maintained the full natural temperature, pulse rate, and exhalation of carbon dioxide with no disturbance of the nervous, cerebral, or metabolic functions, while the alcohol was plainly imbibed from the stomach undigested, circulated with the blood directly, diminishing nerve and cerebral sensibility like other anæsthetics or narcotics, and decreasing both temperature and exhaled carbon. Consequently the classing of it with other carbonaceous foods as a supporter of respiration and animal heat was erroneous, and led to very important errors in practice, some of which still exist. For instance, the observed fact that the daily use of moderate doses of alcohol, as a mug of beer, or a glass of wine, three or four times per day, generally increased the amount of fatty tissues, and the experiments of Boecker of Germany, showing that moderate doses of alcoholic liquor lessen the sum total of eliminations, and cause increased weight, gave rise to the inference that such use of alcohol might prevent the development of tuberculous and other diseases, characterized by persistent emaciation, and arrest or retard their progress after they had commenced.

The inference was sanctioned by some eminent medical men, and consequently cod-liver oil and Bourbon whisky soon became the most popular remedies both for the prevention and cure of pulmonary tuberculosis at the middle of the present century. To test the correctness of this doctrine by as near experimental methods as possible, I began early in 1855 to take notes of every unmistakable case of pulmonary tuberculosis coming under my observation, both in hospital and private practice, a reliable history of which I could get extending back one year or more before any symptoms of the disease had commenced. During that year I gathered the history of thirty-seven cases, and made them the basis of my address as president of the Illinois State Medical Society at the annual meeting in Vandalia, June 4, 1856, which was published in the Transactions of the Society for that year. During the

succeeding four years the number of my cases was increased to 210, and a pretty full account of them was embraced in a paper read in the Section on Practice of Medicine at the annual meeting of the American Medical Association in New Haven, Conn., June 5, 1860, and published in the Transactions of the Association for that year, Vol. 13, pp. 565-576. Of the 210 cases, 140 were males and 70 females. Eighty-five were natives of Ireland, 60 of the United States, 25 of Norway and Sweden, 20 of Germany, and 15 of England, Scotland, and Wales. Of the whole number 68 had used some form of alcoholic drink, fermented or distilled, almost daily for from one to twelve years before any symptoms or signs of tuberculosis were noticed. Some had drunk only beer at the rate of three or four glasses a day; others drank chiefly wine, and a larger number all kinds of liquor. All were thus *habitual* drinkers, yet only 15 were recognized as *drunkards*, 5 of whom were admitted into the hospital with *delirium tremens*.

The number who had used alcoholic drinks periodically, or irregularly, and were regarded as moderate drinkers, was 91, while 51 were total abstainers from all alcoholic liquors. Of those patients who remained under observation until death belonging to the first class, the average duration of the disease was only 19 months; of those of the second class 23 months, and those of the third class 25 months. Many of those belonging to the first class or division of habitual drinkers were in such circumstances and with such habits as were as favorable for testing the influence of alcohol on the development of tuberculosis as could have been devised. But instead of affording any evidence of exerting any preventive or retarding influence, the use of the alcohol appeared to both favor the attacks of the disease and to hasten the fatal termination. This conclusion is also sustained by the Fiske Prize Essay of Dr. John Bell of New York, published in the American Journal of Medical Science in 1859.

In 1857 Dr. Wm. A. Hammond, then a member of the

Medical Staff of U. S. A., presented an essay to which was awarded a prize by the American Medical Association, and which contained a detailed account of his experiments with albumen, starch, and gum as food. He confined himself for ten consecutive days to a diet of albumen and water. After an interval during which he used an ordinary diet, he confined himself for ten days exclusively to starch and water, taking a given quantity at each meal time.

Among his conclusions concerning the effects were the following: "That albumen may be assimilated into the system in such quantity as to furnish a sufficiency of both nitrogen and carbon to the organism," and "that starch can be assimilated by the absorbents in more than sufficient quantity to sustain the respiratory function."

This last conclusion was proved by the fact that during the ten days of living on starch there was no loss of body weight, and an increase of 1.8° F. of temperature; while, during the ten days of albuminous diet, there was more than *five pounds* loss in body weight, and no loss of temperature.

During the last three days of the experiment with albumen the urine became albuminous, and during the same stage of progress with starch the urine became saccharine, with other symptoms of diabetes. Subsequently Dr. Hammond experimented with alcohol, first on the dog, and later upon himself. When alcohol diluted with water was introduced into the stomach of the dog it was rapidly absorbed and easily detected in the blood, the various organized structures of the body, in the urine, and in the exhalations from the lungs or air passages. When he gave the dog only very small doses, and very largely diluted, as in the weaker wines, he was not able to detect it in the organized structures, but still detected it in the pulmonary exhalation with the aid of a solution of bichromate of potassa in sulphuric acid. He also executed three series of experiments with alcohol on himself. Instead of attempting to determine the effects of living on alcohol and water

alone for several days, as with albumen, starch, etc., he first took four drachms of alcohol diluted with an equal quantity of water at each meal for five consecutive days. The quantity of his ordinary food had been found just sufficient for all the needs of the system without loss or gain in weight. Note was taken of the total amount of ingesta and of excreta each day, the body-weight, etc. During the five days the amount of carbon dioxide and water exhaled from the lungs was diminished; the urine was also decreased both in quantity and in solid constituents; the pulse was increased in frequency, and there was a decided headache, with a sense of heat in the surface, and marked indisposition to exertion, either mental or physical. Yet at the end of the five days he had gained in weight nearly half a pound.

His second experiment was with the same quantity of alcohol for the same length of time, but with an ordinary diet so much limited in quantity as to cause a daily loss in weight of one quarter of a pound, and a general sense of weakness. The alcohol lessened his sense of hunger and weakness, and produced less headache, but caused the same decrease of excreta, and an increase in weight. The third experiment was with the same quantity of alcohol at each meal with a quantity of ordinary food in excess of the natural requirements of the system. This resulted in the same decrease of pulmonary, renal, and other excretion, and increase in body-weight, while the headache, frequency of pulse, and general indisposition was more marked than in the first experiment. A full account of the foregoing experiments by Dr. Hammond may be found in his volume entitled "Physiological Memoirs, Treatise on Hygiene," published in 1863. Notwithstanding the plain evidences of a direct anæsthetic effect of the alcohol on the whole nervous structures of the body, his only important inference was that the alcohol united rapidly with the free oxygen in the blood, thereby evolving carbon dioxide, water, and heat, and to that extent *conserving* the tissues. Conse-

quently he still called it erroneously accessory or indirect food, instead of a paralyzer of nerve sensibility and of tissue metabolism, which was really the effect it produced. Regarding the experiments I executed, 1850 and 1852, and directly corroborated by those of Dr. Hammond, as positively proving that alcohol when taken into the living body reduced temperature, nerve sensibility, and all metabolic changes in direct proportion to the quantity taken, it was still claimed that in small doses it exhilarated the mind and quickened the movements of the heart, and, consequently, it must be a cardiac and cerebral stimulant. With the hope of getting some explanation of this apparent incongruity, in April, 1867, I instituted two additional experiments in which I sought more exact knowledge of the effect on the circulation by using the sphygmograph.

“On the 6th of April, 1867, four hours after dinner, when stomach digestion had been completed, the temperature was carefully noted by the thermometer under the tongue, the rate of pulse, and other qualities, as indicated by the sphygmograph, were recorded. Then four ounces of Bourbon whisky were taken, diluted with water. The same observations in regard to temperature and conditions of the pulse were made and recorded every half hour, until two full hours had passed. A series of observations in all respects similar were made on the 11th of April, except for the whisky, four ounces of sherry wine were substituted. The several sphygmographic lines were preserved as a part of the record. It will be seen that under the influence of the whisky the temperature diminished $\frac{3}{4}$ of a degree F. in one hour, while under the influence of the same quantity of wine, it diminished $\frac{1}{2}$ a degree in the same length of time. Under the influence of whisky the rate of pulsations fluctuated, increasing during the first hour from 83 to 89, and decreasing during the second hour from 89 to 85 per minute. Under the influence of the wine the rate steadily decreased from 78 to 71 per minute. The qualities of the

pulse, as indicated by the sphygmograph, are the same in kind, differing only in degree in the two experiments.

“The lines show that each pulse expands the artery to a greater extent and more abruptly than before the alcoholic liquor was taken, and that the commencement of contraction is equally sudden, while the whole line becomes more wavy or irregular; thereby much resembling the *pulse lines* when the arterial coats are weakened by fatty degeneration, or as in such diseases as typhoid and typhus fevers.”

This indicates relaxation of the vessels from diminished action of the vaso-motor nerves and consequent retardation of the blood currents. The inference placed on record at the time is as follows: “The presence of alcohol in the blood interferes with normal vital affinities and cell action in such a manner as to diminish the activity of nutrition and disintegration, and consequently to diminish the dependent functions of elimination, calorification, and innervation; thereby making alcohol a positive organic sedative instead of a diffusible stimulant, as is popularly supposed both in and out of the profession.” (See *Chicago Medical Examiner*, September, 1867, Vol. 8, pp. 522-526.)

In 1882-3 Professor Martin of Johns Hopkins University planned and executed a very ingenious series of experiments to determine the action of alcohol directly upon the heart of the dog. Having rendered the dog unconscious, and isolated the heart and lungs from nervous connection with the brain and spinal cord, he caused the heart to be supplied with blood containing alcohol in proportion varying from one-eighth to one per cent. Further details would occupy too much space, but his results I give in his own words as follows: “Blood containing one-eighth per cent., by volume, of absolute alcohol has no immediate action on the isolated heart. Blood containing one-fourth per cent. by volume, that is, two and a half parts per thousand of absolute alcohol, almost invariably remarkably diminishes within a minute the work done by the

heart; blood containing one-half per cent. always diminishes it, and may even bring the amount pumped out by the left ventricle to so small a quantity that it is not sufficient to supply the coronary arteries." This experiment demonstrated also that under the influence of the alcohol the heart became so much dilated that the ventricles failed to completely empty themselves by each systole. An interesting account of his experiments was communicated to the Medical and Chirurgical Faculty of Maryland in 1883, and published in the *Maryland Medical Journal* for September, 1883. The same was copied into the *Journal of the American Medical Association*, Vol. 1, pp. 307-8.

In 1889-90 Dr. Edward T. Reichert, Professor of Physiology in the University of Pennsylvania, aided by an improved calorimeter for determining the rate of both heat production and heat dissipation with the actual temperatures of the animal, performed eighteen experiments on dogs. Each experiment was continued six consecutive hours after the administration of a given quantity of alcohol, proportioned to the weight of the animal. In sixteen of the eighteen experiments the average heat dissipation was diminished, in a less ratio, however, than the diminution of heat production, and the actual resulting temperature of the animal was lowered. In only two cases was the resulting temperature slightly increased. (See *Therapeutic Gazette*, February 15, 1890.) The experiments of Professor Martin were repeated by Hammeter (*Johns Hopkins University Biolog. Lab. Stud.*, Nov., 1889), and his conclusions sustained, but Eagleton (*University Med. Mag.*, Sept., 1890), and Gibbs, by varying the mode of injecting, concluded that small doses produced both increased frequency of pulse and increase of blood pressure, but only of very temporary duration, while large doses lessened both.

One of the most important experimental investigations concerning the "Physiological Actions of Alcohol," is that of

Dr. David Cerna of the Medical Department of the University of Texas, as given in his paper published in the Transactions of the Pan-American Medical Congress, Vol. 1, pp. 394-429.

His experiments were conducted on frogs and dogs, and were specially designed to ascertain the effects of alcohol upon the peripheral nerves, on the circulation of the blood, on respiration, on body metabolism, on animal heat, and on digestion. He records five experiments on frogs, three with small doses, which produced slight and temporary increased reflex-action, and two with larger doses that directly diminished the reflex, and finally destroyed life. He says that in frogs thus killed by alcohol, "the nerves respond to electric stimulation very slightly, or none at all." For testing the effects on the circulation eleven experiments on dogs are recorded, in which twenty and twenty-five per cent. solutions of alcohol were used as injections into the general circulation either through the external jugular or femoral vein. When the quantity of alcohol injected was small, there was shown an increase in both frequency of pulse and blood pressure continuing from five to twenty-five minutes, followed by a decline of both. When larger quantities were used both pulse and pressure were diminished from the beginning. In many of the foregoing experiments the effect on respiration was noted, and six additional ones are recorded, in two of which the vagi nerves were severed. The record shows that in all the experiments the respirations were, from the beginning, diminished in frequency and depth, and "giving rise to a lower quantity of air passing in and out of the lungs than in normal conditions." This effect the experimenter attributes to the direct depressing influence of the alcohol "on the respiratory centers in the medulla oblongata."

In regard to body metabolism and digestion Dr. Cerna records no additional experiments, and only few concerning animal heat, but refers freely to experiments by others, from

which he concludes that "the drug (alcohol) lessens the excretion of tissue waste, both in health and disease."

In 1893 Dr. J. H. Kellogg of Battle Creek, Michigan, in a paper read at the annual meeting of the American Medical Temperance Association in Milwaukee, in May, and subsequently published in the *Medical Temperance Quarterly*, July, 1893, gave a summary of the results of numerous experiments to determine the influence of alcohol on nerve sensibility, cerebral sensibility, or mental action, on muscular co-ordination, on muscular strength, and on digestion. In determining the first three objects he used the chronometer designed by Viridin of Paris; in the fourth he used a mercurial dynamometer of his own devising; and his observations regarding digestion were based on no less than 2,000 analyses of the contents of the stomach after a test breakfast. His conclusions were as follows: "From the facts above given, it may be fairly concluded that the results of the administration of 1 oz. of alcohol internally, are, 1st, to diminish nerve activity; 2d, to diminish cerebral activity; 3d, to impair the co-ordinating power of the brain; 4th, to lessen muscular strength; 5th, to decrease digestive activity to a notable extent." The only apparent exception noted was in relation to muscular strength. When the test was applied within the first fifteen minutes after the alcohol was swallowed, it showed a slight increase of strength, but after one or two hours it was always diminished.

Dr. Kellogg, in a brief paper read in the section on State Medicine, at the annual meeting of the American Medical Association, in May, 1895, gave the results of experiments showing the effects of alcohol on the quality of the urine. It having been clearly proved by Bouchard and Rogers that urine from healthy subjects contained several toxic ingredients besides its urea, Dr. Kellogg first found the quantity of urine from a man in good health that was required to kill a rabbit of given weight. Then giving the man eight ounces of brandy, and receiving the urine passed during the first eight

hours, he found its toxicity to rabbits had diminished one-half. The toxicity of that passed during the second eight hours was not diminished quite so much, while that passed during the third eight hours had regained nearly the same degree of toxic effects as before the brandy had been taken. More direct or positive proof that the presence of alcohol in the healthy living human system directly diminishes the activity of the kidneys in eliminating the toxic elements derived from tissue metabolism or bacteriological ptomaines, could not be furnished.

In 1804 Dr. Chittenden of Yale University reported that the urine of dogs kept under the influence of alcohol for eight or ten days, contained 100 per cent. more uric acid than in the natural condition.

The American Journal of Medical Science, 1806, contains the full report of an interesting investigation concerning "The Influence of Alcohol and Alcoholic Drinks upon the Chemical Processes of Digestion," by Drs. Chittenden and Mendel of Yale. The experiments were not conducted during digestion in the living stomach, but in laboratory apparatus, in which the digestive fluids were allowed to act upon various food substances of the proteid class under definite and constant conditions. Nineteen experiments were made with absolute alcohol and twelve with pure rye whisky, in proportions varying from 0.5 to 6 per cent. When the proportion of alcohol added to the digestive liquids was less than two per cent., the digestive activity was slightly increased in many cases, but not in all. When the proportion of alcohol was two per cent. or more, the digestive activity was uniformly decreased in direct ratio to the quantity used.

Their experiments with brandy, rum, and gin showed in all cases decreased digestive action. They also executed many experiments with sherry and claret wines, with ale, porter, and lager beer. In eight experiments with sherry wine the digestive activity was decreased in all but one. In six with

claret, in which the proportion of wine was two per cent. or less, the digestive action was decreased in three, very slightly increased in two, and no change in one.

When the proportion of claret was increased to three per cent. decreased activity was shown in every case. And the same was true in all the experiments with ale, porter, and lager beer. C. F. Hodge, Ph.D., Professor of Physiology in Clark University, made a report in the *Popular Science Monthly* for March and April, 1897, detailing three series of experiments on the "Physiology of Alcohol." One series was designed to test the influence of alcohol on the growth of yeast. And it was shown that the presence of so small a quantity of alcohol as one thousandth of one per cent. (two drops to the gallon) caused considerable retardation, which was increased by every additional proportion of alcohol until it reached fourteen per cent., when all growth was arrested. This was the uniform result of fifteen experiments. The second series of experiments was on four healthy active kittens between one and two months old. They were all treated alike, except to two of them was given, by means of a stomach pump, 1.3 grams of alcohol diluted with water daily, and to the other two was given in the same manner the same quantity of pure water. The doses of alcohol were gradually increased until they reached 3.6 grams, when plain symptoms of intoxication were produced. The experiment was continued four months, during which the two kittens receiving the alcohol steadily failed in health, while the two receiving only water continued to thrive, and were as sprightly as ever.

Drs. Berkley and Friedenwald, in the Pathological Laboratory of Johns Hopkins University, under the direction of Prof. Welch, made some very important investigations concerning the action of alcohol on the leucocytes of the blood and the nerve cells of the brain. The presence of alcohol in the circulatory blood greatly diminished the activity of the leucocytes, caused shrinking or irregularities in the corpuscles

with diminished hemoglobin. Many of the nerve cells of both cerebrum and cerebellum were shrunken, and more or less degenerate, and in some places surrounded by paralyzed or dead leucocytes. In 1897, Dr. A. C. Abbott, first Assistant in Laboratory of Hygiene, University of Pennsylvania, reported the results of experiments on rabbits, to ascertain the "influence of acute alcoholism on their normal vital resistance to infection." Several healthy rabbits were inoculated with the same proportionate quantity of streptococcus pyogenes. One-half the number were given diluted alcohol through a stomach tube daily, sufficient to produce symptoms of intoxication.

To the other half no alcohol was given. The alcoholized rabbits became sick quicker and suffered much more severely than those receiving no alcohol. The same effect was produced after inoculation with the bacillus coli communis; but with the virulent staphylococcus pyogenes aureus there was less difference. (See Journal of Experimental Medicine.)

Dr. John D. Kales, when demonstrator of Histology in the Laboratory of the Northwestern University Medical School, Chicago, executed a series of experiments with the spectroscope and microscope on blood drawn by hypodermic syringe from the heart of a living rabbit, and mixed with alcohol in varying proportions from one to ten per cent. of the latter.

He found when the alcohol, in proportions varying from one to five per cent., was mixed with the freshly drawn blood diluted with distilled water, it made no perceptible change in the oxyhemoglobin spectral bands at ordinary atmospheric pressure and a temperature of 98° F. Neither was there any evidence of the oxidation of the alcohol. But when the pressure was diminished by means of the air-pump to the extent of 710 millimeters of mercury, the hemoglobin was rapidly reduced by surrendering its oxygen, which did not combine with the elements of the alcohol present, but escaped in a free

state. It was further shown that the rapidity of reduction of oxyhemoglobin was increased by increasing the proportion of alcohol used; and when reduced in contact with alcohol it was less capable of reoxygenation than when reduced without the presence of the alcohol. In 1894, Dr. I. H. Orcutt of Owatonna, Minnesota, published a monograph in which he details the results of several hundred experiments with the sphygmograph to show the effects of alcohol on the circulation in healthy persons, and claims that in all cases it diminishes the force and frequency of the heart's action in direct proportion to the quantity of alcohol taken.

Dr. Horatio C. Wood, in his address on Anæsthesia in the International Medical Congress in Berlin, 1890, said: "In my own experiments with alcohol, an eighty per cent. fluid was used largely diluted with water. The amount injected into the jugular vein varied in different experiments from 5 to 20 c. c., and in no case have I been able to detect any increase in the size of the pulse, or in the arterial pressure, produced by alcohol, when the heart was failing during advanced chloroform anæsthesia. On the other hand, on several occasions, the larger amounts of alcohol apparently greatly increased the rapidity of the fall of the arterial pressure, and aided materially in extinguishing the pulse."

During the past year Prof. Atwater of Wesleyan University, Conn., conducted a series of experiments on a man confined in a cage with apparatus for determining the amount of nitrogenous and carbonaceous material taken into the system, and the amount escaping therefrom. Six experiments were conducted, each continuing four days. In four of them the person took an ordinary mixed diet with coffee; in the other two he took from two to two and a half ounces of alcohol each day instead of an equivalent amount of carbonaceous food. A part of the alcohol was taken with his regular meals, mixed with his coffee, and the remainder was drank between the meals, diluted with water. (See Bulletin No. 69,

U. S. Agricultural Bureau.) Prof. Atwater's conclusions are that "the alcohol was oxidized, *i. e.*, burned as completely as bread, meat, and other ordinary foods in the body, and in the same way; that in the oxidation, all potential energy of the alcohol was transformed into heat or muscular energy. In other words, the body transformed the energy of the alcohol just as it did that of starch, sugar, and fat; and that the alcohol protected the materials of the body from consumption just as effectively as the corresponding amounts of sugar, starch, and fat." Consequently, he insists that alcohol to the extent of from two to two and a half ounces per day for an adult must be considered as food, and not poison. The sole object of the experimenter appears to have been to prove that a certain amount of alcohol can be oxidized, and thereby converted into carbon dioxide and water, with evolution of heat in the living body; but he explicitly states that he took no note of the effects of the alcohol on the hemoglobin and leucocytes of the blood, the functions of the nervous and cerebral structures, or on the more important secreting structures of the body. Consequently, he bases his conclusions on a single attribute of food, *i. e.*, oxidation, to the exclusion of all other necessary qualities, apparently forgetting that the adoption of so restricted a basis would compel him to include ether, chloroform, morphine, and many other anæsthetic and narcotic drugs in his list of foods; for all of them undergo more or less oxidation in the living body.

The foregoing list of experimental investigations concerning the influence of alcohol in the living body, conducted in this country during the last half century, are sufficient to demonstrate, when correctly interpreted: 1st, that ethyl alcohol does not belong, in physiologic influence, to the same class as starch, sugar, and fat. Instead of being digested, assimilated, and converted into natural elements of the blood and tissues, it enters the blood and circulates through every part as alcohol, the same as ether, chloroform, morphine, and other

drugs; 2d, that it diminishes animal temperature by diminishing the activity of natural metabolism generally, and by lessening the force and efficiency of the circulation; 3d, that it lessens the functions of all nerve structures, both sensory and transmitting, and thereby diminishes the acuteness of the special senses and the activity of mental processes in direct proportion to the quantity of alcohol present; 4th, that it impairs the corpuscular elements of the blood, lessens the activity of leucocytes, and favors tissue degeneration in the direction of fatty, fibroid, and sclerotic changes; 5th, that it lessens every force, or energy known in a living body, namely, muscular force, nerve force, mental force, heat force, and vital or protoplasmic force, both animal and vegetable.

That the first of these propositions is correct, was not only fully demonstrated by both myself and Dr. Hammond in living several consecutive days on nothing but starch and water, doing our daily mental and physical work, and maintaining all our bodily functions in their normal condition, while the taking of less than two ounces of alcohol daily resulted in direct disturbance of nearly all the functions, both physical and mental, but those of Dr. Hammond also demonstrated the presence of the alcohol in the blood and tissues unchanged by its passage through the digestive organs. The same has also been shown by many chemists in both Europe and America. Therefore, the classing of alcohol with starch, sugar, and fat, as hydrocarbonaceous food by Liebig was a most unfortunate error, as it has nothing in common with the three last named, except that it is composed of the same three elementary substances. Instead of being a product of vegetable or animal growth, or vital evolution like them, it is a toxic product of fermentation, and instead of undergoing digestion and assimilation like them, it enters the blood unchanged, and exerts more or less disturbing influence on every function of the living body.

The second proposition, that alcohol diminishes the tem-

perature of the human body, as first demonstrated by me in 1850-51, next by Lichtenfels and Frohlich in 1852, by Dr. B. W. Richardson in 1866, and by many others, is no longer disputed by any well-informed parties. The correctness of the third proposition is not only well sustained by the ingenious experiments of Dr. J. H. Kellogg and some of those of Dr. Cerna, but it is still more amply demonstrated by those of J. J. Ridge, B. W. Richardson, Lauder Brunton, Kraepelin, and others in Europe. The fourth proposition is not only fully justified by the investigations of Drs. Berkley and Friedenwald, already detailed, but also by those of B. W. Richardson, Delearde, A. C. Abbott, and by all who have investigated the results of chronic alcoholism.

The fifth and last proposition is a legitimate corollary from all those preceding it, and is sustained by all the experiments showing that alcohol diminishes tissue metabolism, animal heat, nerve sensibility, muscular strength, mental activity, and protoplasmic germination, as detailed by Bocker, Hammond, Richardson, Parkes, Ridge, Hodge, Kellogg, and others too numerous to mention. The inference that I drew from my experiments in 1850-51, that the maintenance of animal heat and the exhalation of carbon dioxide were the direct result of cell or tissue metabolism, and not from the oxidation of alcohol or any other unorganized matter in the blood, has since been more fully demonstrated by the investigations of Fick, Wislicenus, Voit, Pettenkoffer, and Pfluger.

Consequently the presence of alcohol in the blood and tissues of the living body repairs no tissue and liberates no natural force or vital energy, but by its narcotic or anæsthetic properties it diminishes both metabolism and the evolution of all varieties of organic or vital force in direct proportion to the quantity present. And so far as it unites with the free oxygen in the blood it diverts that amount from its action on the organized matter in promoting metabolism, and thereby pre-

vents the natural evolution of more heat than is liberated by its own oxidation.

Therefore, it displays none of the attributes and is capable of serving none of the purposes of food in the living body; and there are but few morbid or pathologic conditions for which it can be used with benefit as a medicine; and even for these other anæsthetics, as chloroform and ether, are more efficient.

URIC ACID AND ITS ELIMINATION.

Editorially (*The Medical Brief*, February, 1900) this vital subject is ably considered. Investigation strengthens the belief that eating too much meat is responsible for the formation of uric acid in disease-producing quantities. To dispose of meat satisfactorily gastric digestion must be active, the constitution well supplied with fluids, and the organs more or less actively engaged in growth and development. These conditions cease to exist when adult life is reached and the requirements of the constitution are chiefly for food to supply energy, heat, and vital stimulus. At this period in life a small amount of meat or other albuminous food will suffice, especially in torpid systems or persons of sedentary habits. The symptoms caused by an excess of uric acid depend upon the degree of saturation and whether these morbid products are circulating in the blood or are precipitated in the tissues or joints. The susceptibility of the various organs and the constitution of the individual also help to determine the symptoms; one person may have asthma, another an irritable bladder, and another sick headache or rheumatism. In the treatment diet is highly important. Meat once a day is often enough. Fresh fruit, especially apples, should be eaten in abundance. Tomatoes are excellent, so is asparagus. Baked bananas and well-done rice are excellent substitutes for meat. Pure honey is always allowable. In uncomplicated cases lithiated hydrangea will be the only remedy needed in addition to dietetic reform and plenty of water. Lambert Pharmoeal Co.

DIPSOMANIA AND ITS TREATMENT BY SUGGESTION.*

BY Dr. J. MILNE BRAMWELL.

Although I intend to refer to dipsomania alone, I do not wish it to be supposed that this is the only form of intemperance which can be cured by suggestion. I have chosen this class for the simple reason that nearly all my inebriate patients have belonged to it.

First, a word as to dipsomania itself, and the distinctions between it and ordinary alcoholism. A typical case of the former presents the following phenomena: The patient, during a period of total abstinence, begins to be haunted with ideas about drink. This is soon followed by the desire to drink. At first this impulse is strenuously combated by the will; it then becomes irresistible, as the torture of the craving is so great that the patient feels it must be gratified at any cost. Even yet his will and conscience have not ceased to struggle, and he determines to satisfy the craving with the least amount of alcohol possible, and not give way to a drunken bout. As soon, however, as the first glass is taken the craving is increased instead of diminished, and the will in despair now abandons the struggle it feels itself incapable of carrying on successfully. The patient drinks in excess for a period varying from a day to a week, or more; then the craving suddenly disappears. This stage is followed by one of physical illness, accompanied by much mental anguish and remorse. These conditions in their turn disappear, and the patient enjoys a

* Read before the English Society for the Study of Inebriety, April 10, 1900.

period of more or less complete health and comfort, undisturbed by any morbid craving for stimulants. This passes, and a new attack begins which follows the course of its predecessors.

The exciting causes of dipsomania. — In many, but by no means in all my cases, there was a family history of alcoholism. It is difficult to determine what part this played in the production of the dipsomania, as I have also known many instances where drunkenness in the parents was followed by total abstinence in the children. On the other hand, all the dipsomaniacs I have observed have shown one or more symptoms of degeneracy; the majority of them have been impulsive, nervous, emotional, sensitive, and thus more or less ill-balanced mentally. All conditions in the parents likely to produce degeneracy in the children may, therefore, be regarded as possible exciting causes of dipsomania.

An accidental circumstance — usually some mental trouble — is generally the immediate exciting cause of the first attack. Similar causes may excite subsequent ones, but, when the disease is fully developed, its manifestations occur at more or less regular intervals, and often without any discoverable immediate exciting cause. I do not know, however, of a single case in which dipsomania has been suddenly excited — no matter by what cause — in those who till then had been total abstainers. In all there was a previous history of the use of alcohol. Sometimes this had been taken moderately for years, and then illness or trouble had, apparently, excited the dipsomania. At others, the patients had both enjoyed and abused alcohol, at first taking it in moderate quantities regularly, with occasional excesses, then losing both pleasure and control, and developing in their stead the symptoms of dipsomania. One of my patients tells me she cannot remember when she did not take stimulants. Even when quite a little girl she had her miniature tankard of beer at meals, and her glass of port at dessert. After a time dipsomania ap-

peared, and if she took stimulants at all she drank until intoxication ensued.

Differences between dipsomania and other forms of intemperance. — The conditions essentially characteristic of dipsomania are not found amongst the majority of those who use alcohol in excess. There are, it is true, many degenerates amongst the ranks of the latter, but here degeneracy is not, as in dipsomania, the essential factor in the case. Many persons, who are strong both mentally and physically, habitually take too much alcohol — they do so on account of the physical comfort or mental pleasure it brings. Usually they do not struggle against their self-indulgence until they can no longer keep it within bounds, and it begins to endanger their health, pocket, or reputation. The dipsomaniac, on the other hand, drinks because he is impelled to do so against his will, and may be compared to the man who dreads falling over a precipice, and yet feels irresistibly tempted to throw himself into the gulf below. Drink, though it may have been enjoyed previously, now gives him neither physical comfort nor mental pleasure, and he struggles through his attack like a felon working out his sentence.

The *moral condition* of the ordinary inebriate differs widely from that of the dipsomaniac. Shame is often sadly lacking in the former, and some even boast of the amount of alcohol they have consumed, and the number of drunken bouts they have indulged in. The dipsomaniac, on the contrary, feels his degradation keenly; his attacks cause him intense mental anguish, and he often does everything in his power to conceal them from others. Thus, some of my female patients, when the craving could no longer be resisted, secreted bottles of spirits in their bedrooms, and got their attack over by a night of drinking — repeating this periodically for years without being found out. One man invariably left his home in the West End as soon as an attack came on, and, until it was over, remained in suburbs where there was no likelihood of his

being recognized. During the day he drank first in one public-house, then in another, speaking to no one, and at night found a bed in the neighborhood. This went on for about a week; then the attack terminated, and he returned home ill and miserable. If his money gave out, instead of going home for more, he pawned his watch or other valuables.

Further, the drunken bouts of the dipsomaniac, unlike those of the ordinary inebriate, are rarely associated with other excesses. Finally, when the alcoholic develops symptoms of physical and mental deterioration, this comes as the result of his drinking. In the dipsomaniac, on the contrary, the morbid changes which characterize the state existed before drinking took place and actually were the cause of its happening.

The following are successful cases drawn from my own practice:

(1) Mr. A., aged 33, April 30, 1890. Father and mother strictly temperate, but at least one of his uncles drank, and a cousin died in an asylum from drink. One of his brothers, who drank to excess, and had been in an asylum, committed suicide at the age of 37. The patient began to take stimulants at 17, when at Edinburgh University, drank heavily without apparent bad effect until 19, then had a severe attack of typhoid fever. At 20 he left the University, went into business, and continued drinking until he was 24. He then abstained for a year, after which he commenced to have periodic breakdowns more and more closely resembling genuine dipsomania. In 1884, his friends induced him to separate from his wife and to place himself under control—this was repeated twice without good result. Finally, in 1887, he entered a retreat for a year, but soon after leaving began to have well marked attacks of dipsomania. There was usually a week's abstinence, then two or three days of constant drinking, followed by abstinence and drinking again in their turn. On several occasions he accidentally injured his head severely; in the spring of 1887, he began to have attacks of hemicrania, the pain becoming per-

manent before the end of the year. The hemicrania had been treated without success by the extraction of all bad teeth, and the internal administration of croton chloral, ammonium bromide, phosphorus, strychnine, etc. When the patient started business he possessed a considerable private fortune, but by this time it was entirely dissipated. The above history was confirmed by Dr. A., the patient's brother.

I found Mr. A. emaciated, nervous, and feeble. He complained greatly of hemicrania and insomnia, and there was marked muscular tremor. I hypnotized him from April 30 to May 17, 1890. At the end of the first week the hemicrania and insomnia had disappeared, and, during the latter half of the treatment, he neither took alcohol nor had any craving for it. He left me on May 17, but relapsed a month later, and returned for further treatment. He was hypnotized daily for a week, and a much deeper stage induced. On December 31, 1890, he wrote to say that he had never touched stimulants since leaving me; had neither hemicrania nor insomnia, and was working from ten to twelve hours daily. This report was confirmed from time to time by letters from other relatives. Thus, Dr. A. wrote, "I feel that I cannot sufficiently thank you or congratulate you on the result in my brother's case. It is to me very wonderful."

I did not see Mr. A. again until July 18, 1893, when he consulted me on account of insomnia resulting from business worries. He was easily hypnotized, and the insomnia at once disappeared. From this date I have seen Mr. A. occasionally. He is still an abstainer, is working hard, and bringing up his family well. When I last saw him, he told me he was going to send his eldest son to Edinburgh to study medicine.

(2) Dr. B., aged 32, February 1, 1893. Commenced taking stimulants when at college, and continued to do so regularly afterwards, but rarely to excess till about five years ago. At that time he had been in practice for two years, and had done well until he began to have periodical drinking

bouts. In order to restrain him, one or other of his relatives always lived with him, and everything was done to prevent stimulants being introduced into the house. Despite this, he drank rectified spirits in secret, sometimes several gallons a month. His health suffered greatly; he was frequently on the verge of delirium tremens, and on one occasion was supposed to have had a slight cerebral hæmorrhage. He complained greatly of palpitation, and of angina pectoris, and asserted it was the pain of the latter which drove him to take stimulants. His drinking bouts became more and more frequent, and he was compelled to abandon work and return home. Under careful supervision he became much steadier, and his parents purchased another practice for him. Here the former history was repeated; not only did he drink heavily, but he also took large doses of narcotics. His parents informed me that, if I failed to cure him, they would be compelled to keep him at home, and to give up all idea of his being able to follow his profession.

I hypnotized Dr. B. 44 times from February 21 to April 18, 1893. From the first day I saw him he entirely refrained from stimulants and narcotics, and all craving for them rapidly disappeared. He quickly improved in health and weight, and ceased to complain of palpitation or angina. At the conclusion of the treatment he returned to work, and, after passing twelve months without relapse, married. On February 27, 1894, his mother wrote as follows: "Your treatment has been completely successful. My son is perfectly well, and quite like his old self — sound in mind and body — and without the slightest desire or need to take stimulants or drugs in any form whatever. His practice increases steadily. Could anything be more satisfactory?"

About the same date Dr. B. wrote saying: "I have never felt better in my life. I have not the least inclination to take stimulants, and have lost all my attacks of palpitation from which I had suffered during the last fourteen years."

Since then I have heard once or twice a year, either from my patient or his wife. All the reports are of the same character — he is well, strong, happy, and a continued total abstainer.

(3) Mrs. C., aged 44, November 23, 1894. Family history of alcoholism. At the age of 20 the patient began to have frequent hysterical attacks, and for these stimulants were prescribed in rather large quantities. Two years later she began to take stimulants in excess, but did not do so frequently, and rarely became intoxicated. From 32 to 36 she was an abstainer; then commenced taking stimulants again, and attacks of genuine dipsomania soon appeared. The patient suffered from an almost constant craving for alcohol. She was, however, a woman of culture, refinement, and high principle — devoted to her husband and children — and the idea of giving way to drink was in every way abhorrent to her. She therefore struggled with all her might against the temptation; resisted it successfully for a week or two, then the craving became irresistible, and a drinking bout followed. I hypnotized Mrs. C. thirty times from November 23, 1894, to February 14, 1895. From the very beginning of the treatment she abstained from stimulants, but the craving, although much diminished, did not entirely disappear for some months. Up to the present date there has been absolutely no relapse.

I could cite many other successful cases, but regret that I am not at present able to give my statistics as a whole. These I hope to publish later, together with other therapeutic results, in a work on hypnotism I am now writing. Although I have had many failures, few of these have been complete, as, even in the worst cases, there has generally been some temporary remission of the disease. At first I attached little importance to the cases that relapsed. These, however, are not without value — for example, one patient abstained for six months after treatment, then drank as badly as ever. His wife afterwards told me that those were the only happy

months she had spent in her married life, and that she was deeply grateful for them.

Many successful cases are reported by Continental observers, amongst whom may be cited Voisin, Ladame, Forel, Tatzel, Hirt, Neilson, de Jong, Liébeault, Bernheim, van Eeden, van Renterghem, Wetterstrand, Schrenck-Notzing, and Krafft-Ebing:

Ladame drew special attention to three cases treated by Forel. All of them had suffered from chronic alcoholism after attacks of delirium tremens, and were inmates of Forel's asylum. They were extremely difficult to manage, and expressed their determination to resume drinking as soon as they were liberated, but, despite this, complete recovery followed hypnotic treatment.

The tendency of dipsomania to recur renders the compilation of accurate statistics extremely difficult, and it is obviously absurd to describe as cured, patients who have stopped drinking for a month or two. On the other hand, when years have passed since treatment, it is not always possible to get reports from patients who live at a distance.

According to Ladame, the prognosis in dipsomania, especially where there is a family history of alcoholism, is an extremely grave one, and prolonged retention in an asylum or a retreat rarely yields good results. Total abstinence societies do good work, but their methods — in which suggestion plays an important part — depends largely upon religious influences to which all are not susceptible.

Hypnotic treatment, which he regards as the best, is by no means universally successful. Much depends upon the patient's willingness to be cured, his susceptibility to hypnotic influence, and the operator's management of the case. Before discussing these points, I wish to say something as to the phenomena of hypnosis and their theoretical explanation. Of the former the following is a summary: In hypnosis, the subject loses none of the attributes of his normal condition. Fur-

ther, he has acquired new and varied powers, and a control over his own mind and body without parallel in waking life. He can alter the rhythm of his pulse, control his secretions and excretions, and increase or arrest the activity of his special senses. He can induce anæsthesia and analgesia, recall memories lost to waking life, and obliterate others, and, even when all the phenomena are elicited by the suggestions of the operator who has hypnotized him, maintain consciousness and volition unimpaired. From the therapeutic side, he can obtain relief from the pain of disease or injury; produce sleep at will, and for as long as he likes. He can escape from obsessions, and get rid of numerous functional nervous disturbances. Finally, he can be taught to hypnotize himself, and from henceforth — free from all external interference — can by self-suggestion produce phenomena identical with those just described.

Memory is profoundly altered. In the normal state the subject remembers the events of his ordinary life alone; hypnotized, he not only recalls all the events of previous hypnosis, but also those of his ordinary life. This picture refers only to deep hypnosis. In slighter stages there is to be found neither loss of memory, nor any condition resembling sleep or unconsciousness. Notwithstanding this, suggestion can still produce results beyond the power of the waking will. In many instances it is difficult or impossible to prove that the patient has been hypnotized at all. For example, in Mrs. C.'s case, I could only say that she rested quietly while suggestions were made and subsequently recovered from her dipsomania. The therapeutic result was the only evidence of hypnosis, but, as the disease had previously resisted prolonged and varied suggestions in the normal state, it appears probable that the treatment produced some change — whether this may be justly called hypnosis or not — which rendered her susceptible to suggestions. As the point is a doubtful one, I use the word "suggestion" in the title of my lecture, instead of the more limited term "hypnotism."

In discussing hypnotic theories it must first be admitted that hypnotism is in reality mesmerism explained scientifically and freed from erroneous observation. Mesmeric phenomena, which have stood the test of scientific investigation, are now described as hypnotic. Therapeutic results, equal to those observed at Nancy, were formerly obtained by Elliotson at University College Hospital, while the modern employment of hypnotism as an anæsthetic has never rivaled its use by Esdaile, who, under government supervision in India from 1846 to 1851, recorded 300 capital operations, and many thousand minor ones. In their day, however, the true was intermingled with the false, both as to their alleged facts and their interpretation. Mesmeric phenomena were supposed to be due to a mysterious force or fluid which existed in the operator and in certain metals, magnets, etc. It was believed that the operator could dominate the will of the subject and mesmerize him from a distance, while instances of clairvoyance and telepathy were regarded as of every-day occurrence. These views were successfully combated by Braid, who commenced his mesmeric researches in 1841, and continued them till his death in 1860.

The following is a brief summary of his more important observations: (1) The phenomena, purely subjective in their origin, arose from changes in the nervous system of the subject and were entirely independent of any magnetic force or fluid. (2) Magnets, metals, drugs in sealed tubes, etc., produced nothing except when the subject knew what was expected, or divined it from leading questions. (3) No one could be hypnotized against his will. (4) In all stages the subjects rejected unpleasant suggestions, and resisted disagreeable acts, no matter whether the latter were attempted by the operator, or by others. (5) In hypnosis refinement was more marked than in the normal state, and the moral sense increased. (6) The essential condition was monoideism and concentration of attention. (7) Hypnotic phenomena might

be induced without the subject having passed through any condition resembling sleep. (8) The mentally healthy were the easiest, the hysterical the most difficult, to influence.

Braid substituted the word hypnotism for that of mesmerism, and invented the terminology still in use. Later, he proposed the term *monoideism* instead of hypnotism. The latter, he said, implied the idea of sleep, and only ten per cent. of the patients he cured passed into a condition which even superficially resembled sleep.

All Braid's later and more valuable work was ignored or forgotten, and many of the errors he successfully combated have been repeated in the Continental revival of hypnotism. Thus, the Salpêtrière school, with their magnets, metals, drugs in sealed tubes, etc., simply reproduced the mesmeric fallacies Braid exposed. The Nancy school in their earlier days believed, like the mesmerists, that the subject was under the dominion of the operator — they based this theory entirely on experimental crimes. A subject, for example, was told that a lump of sugar was arsenic, and that he was to put it into a friend's teacup. Because he obeyed the suggestion, he was assumed to be a criminal. I have shown, however, by questioning in subsequent hypnoses, that the subjects invariably knew what they were doing. If they performed some act, which the operator falsely described as hurtful, they knew it involved no wrong, but they always refused to do anything which was repugnant to their moral sense. Now, the members of the Nancy school are abandoning their earlier position and coming more into line with the views of Braid. They still differ from him, however, on one important point. He regarded suggestion as the artifice by means of which the phenomena of hypnosis were excited — these being rendered possible by changes in the nervous system of the subject. They hold that suggestion not only excites the phenomena of hypnosis, but also represents the condition itself. According

to Bernheim, there is nothing in hypnotism but the name; *suggestion* is everything.

Neither mental concentration nor suggestion, however, can explain all the phenomena of hypnosis, and the only theory which is at all satisfactory is that of which Frederic Myers is the clearest exponent. According to him, the phenomena of hypnosis are due to the action of an intelligent secondary self, which he terms the *subliminal consciousness*. The alterations of consciousness presented by certain diseased conditions are examples of its morbid action, while its healthy working is not only to be seen in hypnosis, but also in the inspirations of genius. The latter, although supposed to be the production of the normal consciousness, have in reality been first elaborated in the subterranean workshops of the secondary self, and then presented to the primary one as a finished product.

Granting that hypnotism is a powerful agent, which may be applied more or less successfully, and absolutely without danger to the relief or cure of dipsomania, there still remain several important points for consideration:

(1) The patient must be willing to be cured. Difficulties as to this are more frequently encountered in cases of chronic alcoholism than in dipsomania. Even the latter patients, however, sometimes dread treatment, as they fear it may raise an artificial barrier between them and drink, and yet leave them fighting with the craving. As a rule, however, their fears are easily dispelled by means of a little tact and explanation.

(2) Susceptibility to hypnosis is a varying and important factor. Most authorities agree that all, except idiots and those suffering from certain forms of mental disease, can be hypnotized. On the other hand, time and trouble are often requisite and frequently slight hypnosis alone can be induced. Fortunately, as we have seen, deep hypnosis is not essential to the production of good therapeutic results.

(3) In dipsomania one ought to begin treatment at the commencement of a period of quiescence, and aim at preventing, or at all events, retarding and weakening the next attack. When stimulants are taken continuously the difficulties are greater, but the patient must be helped and encouraged to reduce them as speedily as possible.

(4) The management of the patient during the earlier part of the treatment, before suggestion has taken effect, is important. If possible, he should not be left alone, but always have near him some trustworthy person to whom he can confide his temptations, and turn for aid in overcoming them.

(5) The operator must be persevering and not easily discouraged; many patients, who ultimately do well, relapse more than once during treatment.

(6) A distaste for alcohol ought to be suggested, as well as the abolition of the craving for it. The patient must be made to understand that he can never look forward to being a moderate drinker, and that the only choice before him lies between total abstinence or the gutter.

(7) Even when the craving disappears quickly, the patients ought to be hypnotized regularly for a month. If they can be seen from time to time for the next six months, so much the better and safer.

(8) The object of the treatment is not only to cure the diseased craving, but also to strengthen the will of the patient and help him to combat the temptations of social life. The latter point is important. Some patients forget what they have gone through, and, although they have no diseased craving, yield to ordinary temptation. If the patient has not gained the power of controlling himself, the treatment has failed in its object; for self-control, not artificial restraint, is its essential feature. With many of my patients restraint had been tried without benefit. One had passed three years in a retreat, with only a few weeks freedom from drunkenness between the second and third years. Possibly my patients may

have been unfortunate in the institutions they selected, certainly all complained that — restraint alone excepted — nothing was done to cure them. Lady Henry Somerset's Institutions, where healthy work and religious influences play an important part, contrast favorably with those just referred to.

In conclusion, although I have found the treatment of dipsomania hard and anxious work, it has also been a pleasure. If the three cases I have cited comprised all my successes, the work would still have been worth doing. A new year, however, never dawns without old patients telling me of their continued abstinence, health, and happiness, and wishing me like success in my efforts for others.

Dr. Wynn Westcott said: "We are much indebted to our lecturer for information on the subject of the relief of dipsomania by means of hypnotic suggestion. The method has not yet perhaps had a full trial, and need not be condemned off hand, as many are inclined to do. Doubtless, like other means of cure, it may succeed in some cases, and will fail in many more; but even if any dipsomaniacs are cured by it, there is thus a distinct gain. Only a few doctors have yet made known, in this country, the results of their efforts in this direction, and only a very few doctors have yet professed a knowledge and practice of this mode of cure. In France and in Germany the mode has been also attempted, and numerous successes have been reported.

There are a number of persons both temperate and intemperate who are refractory to hypnotism, and it is still a moot question whether the inebriate is more or less susceptible to its influence on account of his alcoholism. Alcohol, no doubt, lessens self-control, and makes men weak minded, and so some have thought that inebriates must be more easy to hypnotize, but this may not be so, because it is not a general fact, so far as I know, that the weak minded are most easy to hypnotize, nor that women are more easy to succeed with than men.

So far as I know, the faculty of falling under this influence is assisted by the superior power some persons possess of obedience to persuasion for the purpose, and by a power of concentration of thought, and a voluntary effacement for the moment of individual will.

If a man of strong will and another of weak will both desire to be influenced by a hypnotic physician, I consider the former will be most easily affected.

If the patient has become influenced, then the question arises whether the power of suggestion exerted during the trance will continue to act for long after; and the length of time would be the test of the value of the method. It would be a cumbrous business to have to repeat the process, to repeat each day's sobriety, or even a weekly operation would become a tax on the patience.

Apart from medical procedure, I am aware that some lay occult students have tried this method, and such have narrated to me their successes, and have not been very exact in enumerating their failures, which I believe to have been numerous.

Many of our modern mystics have had great powers of suggestion, and have granted that mesmeric and hypnotic processes have succeeded in prompting inebriates to sobriety. Their view is that hypnotic processes are liable to convert mental failings into bodily ailments, for with their views of fate and destiny they do not grant that inborn evil tendencies can be ended summarily, although their type may be changed. Each one must "dree his weird" in some form or other before it was exhausted. I mention this here because mesmeric and hypnotic means were introduced by occultists long before any recognized scientific professional men undertook this investigation.

The drink crave is so terrible a manifestation, that no human means of cure must be at once scoffed at as valueless, and this mode of attempting a cure may be subject to ex-

amination unless its uselessness or impropriety is demonstrated. For my own part I strongly am of opinion that hypnotic treatment should be restricted to members of the medical profession, but there is one other point to be noted, and that is that not only is it true all men cannot be hypnotized, but it is still more true that not all doctors can hypnotize even the willing patient.

Dr. Bramwell in reply said: Hypnotism undoubtedly had its origin in occultism, but chemistry arose from alchemy, astronomy from astrology, while the pharmacy of to-day was the descendant of an earlier one in which disgusting compounds, derived from the living or dead human organism, played an important part.

Hypnotism has gained an established position amongst the sciences, and what modern mystics say about it matters as little as the palmist's assumed connection with psychology.

On the Continent, hypnotism is widely used both in general and hospital practice, while even in England the committee of investigation appointed by the British Medical Association, unanimously reported that its phenomena were genuine, and its practice of value for the cure or relief of disease.

Continued hypnosis is no more necessary in dipsomania than in other diseases. Many of my earlier patients, who recovered after a few weeks' treatment, still remain well, although I have not seen them for years.

It is admitted that a small proportion of mankind is not susceptible to hypnotic influence, and some medical men succeed better than others in inducing hypnosis. Ordinary medical remedies, however, are not universally applicable, nor can all medical men wield them with equal skill. I know of no form of treatment that will cure everything and everyone, and can be administered by anybody.

SOME INJURIES FROM THE USE OF OPIUM IN
INFANCY.

BY T. D. CROTHERS, M.D.

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The danger of opium as a remedy in infancy has only recently been recognized. Many physicians give the drug or its alkaloids without the slightest recognition of its possible injurious effects on the organism in the future. In a recent text-book, a statement is made that the action of opium is transient in infancy, and without danger, except in large doses. The prominence of certain proprietary drugs, as soothing syrups for children, and the characteristic effects of opium, noted by their use, have brought out facts which indicate the damage from these sources.

In current literature there is little notice of this, and yet a great variety of facts are constantly pointing out disease and degeneration which is clearly traceable to this cause. In all probability the use of opium in infancy comes largely from its domestic application. The various tinctures and infusions are household remedies, and, in many sections, the gum from the poppy is gathered and put away regularly as a household necessity. It is the most convenient and practical of all remedies in the obscure disturbances of childhood. No doubt, some physicians find it very useful and often give it thoughtlessly. The drug store files show how commonly it is used in infantile therapeutics, and often it is given in a routine way for a long time, particularly for neurotic and intestinal disorders.

My purpose is to call renewed attention to this danger, and to point out some new facts from the clinical side that are not common, and are apparent in the practice of many physicians.

In adult life, opium and its alkaloids, in a general way, are marked excitants and depressants. Either one or the other is most prominent. This is not dependent on the doses, although that is marked in many cases. One will have a long, early stage of stimulation and wakefulness, and then depression and sleep. The other will have only slight exhilaration, and rapid marked sedation. In one case recovery from its narcotic action is followed by malaise and much physical discomfort; in the other rest, and a degree of satisfaction, resembling that which follows natural sleep. The psychic effects vary: In one, most pleasing mental quietness and satisfaction follow; in the other, unusual buoyancy followed by total oblivion and discomfort and recovery. In the former, the mind falsely reasons that some new, exalted mental condition has been attained, most desirable for the future. In the latter, the discomfort from reaction calls for relief in the removal of the drug. Both classes soon have a reactionary period of discomfort and nerve disturbance. These are general states to which there are many exceptions and variations. While the sedation from opium falls most markedly on the sensory centers and nerves of sensation, its localized action on the psychic and organic functions varies widely. In one case profound alterations of the functions appear, and rapidly extend to the mental operations. The organism, after a period of sharp irritation, apparent in nausea and deranged digestion, seems to take on a certain immunity and toleration, or the organism appropriates opium as it does food, and a demand for its continuous use becomes more and more imperative. This is the state of the habitués, and is the result of a long use of it, or appears in some cases at the beginning of its use. It is evident that some unknown states of the organism are

more susceptible to its physiologic action than others. It is a common observation that coarse, low organic natures, or imperfectly developed minds and bodies, are less susceptible to the sedative effects of opium than high-grade, finely developed, nervous persons. In practice, opium as a medicine varies in its effects very largely from these conditions — the finer the organism, the more pronounced the effects and the smaller the dose required; the coarser the organism, other things being equal, the larger the dose to get its physiologic action. These general facts, with others, are the same in infancy as in adults, only less observed. The child who is given laudanum for some condition, and appears better, has had the pain distress-signals covered up, and at what sacrifice, or organic changes which follow, no one can tell. At all events, the same exhilaration and depression occur as seen in the adult. In the infant the small power of resistance and the extreme susceptibility to physiologic influence from narcotics is not overcome by dosage. The physiologic action of $\frac{1}{2}$ gr. of opium on an adult, and of $\frac{1}{40}$ gr. on an infant is the same in degree, only in one case there is little or no resisting power. It is not the effects of a single dose or several doses given for certain disorders, although this is often marked in many ways, but it is the long continued use that is followed by certain degenerations.

Opium given in convulsions, with other drugs, and in intestinal troubles, and for insomnia, nervous irritation, and unknown conditions, with apparent good results in temporary relief, is dangerous if continued any length of time.

Opium and its alkaloids seem to have distinct effects on the nerve-centers and organism of infancy. Its sedative action is of the nature of palsy. Cell functions and growths are slowed up, retarded, and finally changed. The changes following long-continued doses become permanent. The symptoms of dullness continue in lessened vigor and degrees of imbecility and mental perversion in later life. The freedom

from pain and forced sleep, with apparent steadiness of nerve force from its use, reacts in increased irritation and instability, with greater sensitiveness to all surroundings.

Nearly all persons who have been injured in infancy and early childhood from these drugs manifest these characteristics, namely, dullness, or nervous irritation and instability. Beyond these are disorders of the nervous system and digestion, with feeble power of control, and subject to morbid impulses that are largely uncontrollable. These various manifestations are better studied in the history of cases, the following of which are illustrations:

In a family of four children, whose parents were strong, healthy persons, living on a farm, one, a boy, was dull, passionate, and of a low grade of intellect. He would overeat and drink to excess water, tea, coffee, or anything he fancied. He was stupid and obstinate, and at times excessively sensitive and irritable. No one in the family resembled him in any way, but all were healthy and vigorous in mind and body. When one year old he had a convulsion, and was given opium daily for over a year. Then at longer intervals; finally it was abandoned, and it has not been used since. The parents noticed it was affecting him at the time, changing his mind and habits, and would not permit its use again. This was clearly an example of retarded brain growth with perversion of the functions, and later he will, no doubt, develop some drug addiction, or low form of dementia, disease, and death.

In a similarly healthy family, one son became an impulsive inebriate at eighteen years of age. The others, in the same surroundings and conditions of living, are very temperate and well. During the infancy of this boy he was given morphia for intestinal disturbances. It was taken for nearly a year, by advice of the physician, and its use was continued as a medicine for two years, often at irregular intervals. He began to use spirits to excess soon after puberty, and is now a periodic inebriate. The clinical study indicated a degree of mental

and physical perversion and degeneration, dating from the use of morphia in infancy. A case which came under my observation was that of two children of a distinguished missionary, one a young woman, who, at twenty-four years of age, suddenly began to use opium and spirits to excess, and showed much mental disturbance. During infancy she was nursed by a Hindoo woman, and was noted for her stupor and tendency to sleep. In early and later childhood she was extremely nervous, and suffered from many hysterical affections. She was an accomplished teacher, and a woman of great pride of character and ambition. Her brother, born two years later, was nursed by the same woman, and was noted for his somnolence and general stupor during this time. Later it was found that the nurse was an opium-taker, and that both children had been under the influence of opium from nursing. The boy grew up extremely nervous and irritable. At one time he drank beer to excess, then was a gambler. He was changeable and notional, became a clergyman; then a physician, and finally a speculator. He is now an opium-taker, and neurasthenic and invalid, although not thirty years of age. Two other children of this family, one born before this Hindoo woman became a nurse, and the other after she was discharged, are strong and healthy, and free from any peculiarities of mind or body. The elimination of all other causes leaves the poison of opium the specific central factor in these cases. In my studies of the heredity of all alcoholic and opium inebriety, about ten per cent. give some history of drugging in infancy. Paregoric and laudanum are the most common. Narcotism from opium by accident has been followed by defects which finally culminated in drug or spirit taking. A boy two years old ate a large number of opium and candy lozenges, and was narcotized for two days, and with difficulty prevented from dying. He grew up an erratic, unstable, and feeble child. Digestion was impaired, and sleep broken, and finally at twenty-one he became a spirit taker and inebriate.

Two brothers were healthy and strong. In cases of defective parentage, where nervous degeneration and unsoundness exist, the use of opium in infancy will intensify these states, and make them more pronounced. In children from drug-poisoned families, such as inebriates or those who, from nutritional disorders, are suffering from autointoxication, opium may prove a most seductive drug for a time, but in the end be followed by more serious evils. Children of brain-exhausted, worn-out parents are often found to enjoy the effects of opium, and receive great apparent benefits from its use. Later they easily become drug-takers, and are the most incurable. Neurotic infants and children are, no doubt, very susceptible to these drugs, and the physiologic impression is so pronounced as to suggest organic changes.

A few instances are on record of hydrocephalus following the use of opium in children, ending usually in exhaustion, coma, and death. Many parents manifest an unreasoning therapeutic credulity in drugs in infancy, which physicians cultivate and sometimes heartily believe in. In such a case a medical man continued an opium prescription for over a year, and the child grew up feeble-minded, and is now an invalid. The next child in the same family is a healthy vigorous man. He was not treated during childhood by narcotic drugs. The use of laudanum in infancy was traceable in ten cases of epilepsy associated with spirit drinking and petty criminality. As these patients came from the lower classes, and had a defective heredity, the influence of opium could not be separated as a specific cause. Undoubtedly, it was a large contributing one. I have gathered many histories which seem to confirm the impression that opium-taking in infancy and childhood is often an exciting cause of a latent hereditary predisposition to the drink mania. At all events, a large proportion of such persons seek relief from alcohol in the physical strain and stress of life, then take opium when the effects of alcohol become prominent.

Opium and its alkaloids, given to healthy children occasionally for some special purpose, are in all probability without injurious effects. In unhealthy, neurotic children, with defective ancestors and evident imperfect development, the increased degeneration which follows the use of opium often dates from this source. Where this drug is combined with other remedies, and given a long time, the effects are the same. They are not lessened by the action of other drugs. No form of opium should be given to infants or children for more than a few days at a time. While the effects of continuous sedation may be overcome by correct living, the cell injury and perversion of function is never repaired. The growth and development of other organs may do much to overcome in part, and cover up the injury, but the defects will appear from the presence of the slightest exciting cause. The following case has recently come to my notice.

Five children of healthy parents became inebriates, both alcoholic and opium, when about twenty years of age. There was no heredity nor any special exciting causes. The home life and example were good, and both parents were total abstainers. Each one seemed to be nervous and feeble, and lacking in vigor, then without any reason began to use alcohol and opium freely, and finally were addicted to its constant use. It was found that from early infancy and through childhood they had been given laudanum and other forms of opium for all sorts of ills. The mother had treated them without the aid of a doctor, and opium was used continuously for several months at a time. They all suffered from nutritional and digestive disorders, and were all nervous insomniacs, and irritable and dull at times. This domestic treatment was, no doubt, the cause of the degeneration and neuroses in manhood. Three of these persons are decidedly feeble-minded. One is a talented musician, the other an actor of some ability. Two use spirits alone; two use alcohol and opium; one uses opium alone.

Another case reported to me was that of a very highly cultivated woman who at thirty-four began to use morphia without any apparent cause in pain or sickness. She was a philanthropist and on the visting board of a hospital where such cases were treated, and was acquainted with the dangers from the use of the drug. All the possible causes were eliminated in the study, and the remarkable fact appeared that opium was used very freely in the first two years of her life. It was with difficulty removed, and she was feeble and very nervous until after puberty, when she became strong. Her own statement was that she found such peace and comfort from its effects that she could not abstain from it.

Several persons using alcohol have given, as a reason for this addiction, the fear of becoming opium inebriates. They have found opium so seductive and pleasing as to be irresistible; with alcohol they felt safe. Opium-taking in infancy is the common history of many cases, and is generally the domestic use of laudanum at first for various disorders.

The presence of nervous dyspepsia, which begins soon after puberty, and by early or middle manhood becomes a most distressing disease, is often traceable to the free use of opium in infancy and early life. Early and profound exhaustion from slight overwork or excitement, seen in young persons, indicating low vitality and feeble nervous organism, may be the result of opium-taking early in life. Early precocity or failure to sustain the expectations created have been noted in the cases of early addiction. The many constitutional defects and degeneracies which appear after puberty and in early manhood should always create an inquiry concerning the early therapeutics and drugs given in childhood. Where soothing syrups and prescriptions for sedative effects have been used a long time, the suspicion is strong that an opium diathesis has been created. I wish to emphasize that the use of opium and its alkaloids in infancy will, in a large proportion of cases, create a diathesis or predisposition to its use in later life. This

predisposition is manifest in irritation and exhaustion, with intense, uncontrollable impulses for relief.

Alcohol, chloroform, chloral, and many of the most common narcotics are welcomed and largely used to supply this demand. This opium degeneration may take on sexual and nutrient manias, and leave the brain in an infantile condition of vigor and stability. A "Christian Scientist" who has made some reputation by his delirious theories, was, according to a Boston physician, brought up on opium. His mother was a narcotic, and to protect herself, gave her son opium freely in early life. He grew up undersized, and with a highly sensitive brain, full of delusive dreams and fantasies. This was another form of opium diathesis.

The second fact that I would note is that opium in infancy, acting on the most unstable organism, the brain cells and centers, not only retards but prevents healthy physiologic growth. In defective heredity this is permanent, although it may be concealed until later in life. This physiologic action of exhilaration and depression, the latter being the principal stage, is manifestly toxic and injurious from the functional derangement which follows. Where no disturbance is recognized, the real danger is concealed. The cell growth and functions suffer nutritionally and physically by checking activity, diminishing nutrition, and changing direction and purpose of action. This is true of opium in all cases. Sometimes one effect is more prominent than others. In DeQuincey the psychic action was prominent. In some cases the anemia appears in the disturbance of nutrition, and in others the depression and suppression of organic activity is apparent.

The third fact to be remembered is the concealed danger from opium-drugging in infancy. If only neurosis is present, if defects of growth and functions exist, opium will, of necessity, increase this condition. Anemia, exhaustion, and perversion of organic activity follow. If some temporary state is present, opium, by covering up the pain-signal, is not cura-

tive, but may be destructive in many ways not easily recognized until later in life. No one can tell whether this danger begins with the first dose, or only after a succession of doses.

Lastly, the magnitude of this danger is not recognized as it will be in the future. Neurotic disturbances, obscure and apparent, and also toxic diseases of many forms, have often an early history of opium drugging. The ignorant mother who uses soothing syrups freely to suppress the irritation of the infant is not the only offender. The routine, and often thoughtless, physician who gives opium freely in infantile prescriptions is responsible in many ways for the wrecks of later life. The toxic cases under my care are striking illustrations of this evil. While it is difficult to narrow down the etiology to this one factor, it is clear that the danger from this source has been, and is, a potent and wide-spread cause. We need more clinical researches and clinical studies in this direction.

The German authorities at Bonn made an investigation upon alcoholism among pupils in primary schools, which shows a startling state of affairs. Sixteen children out of one hundred did not drink milk, and absolutely refused to drink it because it had no savor. Of 237 pupils, seven to eight years of age, there was not one who had not drunk wine, beer, or whiskey, although twenty-three per cent. of these children were given their glass of whiskey every day by their parents that they might become strong. As a result of these investigations it was proved that children most accustomed to alcohol showed the least intelligence; children who had their morning glass of whiskey and found no savor in milk showed great inattention during the morning hour. A curious fact shown by this investigation was that young girls who took whiskey with their breakfast were more numerous than young boys.

THE EFFECT OF SMALL DOSES OF ALCOHOL ON
THE BRAIN.*

BY VICTOR HORSLEY, F.R.S.

Mr. Horsley said that it was his duty to present to them from the scientific standpoint a plain statement of the present state of knowledge as to the effect produced on the brain by small doses of alcohol. It probably was not generally known that all drugs had a selective action on the organs and tissues of the body, that is to say, they affected by reason of their chemical affinity some organs or parts of organs, and spared others, and this was particularly true of alcohol. As Prof. Ehrlich had pointed out, it was merely a question of chemical affinity. They must, therefore, first familiarize themselves with the various elements of the nervous system, which investigation had shown to be the commonest point of attack. The speaker proceeded to give a rapid survey of the central nervous system, illustrating the subject by means of lantern slides. In considering the effect of small quantities of alcohol on the central nervous system it was necessary to discuss its effect on ideation, that is, the intellectual thinking apparatus, next on the voluntary action apparatus, and then on the cerebellar apparatus for the regulations of movement and equilibration. The activity of the highest psychical centers of the brain in executing the decision of a thought arising from the stimulation of a special sense center could be estimated either by measuring the time the brain took to do some task allotted to it, first

* Second Reas and Rapier Memorial Lecture at St. James Hall, London, April 25, 1900.

in the natural state, and secondly when under the influence of alcohol, or by estimating the amount of work done in a given time.

The time occupied by the nervous system in observing and recording the simplest thing was called "the reaction time," and was so appreciable that in all minute and accurate records astronomers had to measure their reaction period, and to account for it. The lecturer then demonstrated by an experiment the method of measuring the reaction time. This plan in all forms and varieties had been very largely employed by Prof. Kraepelin, whose investigations had been so thorough and complete that they explained the somewhat contradictory results obtained by Warren and other observers, and had established on a thoroughly scientific basis the direct influence of alcohol on the higher centers of the brain. The effect was that very speedily after taking the dose of alcohol the reaction time was shortened, but this shortening, that is to say, this apparent quickening of the cerebral act, lasted only a few minutes, and then marked slowing set in, and for the rest of the time during which the alcohol acted, varying from two to four hours according to the individual, the cerebral activity was diminished. The diminution was shown by a noteworthy lengthening of the reaction period—in other words, it took longer for a person who had a small quantity of alcohol to think.

A further method employed by Kraepelin was to estimate the ability with which the addition of simple numbers was carried out, and also the learning by memory of twelve places of figures, and in all these tests the slowing of intellectual vigor was shown. In regard to the occasional acceleration observed at the commencement in some experiments, Kraepelin made the remarkable personal observation that during this period of acceleration, that is, during the first few minutes after taking a dose of alcohol, he had the subjective sensation that it was much easier to learn the figures, but when he came to

examine the records he found that so far from having achieved his intellectual task more easily, it had, as a matter of fact, been accomplished more slowly. This observation was confirmed also by two other investigators in the same laboratory on whom a similar experiment was performed. This was a striking instance of the deceptive effects of alcohol on the higher intellectual centers of the brain. This deception was not, of course, limited to alcohol, for one of the common subjective sensations of small doses of the ordinary anæsthetics was that a person possessed great muscular strength, and had a sensation of making powerful efforts which were in fact not in any way extraordinary. In this connection the lecturer exhibited by means of lantern slides a record of an experiment which he had made upon himself with nitrous oxide to show how easily an elementary intellectual operation could be blotted out. The experiment consisted in writing three's in two rows, the figures alternating in position, and while these were being written at regular intervals the nitrous oxide was quickly respired so as to produce complete unconsciousness for a few seconds, and then figuring recovery of consciousness, an assistant urged him (Mr. Horsley) to resume writing. The slight extra intellectual addition of writing the figures in alternate rows had been blotted out by the very slight and fleeting poisoning of the cortical centers by the laughing gas, with the consequence that the figures were written in one line. The effect of a poison like alcohol on the cerebral centers for voluntary action was readily estimated; some voluntary muscular act was selected, and the amount of force evolved by the sensory motor cortex and exhibited by the muscular contraction measured. The simplest experiment of the kind was one described by Prof. Kraepelin, in which he measured on himself and a colleague the force with which they could grasp the dynamometer at regular intervals during the hour or more that the experiment lasted. The result of the experiment was to show that though there might be at first a

slight increase of the work put out, very soon a constant and marked failure in the work occurred. An interesting parallel series of experiments was made by the same observers under the influence of tea, the effect of which was to improve the output of the physical work for a long time, and to avert to a certain degree the fall due to the natural fatigue. Kraepelin had pointed out that though the primary accelerating effect of small doses of alcohol was frequently observed in simple reaction experiments and in experiments on the volitional motor centers, it was not found in his complicated thought-measuring experiments. In these only the hampering influence was shown. It was clear, therefore, that there was something peculiar about this apparent stimulation of the nervous centers by alcohol, and the explanation might be that the first toxic effect of alcohol on nerve centers was the quicker liberation of motor impulses. Numerous investigators — Aikin amongst others — who had studied this point had suggested — and indeed the greatest Continental authority, Prof. Bunge, had taught — that the action of the drug was from the very first an inhibitory or paralyzing one. The primary accelerating stage, therefore, when it was observed, might in accordance with these views be considered to be due to the inhibition of the higher centers or the controlling apparatus which was known to exist in relation with motor centers, in fact, to use an ordinary analogy, every one recognized that as soon as the governor of an engine was prevented from acting the machinery at once tended to race, and to work irregularly. As Chaffenburg had made a very careful series of observations on the dietetic use of alcohol in connection with skilled volitional work, it occurred to this investigator to experiment on certain compositors who had offered themselves for the research at his suggestion. They were skilled artisans, three of whom were accustomed to drink small quantities of alcohol, and the fourth occasionally drank to excess. Small intervals of time were taken, and the total number

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of letters composed was observed under normal circumstances from which the necessary averages and observations of fatigue effects were obtained. The relative number of letters set up in the second, third, and fourth quarters of an hour after the commencement of the experiment showed that the maximum difference and chief inhibitory effect of the alcohol was most apparent during the second quarter of an hour, and remained obvious until towards the end of the experiment when the effects were passing off. The disadvantageous effect of alcohol on persons performing muscular work was well known, and it had been proved from the records of military expeditions that the best physical results were obtained under total abstinence from alcohol. The evidence, therefore, was overwhelming that alcohol in small amounts had a most deleterious effect on voluntary muscular work.

The cerebellum was intimately connected with the cerebrum, and it was known that injury to it was necessarily followed by the loss of the regulation and control of movements, which was especially true of the muscles of the lower cerebellum. The legs were most particularly associated with the cerebellum, and co-ordination in standing and walking depended on the normal action of the cerebellum. One of the further effects of alcohol taken in slightly larger doses was to destroy this special function of the cerebellum, and to produce a sensation of tremor and weakness in the lower limbs, so that the individual staggered slightly, and standing became a matter of difficulty. Anyone who had observed slight alcoholic poisoning, and compared it with the disordered equilibrium of a certain degree of disease of the cerebellum, could not fail to note the close similarity of the two conditions, or hesitate to accept the view that alcohol poisoned the cerebellum particularly. According to the recent researches of Dr. Risien Russell the cerebellum played a part also under normal circumstances of damping the tremor accompanying the discharge of energy from a nerve center. Hence, in alcoholic

poisoning the exaggeration of the natural intermittent discharge of the nerve centers producing tremor might be due in part to the loss of cerebellar-controlling influence, as well as to the affection of the cortical portions of the cerebrum. In regard to the structural changes produced in nerve corpuscles by small doses of alcohol, it had to be remembered that with existing means of investigation it was not possible to show any such changes. The vital processes of the body were so delicate that it was not possible to show any change in the protoplasm of the nerve corpuscles corresponding to the physiological alterations referred to as produced by small doses of alcohol. It was, therefore, worth while to show the destructive effects produced by the continued use of alcohol. The lecturer then demonstrated by means of lantern slides the disappearance under the influence of alcohol of the granular masses in the Purkinje nerve corpuscles, and how the protoplasm of the body of the corpuscle lost its characteristic structure, and the nucleus became altered in shape. The toxic influence of chronic alcoholism on the pyramidal cells was also demonstrated in a similar manner, and the effect of alcoholic poisoning on the normal pigmentation in nerve cells was illustrated by a slide representing degenerated nerve cells, from the Archives of Neurology, edited by Dr. Mott, and published under the auspices of the London County Council. Mr. Horsley concluded his lecture by stating that from a scientific standpoint the contention so often put before them that small doses of alcohol, such as people took at meals, had practically no deleterious effect, could not be maintained. He had only touched on a very small part of the subject, but if they considered the observations of Parkes on physical work, of Ridge on small doses of alcohol on vegetable protoplasm, and of Abbott and others on the influence of alcohol in rendering animals more prone to microbic invasion, they could only come to the one conclusion — that from the scientific standpoint total abstinence must be their course if they were to follow the plain teaching of truth and common sense.

IS ALCOHOL A FOOD? (A REPLY TO PROF. W.
O. ATWATER.)

BY DR. WINFIELD S. HALL,

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In order to answer intelligently the question, "Is Alcohol a Food?" it will be necessary to have at command as much knowledge as possible on both food and alcohol.

About a half century ago Liebig, the "father of physiological chemistry," divided foods into two classes: (1) the "plastic foods," or those which may be built up into active muscle, gland, or nerve tissue; (2) the "respiratory foods," or those which are oxidized in the blood to liberate the heat energy of the body. The first class of foods included the nitrogenous proteids, while the second included the non-nitrogenous carbohydrates and fats. Liebig believed that the muscle tissue assimilated only the nitrogenous portion of the food, and that with each muscular movement a portion of the muscular tissue would be broken down or decomposed. Such being the case, the nitrogenous excreta of the urine ought to be proportional to the mechanical muscular energy liberated in a given period.

This theory was accepted without question for a considerable period, but finally the young physiologist Fick and the young chemist Wislicenus decided to put Liebig's theory to a practical test. It is not necessary to describe their experiment here, but it is important to know that these experiments found that Liebig's theory was entirely wrong. Subsequent work on the same problem by Voit and Pettenkoffer, and by Pfluger and his pupils demonstrated that when muscles are fed with

sufficient carbonaceous food they are able to produce a prodigious amount of both mechanical and heat energy with only slight modification of the usual and average nitrogenous excretion. They demonstrated further that the elimination of CO_2 varies with the muscular work done.

So Liebig's theory of muscle metabolism fell to the ground. His theory that meat extract (Liebig's Fleisch Extract) contained nutriment for muscle tissue was also proven to be untenable. His definition and classification of foods went into disuse because they were no longer in harmony with what was known about the action of living tissue.

Among other theories which the father of physiological chemistry advanced was the one that alcohol is a food. He reasoned thus: All respiratory foods are oxidized in the body; alcohol is oxidized in the body; therefore, alcohol is a respiratory food. Of course the fallacy here is apparent.

During the half century which has elapsed since this theory was first advanced the question of the food value of alcohol has been under almost continuous controversy.

In a large proportion of the text-books on physiology and therapeutics, even down to the present time, one will find under "alcohol" some such statement as this: "If oxidized even to a small extent alcohol must be regarded in the scientific sense as a food." — (McKendrick, *Special Physiology*, p. 19.) "Alcohol is oxidized in the body, and is thus within narrow limits a food." — (Halliburton, *Chemical Physiology and Pathology*, p. 600.)

From these statements, which are practically the same as one will find in most of the older physiologies, it is evident that the writers reasoned that everything oxidized within the body must be food. If everything that is oxidized within the body, yielding, incident to that oxidation, energy which is added to the body-energy, is to be classed as a food, then we must rank among the foods: Phosphorus, certain ptomaines, leucomaines, and toxines, also alcohol.

It is interesting to note that the physiologists above referred to, who, when discussing alcohol, admit that it is "technically a food," or that it is "a food within narrow limits," do not enumerate alcohol in their list of foods, nor do they classify it among the foods. Some list it with food-accessories (Genussmittel), along with: mustard, pepper, coffee, tea, spices, etc.

When one takes up the more recent works on physiology, or pathology, or therapeutics, he is likely to find some very interesting reading on this subject. For example, H. D. Rolleston, M.D., Lecturer on Pathology, St. George's Hospital, writing in Allbutt's System of Medicine (Vol. III, page 839, et seq.), says, within the limits of one page: (1) "In physiological quantities, alcohol may be considered as a food inasmuch as it is used up in much the same way as carbohydrates, and leaves the body as CO_2 and H_2O ." (2) "As with other poisons or drugs, there is no constancy in the dose of alcohol which produces distinct results, or of the character of the effect in different persons." (3) "The nervous system, being unstable (in hereditary alcohol-taint), needs but little of the noxious poison (alcohol) to disturb its balance and to precipitate a condition which might be compared with temporary insanity."

The interesting feature is that the author did not seem to see any inconsistency between the ideas "food" and "poison." Many of the recent writers on therapeutics and pathology have been led into this inconsistency, probably through incorporating the statements of some of the older physiologists along with their up-to-date knowledge of the pharmacology and pathology of alcohol.

Any proper and acceptable answer regarding the food value of a substance must consider (1) its influence upon the inner activities of the living tissue cells; and (2) its total influence in the body from the time it is ingested until its last decomposition product is excreted from the body.

It is very evident in the writings of such representative

modern physiologists as Foster, Bunge, Schaefer, Howell, Tigerstedt, and Lee, that they conceive all of the ultimate life processes to be within the cell. All of these men treat the chemical processes of cell-life extensively in their works on physiology and physiological chemistry. None of these men call alcohol a food, and none of them admit that it has even a "limited food-value."

There is a good deal of misinterpretation and misapprehension regarding the significance of certain of the effects of alcohol upon vital activity of the cells. It has been determined, for example, that after the ingestion of alcohol the excretion of carbon-dioxide is diminished. This is accompanied by an accumulation of the carbonaceous materials of the body, and the actual deposit of fat or a sparing of proteid material, one or the other of these latter effects being certain to follow any cause which will decrease the excretion of carbon-dioxide. Many jump at once to the conclusion that any substance which can cause a sparing of proteid or of fat or both must of necessity be a food. But that conclusion does not by any means follow. There is a very closely veiled fallacy in the course of reasoning which leads to such a conclusion, and many have passed it by without recognizing it. That is especially the case with those who take account of ingesta and egesta alone without trying to follow the changes which take place within the cells.

Let us unveil the fallacy. Under conditions of normal activity a cell will catabolize, — or, we may say, oxidize, — a certain amount of matter drawn immediately either from the cell-sap or from the living cell-substance itself. This matter is in part nitrogenous and in part non-nitrogenous. All food is "tissue-building" in its assimilation, and all food is "energy-liberating" in its oxidation. To arbitrarily differentiate between tissue-building and energy-liberating is wholly unwarranted in the light of modern research in cell physiology. So the cell under normal conditions will oxidize a certain amount of its matter. This oxidation will yield the energy

required for the vital processes, and will also yield certain products of decomposition. The non-nitrogenous molecules, will, on oxidation, yield carbon-dioxide and water; while the nitrogenous molecules will yield carbon-dioxide, water, and urea (or allied nitrogenous excreta).

Let us suppose that the cell is in a condition of carbon and nitrogen equilibrium, *i. e.*, that it gives out daily in its excreta an amount of carbon and nitrogen equal to that of the food which it assimilates. If under these conditions a little more food be absorbed by the cell, one or the other of two things will happen: (1) either there will be greater cell-activity (muscular, nervous, or secretory) with a correspondingly greater output of CO_2 , with some increase in the nitrogenous excreta; (2) or there will be an accumulation of fat or protein within the cell. The cell-activity being governed by the central nervous system rather than by the simple presence of increased food, the second alternative will be the one almost uniformly observed. That is, if we give more food we will get an accumulation of the excess as a reserve.

Now suppose that without any excess in the food supply the central nervous system causes a decrease of cell activity throughout all of the active tissues, there will be an accumulation of unused food materials within the active cells or within the storage tissues.

This nervous influence upon the oxidation of food materials may be produced by morphine. After the administration of morphine there will be an accumulation or a "sparing" of both carbonaceous and protein food materials, or tissues, provided the ingested food is normal in amount. Boecker (*Beitrag zur Heilkunde*, S. 181) found by experiments upon dogs that after the animals were brought into a condition of nitrogen equilibrium the administration of morphine with the food in a quantity to produce its typical physiological effect (not lethal doses) caused the proteid catabolism to be decreased six per cent., while the consumption of oxygen was decreased thirty-

four per cent., and the excretion of CO_2 was decreased twenty-seven per cent.

If we were to take into account simply the balance of ingesta and egesta we might reason thus: (1) The addition of food to an animal in C and N equilibrium leads to an accumulation of C and N in reserve, all other things remaining the same. (2) The addition of morphine to the food of an animal in C and N equilibrium leads to an accumulation of C and N in reserve, all other things remaining the same. (3) Therefore, morphine must be a food.

The fallacy of this reasoning is apparent only when we take into consideration the vital process of the cell. Morphine depresses the activity of the cell, oxidation is decreased, less cell substance is decomposed, the amount of matter absorbed remaining the same, there must be an accumulation of C and N in the cell. Notice the difference between the two cases: With increased food the activity remains the same or is increased, and the result is an accumulation of C and N or greater activity with increased CO_2 and N excretion. With the influence of morphine, the activity is always decreased, and the excretion of C and N is always decreased. With both there is an accumulation of food materials or of cell substance; thus the final chemical effect of morphine is similar to that of increased food ingestion. But the total effect upon the vital processes within the cell is as nearly opposite as it is well possible to be: Increased activity and increased excretion with increase of food; but decreased activity and decreased excretion with morphine.

Morphine is a narcotic. All narcotics depress vital activity. Brunton, Cushing, Blyth, and all the newer authorities on pharmacology and toxicology, agree that alcohol is a narcotic in both small and large doses. All who have experimented with alcohol in its relation to the output of CO_2 agree that that is diminished. This result is in perfect harmony with the

general narcotic effect, and simply means that cell activity is diminished.

To demonstrate that alcohol "spares carbonaceous and protein foods and tissues," is simply to prove that it is narcotic in its effect upon cell activity unless it can be demonstrated that the consumption of oxygen and the output of CO_2 are either normal or increased. But these gases are always decreased in their interchange, after ingestion of alcohol in even moderate quantities. Alcohol cannot then be a food; it is a narcotic.

Listen to the testimony of Austin Flint upon this question: "The immediate effects of the ingestion of a moderate quantity of alcohol, continued for a few days, are decided. It notably diminishes the exhalation of CO_2 and the discharge of other excreta, especially urea. Proper mental and physical exercise and all conditions which favor the vigorous nutrition and development of the organism physiologically increase rather than diminish the quantity of the excreta. They correspondingly increased the demand for food, and if continued are of permanent benefit. Alcohol, on the other hand, diminishes the activity of the nutrition."

Rolleston says that "alcohol forms with the hæmoglobin of the red blood corpuscles a compound which takes up and parts with oxygen less readily than normal hæmoglobin. This leads to a general diminution in the metabolism of the body and as a result the amount of fat in the body may become increased. . . . Partly as a result of its action as a functional poison on the tissues of the body (especially the nerve cells, mentioned in an accompanying paragraph), and partly from its influence on hæmogoblin, the metabolism of the tissues is diminished by alcohol."

In the experiments performed by Professor Atwater, and described in Bulletin No. 69 of the Bureau of Experiment Stations, the alcohol given was not sufficient in quantity to have any marked effect upon proteid metabolism. There was a slight loss of proteid, which may or may not have been due

to the influence of alcohol upon the system. Professor Atwater said regarding this point: "There is nothing in the experiments which favors alcohol or is opposed to alcohol as a protector of proteid." Now there is a very good reason for this failure to get positive results regarding the influence of alcohol on proteid metabolism. In the description of experiment No. 5 (all of the experiments were alike in this respect) this statement appears: "Three hundred grammes of warm coffee infusion were served with each meal; it was prepared in the usual way." (Bulletin 69, page 32.) "The coffee infusion . . . contained practically no nitrogen, — amounting to less than 0.2 gram. of nitrogen for the whole experiment; . . . this quantity has been ignored, and the coffee infusion has been considered simply as so much water." The physiological effect of a liter of coffee per day, — a large cupful or two smaller cupfuls at each meal, — "ignored," because it contained little nitrogen! Morphine and strychnine contain nitrogen. Quantities of these substances sufficient to produce a profound effect upon the system would contain an amount of nitrogen which would be infinitesimal compared with above quoted 0.2 gm. This infinitesimal quantity of nitrogen could be ignored chemically without introducing any appreciable error in the material debits and credits of the body. Can the influence of morphine, or strychnine, or caffeine be ignored physiologically because they contain an amount of nitrogen (or carbon or hydrogen) so small that it may be ignored when compared with a total of several hundred grammes?

Coffee is a physiological antagonist of alcohol. When the two are given simultaneously, we need not be surprised that the results are ambiguous.

Commenting upon this point, Professors Woodbury and Egbert said: "As therapeutists, however, we may express surprise that Professor Atwater entirely ignores the physiologic effects of 300 c. c. of infusion of coffee, given three times a day, as regards especially its influence on nutrition, . . . and that

he counts it only as so much water. . . There are many individuals in the community, we are convinced, whose nutrition would be seriously affected by one or two cups of coffee taken three times a day, and it might be well to repeat this series of experiments, leaving out this disregarded but disturbing factor in the problem."

SUMMARY.

1. Half a century ago Liebig classified alcohol as a food because it is oxidized in the body. Even to the present day many physiologists and therapists ascribe to alcohol "a certain food value," under particular conditions (fevers, exhaustion, and certain other pathological conditions).

2. None of the more recent physiologists enumerate alcohol among the food-stuffs.

All authoritative works on toxicology classify alcohol as a narcotic poison.

All authoritative works on the physiologic action of drugs state that alcohol is a narcotic, and that the stimulation attributed to it is only apparent and due to narcosis of inhibitory or controlling centers.

3. Physiologists believe that all of those nutritive processes which involve construction of simpler bodies into complex ones with consequent making-latent of energy, also those which involve a decomposition of complex bodies into simpler ones with accompanying oxidation and a liberation of energy,—all take place within living cells, *i. e.*, within living protoplasm. The protoplasm itself is replenished by the anabolic processes and wasted or decreased by the catabolic processes.

4. Various toxic substances are oxidized in the body; just where or how they are oxidized nobody seems to know. Among these toxic substances are alcohol, morphine, certain ptomaines, etc.

This oxidation results in a liberation of a certain amount of energy which is added to the heat of the body. In this respect alcohol is similar to the foods.

All food is tissue-building in its assimilation, and all food is energy-liberating in its oxidation.

Nobody maintains that alcohol, or morphine, or oxidizable toxins are assimilable, or are capable of building tissue.

5. Fat is stored whenever the food ingested is in excess of material egested. There may be an excess of ingesta leading to a deposit of fat under two conditions: (1) cell-activity unchanged or even increased, and food moderately or considerably increased; (2) food-quantity unchanged and cell-activity decreased. Fat deposit with increased elimination of CO_2 will follow condition No. 1; fat deposit with decreased elimination of CO_2 will follow condition No. 2. Narcotics cause decreased cell activity, and decreased elimination of CO_2 .

Alcohol possesses this feature in common with the other narcotics, and is usually accompanied by an accumulation of fat, and may, under usual conditions, be accompanied by a decrease of nitrogen elimination, *i. e.*, by a "sparing of proteid."

Food exerts upon cell metabolism an influence which is the reverse of that exerted by alcohol.

6. Finally, we may answer the question which stands at the head of this paper, in the most unequivocal terms: Alcohol is not food. Alcohol has no "food value." Alcohol is not to even a "limited extent" a food. Alcohol is not in any sense, especially the "scientific sense," a food.

The Old Dominion Line of steamers to Fortress Monroe and Norfolk offer the most attractive coast-line excursions for the summer months. Twenty hours or more of land and sea breezes down the New Jersey, Maryland, and Virginia coast is a delightful change. Then twenty-four or thirty hours at the quaint old town of Norfolk before the return. All the boats are palatial in comfort and luxury, and give all the fascination of a short ocean voyage without its discomforts. Boats leave every day from New York city.

Abstracts and Reviews.

ALCOHOL IN THE TROPICS.

Assistant Surgeon Woodruff of the U. S. army, in a paper published in the Philadelphia Medical Journal, writes as follows on this subject: The use of alcohol by soldiers is an old evil, and its excessive use was at one time so common that old soldier and drunkard were almost synonymous words. Part of this drinking in former generations was a result of the habits of the times when every man was expected to get drunk occasionally like a gentleman. Nevertheless, much of it has been laid to the sameness and insufficiency of the ration. The enormous consumption of whisky during the Civil War was partly due to this natural craving of a depressed nervous system. It made no difference in the tropics to tell everyone that alcohol was dangerous; and it must be confessed that we saw more drinking in the Philippines than we had seen for a long time, — not drunkenness, but a steady daily consumption. It seemed inevitable. It was a curious sight in Manila after its surrender to see the growth of English shop-signs along the streets, where nothing but Spanish had ever been seen. Only a few days after the surrender the first one made its appearance— “All kinds of American drinks sold here.” A few days afterward we were astonished to see a procession of a dozen Filipinos garbed in linen dusters, each carrying a transparency on which was painted: “Drink _____’s beer, the beer that made Milwaukee famous.” The representative of this company was on hand long before the attack on the city, and was present at the ceremony of hauling down the Spanish flag. He had a cargo of beer in Hongkong which he brought over the

instant the blockade was raised. In three weeks he hadn't a drop left. It is a curious illustration of the aggressive enterprise of the liquor business, that the first intimation we had of the fact that we were to hold the Philippines, came in the shape of a cablegram from this beer company to its representative, instructing him to go ahead and put up his cold storage plant — and this was long before the peace commissioners in Paris had reached the subject. The English club, which was struggling financially, was at once put on its feet by its profits from the bar. Men who had firmly resolved to abstain, had Scotch whisky on tap; it was everywhere. Harper's Weekly publishes a letter from its correspondent, Mr. Bass, who very graphically recounts his experience with the British residents, who warned him in solemn tones against alcohol — in fact, rather dilated upon its deadly effect — then ended up by inviting him to the bar to drink liquor, and explained what was considered the best drink.

This almost universal drinking must mean a natural defensive craving — surely so many men cannot be fools to do what was so positively said to be wrong. A Spanish army surgeon told me that their experience was to the effect that a certain amount of wine daily was essential in that climate. I did not believe him, of course, and was inclined to ridicule their large requisitions for wine, putting it down to the race characteristics imported from the shores of the Mediterranean. It did not take long to find out that he was correct, and the reason is not difficult to find.

I have never yet seen any account of the terrible nervous exhaustion which results from long continued exposure to great heat and moisture. It is a veritable neurasthenia. There is no escape from the heat day or night. One wakes up at night fairly drenched with perspiration. It wears out nervous force very quickly and surely. Throughout all of Kipling's India stories the physician can find beautiful pictures of these pathological conditions due to overwork in the moist heat. In the

“Phantom Rickshaw” is this passage: “Heatherleigh is the dearest doctor that ever was, and his invariable prescription to all is: ‘Lie low, go slow, and keep cool.’ He says that more men are killed by overwork than the importance of the world justifies.” This is the same tune we hear from Manila from all sides — “never do to-day what you can put off until to-morrow.” Everywhere we hear of some means taken to avoid exhaustion. It is the country of *manana*. Now the symptoms of exhaustion are everywhere. I never heard so many complaints of persistent insomnia as I did in the Philippines. One young, vigorous staff-officer, who always seemed cool, complained to me one day that on the previous afternoon at five o’clock he found that he could not remember anything he read. When he got to the end of a sentence he had forgotten the beginning. He was completely disabled until the next morning. A surgeon informed me that before he was half through his rounds, he daily discovered that he could not remember the patient’s answers, and he always had to lie down thirty to sixty minutes before the brain would again work properly. It was rumored that a general officer one day at an early hour found himself in the same condition: he could act on no papers because he could not remember what was to be acted on. It is needless to remark that in warfare the lives of soldiers are rather precarious if from sheer exhaustion their officers cannot use their brains. It is a serious question, and I have been astounded at the illogic actions taken in some instances. In such conditions of mental prostration the very thing that ought not to be done, is apt to be ordered through sheer paralysis of reasoning faculties and memory. Much absurd conduct has its origin in cerebral asthenia. In my limited circle one man broke down completely, and another became insane — both largely due to overwork and the heat. A very high percentage of soldiers have gone insane. There were also a large number in whom muscular force was largely reduced. Soldiers who appeared to be just as strong as at home,

found themselves "done up" after five innings at baseball. It showed itself in the eyes, and in a number of cases there was inability to read, through paresis of accommodation; indeed, accommodative asthenopia is almost a tropical disease. A great many complained of their glasses. It is of no utility here to particularize further, for it is the same as in hot weather at home. Lombard (*Journal of Physiology*, 1892), found that muscular power was markedly decreased in summer by several days of high temperature, especially with great humidity. The result of all this is, of course, weakened digestion, and lessened nutrition in a state needing the very highest nutrition to repair waste. Men often go home to their meals so exhausted that appetite is gone, and the first thing done is to call for "whiskey and soda," before they get energy enough to go to the table. It is really keeping up on alcohol.

When there is a tendency to insanity it often happens that the extra nervous exhaustion due to hot weather is the final determining cause of the mental breakdown. This is beautifully shown in the table published by Lombroso showing the month in which the disease appeared in a large number of cases:

January,	1476	July,	2614
February,	1420	August,	2261
March,	1829	September,	1604
April,	2237	October,	1637
May,	2642	November,	1452
June,	2701	December,	1529

The same increase was noticed in our soldiers, but the exact figures are not at hand.

This general exhaustion which is such a common thing as almost to merit the special term of tropical exhaustion, deserves the greatest attention. It reduces man's resistance to every disease, as his natural immunity is gone. In one case I have in mind this was sadly illustrated. Not very robust to begin with, his labors and the climate had reduced this man

forty pounds in weight; he was anemic, and his complexion was almost lemon color. When the rush of work was over, he recognized his condition and asked for a few weeks leave to recuperate in Japan. For some reason it was not granted. When he became infected with typhoid, he succumbed at once. He might have been saved. To accept his fate and remain in the midst of disease when he knew he would die if infected, was as brave as to remain on duty in a shower of bullets, knowing that to be struck was death. He died a martyr to duty, but he gets no credit, he isn't a hero. That kind of bravery does not count — only the active kind is military.

It is very evident that these conditions of exhaustion, calling for stimulation, are due to the same causes as in a large class of such cases at home; namely, an abnormally increased tissue-change and insufficient nutrition — wastes greater than repair. At home some men use up their capital of strong tissue by overwork, others are habitually underfed, even though they be millionaires, but in every case the result is the same — collapse. In the tropics we have a powerful cause of increased waste in the continued heat. When a chemist wishes chemical combination to go on more fiercely, he raises the temperature of the combining elements, and we do the same thing in therapeutics. We are informed that every case of sluggish metabolism and defective excretion of waste products is benefited by a course of hot baths at the hot springs in Arkansas. Excessive atmospheric heat does the same thing, and we can well see why it is that chemical changes should go on more fiercely in the tropics, and that so much may be burned up that new arrivals may lose as much weight as thirty or forty pounds in the first few weeks. The more work done, of course, the greater is this loss.

Not only is more heat produced, but there is greater difficulty in disposing of it. We can radiate but little of it because surrounding objects are nearly as warm as our bodies, and nothing can lose heat by radiation unless to cooler bodies.

At home, evaporation of perspiration carries off immense quantities of heat, by that physical law that to change a pound of water to a vapor requires five hundred and forty times as much heat as to raise a pound of water one degree of temperature Centigrade. In the dry western parts of our country this evaporation carries off so much heat that overheating or sunstroke is unknown. In the tropics we cannot evaporate surface moisture because the atmosphere is already saturated. Perspiration collects on the skin and pours off, but does not evaporate. The body heat is retained, and actual observations show that it is possible for the mouth temperature of perfectly well men to be over 100, as high as 101, or even 102 F., that is, in men who have no complaints and no symptoms, who are believed to be free of disease, and have remained well, the fever being accidentally discovered. No wonder then it is necessary for even idle men to take two or three cold baths in a day to remove the surplus heat, and no wonder some men are never comfortable day or night except the hour following a cold bath.

Now, if work is done, there is a still greater production of heat and increased wastes in proportion to the amount of work, so that men who are cool enough while they are idle are overcome by the heat as soon as they exercise actively in the heat of the day. Should disease appear and cause an increase of tissue change, there is fever at once; indeed, fever is almost universal in every disease, and the cold bath to reduce body temperature in disease is an utmost necessity:

Hence we have exhaustion, physical and mental, and particularly the exhaustion of nervous tissue, the basis of neurasthenia, nervous prostration, and other numerous conditions known to physicians, in all of which there is apt to be an instinctive desire for a stimulant, tea, coffee, cocaine, or alcohol. It is a temporary acquired craving precisely similar to that of many periodic or chronic drunkards or to the craving of certain degenerates among tramps, beggars, and criminals, who

are in a condition of congenital nervous exhaustion unfitting them for work, and whose periodic orgies are proverbial. In every case the nervous system cries out for something to lift it out of its depression or inertia. We should expect to find that the nearer the tropics we go the greater will be the consumption of alcohol.

According to the *New York Medical Journal* of June 17, 1899, Dr. Sikorsky of Kief has shown in the *Semaine Medicale*, that it is far from true, as generally believed, that alcohol in concentrated forms is consumed in greater quantities in colder climates, where its harmful effects are supposed to be less, owing to the more active life and greater oxidation of the natives. "According to official statistics, the north Russian drinks from 2.46 to 3.07 liters absolute alcohol per annum, while his brother in the south imbibes no less than 3.5 to 4.8 liters. Yet the deaths from alcoholism show a regular increase northward, being 15 to 22 to the million in the south, 40 in the center, and 70 to 110 in north Russia. Moreover, there is a marked increase of such deaths in specially cold years. Dr. Sikorsky concludes that cold greatly increases, even to three-fold, the toxicity of alcohol, which, as is well known, so far from increasing bodily temperature, acts as a decided anthermic by paralyzing the peripheral vessels and diminishing organic metabolism." Dr. Sikorsky merely reduces to statistics what we have known for years, the danger of strong alcoholic drinks for persons who are to be exposed to cold, and we have correctly assumed that the danger was due to the power alcohol has to reduce body temperature by increasing the loss of heat and lessening its production.

ALCOHOLIC HEREDITY.

I can possibly better illustrate what the term nervous diathesis means by detailing the history of a neurotic family. Its father was a man of vigorous personality, strong of brain, and

in excellent bodily health. From early manhood, in order to more easily accomplish his work, he had indulged excessively in alcoholic stimulants, yet never to the extent of intoxication. The mother was a gentlewoman of delicate, nervous organization, and refined mental temperament, worrying over trifles, excitable, and, at times, suffering from the milder forms of hysteria. A family of eight children was born to them. In childhood high and frequent fevers without adequate cause were observed. Their dentition was frequently complicated by convulsions, and, at the age of two years, epilepsy developed in one of the children. Another child, delicately molded, and extremely precocious, could read at the age of three, and displayed considerable ability as a musician. She was sent to school when six, and was soon regarded as an infant phenomenon, advancing rapidly in her studies. She failed to develop physically, and early suffered from astigmatism. At the age of twelve, owing possibly to a slight fright, she became choreic, improved, relapsed at the end of three months, and finally recovered except for slight habit spasms. A third child, apparently normal and giving but little evidence of any unusual nervous or physical disturbance, yet developed a megrim at the age of sixteen. Another daughter had always shown a certain weakness of body, a poor appetite, digestive disturbances and constipation. Puberty developed late, and the body remained ill nourished. Like the mother she was nervous, and, at times, morbid. An unhappy marriage and the too frequent bearing of children resulted in a permanent melancholia. The oldest boy was fairly bright, but proved decidedly unruly in the school, and refused a university education. He worked faithfully and untiringly, and rose to the head of a large business establishment, manifesting no bodily or mental peculiarity. The second son was excellently endowed. At an early age he exhibited marvelous activity, rapidly passing through the various grades of the common schools, and entered the university when barely sixteen. His

university course was most brilliant. He was the honor man of his class, was an excellent debater, and led in religious work. What was given him to do he did well, but his mentality was one of doubt, and he could not decide upon his life work. He went to Harvard for a post-graduate course, then to Germany. While there he found brain concentration impossible, worried much over trivial affairs, and became very despondent. There soon developed serious stomach derangements, and he suffered greatly with intestinal dyspepsia. He returned to his home depressed, overwhelmed with morbid fears, incapable of prolonged mental efforts, and remains a confirmed neurasthenic. Another son, with very much the same history, studied law, rose rapidly in his profession, and, except for occasional dipsomaniac outbreaks, is fairly successful. The fourth son was not bright, took but little interest in his studies, shirked when possible, left school at an early age, consorted with evil companions, and seemed unable to comprehend his moral delinquencies, wandered from place to place, gambling and dissipating, and finally became a confirmed criminal. In this family group only one became insane. The reason for this development the family could not possibly conceive, honestly denying insane heredity, yet every member of the family, except one, presented either physical or mental stigmata of degeneration.—Dr. Robertson in the *Occidental Medical Times*.

REPORT OF WASHINGTONIAN HOME.

The forty-second annual report of the Washingtonian Home, Boston, Mass., for the year ending April, 1900, shows a very gratifying progress. Five hundred patients have been treated during the past year, and the bank account shows a good balance. Several very important changes have been made. Dr. Ellsworth, the well-known superintendent, devotes a large part of his annual report to the popular and moral side of the

drink question. The following are some very striking extracts:

“ It is said that even moderate drinkers, by the time they are fifty or sixty years old, have drunk up several farms, a profitable business, and a pleasant home. It is claimed that the loss of property by this cause is more than it costs us for schools, churches, charities, and missions. Drink is responsible for most of the crimes for which men are tried and sentenced. There is no doubt but that alcohol has destroyed more lives, directly and indirectly, than any other poison. It perverts the moral sense, dulls the intellect, and deadens the conscience; it produces diseases, and causes insanity; but not alone does it affect the users of spirituous liquors themselves, but its dreadful evils are handed down from parents to children to the third and fourth generation.

“ A presiding judge of one of the Chicago courts, in speaking of the evils of alcoholic liquors, recently said: ‘ You may ransack the pigeon-holes all over the city and country, and look over such annual reports as are made up, but they will not tell half the truth. Not only are the saloons of Chicago responsible for the cost of the police force, the fifteen justice courts, the Bridewell, but also the criminal courts, the county jail, a great portion of Joliet state prison, the long murder trials, the coroner’s office, and the madhouse. Go anywhere you please, and you will find almost invariably that whiskey is at the root of the evil. The gambling-houses of the city and the bad-houses of the city are the direct outgrowth of the boon companions of drink. Of all the prostitutes of Chicago, the downfall of almost every one can be traced to drunkenness on the part of their parents or husbands, or drunkenness on their own part. Of all the boys in the reform school at Pontiac, and in the various reformatories about the city, ninety-five per cent. are the children of parents who died through drink or became criminals through the same cause. Of the insane and demented disposed of here in the court every Thursday, a

moderate estimate is that ninety per cent. are alcoholic and its effects. I saw estimated the other day there were 10,000 destitute boys in Chicago, who are not confined at all, but are running at large. I think that is a small estimate. Men are sent to prison for drunkenness, and what becomes of their families? The county agent and poorhouse provide for some. It is a direct expense to the community. Generally speaking, these families go to destruction. The boys turn out thieves, and the girls and the mothers generally resort to the slums. The sand-baggers, murderers, and thugs generally of to-day, who are prosecuted in the police courts and in the criminal courts, are the sons of men who fell victims to drink. The percentage in this case is fully sixty-five per cent." He says: "I know whereof I speak."

And yet, in the face of all this, there are men who boast of their ability to indulge in strong drink, and seem proud to have it said of them that they can carry a larger load of liquor than the majority of men. Even while one is boasting of his freedom in transgressions of nature, he is being ground to powder in nature's relentless mill wheels. Alcohol makes people self-confident; very often the drinker of intoxicants is the last person to realize how much he is under the power of liquor. When once the stomach develops an abnormal craving for artificial stimulants, the process of down hill is begun, and there is a bottom to every hill.

It has long been proved that health has nothing to gain by the use of even a minimum quantity of alcohol, but that, on the contrary, it can only be injured by it.

Some one has said that "A saloon can no more be run without using up boys than a flouring mill without wheat, or a saw-mill without logs, — the only question is, whose boys, yours or mine, our boys or our neighbors?" If we are to have drunkards in the future, they must come from our boys to-day. I regret to say that the drinking customs of society are largely responsible for the downfall of many young men.

The greatest difficulty we have is in the social intercourse of life. We must keep up a continual warfare against these social customs, and in just so far as we can succeed in breaking in upon them can we ever expect any permanent reform.

The time is fast approaching when it will be difficult for the intemperate man to find lucrative, honorable employment. Many of our great railroad companies, manufacturing and mercantile establishments are making total abstinence a condition of employment. This is the result of no fanaticism. They doubtlessly are not actuated at all by any moral considerations, but look at the matter from a purely business standpoint, as they know from experience that it is not safe to trust work or business to heads muddled and hands made unsteady with liquor. A man has to be at his best to answer the requirements of to-day, and to meet the competition of his fellow men. He can't do it if his body is soaked and his brain benumbed with alcohol. So not only does it accord with good morals, but with good policy to be a total abstainer.

Since last December we have been holding temperance meetings in our chapel every Sunday afternoon under the auspices of the Independent Order of Good Templars. Most excellent speakers and music have been furnished each Sunday. In addition to the Sunday meetings, we have also held some week-day evening meetings. A great many have been induced to sign the pledge. Good seed has been sown, and we trust has taken root, and will spring up and bear good fruit. Let the good work go on. The Independent Order of Good Templars is a great organization; there are over one million men, women, and children enlisted under its banner. I will not undertake to enumerate the many other societies and unions that have been organized and are working for the suppression of intemperance. Suffice it to say that the world is banded with workers to annihilate this demon, Alcohol. While we are not all working on the same line, we are all working for the same end, and our hearts are strung to the same tune. Books and pamph-

lets without number have been written on the temperance question. It has been presented in all its forms and aspects,—the moral, physiological, financial, political, and scientific. There is a greater willingness on the part of the people to read upon the subject, and a more general investigation of the nature and effects of alcoholic liquors. The standard of temperance sentiment, intelligence, and liberality has been raised, and people who do not as yet fully enlist have more correct views of the character of temperance work and greater respect for its measures.

The number of delirium cases treated during the year has been thirty-eight. Of the five hundred patients admitted, three have died, and four hundred and seventy-seven have been discharged. One hundred and sixty-eight have been restored, and have regained their health; two hundred and eighty-seven temporarily recovered; forty-two very little or no improvement.

ALCOHOL IN PRE-NATAL LIFE.

The *Philadelphia Medical Journal* has the following: “For a long time it has been considered a settled fact that when certain drugs are taken by the pregnant woman, they pass into the circulation of the unborn child; and there has been plenty of evidence that drugs taken by nursing women may appear in their milk. In spite of the general interest in the alcohol question, we are not aware that much has been done either by temperance enthusiasts or their opponents to try to determine definitely its effects on the infant or child *in utero* when taken by the mother. The recent investigations of Nicloux (*La Semaine Médicale*, December 20, 1899, and April 4, 1900,) are of much interest in this connection. Nicloux administered a ten per cent. solution of alcohol to pregnant guinea pigs in definite amounts per kilogram of body weight; after sufficient time had elapsed for absorption to take place the animals

were killed, the blood of the mothers and the young was collected, and the percentage of alcohol estimated. The milk of the animals was also collected and tested for alcohol. In this way Nicloux was able to demonstrate definitely that alcohol ingested by the mother passes through her own blood directly into the blood of the young, and into the milk, and the percentages present, though not exactly equal, are approximately so. These experiments, with their positive results, Nicloux believes permit the assumption that there is a definite form of alcoholism.

From what we know of the effects of certain diseases of the mother on the child *in utero* — notably syphilis — it seems likely that Nicloux's conclusions with regard to congenital alcoholism are well grounded. Quite probably a considerable number of the sad cases in which men and women seem to be born with a terrible unconquerable appetite for strong drink, have such congenital influences as their direct cause.

Another influence, possibly nearly as potent as congenital influence, is that of the habits of infancy, and of early childhood. In this country fortunately it is not very customary to give little children alcoholic beverages, but among certain classes there is another custom quite as dangerous: that of using soothing syrups or drugs. Many a hard-working woman feels that she has not time to take up and tend her half-ill, fretful child, and she gives it a dose of paregoric or of some patent soothing syrup containing opium. Probably in many cases the fretfulness of the child may arise from the poor condition of the mother's milk as the result of hard work and overheated blood, and quite likely she takes a glass of beer or ale to keep up her strength, and alcohol is also taken through the milk as Nicloux has shown. If the mother cannot nurse her child, some poorly prepared artificial food is given, and the soothing syrup quiets the pain of the colic of the resulting indigestion. But this state of affairs is not entirely among the poorer classes; of course the society woman cannot think of

nursing or caring for her child, and while the nursemaid is gossiping with the cook or the coachman the baby is kept quiet with soothing syrup. When we realize how common are these conditions can we wonder that alcoholics and drug-habitues are numerous? .

Certainly the physician should consider all the possible effects of his prescription before he orders alcoholic or narcotic preparations for pregnant and nursing women, or narcotic drugs for infants. But there is also need of effort to remedy some faults of our civilization which make it necessary for the poor woman to overwork, and which render the care and nursing of her child distasteful to the wealthy woman. No doubt it would also be well if there were more strict legislation with regard to the sale of soothing syrups and narcotic drugs. Until these and many other changes are made it seems unlikely that there will be any great decrease in the prevalence of drunkenness.

THE HOMILETIC REVIEW. An International Monthly Magazine of Religious Thought, Sermonic Literature, and Discussion of Practical Issues. Funk & Wagnalls Co., New York.

The July number opens with a review of the Ecumenical Missionary Conference, held in New York in April, by the secretary of the Presbyterian Foreign Missionary Board, which is an interesting summary of that great gathering, and points to the thought that "there must be a science of missions."

"The Automatic Judgment Seat in Man" is the title of the sermon preached in Plymouth Church by its Pastor, Dr. Hillis, and which led to his withdrawing from his denominational connection.

"Reflections on New Testament Interpretation" by Prof. Wolf are emphatic concerning the comprehensive study of the scriptures, working from the general to the special, and the

application of interpretation only from a wide view of the scope of the whole.

These are a few of the representatives of the different departments into which this the first number of the fortieth volume is divided.

THE HYGIENE OF TRANSMISSIBLE DISEASES. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania. W. B. Saunders, Publisher, Philadelphia, Pa., 1900. Price \$2.00 net.

This volume of 303 pages will be read with interest by the medical profession. Several authors have written on this subject, but this volume gives us a clear idea of the latest methods and means used for the prevention of disease.

The grouping of the different subjects and diseases is clear and scientific. He outlines in a clear way the causation, modes of dissemination, and prevention of special diseases.

The chapter on prophylaxis in general and precaution in the care of communicable diseases is especially good.

It also deals with the important and practical part of sanitary laws which every physician who has the welfare of the community at heart should know.

This volume is printed in clear type and on good paper, and makes a very valuable and practical addition to a physician's library.

ANNUAL ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and One Hundred Associate Editors, Assisted by Corresponding Editors, Collaborators, and Correspondents. Published by the F. A. Davis Company, Philadelphia, New York, and Chicago.

The fifth annual volume of this work is at hand, and cannot be spoken too highly of. As some of the best writers of the

day have been engaged upon it, we cannot but help find it an interesting volume. As it involves almost every specialty of both medicine and surgery it shows that its able staff of assistants has prepared a very arduous work. The article on "Morphinism" by Dr. Kerr is a piece well worthy of notice, and cannot help but be appreciated. The article on "Opium and its Derivatives" is another article especially worthy of our notice. It shows a clear and scientific aspect on the part of the author. Other articles too numerous to mention, and in fact the whole volume is well worthy of our close attention, and will be read with eagerness by all physicians who desire to become familiar with the latest researches in medicine and surgery.

The alarm expressed by the *New York Medical Journal* that the effects of alcohol should be the subject of extravagant overstatement has a familiar, far-off sound of a century ago. An instance is given, as an example, which appeared in the *JOURNAL OF INEBRIETY*, concerning the degeneracy of the family of a moderate drinker. Every city and almost every town in the country contains examples far more significant than this one, in which the effects of alcohol are clearly traceable in the defects of the children. It is practically impossible to overstate the damage and injurious influence of alcohol, and the old caution of a century ago is lost in the light of recent scientific investigations. The fear now is of understating and minimizing the dangers from alcohol by clinging to the worn-out delusions of alcohol as a tonic and food.

In 1898 seven hundred and thirty-five inebriates were admitted to the Philadelphia Hospital for treatment. Twenty-two of this number were kept in the detention ward, and, finally, sent to the insane department. In the women's department four hundred and thirty-seven were classed as alcoholic and detention, the latter name meaning that they were detained on the suspicion of mental trouble. Among the causes of insanity of all persons in the insane department, alcoholic excess and complications are the largest. Seventy-five are noted in a table of five hundred and ninety-eight.

Editorial.

DELIRIUM TREMENS AND PNEUMONIA.

The sudden appearance of delirium in persons who use spirits to excess or in moderation, should suggest a careful examination of the lungs to ascertain the presence of pneumonia. If the delirium should increase and develop the characteristic symptoms of delirium tremens, the possibility of pneumonia also increases. In many cases pneumonia is not recognized until the last stages and a short time before death, and yet it has been coincident with the first outbreak of the delirium. The sudden appearance of delirium in a moderate drinker, with high temperature, comes frequently from pneumonia. The obscurity of the diagnosis should increase the vigilance of examination and the expectation of finding this lesion of the lung. Delirium of an active, busy type, associated with muscular trembling and delusions of fear and injury, also sudden profound delusions of a melancholic form are often associated and seemingly come from pneumonia. Alcoholic tremens and delirium tremens often end fatally from pneumonia. A careful examination would have revealed pneumonia at the beginning, it having been masked by the mental symptoms, and only recognized in the last stages. Cough and sputa are often absent, and only increasing areas of dullness with obscure râles are noticed. The delirium of persons who use spirits in any form can not always be differentiated from that which appears in pneumonia. In the former hallucinations are more prominent, but when they are associated exhaustion is very marked. In the treatment no form of spirits can be given with safety. The old treatment by spirits to prevent collapse is

fatal by adding new toxins and lowering the vital forces beyond the point of recovery. No form of delirium in a drinking man should ever be treated with spirits. Eliminative measures and nutrients are called for. The fatality of many cases of pneumonia among drinking men is traceable to the delusions of the tonic and stimulant action of alcohol. In delirium tremens the treatment still urged to give spirits to prevent exhaustion, and the same advice in pneumonia to avoid collapse, is almost always fatal. If the latter occurs in previously drinking men all forms of spirits are to be avoided. In delirium tremens all spirits must be withdrawn at once. The conditions present are those of starvation and poisoning, and spirits are not only poisons but create sources for the formation of other poisons. The mortality from delirium tremens and pneumonia will be greatly reduced by a clearer recognition of the causes, and a more rational application of means and measures of treatment.

THE WORLD'S CONGRESS.

The World's Temperance Congress at London from June 9th to 16th seems to have been a remarkable and quite an unusual event, both in the numbers of persons present and the unanimity of sentiment as to the evil, and the method of reaching it. The Archbishop of Canterbury presided, and prefaced his address by the following characteristic message, which deserves a very wide study:

“The temperance cause is especially distinguished by this characteristic, that though it has moved, and is still moving very slowly, it has never yet gone back in its steady progress. It has won its way in science, in religion, in politics, in general public opinion. It has not yet achieved a final triumph, but it has silenced most of the objections which long hindered its advance; it has made ridicule ridiculous; it has reversed the arguments founded on what is necessary for health, for steady

labor, for long life; it has put an end to the charge of an eccentricity; it has compelled a great trade to admit that the fruits of that trade as now carried on are a gigantic evil; and the one argument that still holds its ground that the use of intoxicants contributes to human enjoyment is beginning to lose its force as we contrast the misery of the home of the drunkard with the happiness of the home of the sober.

“But there still remains one enemy to be encountered that is much more difficult to deal with than all the enemies we have encountered, and that is the indifference of men in general, and even of very good men, to the duty of helping our fellows who have yielded, or are in danger of yielding, to this most terrible temptation. To those who have studied the subject it is a cause of unending astonishment that there should be so many to pass the whole matter quietly by.

“We earnestly appeal to all who have any sense of duty to look into the question for themselves, and then decide whether they can disregard it any longer. There are undoubtedly other sins which may be pronounced more mean, more polluting, more deadly, but assuredly no other so terribly mischievous. Look, we beseech you, and judge, and then ask your conscience whether it is possible to stand aloof, and leave the evil to take its course.”

The address which followed was a strong statement of facts which were enthusiastically received. Delegates were present from nearly every country of Europe and America, fully justifying the name of “World’s Congress.” Great attention was given to the history of the temperance efforts in the different countries. Statistics were presented showing the result of these efforts, and the work which had been done along philanthropic and sociological lines. The English Medical Temperance Society gave a reception in which all the medical men and teachers were gathered together. The London Temperance Hospital attracted a good deal of attention, and the question of teaching the danger of alcohol in the common

schools was discussed with some enthusiasm. A large number of medical men were present, and the scientific side of alcohol occupied a considerable place in these discussions. The seven days of meetings seem to have been very fully occupied. One of the days was Sunday; in which nearly all the clergymen of London preached sermons appropriate to this occasion, and altogether the enthusiasm seemed to have been greater than ever before. The transactions are to be published containing all the papers read, from which one can get a better idea of the value of this movement. There can be no doubt that this immense gathering is significant of a great revolution of public sentiment over Europe, and the time is not far distant when the popularity of efforts in this direction will attract great masses. Great credit is due to our English friends in conducting such a meeting, and thus giving expression to a growing sentiment in all civilized countries of the need of some more stringent efforts to check this, the greatest evil of the age. We shall hope to be able to publish some of the papers read on this occasion.

PERSONAL FACTORS.

For twenty-five years I have been intimately associated with the controversies which have gathered about the alcohol and the inebriate question. The personality of the critics who have taken such a deep interest in this subject would furnish a chapter of many curious and startling incidents. Nearly all of the early critics who in the fifties and sixties were aggressively violent in their condemnation of the disease theory of inebriety and the poison of alcohol, have disappeared. Some of them became spirit and drug takers, others suffered from inebriety in their families. The former passed unnoticed, and the latter became converted to the modern theory, and were warm defenders of what they had denounced at one time. One man who fanatically condemned all efforts to study the

subject of inebriety scientifically and wrote of the promoters as mercenary enthusiasts, died in poverty due to the inebriety of his son whom he had brought up to drink moderately and as a gentleman. A physician who on all occasions denounced our society and its journal and urged the food value of alcohol, died of alcoholic rheumatism, and left two sons inebriates and degenerates. A clergyman who wrote and spoke eloquently against all efforts to consider inebriety as a disease, calling it rank materialism, died from an accident caused by his son's inebriety. Still another man who at one time was very vindictive in his criticism is now in an old people's home, having lost his fortune through the errors of a drinking family. This list might be extended, not all having such a tragic ending, but all in some way or another suffered from the strange theories which they urged. Others who have become prominent as opponents to all studies of alcohol and inebriates, have been found to be wine and beer drinkers at the table, or users of spirits for medicinal purposes. Other persons of this class have at some previous time used spirits to excess, and then for some reason abstained. From this experience they draw broad conclusions, and assume that all can follow them. Still another class are secret or occasional users of spirits in whom morbid egotism grows continuously and who assume that they have will power and strength for all occasions, and that others could have the same by using it. Another class of critics are frequently descendants of moderate drinkers or inebriates who are practically immune. They have a constitutional aversion for inebriety, but deny that alcohol is a poison and that inebriates are sick and diseased. Such theories are usually fatal to their families, which in the most cases develop inebriety. The critics who welcome all theories of the food value of alcohol, and condemn asylum efforts to restore the inebriate, exhibit personal decadence and fatal idiosyncracies. The learned committees of moderate drinkers who try to evolve some theory in accord with their own convictions and

personal habits belong to this same class. The pessimist and the egotist who assume to know all about the nature of alcohol and the fallacy of disease from intuition and slight observation and who denounce others who differ from them as cranks never do any good work for science or philanthropy. Here as in other departments of science those who are least acquainted are the most authoritative and pronounced in their opinions. Beyond this there is a large number of men who talk very freely of these problems, who are in some way interested financially in the property used for the sale of spirits or in the manufacture of products which enter into its use, or they are dependent and caterers for the saloon influences, hence they are apologists and opponents of every effort to point out the dangers from this source. With very few exceptions all the opponents and doubters of temperance and scientific work, who, if conscientious and earnest from a larger knowledge, soon become its warm supporters. The "gold cure" specifics for a time roused great expectations among the credulous, who thought the time for a great revolution was at hand. The failure of such expectations has driven them back to the army of doubters. The personal element in all these cases is so pronounced that it often becomes the key which reveals the value of the criticism or endorsement. Fortunately public opinion is rapidly supporting the disease theory of inebriety and its curability; also scientific experiment is bringing additional proof of the poison of alcohol and its damage to the human system; hence the objectors and critics are disappearing or becoming more and more conservative in their controversial work.

ALCOHOLIC INSANITY.

The classification under the head of alcoholic insanity of all cases whose mental trouble has been preceded by a drink

period is misleading. In a recent report of an asylum whose officers are distinguished in the study of psychiatry the following cases were designated as alcoholic insanity.

An overworked business man who had always been an abstainer suddenly became an excessive user of spirits. Two months later acute mania developed, and he went to an asylum. The second man used wine and beer at the table in moderation for years. After the sudden death of his wife he drank to stupor, and continued it daily for six weeks, when acute dementia appeared; and he was taken to an asylum. The third case was that of a hard-working lawyer, who abstained from spirits, but ate to great excess. Suddenly he began to use strong spirits to intoxication, and became delusional, and was placed in an asylum.

In each of these cases the use of alcohol was only a symptom of brain disease.

In a case which was placed under my care of a temperate man who began to drink to great excess, and became delusional, an active mercurial and eliminative treatment soon restored him. This was not due to any alcoholic insanity, but some old specific trouble which provoked the alcoholic impulse, and when this was removed he recovered.

Without doubt a certain number of the insane are erroneously classed as alcoholic. When the use of alcohol is only a symptom, the question of treatment might vary materially. The removal of spirits and isolation of the case in an asylum is not curative; other means directed to the particular causes are essential for permanent cure.

The meeting of the American Medical Temperance Association at Atlantic City was the occasion of a new interest in the alcoholic problem. We have published Dr. Davis' address in this number, and shall follow with other papers of much

significance. The subject of alcohol and opium-taking was the theme of fourteen different papers read in various sections, all discussing some injuries following from the use of spirits and drugs. The absence of wines and stronger spirits at the ordinary banquets and receptions indicates a decided change in public sentiment. On occasions like this the inebriate doctor who is often present is very careful not to display his weakness, hence, it is becoming the exception to the rule to see any physician under the influence of spirits in public. Twenty years ago at almost every meeting a number of physicians were prominent by their drinking. — now this is rarely seen. The statement that more physicians use opium than other professional men cannot be verified at these great public gatherings, probably because the drug-taker does not attend.

A semi-annual meeting of our Association will be held at Ardentale Asylum, Greenwich, Conn., July 17th. The object is to create more interest, and try to raise the standard of our asylum work. A large number of institutions in the neighborhood of New York and other cities receive inebriates and treat them without any distinctive theory of the causation. Abstinence from spirits and some general tonic, or, perhaps, a strychnine specific, comprises all that is done. A better organization and study of the literature of the subject will give greater facilities for successful treatment. If our Association could have a local organization with more frequent meetings, it would be mutually beneficial. At a meeting of the executive committee Dr. J. J. Wagner, superintendent of the Ardentale Asylum, Greenwich, Conn., was made secretary, and Dr. Crothers was transferred to corresponding secretary. A series of meetings are to be arranged for during the coming fall and winter, and it is hoped that the subject has now attained such interest as to attract numbers of the younger men.

Clinical Notes and Comments.

THE TRANSMISSIBILITY OF MORPHINE.*

BY MAGNUS A. TATE, M.D., CINCINNATI.

The history of the case I present to you has many interesting features, which from a scientific standpoint will bear careful study. The meagre literature upon the subject of the transmissibility of morphine from the nursing woman to her infant is very unsatisfactory, and the report of three cases — two I find upon perusal of text-books and current literature, and that of my own case — gives us little ground to base good statistics upon the subject in question. I quote from Holt (New York) part of the following statements. The elimination of drugs through the milk is somewhat uncertain and variable. The large proportion of those popularly supposed to influence the child when taken by the nurse have no effect whatever. The effect of drugs is noticeable when the milk is very poor in quality, it being at such times more of an excretion than a secretion. This is seen during the early colostrum period, also during the illness of the nurse, or when from various causes, mental or physical, the secretion becomes disturbed. The more important drugs affecting the child through the milk are the following:

Belladonna: Effect constant.

Potassium iodide: Effect not uniform.

Potassium bromide: Effect not uniform.

Mercury: Effect very feeble and only after prolonged

* Read before the Cincinnati Obstetrical Society, October 18, 1906.

administration. Barnes makes the following statement, that syphilis in the infant may be cured by medicinal treatment through the breast milk.

Saline cathartics: Effect not constant, while I find elsewhere stated the frequently observed laxative action upon the child of salines or of compound licorice powder administered to the mother, is sometimes utilized for the benefit of the infant.

Quinine: Burdel reports a fatal illness in an infant whose mother had been cinchonized, and he advises withholding the breast until the milk containing the quinine is withdrawn.

Arsenic: Effect shown if given in sufficient quantity.

Salicylates: Effect shown if given in sufficient quantity.

Opium: Effect inconstant, although it is possible, where the milk is poor, for toxic symptoms to be produced when full doses are given to the mother.

CASE I. Dr. Holt (New York) mentions a case where the infant died about the fourth day, morphia being transmitted through the milk.

CASE II. Dr. F. B. Earle (Chicago). Child died on the third day, morphia being transmitted through the milk. Mother, a morphine fiend, took eight to fourteen grains daily.

CASE III. Mrs. W., aged thirty-three, married at the age of twenty-two. Six months after marriage aborted at the third month.

Second pregnancy: Child born at full term after a long, tedious labor, but died at the age of ten months of cerebrospinal meningitis.

Third pregnancy: Aborted at the third month; claimed this was brought on by hot vaginal douches (?). This was followed by an attack of pelvic peritonitis, for which the physician gave tincture of opium until pain was relieved. This was the beginning of the constant use of opium in her case. Patient then secured a position as saleswoman in a dry-goods store, working from early morning until late at night, and she

took laudanum constantly, until she had increased the dose to two or three teaspoonfuls.

Fourth pregnancy: Aborted at the third month, due to a fall (?), and had a bad flooding spell at this time.

Fifth pregnancy: Aborted at the third month, due to a fall from a stepladder.

Sixth pregnancy: This time she went to full term and gave birth to healthy child, which is living to-day. Labor perfectly normal. Nursed this child for six months; constantly used laudanum, but in smaller doses, the amount two to three teaspoonfuls in twenty-four hours. The seventh month weaned the child and then substituted morphine (beginning with three grains daily) for laudanum. The dose of morphine was constantly increased, alternating with large doses of paregoric. Her unfortunate husband placed his wife in various institutions, but the improvement was only temporary. The day she left the last institution she took twenty grains of morphine, and whisky galore, and nearly died from an attack of delirium tremens.

Seventh pregnancy: Four years after birth of her child she became pregnant again, but miscarried at the third month. At this time she was taking ten to forty grains in twenty-four hours.

The above history we procured from patient at intervals, and from her husband, who was a medical student.

Eighth pregnancy: Patient entered the Ohio Maternity Hospital for delivery in April, 1898. History of pregnant state: Has never vomited, which I consider a remarkable feature; appetite good, bowels very constipated. Height, 5 feet 4 inches; weight, 160 pounds; color of face, that of a perfectly healthy woman, and her pupils were little, if any, contracted. At this time she was taking from forty to one hundred grains of morphine in twenty-four hours.

Pelvic measurements externally were normal. Between spines, twenty-seven centimeters; between crests, twenty-nine

centimeters; between trochanters, thirty-one centimeters; between external conjugate, twenty centimeters.

Internal examination: A capacious vagina, and the promontory of the sacrum could not be felt. Position L. O. A. and a vertex presentation; heart in left lower quadrant and souffle marked.

Labor pains began May 16, 1898, at 2 A. M.; pains very severe. One nurse detailed to watch her every movement, so that she would not take any more morphine than prescribed. Dilatation very slow. Morphine given to her three grains at a time every hour and a half. Os fully dilated at 5 P. M., but the head would not engage in a firm position. At 9 P. M. a high-forceps operation resorted to and child delivered with much difficulty. The placenta delivered in twenty minutes, this followed by a marked post-partum hemorrhage, which was controlled with some difficulty. Patient rallied and made a good recovery.

Child's history: Born on May 16, 1898, at 9.20 P. M. Male; weight, 8 pounds 9 ounces; length, 52 cm. Head measurements: Occipito-frontal, 12 cm.; occipito mental, 14 cm.; biparietal, 11 cm.; suboccipito-bregmatic, 11 cm.; fronto-mental, 8 cm. Slight facial paralysis, which interfered some with nursing for a few days. Mother had an abundance of milk.

May 17, 1898. Child nurses without much difficulty, as the milk flows so readily.

May 18. Child's condition good, sleeps all day.

May 19. Child's condition good, but very drowsy. Great difficulty in arousing it to nurse.

May 20. Weight 8 pounds and 5 ounces; so drowsy had to put the child in a bath to arouse it, and then with difficulty.

May 21. Condition unchanged.

May 22. Child very drowsy. Respirations slow and measured, pupils very small, pulse very weak. A 11 o'clock that night child had a severe convulsive seizure and passed away.

The test (for the detection of morphine in a suspected fluid) that I resorted to was that of Kalkbrunner. This test I made before the Obstetrical Society some two months ago. Kalkbrunner makes two solutions: No. 1, crystallized ferric chloride, gr. 30; H_2O , 3 iv; No. 2, potassium ferricyanide, gr. 2; H_2O , 3 iv. Take the suspected fluid, add five or six drops of No. 1, then add three or four drops of No. 2, and if morphia is present the color will change to a pale green or to a deep blue, depending upon the amount present. If no morphia be present the color turns to that of a dirty gray.

May 24. Child in ward not doing well, thirteen days old, losing weight daily. I determined to see the effect this woman's milk would have upon this child. At the end of the first day the weight of the child same as yesterday, and a steady gain followed each day as long as we kept child to breast. Child soon became drowsy and with difficulty aroused by the nurse. This infant removed from the breast and I put another one on her milk, but after two nursings this infant became so drowsy we did not try it again. May 28 and June 1, test gave us morphine in milk. June 10, patient's condition was so bad from morphine and whisky that we decided she had better go to the City Hospital. She refused, but the following day was taken there on the verge of delirium tremens. The second child lived until it was four months old, when it died of malnutrition. The third child left the hospital in good condition. We were never able to satisfactorily account for her source of this unlimited supply of morphine unless it was sewed in her clothes.

GENERAL REMARKS.

A confirmed morphine user is known by pallor, emaciation, and contracted pupils. In my history you notice none of these symptoms were present. Passouer has demonstrated that morphia constantly used may produce an atrophy of the genital organs. No such result existed in this case.

Elimination. — Drug probably eliminated by skin (Phillips). Large doses can only be found in the urine, small ones

are undetectable (Eliasson). Morphia is eliminated chiefly by the bowels, to a small extent by the kidneys, and still more slightly by the saliva (Wm. Murrel). Rapidly absorbed, is eliminated chiefly by the gastrointestinal mucous membrane and very little by the kidneys. When large doses are given morphine may be found unchanged in the urine. It is also excreted in the bile, milk, and to some extent by the sweat (Butler). Morphia passes away partly by the urine, may pass out through the milk so that a child at the breast may be dangerously affected by opium given to mother (Ringer). Elimination by way of intestines and kidneys, but most of it destroyed by oxidation in the liver and tissues (Hare). Elimination by skin and kidneys, may be found several days afterwards in the urine (Biddle).

All of the above remarks on elimination are from text-books supposed to be based upon experimental research, and you notice the variety of opinions, and only two out of six mention that morphine may be transmitted, and only one of our modern text-books alludes to it.

In reviewing the history of this case many important obstetrical and medicinal points present themselves for examination, which I will consider in a brief manner:

1. What effect does morphine have upon a pregnant woman?
2. What effect does morphine have upon labor?
3. Does morphine predispose to post-partum hemorrhage?
4. What of the transmissibility of morphia from mother to child?

These questions I will try to answer from a clinical standpoint, supplemented by a careful perusal of the literature of the subject in question. Morphine in small doses to a pregnant woman who is in a healthy condition will not affect her differently than if she were not pregnant. The effect of small doses given constantly will sooner or later produce a marked effect upon the gastrointestinal system, and this in turn followed by a train of nervous phenomena, which may not only

seriously affect the health of the patient, but that of the fetus, and an abortion or premature labor result. The taking of large doses means danger to life of not only the patient, but that of the fetus, although this not strictly borne out by the history of my case.

The effect of morphine given hypodermatically, grain $\frac{1}{8}$ to $\frac{1}{4}$, to thirty women after labor pains were good and strong, and os dilated nearly to the size of a quarter, was as follows: During the first stage the pains were reduced in frequency, became lighter, and in eight cases ceased from one to two hours. During the early part of the second stage the effect was not constant in a few cases pains were lessened in force and strength, but in no case did they cease. In the second stage proper, no effect whatever. In two cases where the cervix was rigid and unyielding, the effect of morphine (acting upon the muscular fibers of cervix) was that of relaxing and softening, and labor terminated normally.

Does morphine predispose to post-partum hemorrhage? The patient being in good health and strong physical condition, the presentation normal, I unhesitatingly say that a dose generally prescribed, grain $\frac{1}{8}$ to $\frac{1}{4}$, will not predispose to hemorrhage. In my case the hemorrhage was due to uterine inertia, long labor, and diminished vitality, due no doubt to some extent to the morphine, but the dose taken was many times that prescribed and taken continuously. In the thirty cases above mentioned there was not one of post-partum hemorrhage.

The last question and my conclusion as to the transmissibility of morphine may be answered as follows: Small doses of morphine taken by the mouth may not be, and generally are not, discovered in the milk of the nursing woman, because the clinical evidence is not strong enough to point to the source of the existing evil. Large doses produce such marked symptoms in the infant that it seems rational to make the statement that morphine, if taken in sufficient quantity by the nursing woman, will readily be transmitted to the infant.—*Cincinnati Lancet-Clinic*.

It was shown by Professor Kraepelin's own experiments that under the influence of alcohol the force of voluntary cerebral discharges inciting to movement is increased, while the peripheral muscle itself becomes fatigued more quickly than under normal conditions. Similar experiments with caffeine showed that the latter really increases endurance. Alcohol makes easy the cortical liberation (*auslösung*) of movements, the transformation of ideas, and memories of movement into deeds, but does not confer real mental power. The injurious after-effects of alcohol last as long as ten hours. The subjective feeling of power and strength is due to the facility for liberation of movements from the cortical areas above alluded to. The continued use of alcohol from day to day — at the rate of sixty grammes per diem — decreases mental ability gradually and makes it sink. The consumption of eighty grammes of alcohol — equal to that contained in two liters of beer — causes the ability for work to sink from the fifth day onwards. If the use of alcohol is then discontinued the intellectual power begins to rise again toward its original level, but by reverting to its use the intellectual power begins to sink more rapidly than before.

The results of all the experiments made convinced Professor Kraepelin that alcohol, instead of being a real friend, is a most untrustworthy comrade. — *The Lancet*, Nov. 18, 1899.

ALCOHOL IN INFANCY AND CHILDHOOD.

Dr. Henry Koplik has uttered a very necessary warning against the abuse of alcohol in the treatment of various diseases, but especially in acute gastro-intestinal disorders. As he says, parents are directed to give small quantities of brandy or whisky, and “the mothers in their helpless ignorance overdose their children, adding the condition of alcoholic stupor to the weakness resulting from the effects of illness.” For, short of producing actual stupor, the alcohol may yet have a most in-

jurious influence, for infants and young children bear it badly. It produces a condition of mingled apathy and restlessness — apathy to surrounding circumstances, and a dislike for food, combined with constant peevishness and ceaseless shifting of position, whether in bed or in the nurse's arms. Alcohol here, then, has the effect of increasing the exhaustion which it is intended to relieve. Its withdrawal is often followed by immediate alleviation, and the child sinks into a quiet sleep. The habitual use by children of alcoholic beverages is also much to be deprecated. It is capable of producing in them precisely the same injurious effects on the viscera. Many cases of cirrhosis of the liver are on record in quite young children, and Jakob has recorded recently the case of a boy five years old, who had been in the habit of drinking a great deal of wine and beer, latterly at least two liters a day! and who was the subject of acute alcoholic neuritis. He was attacked with rapid paresis of the inferior extremities, and on examination the iliopsoas, quadriceps, adductor femoris, and glutei, were found affected on both sides. Simple atrophy existed without the reaction of degeneration being detected. From the commencement there was an absence of general and cerebral symptoms, but there was very sharp pain in the legs, so that movement and direct pressure gave rise to great pain. With rest and nursing he recovered in twelve weeks. At the age of two years the child had had an attack of ascites, from which he rapidly recovered. — *British Medical Journal*.

DAMAGE FROM ALCOHOL.

Dr. Herschell of London, in his recent work on "Health Troubles of City Life," writes as follows of alcohols as stimulants:

"Stimulants never increase the natural capacity of the brain. They can only abstract for the purpose of work in hand some of the energies which are sorely needed to repair

and restore a brain which has already been taxed to the furthest limit which is consistent with health. To remove the sense of fatigue caused by overwork by the consumption of alcohol is to close one's ears to the voice of nature. The weariness of the brain is a protest against further exertion until recuperation has been obtained by rest; and if the weary feeling is deadened or destroyed by adventitious means nature will exact her penalty.

“When the overworked man of business having been on his legs all day, and feeling fit to drop, with a sensation of ‘all-goneness’ about the region of the stomach, rouses himself with whatever he is in the habit of taking, be it whisky, champagne, or even tea or coffee, he does not add one atom of force to his stock of energy, although he fancies he does, but having put to sleep his sense of weariness, simply appropriates some of his reserve for the present necessity. He has accepted a bill at short date to which a ruinous rate of interest is attached, and his resources will not allow him to make many repetitions of the experiment. His account at the bank of life will soon be withdrawn. Alcohol cannot add one iota to his reserve of nervous energy, but it may delude him into exhausting it. The busy man should once for all rid himself of this fancy that he can create by artificial means an abnormal store of brain power. He cannot enlarge the limits which nature has set up.

TOXIC PROPERTIES OF BEEF TEA.

Modern Medicine, in one of its recent editorials, thinks it is surprising that physicians, knowing the toxic character of beef tea and meat extracts of all sorts, continue to prescribe meat extracts, broths, bouillon, and similar preparations in all sorts of conditions. It is indeed especially surprising that such pseudo foods should be recommended in cases of acute general toxemia such as is present in typhoid, pneumonia, diphtheria, and allied conditions. An eminent French surgeon not long ago remarked, “Beef tea is a veritable solution of ptomaines.”

The analysis of beef tea shows that it contains urea, uric acid, creatinin, and a variety of other toxic substances. Grijins has shown that solutions of urea have a most destructive effect upon red blood-corpuscles. Such solutions cause the corpuscles to swell up and burst, as they do when exposed to the action of distilled water.

A most remarkable fact respecting solutions of urea is that the addition of chloride of sodium in sufficient quantities to give the solution the same specific gravity or osmotic tension as the blood itself, does not in the slightest degree prevent this destructive action upon the corpuscles, thus showing that its noxious qualities are specific, and that it is not, as was suggested some years ago by Bouchard, a comparatively neutral and innocuous substance. An extract from the tissues of a dead and decomposing animal is about the last thing that ought to be given to a patient who is already struggling against the toxic influences of a flood of systemic poison. In the juices of fruits, nature has given us a source of energy in the most available and acceptable form. Fruit juices of some sort may be recommended as preferable in every condition in which beef tea might be considered a desirable food. Properly prepared fruit juices, preserved by sterilization without fermentation, actually present the body with stored energy in a form available for immediate use; whereas, beef tea is simply a solution of products whose energy has been exhausted, and acts merely as an excitant without really augmenting the bodily energy to any appreciable extent.

THE INFLUENCE OF ALCOHOL ON MENTAL AND MUSCULAR ACTIVITY.

At the seventy-fifth annual meeting of the German Association of Scientists and Physicians, held at Munich from September 18th to 23d last, Prof. E. Kraepelin of Heidelberg delivered an address on the "Influence of Alcohol on Man." He declared that the way to combat the evils of alcoholism is by making careful experiments to ascertain its bad or good in-

fluences and by laying the results before the public. * This line of work he has pursued for some years in conjunction with several colleagues. He has found that speech utterance and the association of words and ideas in thought are favorably influenced and facilitated by alcohol, but that the quick and ready appreciation of disconnected syllables — as employed in psycho-physical experiments — is dulled and diminished. Experiments were tried with caffeine, bromine compounds, etc., but results like those obtained from the use of alcohol could only be secured by using paraldehyde. Alcohol has proved itself to belong to the group of narcotics (soporifics). Dr. Vogel's experiments have shown that alcohol increases the ability to count beats while observing the metronome, but decreases the ability for simple addition of numbers. Dr. Frey has observed that twenty grammes of alcohol is injurious to fresh unfatigued muscle, but increases temporarily the power or capacity for work of an already tired muscle. Orszekowski of Moscow made similar experiments in 1894, and showed that alcohol at first increased the power (or capacity for work) of muscle, but this soon reached its limit.

ALCOHOLIC INSANITY.

The following is an abstract of a recent clinical lecture on the above subject by Dr. George H. Savage of Bethlehem Asylum, England:

Every symptom of general paralysis is represented by degrees of alcoholism. Unsoundness of mind is frequently caused by alcoholism, which should not be regarded as insanity, unless more pronounced symptoms develop. The first symptoms are often hysterical; there is a loss of physical control shown by tremor of tongue, lips, and hands, and a hesitating gait. Loss of memory of recent events is associated with confusion of time and space. There is a tendency to weak-mindedness, idiocy,

and imbecility, or in children, to convulsions, epilepsy, and arrest of mental development if there is an alcoholic heredity. Peripheral neuritis is common, and misinterpretation of the sensations may give rise to hallucinations. Insanity may cause, instead of being caused, by excessive drinking of alcohol. Restlessness and buoyancy often lead to drink, which is followed by depression. In this condition there may be a tendency to suicide, but more often impulsively than determinedly. Four cases were presented; the first a Hebrew, aged 25, family history negative. Convulsions and an attack of meningitis occurred during childhood. Patient has been intemperate for two or three years, and has had two or three attacks of excitement after drinking. About six months ago he fell on his head. Before admission he was excited, and at times depressed, and threatened the lives of his family. He suffered from hypochondriasis with delusions referred to the body, but had no hallucinations of sight, hearing, or taste until after admission; when they developed as a result of peripheral neuritis. The second case was a man, aged 53 years. He was nervous, drank steadily rather than to excess, and developed delusions of grandeur and hallucinations of hearing. The memory is weak, and there is confusion of time and space. There is no change in the speech function. The next case, a man aged 43, has a neuropathic heredity, and a history of syphilis. He has suffered for the last thirteen years with fits of depression, during which he drank more than usual. He now has mania, talks in an irrational manner, has hallucinations of hearing, sleeps poorly, and the memory is bad. Pupils are dilated, but the knee jerk is present. The cause being partly syphilitic, the patient may recover. The fourth case is a man aged 56 with a heredity of alcoholism. He has been intemperate from boyhood. There is a general condition of apathy and hallucinations of sight and hearing; the patient is dirty in his habits, and incapable of dressing himself. He does not sleep well, but his appetite is good, his reflexes are normal, and he is con-

valescing. The essential points of distinction between alcoholism and general paralysis are as follows: The parietic sleeps better than the alcoholic. The parietic has inequality of pupils with slowness of reaction. In the alcoholic the tremor of the tongue and labial muscles improve on treatment, but in the paralytic it does not. The changes in the reflexes of alcoholism are slight, in paralytics more marked. The exultation in paresis is more universal and benevolent than in alcoholism.

COFFEE INTOXICATION.

Combemale (*Echo Med. du Nord*, March 11, 1900.) records the case of a man who was admitted under his care on account of giddiness, which came on suddenly in the street. The case was taken by the police for one of intoxication. On admission he was noticed to be extremely thin, and he suffered from vague pains in the limbs and loins, intense headache, generally worse at night, and most marked in the temporal regions, which he described as a heavy cap pressing on his head. It prevented his sleeping more than two hours or so in a night. He dreamed considerably, and stated that he always saw grotesque animals passing before him. Pressure over the calves elicited considerable pain of a muscular character. The reflexes appeared to be normal, and there was no alteration of sensibility. There was no tremor; the gait did not present any marked characters other than a slight heaviness. There was no Romberg's sign. The lungs showed slight degree of emphysema. There were no valvular lesions of the heart nor alteration of rhythm. The man was by trade a rag gatherer. This description corresponds with that given some years ago by Guelliot — namely, emaciation, paleness of the face, some tremor of the lips, muscular pains, and vertigo as occurring in cases of chronic caffeism. In this case the patient was in the habit of going from house to house where the

contents of the coffee pot were reserved for him, which he was in the habit of consuming in large quantities. The literature on this subject is not extensive; in fact, the condition has not been widely recognized; but Combemale was able to quote references to the condition, especially those of Viaud (*Tribune Medicale*, 1897). He finds that intense vertigo, which may be taken for Menière's disease, and very marked bradycardia, are characteristic of chronic caffeism. There is also ringing in the ears, a sensation of falling, and other evidences of alteration in the central nervous system. Mendel is also quoted by the writer as noticing general weakness, distaste for work, mental depression, insomnia, tremor, palpitation, coldness of the extremities, symptoms of dyspepsia, obstinate constipation, as present in this condition. The prognosis seems to be good, as, on avoiding the use of coffee, these various manifestations of intoxication rapidly disappear, though recurrence is common.

Morphi-Cocainomania. P. Sollier. — The method of curing the morphin habit followed by Sollier is gradually to diminish the dose to complete suppression in four to six days with calomel purges every day and an injection of pilocarpin on the sixth, with exclusive milk diet. This promotes the physiologic mechanism of throwing off the morphin by eliminating the intoxicated elements, favoring in every way the glandular and epithelial desquamation, and proceeding as rapidly as possible, in order to induce a lively and thorough reaction on the part of the organism. Four to six days accomplishes the desired result, and he has never had the slightest menacing accident, never syncope, and he doubts whether any other method can compare with this in its certainty, rapidity, simplicity, and the complete restoration of the health. He describes as typical a very severe case of a physician who had acquired both the morphin and cocain habits. The heart was normal, but pulse rapid; the oxyhemoglobin was reduced to

4.5; over 50 cg. of albumen were noted in the urine, and there had been a recent uremic attack. The blood coagulated as it emerged, appearing like asphyxiated blood both in its aspect and in the spectrum. There was chronic infiltration of abdomen and thighs, also "prick" abscesses. The entire body was twisted and bent almost double, one knee flexed. During the six days of deprivation there were no ill effects noted, no tendency to syncope nor lipothymia. Appetite and sleep returned the fourth to fifth day. By the end of two months the patient had gained 22 kilo, returning to his normal weight.—*Progres Medical*, May 12, 1900.

THE ROLE OF HYPNOTIC SUGGESTION IN THE TREATMENT OF ALCOHOLISM.

The results obtained by Dr. Sinani (*Ruski Medicinski Viestnik*, Vol. 1, Nos. 13-14) in the treatment of alcoholism by hypnotism are extremely favorable and suggestive of a new method of dealing with this "evil of evils." The conclusions reached by the author are as follows:

(1) Of all the patients who received during the first sitting a suggestion to give up entirely the use of alcoholics, there was not one to fail to comply with the request.

(2) No bad effects were observed in these patients, who discontinued the use of alcohol at once.

(3) Their health improved and kept up improving by the aid of repeated suggestions without the use of any other remedies.

(4) A large number of the patients remained temperant for a long time after the treatment, notwithstanding the short duration of the latter and the long intervals between the sittings.

(5) Some patients could keep sober only by the aid of suggestions received from time to time.

(6) Some patients who resumed the old habit drink very moderately or only when in company.

(7) Some failures were due to the inability of the patients to continue the treatment for a sufficient length of time.

(8) Relapses in many cases were due to the strong temptations offered by their environment.

(9) The treatment has no effect on those who are not willing to abandon their habit or do not see any evil in drunkenness.

The author finally urges upon the physicians to become familiar with this treatment.

Dr. Deffenbaugh, in a paper on *Tabes Dorsalis* published in the *Medical Herald*, says as follows:

Alcoholism has not been assigned a very high place in the etiology of this disease, and the clinical connection may not exist, but the fact of so many more men than women having the disease and this too when living under the same environments, is suggestive of some certain cause acting upon men that does not so largely obtain in the case of women. Of all the causes supposed to be able to produce this condition alcoholism alone is the one that more largely than any other affects the man very much more than woman. Moreover the well-known tendency of alcoholics to affect the peripheral nervous system in the same manner as the cord in this disease is affected would show its certain ability to produce this condition. Again we attribute the inco-ordination of the drunken man to the action of alcohol on the cerebellum, but are we justified in assuming that it is without influence on the kinæsthetic tracts of the cord—just where the lesions are apt to be found in this disease? I think not. Personally I am inclined to believe that alcohol plays a more important part in the production of this disease than is the general belief.

If you can help it, don't operate on a man who is drunk, especially if he appears to be an habitual drunkard. Drunkenness certainly seems to favor the occurrence of sepsis, owing to diminished resistance of the tissues, and shock occurs very readily. Besides this, delirium tremens may come on to complicate matters.

URIC ACID AND HEADACHES.

A physician who has been experimenting to discover, if possible, a relation between headaches and the retention of uric acid, found experimentally that he could produce a headache in himself by adopting a diet of meat and cheese — foods which are highly nitrogenous and which in their burning up, produce a great deal of uric acid. He found in himself an excessive excretion of uric acid during a headache, which perhaps means that a headache is a sign of nature's effort to relieve the system of a poison that would do worse than produce headaches were it permitted to remain. Such a headachy condition is comparable to the fevers which the human system often establishes for the purpose of ridding itself of disturbing impurities, and can best be overcome by the timely administration of Laxative Antikamnia and Quinine Tablets.

The Anodyne Treatment of Acute Peritonitis. McCaffrey (*"The Etiology, Pathology, and Treatment of Acute Peritonitis,"* 1899,) observes that the most pronounced indication for treatment in peritonitis is that for the relief of pain. Blisters and counter-irritation, the older resorts, are practically useless. Hot-water bags and poultices are far superior, but the relief they afford is only temporary. In some cases the ice bag is more grateful than hot applications. But whether hot or cold is employed, it should be relied upon only until other lines of treatment can be instituted. Papine should be given in teaspoonful doses every hour, and the doses repeated frequently enough to afford the desired results. Relief from pain, short of narcosis, should be sought, and this is generally easily obtained by proper dosage. Papine does not produce nausea, but rather prevents this symptom. In the event of the development of more or less prostration, a proper stimulant, such as strychnine or nitro-glycerine, should be judiciously employed. — *Medical News.*

Dr. Norman Kerr says: "Deal with the inebriate as you have successfully dealt with the maniac. Frown not on him as a hardened criminal. Remember he has fallen by the power of a physical agency which has crushed to earth some of the noblest and most gifted. Treat him as a patient laboring under a baffling and inveterate disease, and amid many discouragements. Such a measure of success will follow your true curative treatment as will gladden your hearts as men, while it will attest your skill as physicians."

As an ideal resting place, Virginia Beach, with the Palatial "Princess Anne," with ocean on one side and pine forest on the other, bringing the murmurs of the waves and the sobbing of the winds through the pines into a soothing diapason of melody, make it one of those rare resorts that one never tires of speaking about.

F. E. Harrison, M.D., Abbeville, S. C., says: I have used *Celerina* in appropriate cases, and can heartily recommend it to all who wish an elegant preparation, combined with undiminished therapeutic activity. It is peculiarly fitted to such cases as delirium tremens, headache from debauch or excessive mental or physical exertion.

Barth & Co. of St. Louis are sending out a very suggestive engraving of a famous picture called "Gout." This is a most appropriate picture for a doctor's office. Copies will be mailed any one who writes to this firm.

Mr. Uri Loyd's story called *Stringtown on the Pike* continues in the *Bookman* with equal dramatic interest and historic tracing. To one who has seen persons in this circle of life it appears as an actual history with very little dramatic additions and changes. We commend this story as novelty in the line of fiction, and a curious study to point out the real from the imaginative.

The *Scientific American*, published by Munn & Company, is giving much attention to the Paris exhibition. Pictures of buildings, novelties, and wonderful exhibits appear from week to week, giving the journal a peculiar value.

Polk's Medical and Surgical Register is the only publication of the kind giving a full list of all physicians in the United States and Canada. It is a book of twenty-five hundred pages, just published, giving a variety of facts and statistics not found in any other publication. From this we learn that there are sixteen hundred hospitals and sanitariums in the United States, and one hundred and thirty thousand physicians.

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We again desire to call attention to *Ammonol* as a stimulant and a narcotic, an unusual combination whose effects are very marked in certain cases. Carbonate of ammonia, one of its constituents, has long been before the profession as an excellent diffusible stimulant. This, combined with one of the coal-tar products, gives it especial value in a great variety of nervous complaints, particularly in the influenzas and congestive headaches so common in the northern climates. Send to the Ammonol Chemical Co., New York, for samples.

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of sickness and health with both safety and economy to the user. While it may not be a remedy in a medical sense it is certainly an adjuvant to perfect health, and to one who uses it, it is a typical food to sustain the vital resources of the body. We take pleasure in calling attention to this product, believing that it is one of the best of all the modern forms of cereals which can be used.

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II. All such institutions organized and conducted in proper conformity with the laws of the several states in which they are located are entitled to representation in this association.

III. The active membership of this association is composed of physicians in good and regular standing who are actively connected with such institutions or who have been honorably retired from active service in connection therewith.

IV. Physicians not connected with such institutions, and members of boards of direction of such special hospitals, asylums, etc., are eligible as associate or lay members of this association upon payment of the dues of membership.

V. The object of the association is:

First, to promote the scientific study of alcoholic inebriety and kindred drug habits, and to encourage desirable and special legislation with reference to the care and control of alcoholic and other drug inebriates.

Second, to isolate the chronic pauper inebriate from the insane and criminal class, and secure the erection and maintenance by the several states of institutions for the segregation and special treatment of chronic pauper inebriates, and to incorporate farm colonies, or other forms of institutional relief, which shall combine medical care with proper occupation, judicious control, and discipline.

Third, to secure in all states the special supervision and inspection of all institutions for the care and control of inebriates or other drug habitués.

Fourth, to discourage and prevent all efforts to treat alcoholic inebriety or the opium or other drug habits with secret drugs and so-called specifics, and to prohibit the sale of all nostrums which claim to be absolute cures and which contain alcohol, opium or its alkaloids, or other pernicious and harmful drugs, or which contain substances which are inert and so are fraudulent impositions on the public.

Fifth, to encourage, as an association, every individual and organized effort to study scientifically and practically all the various means and methods of both cure and prevention which may be used in the care and treatment of alcoholic and other forms of drug addiction.

There are many institutions in this country which wholly or in part treat the alcoholic and other forms of drug addiction. These institutions should be organized and follow some general principle and method of practical work. By this means public opinion could be more effectually influenced, and legislation secured, resulting in a great advance in the successful and scientific treatment of this class of cases. Every such asylum and institution in the United States is urged to join this association, and by their united effort lift the subject out of the realm of quackery and unscientific treatment into that of exact scientific work, and to place the status of the treatment of alcoholic inebriety and kindred drug habits on the same level with that of other similar diseased conditions, and secure the same medico-legal and institutional advantages. A membership fee of two dollars is charged yearly, which includes the annual subscription to the *Journal of Inebriety*, the organ of the association.

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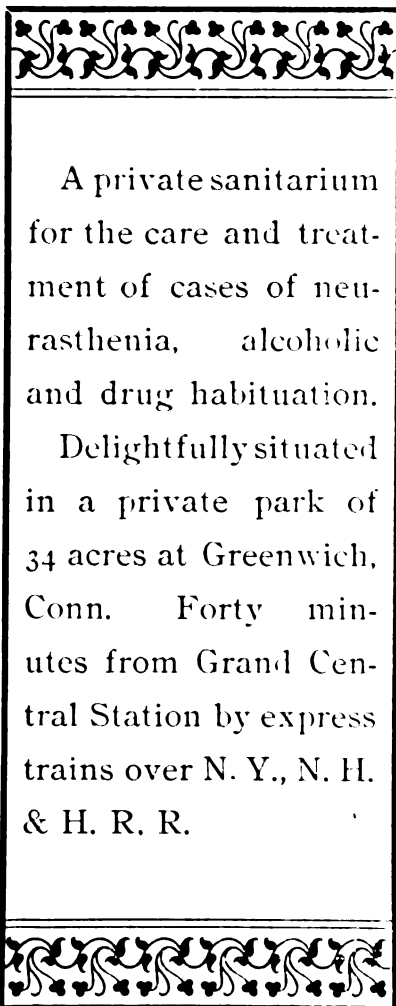
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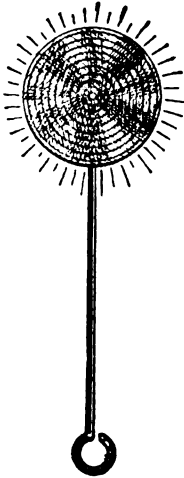
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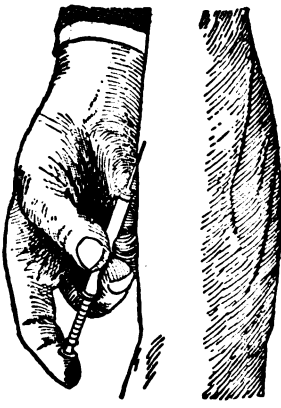
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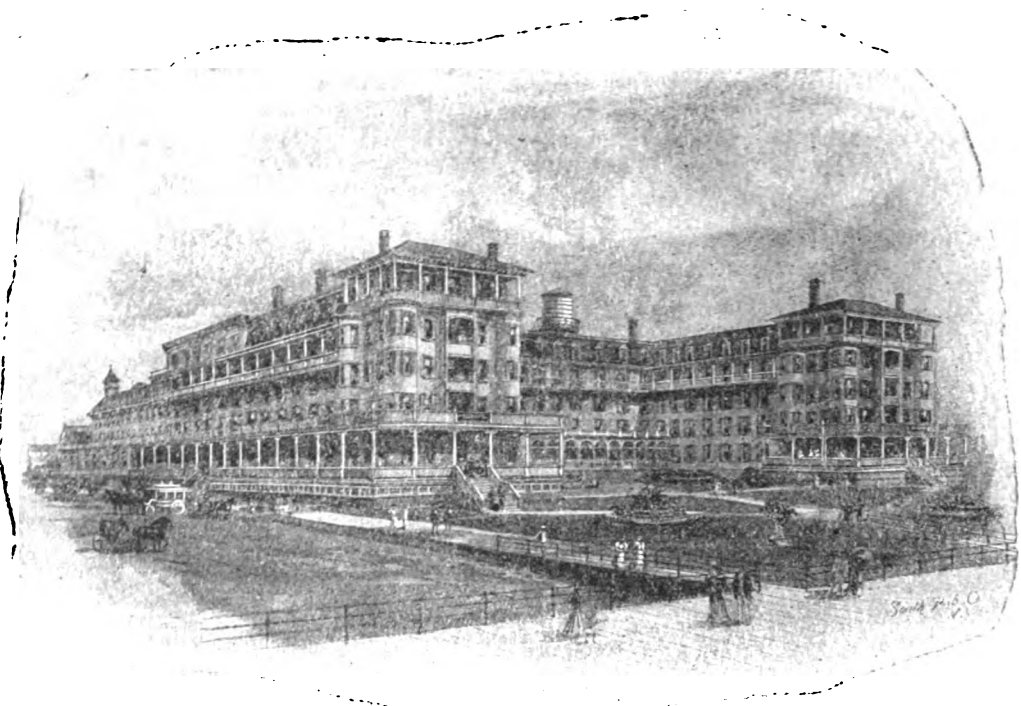
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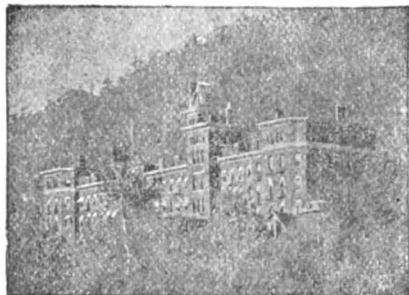
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A STUDY OF CASES OF INEBRIETY.

BY GEO. E. PARTRIDGE, M.D.,

Clark University, Worcester, Mass.

People who use alcohol drinks to excess may be divided into two classes, dipsomaniacs and drunkards. The former are periodic drinkers, and true dipsomania is now generally recognized to be an indication of some form of nervous disease. The drunkard is the steady drinker who, in general, drinks whenever he has opportunity, but drunkenness may take the form of sprees without becoming a true dipsomania. A study of various classifications of drinkers discloses the fact that there are two general types of organization which predispose to drunkenness. One is the undeveloped type, — intellectually, morally, and physically of a low order. It represents a low stage of culture in which habit and ideals do not clash. The second is the degenerated type. People of this type commonly possess the craving for intensity of consciousness, which goes with culture and high ideals, but lack

balance. To this class belong many men of genius who seem to crave strong excitement. But, applied to individual cases, such generalizations are unsatisfactory, and there is no more perplexing problem in individual psychology than is presented by the subtle differences of organization which make it possible for one man to drink moderately without danger, while another, apparently as well constituted and as favorably conditioned, perishes in the presence of alcohol.

Dipsomania is full of interest to psychology. On the mental side it is a recurrent impulse to become intoxicated. During the intervals there is no desire for alcohol, and usually aversion. Its rhythms are especially interesting. Howard says that he believes the long rhythms in nutrition and heat regulations of the body are factors in augmenting and aggravating the periodicity of dipsomania. Monthly rhythms of the female are often accompanied by attacks of dipsomania. The season of the year seems also to exert a minor influence in inebriety. Crothers says that inebriety is more marked and more impulsive in the spring and summer months. In a thousand cases of inebriety ninety-four drank to excess in April, May, and June, and at no other time of the year. In women the commencement of dipsomania very often dates from menstrual disturbances, from pregnancy, and from the menopause. The attacks of dipsomania are usually preceded by disturbed mental action and control. Before an attack the dipsomaniac is irritable, and there are other signs of nervous disturbance. When alcohol cannot be obtained there is restlessness, indefinable horror as of some impending danger, the throat is parched, the skin is hot and dry, the pulse rate is increased.

These are the main facts of dipsomania. For more extended accounts reference must be made to the psychiatric treatises, such as the works of Krafft-Ebing, Krapelin, and others. Also to numerous articles in the *JOURNAL OF INEBRIETY*.

Below are given extracts from sixty-five cases of inebriety, studies by the present writer largely to determine the nature of the craving for intoxicants as it is felt by the inebriate. Most of the men studied were confined in criminal institutions. A few were voluntarily patients in inebriate asylums. For the most part the conversational language of the subject is retained.

CASE 1. Man, 25. Drank since 15. Used a quart of whiskey a day for years. Has drunk alone, but generally likes to drink in a crowd. No craving for it at all while in jail.

CASE 2. Man, 31. Drank his first glass at 24. Drinks socially altogether. Is drunk every Saturday night. No craving for drink now or during the week when he is out. When tired and thirsty one glass of beer tastes good. After that it is not the taste. He drinks for the feeling or because he has lost control, and does not care what he does. Afterwards feels the disgrace keenly. He is strong, of athletic build, and in perfect health so far as he knows.

CASE 3. Man, 36. Always drinks in company. Never intends to get drunk when he starts. Occasionally between drunks he will take a glass of beer. Trouble will always make him get drunk. When in jail feels the loss of his pipe, but does not feel the loss of his drink. As a boy, was very bashful. Would always take a few drinks before going to a party or social.

CASE 4. Man, 38. Been drinking since 16. Very seldom drinks alone. Has no appetite for it here, and doesn't see why it can't be the same outside. If he succeeds in going two or three weeks without drinking he does not crave for it.

CASE 5. Man, 52. Been drinking since 16. For the last few years has drunk very heavily. Drinks mostly in company. Drinks because he worries. He hasn't missed liquor at all since he came here. Misses his tobacco some. Is of a nervous temperament, always was nervous. Thinks he is not going to drink any more.

CASE 6. Man, 21. Been drinking since 14. Has drunk alone a good deal. Likes to be alone when drinking. Has drunk as many as thirty glasses a day. Had been drinking heavily when arrested, but missed the liquor for two or three days only. Takes more to make him drunk than when he began drinking.

CASE 7. Man, 43. Been drinking since 20. If he takes one drink is sure to take another. Doesn't like the taste of beer nor liquor. It is for the feeling after it is down. If there was no rum, would never have any longing for it.

CASE 8. Man, 52. Very hard drinker. Doesn't care for the taste of liquor at all. Doesn't care anything about it until he gets into company. Never goes into a saloon alone. If worried about anything goes out looking for company, and drinks. In jail, doesn't crave either liquor or smoking; but does crave chewing tobacco.

CASE 9. Man, 43. Of melancholy temperament. His drinking is periodic. Always drinks alone. When he drinks with a crowd, he spends too much money. Will go for two or three months and have no desire for it at all. Went a year without touching it. Is quite sure he is never going to drink any more.

CASE 10. Man, 50. Been drinking since 16. Has never had any craving for drink. Never thinks of it when in jail. Does not like the taste of whiskey or beer, or any other kind of liquor. Never goes in to drink alone, even when he has money. He never goes in because he wants a drink.

CASE 11. Man, 48. Been drinking since 19. Doesn't like liquor. Never goes in to get a drink by himself. Drinks by sprees. When he meets two or three old friends he likes to go in and talk over old times, and thus gets drinking, and can't stop. Misses the tobacco more than rum. A man doesn't need rum, he does need tobacco. Is sure he is not going to drink any more.

CASE 12. Man, 43. Been drinking since 25. Doesn't like the taste of liquor. No craving for it, now or ever. But

cannot take a glass or two and then stop. Always gets drunk when he drinks at all. His health is good, and he is not nervous.

CASE 13. Man, 30. Drinking since 17. At 30, commenced to use whiskey altogether. Always drank alone, and every day. His usual allowance was fifteen or twenty glasses in a day. Four years ago he stopped for a year after taking a six weeks' treatment. Has no craving for alcohol now, whatever, but there is a struggle all the time against depression and fatigue. If he hasn't had anything to drink for a month or two, he does not crave it at all.

CASE 14. Man, 18. Never likes the taste of liquor, except after he has been drinking heavily. For three or four weeks after coming to jail he craved both liquor and tobacco. Now he does not think of either.

CASE 15. Man, 36. A sailor. Drinks nothing when at sea. Misses it for the first two or three days out. Since he has been in jail has missed his pipe, but does not care for drink. He never drinks alone. Doesn't like the taste of liquor, it is the sensation.

CASE 16. Man, 35. First drink at 14. The only craving is on a hot day when thirsty, then he really feels a craving for a glass of beer. It is impossible for him to drink moderately now. When he drinks he always drinks too much. When he hasn't had a drink, he doesn't want it. When he has, he wants more. Is in perfect health, so far as he knows.

CASE 17. Man, 24. Doesn't like the taste of whiskey, nor crave it, but when once he takes a taste of it, can't stop short of extreme intoxication. Is never tempted to drink except when out with the boys.

CASE 18. Man, 26. Has been drinking since 20. After he has had one drink, he has a strong craving for more. Otherwise he has no taste for it whatever, and never thinks of it except when he is where there is excitement and drinking going on. To have a good time is the starting.

CASE 32. Man, 23. Has no craving for liquor. Once in a while drinks alone, but never intentionally to get drunk. Likes the taste of whiskey. When with a crowd, does not feel as if he was having a good time unless he drinks. If he takes one drink, he always gets drunk.

In fifty-eight of the sixty-five cases studied, there is no evidence of a conscious craving for alcohol, although most of the men who were questioned are confirmed drunkards. Nearly all are recidivists. One has been sentenced sixteen times for drunkenness. The statement that after liquor has been for any reason cut off for a period of from ten to twenty days the craving ceases, is so frequent in these cases that it must be regarded as expressing the true mental attitude toward drink of a class of people who are commonly considered incurable drunkards. In the six cases which follow there was some evidence of a craving for alcohol.

CASE 19. Man, 49. Unmarried. No nervous disease or insanity in the family, so far as he knows. His father died at 76, of old age; mother at 50, of pneumonia. He has six brothers and sisters, none of whom drink. He himself has always been healthy. Left school at 14; was a good boy, always went to church at that time. His first drink was taken at 16. Used to set up ten-pins in a bowling alley. Drank beer there altogether for a long time, before he began the use of stronger drinks. Never drank for the taste. In general his drinking has been to create a false spirit when he is downhearted. He has never been in the habit of drinking daily; for years his drinking has been by sprees. Between drunks he would not drink at all; has tried very hard to overcome the habit. Thought it was wrong, and that it was hurting him. Would fight it for five or six days, but sooner or later would get in with the boys. Of late years he has drunk alone mostly. Went without drink altogether for two years, from 1876-1878. At that time was working for good pay, and simply made up his mind to stop drinking, and succeeded.

Every month for the last seven years he has spent two days drinking and three days recovering from it. In this he has been perfectly regular. He has taken asylum treatment to no avail. Although, during all these four years, he has never missed once a week's drunk, he thinks that if there had been no way of obtaining liquor, he never would have craved it. He has no craving for it now at all, and doesn't think of it. But when he was working, every Saturday he would think of it all the afternoon, would go home in the evening, change his clothes, and go down town. He would walk around until about eight o'clock, and then would go in and get a glass of beer; that would be the beginning of drinking, which would be kept up steadily until Tuesday. He knows of no cause for his drinking, cannot in any way explain the impulse, which is entirely beyond his control. Never left the shop Saturday without fully intending to stay sober. Each time determines never to touch another drop. He feels that there is some peculiar weakness of his nature, and thinks that even in the absence of liquor, he would have found some other way to ruin himself. Again he says that he feels quite convinced that he is never going to drink any more. As a child he was restless, and uneasy, of vivid imagination, quick tempered, but honest and truthful. Never cared much for society of the other sex.

CASE 20. Man, 38. Only child. Father living, now 80. A periodic drinker. At 11 was made drunk, was taken home by two men. Doesn't remember feeling sorry about it. As a child was very nervous and high strung. He has been a periodic drinker since he was 17. At 32 he broke a leg, and at that time began to use morphine to kill the pain. He used it ever since. Morphine makes him feel dull; it is quite different with alcohol. A little makes him thrill all over. The least taste of alcohol will set him going, even sweet cider, unless it is just out of the press. Morphine he uses now after he has been drinking heavily. It sobers him, makes him fall

asleep, and puts an end to his spree. His periods are usually precipitated by meeting a friend. Meeting an old comrade affects him in a manner which he cannot explain. He is inclined to be very intense, both in his likes and dislikes. He hates the taste of drink of all kinds. His periods come on at intervals of from three months to a year. He went once two years without drinking. Many times he can control the impulse, but is very easily and very strangely influenced. He feels that he will control his appetite altogether some time, but expects another attack when he gets out this time. He thinks he is safest when he is where liquor can be readily obtained; when away where he can't get it, there is likely to be an increasing craving. Periods are most likely to come on at times when he is despondent or depressed. He is by nature of an unstable disposition, loves frequent change, has worked at almost every trade. As a boy he had plenty of money, a good education, and never expected to have to earn his living. He feels keenly the disgrace of his condition.

CASE 21. Man, 34. An actor. Good health, no nervous disorders. His first drink was at 12. Was out skating on a cold night and drank cherry brandy. His next drink was taken at 17. He was working in a bank, came down town too late for breakfast, ordered a glass of beer. He was alone. After this he drank more or less, socially. He was occasionally drunk, but only at times of unusual festivity, as at New Year's Day, and the like. Was married at 21. From 21 to 27, drank rather steadily, but only in a social way. At 27 he parted with his wife. After that he drank to excess in order to forget. Drank alone altogether and continually. Rented a room and began a spree which lasted for six months. During that time there was not a day that he was sober. Since then his drinking has been somewhat periodical. Went west to work on a ranch, and went eight months without liquor. He was where he could not get it conveniently, and had no craving for it. Was offered a drink a few times during that

period, but refused. Lately, his sprees have been more frequent. Sometimes he can go for weeks and drink more or less moderately, but invariably ends in an uncontrollable spree. In 1893 he spent four weeks at the Keeley Cure, from that time to February, 1896, he went without drink. His sprees always last as long as he has money or can get whiskey. As regards the craving, when he hasn't been drinking, he doesn't crave liquor, but when he has once started, the need is imperative. He has no craving since he came to the inebriates' home, although he has not been under restraint. Thinks that if he lived all the time in such an environment, he would never think of liquor. The craving is more of a mental than a physical craving. It is a desire to get away from himself. The craving for drink is a craving which any other pleasure equal in degree would satisfy. It is a disgust with present conditions and a desire to cut loose from old ruts and have a change. Of late, his sprees have always been preceded by a fit of despondency. Looking back, he can trace two quite different conditions which are likely to initiate a period of drinking; one is depression, and the other is unusual success. The nature of his mental condition during a spree differs greatly according to the mood in which it starts. If he starts in a happy mood, he is jovial all the time; if he starts drinking when he is depressed, he is unsocial, and silent, and there is no stage of exhilaration. He does not feel at all sure that he is cured. One might as well ask him whether he ever intended to have pneumonia again. It is a thing which he does not control.

CASE 22. Man. 45. Father died at 65 of kidney trouble. Mother living at 70. One brother and one sister, both died young. Was 17 when he took his first drink; it was at a wedding. After that he drank steadily, and his drinking was periodical from the start, his sprees occurring at intervals of from three to six months. The longest interval was a year and a half, when he was thirty-eight. At that time he was a

member of a reform club. During all that time he never had any craving for liquor whatever. Excitement and association broke the spell. His periods are induced usually by associating with people who drink, or by misfortune or anger. He does not like the taste of alcohol nor crave it; but if he gets to drinking he cannot stop. He has been arrested eight or ten times, each time for drinking. When drunk he is peaceable and jolly. He never drinks alone. Probably never drank 25 drinks alone in his life. He never cares for drink unless there is excitement, and there is no excitement when a man is alone. Says he cannot remember a day in jail when he ever wanted a drink. He craves tobacco, however, and gets so nervous craving for it that he could almost chew iron. He doesn't feel sure that his drinking is permanently stopped. He thinks confinement has no effect, for a man can't be cured by loneliness, the only way is to keep away from drinking society.

CASE 23. Man, 38. Born in Ireland. For the last 28 years he has been drunk about once a week. When he is out of jail has a craving for drink, it is like a gnawing in the stomach as though he wanted something to eat. Is thinking of it all the time until he gets a drink. Never thinks of it at all when he is in jail. Tobacco he craves. Would think of the whiskey, too, probably, if there was any chance of getting it. It is the thought of it which puts the appetite down into the stomach. Has taken the pledge a good many times, and kept it once a year and a half fifteen years ago.

CASE 24. Man, 40. Is nervous, weak, and emaciated. Suffers from insomnia. Says that he doesn't know of any worse drunkard than he is. Left school at 15, first drink at 18, was out with a crowd of boys, and took two glasses of beer. Has never been able from the very start to drink moderately. Still he thinks he has no craving for it when he has not been drinking. Never cares for it when alone except after drinking, then he would walk five miles to get it. Man-

aged to stop for a few months once, but got out with the boys again; thought that he could drink moderately, but was soon as bad as ever. His sprees usually last until he gets out of money, sometimes he drinks almost continuously for two weeks. Never thinks of the liquor when he is in jail, craves more for the tobacco. Thinks he has been getting worse lately; the excitement and exhilaration after drinking is less, he seems soon to lose his mind, and can remember but little afterwards. He has frequently signed pledges, and once or twice has gone three or four months without drinking. Means to do right, has sworn time and time again never to drink any more. The craving for liquor, as he feels it, is hard to describe. He recognizes it as a kind of hankering and worrying; it is entirely different from the craving a man has after he has been drinking. Since he has been in jail he has felt worried and depressed, but feels nothing which he can call a desire for liquor. Once when he had not been drinking for two months he came to the city on a holiday, and going by a saloon it seemed that he must go in and get a drink. The thought almost made him dizzy, felt as though he could not take any interest in anything, as though all the fun and excitement would be monotonous unless he had a drink to help him enjoy it; but he resisted the temptation, went into a restaurant and had dinner, and all the rest of the day he had no thought of drink. Sometimes when he has a craving for drink other things will satisfy him, as non-alcoholic beverages, or a dinner, as in the case described above. The presence or odor of alcohol will not always arouse the craving. He has often been where there was plenty of it, and would have no desire for it, and could not be induced to touch it.

CASE 25. Woman, 52. Periodical drinker for the last 17 years. The periods have usually come at intervals of from four to six weeks. She has been six months without drinking. Thinks she has been worse since she was 44. For the last four years and a half she hasn't drunk at all, having been in

voluntary confinement in an inebriates' home. She is not in any way under restraint. She goes out to church and on errands, and during the day works, serving the establishment in the capacity of cook. In appearance she is strong, well nourished, apparently of strong will, very intelligent. Has a deep religious sense, is extremely sensitive about her degradation and her menial position. Is at times unsocial, irritable, and sarcastic. She still has the craving for alcohol, which is likely to overcome her about once in a month. At those times she goes to the matron and asks to be watched. She thinks that she will have to fight this craving all her life. Her only physical ailments, so far as she knows, are slight dyspepsia and nervousness. If things go wrong the craving is likely to be more intense. At these times she feels as if she must hold herself to keep from going out to get a drink. At communion service the taste of unfermented wine makes her "mad" to drink the whole cup. The craving is not a thirst, and it is very different from the craving she used to have after drinking. Then she would tear everything to pieces to get a drink. Would walk from the Battery to Harlem for it. Her craving, as nearly as she can analyze it, seems to be a longing made up of depression, increased sensitiveness to slights of all kinds, and a general nervous irritability.

The testimony of all the men who were questioned upon the subject goes to show that the craving for alcohol is rather an unimportant part of the intoxication impulse. As one expressed it, "the craving for alcohol is more than a desire to take a drink, it is the craving for something which accompanies it." With one or two exceptions the testimony is that after a man has been without drink for a few days (10 days is the time mentioned in most cases), there is no longer a craving for alcohol. This is especially true when a man is so situated that liquor cannot be obtained. This testimony is emphatic, and there is no doubt of its correctness as far as the introspection of the subjects will go. The testimony is equally as em-

phatic that for the first few days the craving is so intense, that there are physiological accompaniments, such as a general distress, burning in the throat or stomach, weakness and trembling. The usual reply when a man is asked whether he felt the loss of liquor when it could not be obtained, was, "I never think of it," or "It never bothers me at all." On the other hand, the testimony is equally strong that tobacco is missed. There can be no doubt, whatever, of this difference of feeling. The change of expression of the face when tobacco is mentioned cannot be mistaken. Many say, "I think of it every day." As to the interpretation of these facts, a partial explanation of the difference is found in the fact that tobacco is sometimes obtained in jail, and is secretly used. The thought that there is a possibility of obtaining it keeps alive the craving. Another reason is the fact that tobacco is not regarded as the cause of the disgrace and annoyance of imprisonment. Another cause, in all probability the most potent of all, is the social condition of the man in prison. Tobacco is, perhaps, most enjoyably used when a man is alone and inactive. It is a solitary habit quite as often as a social habit, and the solitariness of prison life continually suggests the use of tobacco. The alcohol habit on the other hand is not a solitary habit in most cases. The conditions of life in prison are unfavorable for keeping alive the desire for drink, which is in general an accompaniment of the social consciousness. It is certain at least that whatever longing or craving a drunkard in prison may have, it is not recognized by the man himself as a craving for alcohol. The only real conscious craving, so far as can be discovered, is in the neurotic cases. The clearest example of a craving for alcohol is case 25. In this case there is doubtless a nervous disturbance of some kind which is periodic, and which is interpreted as a craving for alcohol. This may be an erroneous judgment on the part of the subject. The strongly fixed belief, that there is indelibly stamped into her organism a craving for alcohol, no doubt

tends to keep the craving alive. It is certainly nothing more than association which makes her "mad" to drink all the unfermented wine at communion.

In other cases the effect of the popular belief in the organic nature of alcohol habit, instilled into the mind of the drunkard by people who are trying to help, is evident in making him lose hope, if it does not actually take away the possibility of cure.

Further evidence of the mental nature of the craving for drink is furnished by the cures. The conversion and moral cures are confessedly mental. They cure the craving for drink by changing the general life interest. Leuba gives in detail several cases in which the drink craving was taken away instantly by conversion. From this article the following are quoted:

MAN, 42. Converted when 33. Sometimes drunk for a week together. Then not a drop for a whole month. Never went more than a month, but once, when he joined the Good Templars, when he went without drink for three months. He experienced sudden conversion. "From that hour," he says, "drink has had no terrors for me. I never touch it, never want it." Another says, "I believe God took away the appetite for drink that night when I asked him." MAN, 44. Converted in 1883. Had been a hard drinker. Made many resolutions, but could not keep them. Had a sudden sense of powerlessness, experienced conversion. Conversion took place on Sunday. "On Monday," he says, "there was no desire for drink." "Since that day I have not had to surmount strong temptations."

Two of my own cases show well the mental nature of the cures for intemperance.

CASE 26. Man, 48. First drink at 18 with a crowd. Became a settled habit at 28. Drank every day. Began on beer, and about 28 changed to heavier drinks. Would go two months drinking everything, then stop for a week from

physical incapacity to drink anything more. Drank to keep up an exhilaration so that he could do more work. Drank when he hated the taste of liquor, and could hardly get it down. But had to take it in order to appear right. Took more and more as time went on. Before he was 38 had tried to reform several times. Changed his residence, but it did no good. Always drank alone for the reason that he didn't want any one to know about it. Never stayed in a saloon longer than was necessary to get what he came for. When 44 he had been drinking very hard, and his wife made him promise to try to reform, urging him to become converted. He had always scoffed at the idea that change of heart would do it, but went to a clergyman and told him that he would sign the pledge for a year. The clergyman would not accept it, so he made out a life pledge, and signed it. Gave his wife all the money he had except a very little, thinking that if nothing could cure him, he would buy some liquor. For a few days after signing the pledge, he was terribly weak and unable to act. All the time there was a craving for liquor. He knew that it would put new life into him, and make him act. The craving was settled in one day. It suddenly occurred to him that he was not more than half honest in the matter, so he went to his wife and gave her the rest of the money and confessed his intentions. As soon as he had done that, it seemed as if the craving was entirely changed, and from that time on, until nearly three years after, he had no craving from alcohol. His health was good, worked at the hardest kind of work, chopping in the woods, and so far as he knows, felt no effect of his hard drinking after the first two weeks. At the end of three years, when on a visit to a summer resort, he drank two glasses of cider. The next day he was as weak as ever. Found out that the weakness had not healed, became frightened, fearing that his drink habit would return, and started away in the rain to walk seven miles to the depot. When he reached the first house, he stopped and asked for a

drink, and got it. Got some more a little farther on. This commenced a downfall more complete than the first. He has continued drinking up to the present time. Says that he has to have alcohol to keep him steady, and to make him think. If he goes a day without it, his nerves seem to be shattered. Thought he couldn't add a column of figures unless he had a drink in the morning. Has a craving for liquor which he cannot resist.

CASE 27. Man, 44. Was through college at 18. Went to work in a bank. At 22 began to drink steadily, brandy and port wine being his favorite drinks. Drank for the taste of the liquor mostly. Belonged to clubs and drank at socials. Soon began to use liquor to excess, and drank both for the taste and the feeling. It was steady drinking all the time. Drank in company altogether. Later, drank alone, but never to get drunk alone. There was hardly a day that he didn't drink excessively, although he never went to extreme intoxication. The last two years of his drinking (from 42 to 44) didn't try much to control his appetite. Kept up his business, and used to do better work after he had three or four drinks. Was doing some literary and lecture work at the time. Always drank heavily before going to make a speech. Stopped drinking in April, 1894. Had been to a kind of a racket at a club, drank heavily all night. In the morning was walking around with three or four men. It suddenly occurred to him that he was living a useless life, told the men he was with that he was not going to drink any more. They laughed at him and told him that could not stop. Drunk as he was, he sat down and made out an agreement not to drink any more from April 14 to July 4. This he agreed to sign if any of the others would. One agreed, so he signed the paper and handed it to the other man. The one remarked that as long as he had the agreement, he guessed he would not sign himself, and put it into his pocket. This angered him and he made up his mind to keep the agreement whether the other man did or not.

Did not drink any more that day, left the men at four o'clock, and went home sick. Went to a doctor, who told him that he would have to stop by degrees, or it would kill him. But he refused to drink. After a week there was no craving, and he refused liquor ten times a day for the next six months. He has never drunk since. Very frequently now he goes into a saloon with friends, but always calls for non-alcoholic drinks. The odor and sight of liquor do not arouse in him any craving. He has noticed that since he stopped drinking he cares less for the society of men, and feels that in a way his social feeling is weakened.

In other cures the principle is psychic. Most of the inebriates' homes depend upon moral instruction and social environment. The principle of such a cure as the Keeley Cure is largely, if not altogether, mental. In the methods, which are used by regular practitioners, reliance is placed upon general tonics and moral influence. Other cures make use of substitutes which have an effect similar to alcohol. Emetics are given which create an association of nausea with the taste of alcohol.

The evidence from the cases indicate that the craving for drink is not a craving of childhood. In the few cases in which the first drink was taken at nine or ten the real history of the case does not begin until some years later. In general, if our cases are typical, drinking does not begin during school life. In a great majority of cases the first drink was taken after the boy had left school and had begun to associate with older men. The beginning was almost always social. In but two instances was the first drink taken alone. There are one or two instances in which the first drink was taken after 40. In the latter cases alcohol was taken by a doctor's orders, and the habit thus formed was never broken.

Parrish says that the drink craving does not declare itself until the demands upon the nervous system come to be exorbitant, and that its terminal period comes with as much

certainty as does its initial stage. He thinks "that there is an inebriate climacteric in every life, when nervous periodicities become faint, when internal and external excitants to intoxication lose much of their vigor and the inebriate diathesis is too feeble to respond to excitation. Between forty and fifty a great number of spontaneous recoveries occur. Between fifteen and twenty-five most cases begin. About twenty-five years closes the drinking period, either by exhaustion of the desire, or by death." Crothers says "that there are periods from seventeen to twenty-five and from thirty to forty in which the liability to contract the drink habit is greatest. This is most likely to die out between forty-five and fifty, or from fifty-eight to sixty-two. The physiological changes of mature life bring changes of nerve vigor and growth periods closely corresponding to the evolutionary periods of women." Superintendent Hadley of the McAuley Mission in New York city says that most conversions of drunkards take place between the ages of thirty and fifty. Dr. Branthwaite, superintendent of the Dalrymple Home in England, says that most of the cures take place between thirty and forty-five, though many cases do well older, up to fifty-five and sixty. The younger cases are most unsatisfactory. He says "very few indeed succeed in getting right under twenty-five or twenty-six." If the physiological basis of the drink craving is the change of protoplasm, due to the continued assaults of alcohol, as many maintain, it would be difficult to account for the fact that young men are, as a rule, less easily cured than older men.

From the data obtained from these cases we can simply enumerate the usual motives which lead to intoxication. For a quantitative estimation of these motives a much greater number of cases would be needed. They are as follows: (1) a desire for excitement, experience, and abandon; to increase companionship, to put off reserve in the presence of others. (This desire to heighten the social feeling is probably the most

prominent cause of drinking. Many drunkards would regard it as a disgrace to drink in any other way than socially.) (2) To kill pain, to calm moral distress, to overcome fatigue, a desire for temporary relief from poverty or monotony; to increase courage to overcome self-consciousness, to steady the nerves for work or unusual strain.

INFANT MORTALITY IN THE FAMILIES OF TOBACCO WORKERS IN NANCY.

The *Presse médicale* publishes a report of a recent meeting of the Société de médecine de Nancy, at which M. G. Étienne stated this occupation did not seem, on the whole, to have any very considerable influence even on the evolution of pregnancy. The mortality among the children of the working women was more than double the infant mortality in the whole working population — thirty-seven per mille instead of seventeen per cent. of the total mortality. The prognosis was alarming in infants who continued to be nursed at the breast after their mothers had returned to their occupation. On the contrary, it was favorable in those whose mothers did not resume their work. The mortality was notably less in children who were nursed at the breast until their mothers resumed work, and then alternately given the breast milk and the bottle, or the bottle alone. M. Étienne thought that these conclusions led to the following practical conclusions: 1. The physician should not endeavor to facilitate nursing in women who have to resume work in a tobacco factory. 2. The general employment of sterilized milk should be furthered by its distribution at the lowest possible price, or even gratuitously, by relief associations and by the charitable institutions. 3. The mothers should not be allowed to resume work until a month or six weeks after confinement if the child lived. It was known, said M. Étienne, that after this lapse of time the child was much more apt to tolerate artificial feeding.

THE PHYSIOLOGICAL CHEMISTRY OF ALCOHOL.

BY HENRY F. HEWES, M.D., BOSTON, MASS.

The question of the influence of alcohol upon the metabolism of the human body has been the subject of a considerable amount of investigation during recent years.

To ascertain definitely this action of alcohol in and upon the metabolism of the human body three facts must be determined:

- (1) The method of the disposal of alcohol in the body.
- (2) The effect of alcohol upon the respiratory metabolism, the metabolism of the non-nitrogenous organic tissue substances.
- (3) The effect of alcohol upon the metabolism of the proteids or nitrogenous tissue elements.

The first fact is to-day definitely and finally determined for us. Alcohol is oxidized in the body. Upon this point the results of all the investigations of recent years are in agreement. The most complete observations prove that of a quantity of alcohol, not exceeding 72 grammes of ethyl hydroxide, introduced into the body during twenty-four hours, at least 95 per cent. to 96 per cent. is consumed, the remaining 4 per cent. to 5 per cent. being eliminated as alcohol.

In regard to our second fact our knowledge is less settled. The results of earlier investigations were in practical unanimity that alcohol in moderate doses caused a loss of body substance as measured by the effect upon respiratory metabolism. More recent results show a lack of uniformity upon this matter. Thus the experiments of Futh, Vogelius, and Bodlander indicate that alcohol causes a lessened respiratory exchange,

those of Zunty and Bjene that it causes an increased change, while those of Geppert indicate that the variations observed under alcohol are within the normal limits of variation. Atwater's published observations show in one case (Experiment 7) a loss of carbon under alcohol as compared with a companion non-alcohol experiment (Experiment 8), in the other no variation between the alcohol and non-alcohol experiments (Experiments 9 and 10).

A careful critical study of all these researches leads us to conclude that the effects of moderate quantities of alcohol upon respiratory metabolism vary much according to the conditions present. In most conditions it appears to cause a loss of substance.

In regard to our third fact also, our knowledge cannot be said to be absolutely settled. Here, however, our lack of uniformity is much less in evidence than in regard to our second point. Some discrepancy is found in the results of the several researches of certain observers, but the majority of cases under each observer and the great total majority of cases investigated indicate that alcohol in moderate doses (40 to 72 grammes ethyl hydroxide in twenty-four hours) causes a loss of nitrogen to the body. And the study of the several researches conducted upon men during the last ten years, seven in number, leads us to conclude that the alcohol, though its effect in moderate doses upon proteid metabolism is obviously slight, fails to spare the proteid tissues. Large doses are distinctly prejudicial to proteid metabolism.

This work upon the effect of alcohol upon proteid metabolism in the human body, published during this present decade, consists of a research of von Noorden in 1891, one by Miura under the direction of von Noorden in 1892, one by Schmidt under Rosemann's direction, one by Schönesseiffer, one by Neumann, one by Stromm, and one by Atwater. Rosemann has shown that all the work upon this subject done previous to 1890 is valueless, owing to the fact that the observers worked with insufficient data.

In von Noorden's investigations upon three individuals, a loss of nitrogen under alcohol was observed in two cases, a maintenance of nitrogenous equilibrium in one. The case without loss received a rich proteid diet.

Stromm, in his researches, found that a loss of nitrogen was the rule under alcohol. Exceptions were present in some observations. Miura made three similar researches upon the following plan: In the first period the subject (himself) was brought into a condition of nitrogenous equilibrium upon a regular diet. In the second period a certain portion of the carbohydrate of the diet was replaced by isodynamic quantities of alcohol (65 grammes alcohol daily). In the third period the regular diet was restored, the sugar again replacing the alcohol. In the fourth period a diet minus both the sugar and alcohol (a reduced diet) was given. Miura's results showed that under alcohol the nitrogenous equilibrium was not maintained, the loss of nitrogen under alcohol equaling that lost upon reduced diet. When the sugar was replaced in the diet nitrogenous equilibrium was restored. This research of Miura appears to be the most complete and adequate upon the subject published up to date.

The researches of Schmidt and of Schönesseiffer gave results similar to those of Miura.

Neumann claimed that the results of this observation proved that alcohol spared the proteid tissues of the body. Rosemann, however, has made a careful review of this research of Neumann, in which he proves conclusively that the experiment is inadequate and the conclusion drawn from it by the author unwarranted by the results. We cannot, therefore, accept the testimony of this research in regard to our question in hand.

Atwater has published two researches. In both the subject received 72.59 grammes ethyl hydroxide daily in place of isodynamic quantities of carbohydrates or of fats. In both researches there was loss of nitrogen under the alcohol as

compared with the results under the regular diet. Professor Atwater tells me that further experiments have given conflicting results, in some cases a maintenance of nitrogenous equilibrium under alcohol, in some a failure in this maintenance.

The question of the nutritive value of alcohol has long been a subject of controversy among physiologists. Liebig, arguing from the similar chemical composition of alcohol to that of the fats and carbohydrate food substances, classed it among the fuel-food substances, and many physiologists have accepted this classification. An equal number of scientists, on the other hand, deny that alcohol has any nutritive value whatsoever in conditions of health.

It is interesting to consider this question in the light of our modern scientific knowledge. According to Voit, a nutrient is a substance which replaces or spares any necessary material of the body. The ordinarily recognized nutriments of the body are the organic foods, the proteids, carbohydrates, and fats, and the inorganic foods, as water, sodium chloride, oxygen. These substances all replace similar materials in the body. Some of them, as the fats and carbohydrates, also possess the property of sparing the proteid tissues. Alcohol cannot replace a similar material in the tissues, since alcohol is not a fixed constituent of the body. Its nutritive action — if it possesses any — must therefore consist in sparing by its action in metabolism some native tissue material. The review given above of the investigations up to the present time upon the action of alcohol in and upon the body metabolism reveals the following facts in this regard: Alcohol is oxidized in the body with the consequent liberation of energy therein. Its effects upon proteid metabolism appear to vary somewhat with the conditions of the organism. As a rule, in the normal individual its use is accompanied by a loss of nitrogenous tissue. In small doses this effect upon proteid metabolism is slight. In large doses it is marked. The effect of alcohol upon the metabolism of the non-nitrogenous organic tissue ele-

ments appears to be variable even in normal conditions. In most cases it fails to spare the fats of the body. Its effects in small doses in either direction are very slight. As compared with the fuel foods which it resembles in its chemical composition we find that if in normal conditions 500 calories' worth of fat or carbohydrate in a diet, under which a man maintains himself in tissue equilibrium, be replaced by an equal calories' worth of alcohol, a loss of nitrogenous tissue will as a rule result. If this alcohol be in turn replaced by the fat the body will as a rule return to its state of nitrogenous equilibrium. That is, alcohol has not, in the general rule, the sparing property upon the tissues of the body possessed by the ordinary organic foods.

Summing up our results, we find that alcohol resembles the organic foods in the fact that it is oxidized in the body. It differs from them in that, while these can as a rule, in normal conditions, be depended upon to replace a given amount of body material, or to spare such material, it cannot be so depended upon.

The results of our scientific researches in regard to the nutritive value of alcohol at present, therefore, permit of our drawing only the restricted conclusion that in the average case it has no such value. The variations present forbid an absolute denial of this property in all cases. Since, however, these results show clearly that alcohol either lacks the tissue-sparing property of the regular fuel foods or possess this property in a much less degree than these, they justify the full and unreserved conclusion that its nutritive value, if it possess any at all, is clearly less than that of any of these substances, and, calorie for calorie, sugar or fat should always be preferred to alcohol. Why the alcohol, producing an equal amount of energy in the body to the fat or sugar, should not be of equal value there cannot be absolutely determined. It is probable, however, that through its well-recognized action upon the nervous system, some disturbance of metabolism or of the oxidation of the tissues is effected, as a result of which the

proteids or other tissue elements fail to get the benefit of the nutritive aid of the alcohol as they do that of the ordinary foods. This fact is in a manner an evidence that this poisonous action of alcohol is present even when small quantities are taken. Else why should not the same results upon tissue metabolism be obtained with alcohol, which are obtained with the same quantities of sugars and fats?

Of the existence of this poisonous action of alcohol, even in small doses, upon the nervous system, or upon the body through its effects upon this system, we possess a mass of experimental evidence. Kraepelin, Lombard, Aschaffenburg, and others have reported experiments which show that even small amounts of alcohol (doses of 20 to 30 grammes hydroxide) cause diminution in the total capacity of the individual for mental or muscular effort. The work on this subject reviewed by Kraepelin in a recent article includes over 2,000 researches. It is a well-proven fact that, though the combustion of alcohol must provide heat to the body, still the action of the alcohol upon the nervous system is such that by the resultant dilatation of the peripheral vessels the body is made less rather than more able to maintain its heat supply under alcohol.

Whether this poisonous action is, as is generally believed, a paralysis of the nerve centers or not, it certainly is present to a greater or less degree in all cases of health, and it is natural to suppose that it is this result which offsets any beneficial nutritive influence which the energy derived from the alcohol might tend to lend to the body.

The variation in the results of the experiments with alcohol quoted may be in part explained by the possession of a greater or less immunity in the subject of experiment to this poisonous action. The sum total of all the results of alcohol upon the body metabolism certainly inclines the unprejudiced student to agree with Horsley that total abstinence has a scientific basis.

ALCOHOLISM.

BY H. L. STAPLES, A.M., M.D., MINNEAPOLIS.

I may say, in prefacing my remarks, that no malady which we encounter in a medical or surgical way requires more skill, tact, and patience to treat than alcoholism in its protean manifestations. Alcoholism may be defined as a disease of heredity or acquirement—a pathological state caused by excessive use of alcohol, manifesting itself by lesions of the brain, spinal cord, or peripheral nerves. There is a rapidly strengthening opinion at the present time that in a certain sense it is nearly always hereditary. It is not claimed that all alcoholics have a similar parentage; but trace back the family lineage, and, together with this disease, we find insanity, epilepsy, chorea, hysteria, morphinism, syphilis, prostitution, pauperism, and crime. All children of inebriates are degenerates and the disease may be handed down for four generations.

Says Sir Thomas Browne in his *Religio de Medici*: “Among thy multiplied acknowledgements lift up one hand to heaven that thou wert born of honest parents, that modesty, honesty, and veracity lay in the same egg, and came into the world with thee.” Would that all our doctors sprung from similar eggs!

The alcoholic is only a member of a family group; one branch of a decadent stem.

Vigorous, evenly balanced people of good parentage and health very rarely use liquors to excess. Dr. Dercum has thus clearly expressed himself in this regard: “To strictly normal individuals the use of stimulants beyond the limits pre-

scribed by ordinary social usage, is unpleasant and distasteful, and even when, as the result of special social occasions, alcohol is taken to excess by such persons, a disgust for the drug ensues, and leads to a period of relative abstinence."

Too little attention is given by most of us to the matter of heredity. From one intemperate mother in three generations sprung twenty-seven persons; twelve were alcoholics and three morphine habitués. Demme thus writes: "The direct posterity of ten families of drunkards amounted to fifty-seven children: twenty-five died soon after birth; of the remainder, six were idiots, five dwarfs, five epileptics, one each had chorea, chronic hydrocephalus, hare-lip, and club foot. Two of the epileptics became alcoholics." I had for a patient an actress who combined with a brilliant mind the least regard for morality in any form that I ever had the opportunity to observe. She had been drinking absinthe for several days, and, to say the least, was somewhat broken up. When I asked her in regard to her habits, she replied: "My father was never sober, and my mother a morphine eater. Conceived under such circumstances what can you expect of me?"

Kiernan's history of a degenerate family is in part as follows: "The offspring of the nymphomaniac daughter and her strabismic, migranous cousin were a ne'er-do-well, a periodical lunatic, a dipsomaniac daughter who died of cancer of the stomach, deformed triplets who died at birth, an epileptic imbecile son, a hermaphrodite, a prostitute, a double monster born dead, a normal daughter, and a paranoiac son. This paranoiac married his color-blind cousin; their progeny consisted of an exophthalmic daughter, an epileptic with an undescended testicle, a cleft palated imbecile, dead born quadruplets, an idiot, and a bleeder."

Yet occasionally from such ancestry some of our greatest writers and orators have been produced.

Says Wood: "Many children of genius have an intellectual life spent upon the borderland of insanity, and a moral

history setting them apart from the normal human being, and showing but too clearly the traces of their ancestry."

Goethe, one of the world's greatest poets, dyspeptic and tuberculous, fell in love at fifteen with Gretchen, and worshipped her as Dante did Beatrice; from that time he was never without a passion, and wrote erotic and sensuous songs without number. Victor Hugo's family were nearly all insane, and his finest productions show unmistakable evidence of madness. The father of Lord Byron was a profligate, inebriate army officer, while his mother was ill-tempered and passionate. His uncle, a homicide, was termed the wicked Lord Byron. Byron often sought consolation, like Childe Harold, in the harlot and the bowl, and wrote *Don Juan* while living with the Countess Guiccioli, a woman whom he had induced to leave her husband.

Poe's father and mother were actors of irregular habits, and the works of this most popular writer of his generation were elaborated in a condition of semi-madness and intoxication. One writer remarks that some are drunkards by choice, and some by necessity.

There is a wide variation in the amount of stimulants which different persons can imbibe without exhibiting the effect. Some get drunk first in their legs, others in their heads. The chief pathological changes may be thus briefly stated. The peripheral nerves and nerve endings are particularly liable to structural changes, as are also the brain and cord. The pia is often thickened, and pachymeningitis is frequently observed. There is œdema of the convex surface of the brain, and effusion into the ventricles. Pure alcohol has been distilled from the brain.

Multiple neuritis is common, more frequent in steady drinkers than periodics, and in women than men. Chronic gastric catarrh almost always exists, and dilatation of the stomach in beer drinkers. I saw some stomachs in the Vienna morgue which on inflation resembled balloons, demonstrating

where the numerous quarts of beer were deposited during an evening's conviviality. Hepatic cirrhosis is almost constant, the alcohol acting directly upon the liver cells. Interstitial nephritis is not as frequent as formerly supposed, while the enlarged, flabby, congested kidney is common. A typical chronic croupous nephritis is noticeable about middle life in many. Degenerative changes in the heart and arteries always appear, dilatation, valvular disease, and fatty heart, are the common results. According to Strümpell, who speaks ex-cathedra, alcohol is the most frequent factor in producing arterial sclerosis. Glycosuria is common in great beer drinkers, notably in Bavaria. A chronic alcoholic is not a good risk for life insurance and should always be written on the sub-standard plan, whether he has taken a so-called cure or not.

Alcoholism is by no means as frequent in women. It is observed more often in England, where gin drinking is prevalent. The chief causes are neurasthenia due to lack of nutrition, menstrual distress, the worry of domestic life, and social demands where stimulants are frequently employed to spur the flagging energy. Whisky and morphine are the popular remedies, taken too often by advice of the physician. Unfortunately alcohol does not so frequently bring sterility as opium, and a diseased, depraved progeny is infused into the community. Psychical derangement, ranging from slightly erratic conditions to maniacal outbursts, are common, owing to the inebriety of women being usually periodic. I know no sadder sight than a woman of culture and refinement crazed with intoxicants. Where every form of intelligent, persistent treatment is without avail, I believe oöphorectomy is in some cases eminently proper. This might cure the malady; it surely would prevent the continuance of the disease in her offspring.

The French women, and a rapidly increasing number of Americans, are becoming addicted to liqueurs, starting with creme de menthe, then progressing by rapid stages to benedictine, curacoa, and absinthe. The delirium of women is usually

of a noisy, raving type; a refined, charming woman may become profane and obscene, set fires or throw weapons. One woman was committed to jail one hundred and thirty-seven times for being drunk, and when drunk her invariable practice was to smash windows.

With the symptoms of an acute debauch we are all familiar from frequent observation, or, more rarely, personal experience. There exists a toxic gastritis with irritation of the kidneys and hepatic cells. The urine frequently contains albumen, and, more rarely, blood. The conjunctiva and skin are yellowish, the tongue tremulous and heavily coated; there is gastric and hepatic tenderness, nausea, and the classical symptoms of an enlarged head and intense headache.

The constant drinker presents many singular phases. One of the most interesting is that of the solitary drinker. We observe this sometimes in men who apparently lead the most exemplary lives — such as clergymen, temperance advocates, college professors, and literary men. Such men would never enter a saloon, or even drink wine at a social gathering, but in their studies, surrounded by their books, they abandon themselves to the free use of the bottle. Many a grand and noble effusion has evolved from the brain thus stimulated.

After years of indulgence a chronic gastric catarrh, cirrhosis of the liver, or a general paralysis reveals the condition. When the habit becomes known it gives rise to such remarks as “What a brilliant mind has been impaired by drink,” or “What would he have been, had he left stimulants alone.” This is in a measure wrong; for the fact is that the brilliant rhetoric and persuasive eloquence are brought about by the action of whisky on a degenerate brain, and the person deprived of this spur to action would very likely be commonplace. Periodicals or drink-storms are much like mania, and are almost all from defective ancestry, as insanity, epilepsy, or moderate drinkers. These drink-storms resemble epilepsy closely, and the intervals usually grow shorter with succeeding years. Sometimes they

occur with astronomical exactness, as in one case it occurred every 91 days and two hours; another, every 62 days and four hours. Some get drunk on Saturdays, and attend church on Sunday as a measure of atonement. The proprietor of a large mercantile house would apply himself closely to business for eleven and one-half months, and then go off on a fishing trip with a low character whom he employed to keep him constantly intoxicated for thirteen days, reserving one day and night for sobering up, and preparing for the resumption of his business.

There is no distinct proof that general paralysis is due to alcoholic excess alone, but it is a powerful factor when overwork, intellectual strain, worry, and terrible disappointments exist.

The chronic alcoholic is a most unmitigated liar at all times, and no credence can be placed in his sayings or promises. He is also a coward, but occasionally dangerous, as when he has the delusion that some one is endeavoring to poison him. The sexual delusion frequently gives rise to uncontrollable jealousy and wife-murder results. Many a lovely, refined woman has thus been sacrificed by an alcoholic lunatic.

Cerebral automatism has been well established in the minds of scientific observers for years; yet it is almost impossible to have it recognized in the law courts. Somnambulism, epilepsy, catalepsy, the hypnotic condition, and, more frequently, alcoholism are the causes. Persons who are under the influence of alcohol suddenly commit murder or some other crime entirely at variance with all previous conduct. A young man was convicted of murder under the following circumstances: He was unaccustomed to drinking, but went to a barn-raising, drank some hard cider, and later took a drink of gin. He had a pistol, and while wandering aimlessly about, deliberately shot a man. When he recovered he was entirely unconscious of the occurrence, yet did not appear drunk when the shooting took place.

A merchant in an Eastern city was never drunk, but was

a heavy wine drinker, which frequently caused intense headache. He drank champagne heavily at the club, and his mind became confused. When he recovered two weeks later, he found he had married a lady acquaintance, visited Boston, Portland, and Montreal, awakening at Saratoga. He drank steadily all the time, his mind appeared clear, and nothing unusual was noticed in his manner or conversation. He applied for a divorce on the ground that he had no knowledge of what he had done. This was promptly denied by the courts, but a settlement was mutually agreed upon. One year later he awoke on the ocean, and found that he had taken a steamer for Liverpool, and was several days from the port of sailing. All he could remember was that he had imbibed quite freely with a friend in Boston, and he ascertained that he had embarked the same evening. I had for a patient a traveling salesman who was drunk for a week, during which time he sold several bills of goods. When he became completely sober he positively asserted that he had no recollection of any event of the past week. The business men whom he called upon noticed that he had been drinking; yet he appeared to understand his business thoroughly, and exhibited his usual manner in securing their orders. He had handled one class of goods for years so that automatically he went through his accustomed routine.

Delirium tremens presents a multitude of phenomena, from the tremulousness, depression of spirits, mental confusion, and the so-called horrors to the wildest mania. It develops usually during a debauch or when the stomach will no longer retain liquor. That a sudden cutting off of stimulants will occasionally precipitate an attack cannot be denied, but if the case is intelligently handled it is a rare accident. The hallucinations are usually those of terror or horror, and sometimes ludicrous, as in a case narrated by Flint, where the patient declared that he could readily sleep if the persons under the bed would stop tickling his fundament with straws. Insects, snakes, toads,

rats, spiders, dragons, and wild beasts are frequently imagined to be present. One of my friends would delay sending for me until he saw a rat with a blue tail, which was evidence to him that he was in bad shape. Another would keep his arms outstretched, and declare that he was one of the thieves crucified on Calvary. Persistent insomnia and restlessness are constant features much exaggerated at night. A typhoidal condition is usually fatal, though I have observed recoveries from apparently hopeless conditions. Occasionally the thermic centers appear paralyzed, and a temperature of 104 degrees to 105 degrees ensues. The patients are very excited, delirious; sweat profusely, and die in a few days of exhaustion. Vomiting is frequently excessive, and the retching is painful to observe. Thirst is intense, but fluid increases the nausea, placing the poor devil in the condition of Tantalus in Hades. Sometimes the patient will be courteous and quite rational, yet the mind will be preoccupied, and a certain unrest and uneasiness will be observed. A celebrated actor had been drinking several days, and was placed in my charge one morning that he might be rendered fit for the evening's engagement. As there was an advance sale of \$1,200, the gravity of the case from a financial standpoint became apparent. The liquor was dispensed with at his own suggestion. He was given a hot bath and vigorous massage, followed by hot broths containing the red pepper condiment. Three doses of strychnine nitrate, 1-50 gr., were given hypodermically. Through the day he conversed and joked freely. A drachm of sodium bromide produced a short afternoon nap. On account of his manifest uneasiness and habit of watching the corners of the room, I did not feel sanguine of success. He went to the theater at the usual time, accompanied by his valet, declaring that he never felt better in his life, and started to make up for the performance. He soon exclaimed that on account of certain odors about the dressing-room, it would be impossible for him to act, and no persuasion could change his determination. I well re-

member the array on the table at his room when I called an hour later. On the table two bottles of champagne, an equal number of beer, and a quart of whisky were conveniently arranged, while opposite sat a boon companion, endowed with a royal purple nose. He greeted me in this fashion: "Doctor, I don't need you any more to-night, but come very early in the morning."

I had some curious experiences while surgeon of a national soldiers' home containing nearly 2,000 inmates. They would drink anything containing proof spirits, from cologne water to liquid shoe blacking. My druggist was quite intelligent and once had a good pharmacy in New York city, which he had lost on account of delirium tremens. He promised me faithfully that he would let the tinctures alone if he could have half an ounce of whisky three times a day. All liquors and essences, of course, were securely locked up. Our formula for essence of peppermint was one ounce of oil of peppermint and 15 ounces of alcohol. He had just prepared this amount, and before I could lock up the bottles, I was called away by an accident. On my return half an hour later he was collapsed on the floor, and the empty bottle showed that he had swallowed the contents, probably without dilution. An emetic was administered, and he was removed to the hospital. He had all the various acute inflammations mentioned in medical dictionaries, running from stomatitis to cystitis, and was gathered to his fathers on the third day.

One day a painter brought an order from the commandant for a pint of alcohol to cut some shellac. Fearing the result, I had him bring his paint-pot, into which I poured the alcohol. In half an hour he was dead drunk with his lips well decorated with paint.

At one time, having an unusual number in the guardhouse, I inquired of my secretary as to the cause. He replied: "We take Jamaica jinger and beer mixed, and I tell you it makes a hell of a fuddle."

The treatment of an acute debauch consists of an emetic, if the stomach is still supposed to contain liquor ; hot baths ; calomel, followed by a saline laxative ; broths with pepper, and hot milk.

A case of delirium tremens must be carefully examined, especially in reference to the condition of the heart, kidneys, and nervous system. The patient should be confined to the room, and in most cases to the bed. I much prefer a strong, good-natured, even-tempered nurse to strapping or a padded room. The alcoholic is usually not aggressive, or prone to injure others than himself. All liquors should be absolutely interdicted. This has been my rule in hundreds of cases, except in case of pneumonia or great heart weakness ; and I rarely am obliged to deviate from it. The continuance of small quantities of liquor does more harm than good, and prolongs the convalescence. Moderate smoking I allow. If not too weak, a hot bath, followed by a vigorous rubbing, is helpful. Turkish baths are dangerous to persons with dilated hearts, a common occurrence in inebriates.

I have had two cases of heart fracture in Turkish bathrooms, one of the right auricle, the other of the right ventricle.

Emetics should never be employed, owing to the danger of cerebral hemorrhage, or arterial rupture in other localities. For days usually, no food has been taken, and this is of first importance. Hot, strong beef tea, to which cayenne pepper has been liberally added, is most excellent. An amount of pepper which would produce gastritis in a healthy stomach is often a beneficial stimulant to the inflamed stomach of a drunkard. Various broths, malted milk, peptonized milk, soft boiled eggs, custard, bovine, liquid beef, milk and Vichy, are all of assistance. I once prescribed liquid peptonoids, and my patient drank a pint bottle to get the effect of the sherry which it contained. All foods should be soft and easily penetrable by the gastric juices.

A drug of great value in quieting the patient and procuring

sleep is sodium bromide, and it should be given in large amounts. Never give less than one drachm, but usually two, as the initial dose. This should be well diluted. Years ago I heard Wm. A. Hammond lecture on the diseases of Wall Street, and his advice in such cases was, give 100 grains and repeat in two hours if necessary. I have given one ounce in twenty-four hours with good results. Hydrobromate of hyoscine as an auxiliary remedy is of value, gr. 1-100, hypodermically, repeated but once in two to four hours. Watson, the Macaulay of medicine, strenuously advocated the use of morphine, and since his time no efficient substitute has been found in certain conditions. Where the retching is intense and there is evidence of great pain, I know of no remedy comparable to the injection of morphine. It should be carefully watched, and the quarter-grain dose not repeated too frequently. At first it should be combined with atropine, which has a positive effect in allaying the drink craze. Chloral is an efficient hypnotic, likewise a dangerous remedy, which occasionally causes death. Several accidents have come to my notice, and prejudiced me against its employment. In sthenic cases half a drachm, in divided doses, may be safely administered. Digitalis is of benefit in certain cases of weak heart, preferably in the shape of digitaline used hypodermically, or 10 to 20 drop doses of the tincture every three or four hours until the effect on the pulse is noted. The heroic dose of one-half ounce should be condemned. Calomel has a markedly sedative action on the stomach, and is best administered in the form of powder, dropped on the tongue. A certain amount will be absorbed even when the vomiting is frequent and profuse.

Sometimes a patient will feel the impending drink-storm and apply for relief, or more frequently his friends will make the application for him. Certain remedies are valuable in this connection. First, if the patient be plethoric and a hearty eater, a large dose of calomel should be administered, followed

by a saline, such as Hunyadi or Rubinat water. Probably the best treatment is to give, hypodermically, strychnia 1-50 gr. and atropine 1-100 gr. three times a day. Quite rarely the atropine dose must be reduced on account of unpleasant physiological action. Sodium bromide is necessary for quiet and sleep. Potassium bromide should be avoided, on account of the depressing action of the potassium salts. For years I have given the acid phosphates as cerebral tonics, and I believe they do good. There is a tremendous loss of phosphates by the urine, and, theoretically, such preparations are indicated.

The question of a permanent cure for alcoholics has been a fruitful subject for discussion, and probably always will be, unless mankind becomes constituted on radically different lines. The home treatment has many disadvantages, and is rarely of benefit. Isolation in a state or private institution for periods of from one to six months holds out the greatest hope for success. We could adopt here, with modifications, the Austrian method, where the inebriate is taken in charge by the state for a limited time, either on his own complaint or that of friends, on much the same plan as in insane cases. Each case is carefully analyzed and as carefully treated.

We annually expend in this state hundreds of thousands of dollars in caring for insane people who never can be any good to themselves or the community, while one-tenth of that amount additional would be the means of rendering hundreds of alcoholics useful members of society. It is a fitting time to advocate the establishment by the state of a hospital for inebriates, located in close proximity to the Twin Cities, and managed by the best talent obtainable, not reformed drunkards or morphine habitués. Many physicians are not aware that in well conducted establishments over 50 per cent. of their patients have been temperate for a period of over five years after treatment, and the percentage is rapidly increasing.

A few years ago Keeley announced his bichloride of gold remedy, and an epidemic of cures ensued. The Dwight hypo-

dermic injection gives an analysis of strychn. sulph. gr. 1-64, atropine gr. 1-128, boric acid, and water. This usually has a yellow label, or is contained in a yellow bottle, for mental effect. The tonic consists chiefly of a compound tincture of cinchona, a little aloin, and chloride of ammonium. Not a trace of any gold salt has ever been found.

Many of the so-called cures contain tartar emetic. This stops the drink craving and also desire for food, and usually keeps the patient busy attending to his stomach and bowels. The liquors furnished at the cure establishments contain this drug, and the patient very honestly states that his system is so changed that he cannot enjoy the taste of liquor.

A few years ago a gentleman of this city desired me to remain with him while he took a bottle of a positive cure. He stated that he knew he would be very sick, which was correct. The evidence of tartar emetic was unmistakable. A few months later he informed me that another bottle would be necessary to complete the cure, which was evident from his condition, but I declined to be present during the ordeal.

Many of these cures are an abomination, being managed by unscrupulous men for the purpose of robbing the unfortunate inebriate, anxious to shake off the terrible octopus which is dragging him down. These vultures are armed and equipped with glowing testimonials, not only from patients, but also from highly moral and philanthropic individuals. There never was a medical swindle so vile that it could not readily induce some constipated old minister or some short-haired creature, masquerading in female attire, to sing pæans in its behalf.

The following is but a single instance of their knavery. A university graduate became engaged to a young lady who had pronounced ideas on the liquor question. Hearing that he had drunk beer with some students, she declared that he must take the cure before the marriage could take place. He hies himself to a so-called cure, and states his case, that frequently

he would drink a glass or two of beer, but was never intoxicated in his life. He is promptly informed that treatment is highly necessary to secure him from perdition. He pays his hundred dollars, is injected, and numbered among the redeemed. On making application for life insurance he is promptly rejected, and only accepted after a thorough investigation of the matter.

One of the local cures is managed by a graduate of a fake institution, whose sole ability consists in a Uriah Heep expression of countenance, and a sepulchral voice. When his tartar emetic preparation is swallowed, the recipient sees with a new light, loses the desire for liquor instantly, and seeks the seclusion which the bath-room grants. His star commendation is from an actress who is a morphine, cocaine, and liquor fiend, and whose present condition is as lamentable as before undergoing treatment.

To argue that a man can be entirely rehabilitated in three or four weeks is absurd, and that the medicines administered have a lasting effect, no sensible physician will admit. Moreover, these cases are not carefully examined. One of my patients was treated the prescribed time, all the while being very ill with chills and fever. On his return home a huge rectal abscess was discovered.

One fact should be well known, that many cases recover suddenly without any treatment, the disease having died out, when the man becomes an abstainer from that time. No matter whether he has signed the pledge, taken a cure, or swallowed sugar pills, the craving for liquors has ceased, probably brought about by some cerebral change.

I well remember a New England village character who was embalmed in whisky and hard cider for twenty years. One day he appeared on the street perfectly sober, and to his wondering friends said he had made a d——d fool of himself long enough. He was never known to touch liquor again. Man goes through climacteric changes much the same as woman, and at these epochs the disease is most apt to disappear.

THE EFFECT OF ALCOHOL ON THE NERVOUS
SYSTEM IN THE LIGHT OF RECENT
SCIENTIFIC RESEARCH.

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The evil effects of alcohol upon the body become more and more apparent and conspicuous when the search-light of modern scientific methods is focussed upon this subject. It has been well known to physicians and scientific men for a number of years that the use of alcohol, even in moderate quantities, when long continued, produces various diseases of the nervous system, such as paralysis, insanity, apoplexy. In hundreds and even thousands of cases of those who have been addicted to the use of this poison for any considerable time, by post-mortem examination, severe and distinct organic changes have also been found in the brain and other parts of the nervous system.

The immediate evil effect of alcohol in moderate quantities, however, has not been so clearly understood or appreciated until more recent methods of study have been applied to this line of investigation. The fact is now thoroughly established that alcohol, even in small quantities, does produce serious structural changes in the different tissues of the body. These organic changes can be demonstrated in the human body after death caused by acute alcoholic poisoning, and in the bodies of lower animals that have been given moderate quantities of alcohol, and killed a few hours after the administration of this

poison, the cells of the body being then subjected to a careful microscopical examination.

The purpose of this paper is to bring out clearly, if possible, and to emphasize the fact that alcohol in moderate quantities does produce, in a short time, serious organic changes in the nerve cells of the brain and central nervous system. To make the matter clearer it may first be necessary to place before the mind of the reader some facts with reference to the finer anatomy of the nervous system, and the internal structure of the nerve cells which form the essential tissue.

The central nervous system, consisting of the brain and spinal cord, is made up of different kinds of tissue: First, the nerve tissue proper, which is composed of nerve cells; second, connective tissue, which forms the framework of the nerve system, and the supporting tissue for the cells; third, the blood vessels and lymphatics, the function of which is to carry food to the nerve cells and to the other tissues of the brain, and also to carry off waste matter.

Figure 1 is an illustration of a nerve cell and shows how the nerve cell is made up of several different parts. It takes all these different parts and processes to form a nerve cell in its entirety. This cell, or nerve unit, is usually considered as made up of two parts in general: first, the central part, described as the body of the cell; and, second, the various branches or processes that are attached to the body of the cell, and extend out in various directions from it. From one standpoint, the body of the cell is, perhaps, the more important part, as it has control of the life and nutrition of all the other parts and branches of the nerve cell connected with it. The branches, or processes, which extend out from the cell body are attached to the central part or body in somewhat the same manner as the branches of the tree are connected directly with the main trunk. As the branches of the tree are a part of the tree, so these branches, or processes, of the nerve cell are really a part of the nerve unit. As will be seen in Fig.

1, these processes extend out in nearly every direction from the body of the cell. There is usually one process much longer than the others, and this may be two or three feet in length. In the illustration this is marked n. Its entire



FIG. 1. A healthy nerve cell of the brain of a cat; n, single axis cylinder, which extends some distance outside of the drawings, and in some cases in the nervous system of man, may be two or three feet long; c, c, are collateral branches of the axis cylinder. The other branches of the nerve cell are called the protoplasmic branches, and extend only a short distance from the body of the cell.

length is not represented, for this would be impossible; but in many cases, as, for instance, in the nerve cells in the lower part of the spinal cord, this particular branch extends down the lower limb, and ends finally in the skin on the sole of the foot, in this case being three or more feet in length.

These nerve cells, as we term them, are the units or funda-

ments which make up the whole nervous system. They may be looked upon as real living animals, for such indeed they are, — very small, to be sure, so small that we must have a powerful microscope to see them; yet these little bodies are alive and active, and take in food from the blood.

Each cell has its peculiar duties to perform, the same as individual members of society have each their particular place and vocation. These nerve units have various shapes, forms, and sizes, many of them being in the same shape as that shown in the illustration; others are star shaped, some are flask shaped, some spindle shaped, and still others have irregular forms of various kinds. These nerve cells, as before stated, are microscopical in size, but some of them are comparatively large, and in some of the lower animals they are sufficiently large to be seen by the naked eye. In order to study their shape and form, their internal structure, and the various changes that occur in them as the result of poisons like alcohol, and disease processes, it is necessary first to color or stain these nerve cells with a dye so that they may be better seen, and then to observe them carefully under a powerful microscope. There are millions of these little living nerve units in the brain and nervous system, and it is by their activity that we are enabled to hear, to see, to feel, to move, to smell; in short, to perform all the functions of intelligent men and women. Whenever they become diseased, or their function is in any way impaired, some of our senses or our faculties or the function of some organ of the body, become impaired or destroyed. In order that these microscopical bodies may do their work properly, it is necessary that they be kept perfectly healthy, and that they have the proper amount and the right kind of food.

We may regard each of these little nerve bodies as a minute machine, the purpose of which is to transform into nerve energy the energy that we take into our bodies in food. This nerve energy is a real form of energy, and not a myth. The

nerve current travels along the nerve fibers that are attached to the body of the nerve cell, and passes from the brain and the central nervous system out, in one instance, to the muscles to make them contract, or along another nerve path to the heart to keep it in motion. Other currents travel along still other lines to the stomach and bowels, and to all the different organs of the body, keeping them stimulated and active and performing their functions properly. No mechanism conceived by the mind of man is so complex and so delicate in its make-up as these little nerve cells. It is really wonderful how well they retain their integrity under so many varied and harmful conditions. In order to appreciate more fully how delicate the make-up of these little nerve cells is, we may notice briefly some of the main points in their internal structure, as revealed by the microscope when they have been properly stained for this study.

Figure 2 shows the body of a nerve cell with part of the processes that are attached directly to the body, but it does not show all the processes, as does Fig. 1. One may notice in this first a little black point in the center of the cell. This is known as the nucleolus. Outside of this is another larger space, showing white in the illustration, which is known as the nucleus. Scattered throughout this white space is a fine meshwork composed of delicate nerve fibers, which is usually spoken of as a nucleo-reticulum. Outside of the nucleus is the principal part of the cell, known as the cytoplasm. We may notice in this a network of nerve fibrils similar to those seen in the nucleus. This is called the cyto-reticulum. Scattered through the cytoplasm of the cell are small masses of matter which stain or color very readily with certain dyes, and are therefore called chromophilic bodies. They are represented by the dark-colored patches within the cell body. All of these different parts of the body of the nerve cell are shown in Fig. 2. When seen under the microscope these chromophilic bodies have a somewhat granular appearance. They are supposed to be the

food matter for the cells, and are composed of highly complex and elaborated substances that have been transformed by the cell from the food substances brought to it by the blood current. During our waking and active hours we are constantly using up nerve energy. This nerve energy is manufactured

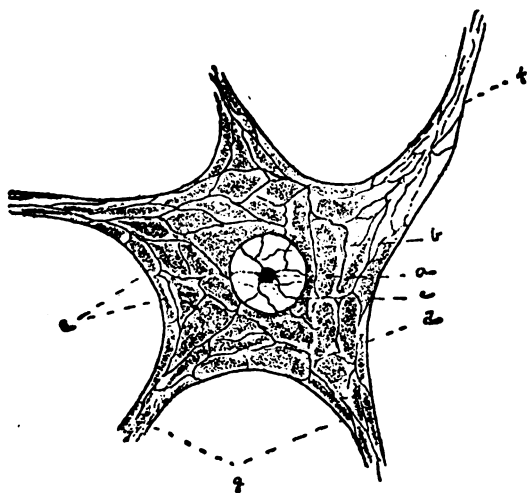


FIG. 2. (After F. R. Bailey, in *Medical Record*.) The body of a human nerve cell, showing the internal structure of a cell, and the beginning of the different branches or processes which extend out from it: *a*, nucleolus; *b*, nucleolar membrane; *c*, nuclear membrane; *d*, cyto-reticulum; *e*, chromophilic bodies; *f*, axis cylinder process; *g*, protoplasmic processes.

within these little nerve cells out of the energy that is stored up in the chromophilic bodies that we are now describing.

When one becomes fatigued by exercise, the energy in the nerve cell is nearly all used up, and we find by examination of the lower animals after they are fatigued that these chromophilic bodies are very much lessened in number and in quantity, and the nerve cell is very much smaller, and irregular in outline. This would seem to emphasize the fact that the little nerve cell is a very perfect and complex machine for transforming the nerve energy out of the latent or potential energy that we take into our bodies in our food. These

chromophilic bodies are more susceptible to influences, perhaps, than any other part of the cell, and consequently when any poison like alcohol comes in contact with the cell, the effect is first seen by changes in them. In fact, the changes which occur in these chromophilic bodies furnish us a very delicate test of the effect of different substances upon the nerve cells of the nervous system.

The fibrous network, or reticulum, in the body of the cell, is that part which has to do with originating and transmitting nerve currents. This part of the nerve body is not so sensitive to different substances and poisons, and consequently changes are not observed in these fine fibrils so quickly as in the chromophilic bodies. Nevertheless they are very delicate, and their structure is very easily affected by alcohol and other poisons that may be brought to the cell in the blood current.

Experiments have been made upon the lower animals, particularly the rabbit, the dog, and the cat, to determine, if possible, the immediate effects of alcohol upon the internal structure of the nerve cell. These experiments have been followed out somewhat as follows: An animal like the rabbit has been fed a moderate amount of alcohol with its food, the amount given being sufficient to produce slight or moderate intoxication. The animals have been killed at different periods after eating the food containing alcohol, and the nerve cells and the central nervous system have been subjected to careful microscopical examination by the latest and most approved methods of study. Some animals have been killed in a few minutes after the drug has been administered; others, in a few hours. In more than one instance, changes have been found in the nerve cells in less than an hour after the administration of the alcohol. A German investigator by the name of Dehio, and also Dr. C. C. Stewart of Clark University, Mass., have brought out some interesting and convincing facts along this line. Dr. Stewart found distinct retrograde and pathological changes in the body of the nerve cells of the rabbit

fifty minutes after the administration of a moderate quantity of alcohol. The same changes were also observed in a more marked degree in the case of other rabbits that were killed and whose nerve cells were examined some fifty-four hours after the administration of the alcohol.

The same changes that have been observed in the nerve cells of these lower animals under the administration of alcohol have also been observed in the brain cells of man in cases where death has been produced by acute alcoholic poisoning. The nature of the first changes found in both the rabbit and in other lower animals, and also in man from alcoholic intoxication, is a dissolving and scattering through the body of the cell of the chromophilic bodies previously described. The change is apparently the same whether alcohol is given to the lower animals, like the rabbit, for experimental purposes, or whether it is taken by man himself for the purpose of gratifying his perverted appetite. The opinion of all investigators is unanimous that alcohol causes a breaking down and dissolution of the chromophilic bodies. The larger the quantity of alcohol taken, and the more severe the poisoning, the greater are the changes found in the nerve cell. If the poisoning is continued for any length of time, as it is in cases of chronic alcoholism, then the more solid structure of the nerve cell breaks down under its influence, and in some instances the cell is entirely destroyed and disappears.

Figure 1 is an illustration of nerve cells from the human brain: *a* represents the cell in a healthy condition, and the chromophilic bodies can be distinctly seen; *b* is an illustration of the nerve cells from the brain of a man who died of acute alcoholic poisoning. It will be noticed that in this nerve cell the chromophilic bodies have largely disappeared, and in place of the granular substances being collected together in masses, as is shown in *a*, they are dissolved and scattered, and have almost entirely disappeared from the body of the cell. The changes represented in *b* are the same as those observed in

the nerve cells of rabbits and others of the lower animals that have been fed alcohol, and in which cases the examination of the nerve cells has been made within a few hours after the administration of the poison. It should be emphasized that this dissolution and disappearance of the chromophilic bodies within the cell is a retrograde process, and is the initial step in the breaking down of the nerve cell, which goes on from bad to worse with the use of alcohol. The dissolving and disappearance of these chromophilic bodies is known as chromato-

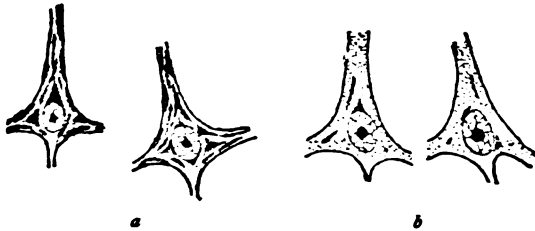


FIG. 1 (after F. R. Bailey, in *Medical Record*) is an illustration of the nerve cells from the human brain. The nerve processes of the cell are not shown in the drawings: *a* represents two healthy nerve cells; *b*, the nerve cells from the brain of a case of acute alcoholism. In *a* the chromophilic bodies are shown distinctly; in *b* they are dissolved and scattered, and have largely disappeared, from the internal use of alcohol.

losis, and is the first change that occurs in the degeneration of the cell.

Figure 2 portrays the changes that occur in the nerve cells in certain diseases, such as sunstroke, diabetes, diseases of the kidneys, in which poisons are accumulated and retained in the body, and affect the nerve cells; *c* represents the healthy nerve cell, while *d* represents the diseased nerve cell, caused by poisons that accumulate in the body as a result of these diseases.

Figure 3 represents the changes produced in the nerve cell as a result of the poisons of infectious diseases, such as diphtheria, typhoid fever, hydrophobia; *e* represents a healthy nerve cell with the chromophilic bodies distinct, while *f* represents the cell after it is acted upon by the poisons of these diseases.

In figures 1, 2, and 3 we have a very telling example of the effect of different kinds of poisoning on the nerve cell. From

this we can see that alcohol is an active poison, producing the same changes in the nerve cell as do the poisons of diphtheria, typhoid fever, diabetes, and other constitutional diseases. These changes in the nerve cell already referred to are the

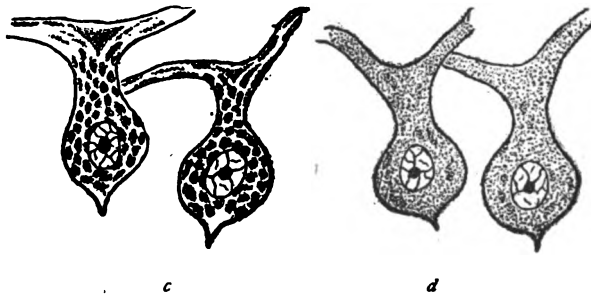


FIG. 2. (After F. R. Bailey, in *Medical Record*.) Nerve cells from the cerebellum, or hind brain: *c*, represents healthy cells; *d*, cells that have been poisoned by such diseases as sunstroke, diabetes, and uremic poisoning accompanying diseases of the kidneys. In *d* of this illustration the chromophilic bodies are also dissolved in the cell by the poisons of these diseases.

initial or beginning changes. When alcohol is used for any considerable length of time, the retrograde process goes on, and more severe changes are noticed in the nerve cell.

Figures 4 and 5 are drawn from the nerve cells found in the brain of a man who died from alcoholic insanity. It will be

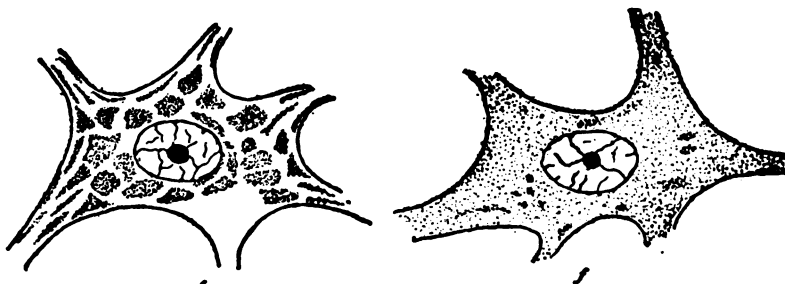


FIG. 3. (after F. R. Bailey, in *Medical Record*) represents nerve cells from the human spinal cord: *e*, a healthy nerve cell, showing distinctly the chromophilic bodies, and *f*, the appearance of a nerve cell that has been poisoned by the toxins produced by diphtheria, typhoid fever, hydrophobia, etc. Here we see in *f* an almost total absence of the chromophilic bodies. They have been dissolved and scattered by the poisons of these diseases. We may see from these illustrations the effect of three classes of poisons upon the nerve cells. These three classes of poisons produce the same degenerative changes in the body of the nerve cell.

noticed that the nerve branches in Fig. 4 are very much swollen and distorted and broken down. In Fig. 5 are seen the degenerative changes that have occurred in the body of the cell

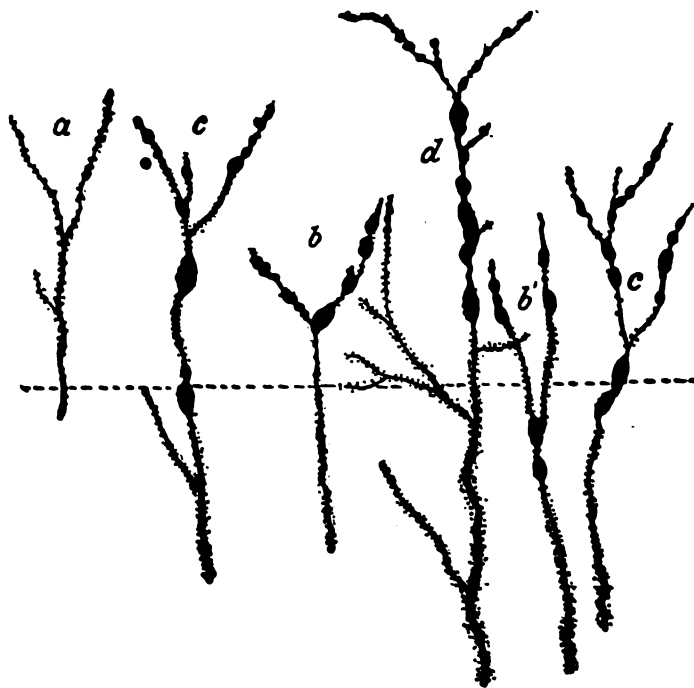


FIG. 4 is an illustration of the nerve branches and fibers in a case of alcoholic insanity. The patient died of this disease, and when the nerve fibers were examined under the microscope, they were shown to be swollen and broken down in the manner illustrated in the drawing. These swellings of the nerve fibers, as seen in this illustration, are characteristic effects produced by alcohol, and are usually seen in the brain of those dying from alcoholic insanity.

as well as in its branches. Compared with a healthy nerve cell, Fig. 1, there is a decidedly different appearance.

Since alcohol causes these various changes in the nerve cells of the brain and in the nervous system of man, it is no wonder that when he is intoxicated his mind is clouded, his speech is incoherent and thick, that his ideas are disconnected, his vision is blurred, objects seem distorted, he has hallucinations and illusions of various kinds, he staggers. How can

any one whose nerve cells are broken down by this poison think and act as one who is sane and healthy?

Many, of course, may argue that an occasional spree does not injure their health, but if feeding a rabbit or a cat a moderate amount of alcohol is sufficient to produce retrograde

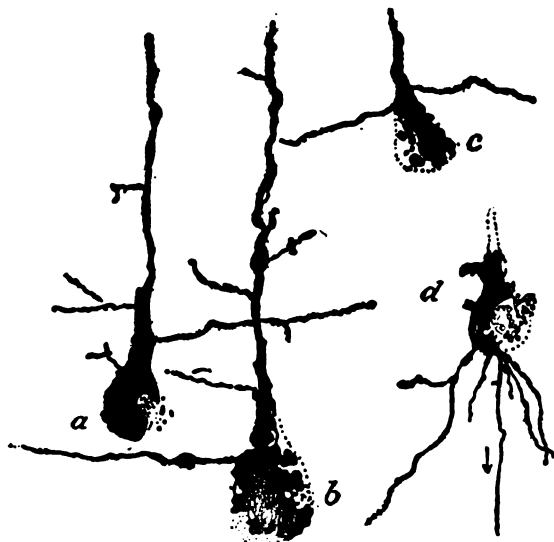


FIG. 5. This figure shows four nerve cells from the brain of a man who died of alcoholic insanity. It will be noticed that the body of the cells and the nerve fibers are broken up and degenerated.

The changes in the nerve cell and nerve fiber shown in Figs. 4 and 5 are the more severe changes, and represent complete destruction of the nerve tissue. The changes represented in Figs. 1, 2, and 3 are the initial changes produced by alcohol and other poisons, and are the beginning of a degenerative process. Such changes as are shown in *b* of Fig. 1 occur whenever a man becomes intoxicated from the use of alcoholic liquors.

changes in the nerve cells, is it not reasonable to suppose that every time a man becomes intoxicated, the nerve cells undergo the same retrograde process in their structure? We can come to no other conclusions from these scientific investigations.

It is true that if the nerve cell is not too thoroughly poisoned it will rebuild itself, and in time present a normal appearance, but no one can argue that this is beneficial to the nerve cell; on the contrary, common sense and reason both tell us that it is positively detrimental. Evidence is becoming more

and more clear and emphatic that alcohol at all times, and in all quantities, however small, acts as a poison upon the human body. Of course, the less poison taken, the less the harm; the more taken, the greater the harm; but harm is always done to a greater or less degree. A man may use alcoholic liquors for a time without doing apparent injury to his life, but sooner or later there is a reckoning day, and at the age of forty-five or fifty years he may be paralyzed, suffer a stroke of apoplexy, or contract some other serious disease resulting from chronic alcoholic poisoning. The writer has seen scores of cases of paralysis caused by alcohol in one who never became "intoxicated." Man does not need to be so intoxicated as to de-throne his reason in order to have the drug do him harm.

It is claimed that alcohol is a food because it is oxidized in the body. The fallacy in this argument will be clearly seen if it is stated in the form of a syllogism.

All foods are oxidized in the body. Alcohol is oxidized in the body, therefore alcohol is a food. Let us take some other substances that are known to be oxidized in the body. Phosphorus is oxidized in the body, therefore phosphorus is a food. Iron filings are oxidized in the body, therefore iron filings are a food. In the decay of meat and other proteids, certain compounds are formed known as ptomaines. Some of these are deadly poisons and are oxidized in the body, therefore ptomaines are food.

Again, it is claimed that alcohol is a food because it decreases tissue waste. Apply the syllogism and see how this will bear the test of logic. Morphine, when taken into the body, reduces tissue waste, therefore morphine is a food. Arsenic diminishes tissue waste, therefore arsenic is a food. And so we might multiply by going through the whole list of narcotic poisons.

What can be said in defense of such sophistry? Is it not an insult to the common intelligence of school children? To say nothing of the audacity of attempting by such argument to overthrow the combined testimony of the highest authorities on physiology!

MENTAL SUGGESTION AS AN AID IN THE TREATMENT OF MORPHINOMANIA.

BY SAM'L H. GREEN, M.D., OAKDALE, GA.

On September 10, 1893, I received into the hospital of the Chattahoochee Brick Company's branch of the Georgia penitentiary Robert D., white, age thirty-five, who had been, according to his own statement, addicted to the morphine habit for over five years. The prison guard who brought him from the jail, not being instructed by the county physician, refused to let him have the drug during the trip, and, as a consequence, when he reached the hospital he was almost immediately seized with a violent convulsion. A letter from a reputable physician, who had attended him professionally during his incarceration in jail, stated that he was in the habit of using four hundred grains of morphine a day. I restored patient by hypodermatic injections, and ascertained that his stomach frequently failed to take up the morphine, and then he was in the habit of resorting to the needle. Hundreds of red blotches, which literally covered his arms and legs, bore out this statement. The patient said that he had been told that when he arrived at the penitentiary, the morphine would be cut off, and begged piteously that it be not done. After reflection I decided upon a new line of treatment in this case, and in order to secure the patient's confidence, I resorted to diplomacy. I told him that he had been misinformed, that his supply would not be cut off, but that he had been addicted to the habit so long that he could not do without it, and that I would furnish him the drug as long as he remained in prison.

As an earnest of good faith on my part I gave him a little over three ounces of morphine in a bottle, instructing him to take it when he thought he needed it, and to come to me for another supply when he had used that. Promptly on the afternoon of the fourth day he asked for another supply. In the interim I had kept patient under surveillance, and in every way possible had fortified my already strong hold upon his confidence. I told him that the morphine I had had been on hand for several months, and when kept so long lost a percentage of its potency, and to counteract this loss of strength it would be necessary for me to make a solution and add another drug to the mixture. I took a quart bottle, filled it with water, and put three hundred and sixty grains of morphine in it; of this mixture I gave him a tablespoonful three times a day, and placed him on a light, nutritious diet. On third day patient showed rapid, nervous heart. I told him it would be necessary to increase strength of mixture, and that I would give him a drug which, when taken into the stomach an hour after the morphine solution, would make the latter more effective. In the meantime I had secured a quart bottle exactly like the one containing the morphine mixture, and after filling it with water, had placed it in my medicine cabinet. When I noticed that he observed my actions, I took the bottle of water out, and putting about half an ounce of sulphate of quinine in it, set it away in the cabinet again. The patient smiled confidently when he saw me do this. I then gave him his regular dose of the morphine solution, telling him that the recent addition had made it extraordinarily strong. Patient concurred with me in this, saying that it tasted "awful strong." Patient complained that his legs and arms pained him like they did when he had been deprived of morphine on his journey from the jail to the penitentiary. I told him that it was caused by rheumatism, and that I would give him something that would cure that. I took a two-ounce bottle, put four fluid drachms each of tincture of iron chloride, and digitalis in it, filled it

with water, and commenced giving him ten drops three times a day. I had kept patient on morphine mixture two weeks, when I commenced a further reduction by putting in a table-spoonful of water every time I gave patient a dose of the mixture. I kept him on this treatment, also the digitalis and iron, for four weeks, when I commenced to give him five grains of quinine in solution four times a day. Patient began to improve greatly, circulation became better, and his appetite increased wonderfully. At the expiration of seventy-two days I gave patient last dose of morphine mixture. Under the reduction of one thirty-second of the solution, each dose was virtually water, and had been so several days. Patient continued taking quinine solution, believing he was still on morphine mixture. I kept up digitalis and iron, and in exactly four months from date of entrance to hospital he was doing light work in prison blacksmith shops. Patient weighed one hundred and twenty-eight pounds when he arrived at prison, and six months from date of reception weighed one hundred and ninety-five. When I informed him that it had been some weeks since he had taken any morphine, he was greatly astonished, but after a while seemed much pleased, saying that he would never use morphine again as long as he lived. Prisoner was pardoned by the governor shortly afterwards, and went back to his home, where he now pursues his avocation of blacksmith. I have received several letters from him, in which he says he thanks God that he is free from the habit forever.

Edwin H., white, aged twenty-seven, was admitted to the prison hospital on the 16th of June, 1894. Patient had been an opium smoker for two years, and had then shifted to morphine, and had been addicted to the morphine habit over three years. When I first saw him, patient was using about three hundred and eighty grains of morphine daily; patient had been an inveterate cigarette smoker for over twelve years, and so excessive had been his use of them that on the first day of

his admission to the hospital he had two hemorrhages from his lungs, losing nearly half a pint of blood. I stopped hemorrhages by giving elixir of vitriol, one-half ounce, added to four ounces of water in half teaspoonful doses in wine-glass of sweetened water every hour. Patient realized that excessive cigarette smoking had caused the hemorrhages, and never cared for them again. Patient was a man of intelligence, and I commenced to secure his confidence by telling him that I sympathized with him greatly in his trouble, and that I would be pleased to do anything I could for him. Patient said that he had been informed that in penal institutions it was customary for the physician to cut down the supply to morphine habitués in the shortest possible time; said he had been using opium and morphine so long that if he were denied his usual quota his shattered nervous system would not be able to stand the shock, and that he would surely succumb. I concurred with patient and told him that, as he only had to stay in prison twelve months, I would supply him with as much of the drug as he desired. In the interim, to counteract the effect of the two hemorrhages I gave him subcutaneous injections of five drops digitalis and a half drachm of whisky. I let him have his usual quota of morphine for four days, after which I made a solution of three hundred and sixty grains of morphine in quart of water as in case number one. I told patient that, on account of the hemorrhages, it would be necessary for me to make a solution of the morphine so that I could incorporate another drug to increase its power. In order to strengthen him, I put him on four drachms of the quinine solution three times a day. I also gave him ten drops of the digitalis and tincture of iron chloride three times a day. On same day reduction of morphine was made patient complained of pains in legs and arms. I gave him hypodermic injections of half drachm of whisky at intervals of six hours, keeping up the injections for three days, at the expiration of which time I ceased giving the whisky and commenced giving him

five grains of quinine sulphate four times a day. In the meantime had placed him on a light, nutritious diet, occasionally between meals giving him a cup of malted milk. Patient inquired if I had not reduced morphine some. I told him that the medicine I had given him for the hemorrhage had blunted his sense of taste, but that if he did not think it strong enough I would add more morphine. I then went through the operation of putting quinine in a quart bottle of water where he could observe the action. Patient was immediately reassured and commenced to mend rapidly. When he had been on morphine mixture two weeks, I commenced reduction by placing in bottle a tablespoonful of water for every one of the mixture taken out. Reduction was gradual, but patient improved, and at the end of sixty-two days I told him he was taking water made bitter by a little quinine. Patient was surprised, but said he was glad that I had adopted that method of reduction. Patient weighed one hundred and twenty-six pounds when admitted to hospital. He, at this writing, weighs one hundred and eighty-five pounds. He is now, April 1, 1895, hospital steward at the prison hospital, handles morphine almost every day, and is thoroughly cured of the habit. To use his own language, he "becomes thoroughly nauseated when he thinks that he was ever addicted to the habit of using the vile stuff."

The remarkable features in these cases was the enormous reduction from four hundred grains in case number one and three hundred and eighty grains in case number two in twenty-four hours, to fifteen grains each in both cases in the same length of time without any bad effect except the rapid, nervous heart and pains in the limbs, which disappeared like magic under the combination of digitalis and iron, quinine, and suggestion.

Will you not concur with me when I say that suggestion is a great aid, if nothing more, in the treatment of morphinomania?

DAMAGE OF DAILY USE OF ALCOHOL.

BY C. H. HUGHES, M.D.,

Prof. of Mental and Nervous Diseases, Barnes Medical College, St. Louis, Mo.

If mankind in general knew what advanced pathology teaches the widely observant physician of the effects of daily alcoholic potations on the human organism, the use of alcohol and its principal compounds, natural or artificial, as a habitual daily beverage, would be shunned as a viper is avoided. Daily potations of strong drink persevered in, except in most exceptional moderation, will ultimately undermine the strongest constitutions as insidiously as the wiles of Delilah conquered the mighty Samson. Tri-daily potations of strong drink are stitches in the shroud and nails in the coffin of the drinker, by which the garment of life's span is prematurely finished and the funeral casket that transports us to the end of earth is prematurely ready for us.

Alcohol thus indulged in and not physiologically counteracted by an exceptional organism endowed with unusual power of resistance, makes morbid changes in the brain, its blood vessels, its coverings, and its substance, as well as in the heart and other organs of the body. Wine is a physiological mocker, and whosoever is deceived thereby is not wise. The morbid changes in the chronically alcoholized brain are well set forth in the recent treatise of Dr. W. Bevan Lewis on mental diseases. "The vessels dipping into the cortex, or outer layers of the brain, from the pia mater (or under covering of this organ) are of under size, coarse, and frequently tortuous, and their coats are in advanced stages of atheromatous (earthy deposit) and fatty change." "The nuclei of the adventitial sheath are somewhat num-

erous, are freely proliferating (projecting out) or their protoplasm is in a state of fatty disintegration," or breaking down.

The most prominent feature of chronic alcoholism, however, is the abundant increase of the scavenger cells of the surface of the brain lying immediately beneath its membranous covering.

Beneath the inner covering of the brain (the pia mater, as it is called, or pia), and pressing into the brain surface, pathologists often find a vast quantity of what they have called amyloid bodies. Proliferating nuclei appear along the walls of the blood vessels, giving them a peculiar spinous appearance. The perivascular spaces, or spaces around the blood vessels, which carry the lymph-like brain fluid to cushion the vessels, are often found unduly distended with lymphoid elements.

The motor cells of the fifth layer of the brain cortex, or rind of the brain, undergo a fatty change, become degenerate, break down, and are absorbed, hence the chronic alcoholic paralysis of old drunkards and the temporary and acute paralysis from the great blood pressure of acute intoxication upon these same centers in the brain. The saying, "he is paralyzed," jocularly applied to a man who is very drunk, has more scientific accuracy than was intended by the originator of the expression.

The blood vessels of the brain are the first to feel the effects of alcoholic intemperance. They become enormously and unequally distended, and the brain suffers from blood pressure symptoms. Locomotion, perception, and ideation are at first embarrassed and finally permanently impaired or destroyed. "We are struck," says the author previously quoted, "by the large number of extremely coarse dilated vessels which afford us evidence also of grave structural change."

Neither does the spinal cord escape, for throughout its whole extent we find increased vascularity. The change in

the vessels of the spinal cord is like that which has long been recognized in chronic Bright's disease, says Bevan Lewis.

“Through the medium of the blood vascular system, alcohol, by its ready absorption and permeability, is rapidly conveyed to the most distant parts of the organism, establishing wide-spread constitutional disturbances; while through the peculiar selective capacity of the nervous centers for this poison, it thereupon expends its primary and most potent influence. Although in all cases the nervous centers bear the chief brunt of its attack, it by no means follows that the subjects of chronic alcoholism suffer in the same way. In one, the gastric (stomach); in a second, the hepatic (liver); in a third, the renal (kidneys), and cardiac (heart) symptoms may come to the front; while in others the nervous centers express the special virulence of the agent in their direction. Undoubtedly a neurotic heritage plays a foremost part in thus predisposing to more exclusive determination of the morbid agency upon the higher nervous centers, just as those subjects predisposed to renal degeneration will, on the establishment of alcoholism, display the usual cardio-vascular (heart and blood vessels) changes of chronic Bright's disease.”

The general effect of alcoholic excess is depravity of nutrition and impairment of the nutritional fluids and functions; the digestion becomes disordered, the excretory functions become deranged, and the nerves exhausted or destroyed. The higher centers of the brain break down in delirium tremens, insanity, dementia, or paralysis, or lesser degrees of mental impairment — a paresis, or lesser paralysis, of speech or motion, and aphasia, or speech forgetfulness, and memory failure in general sets in, and thus science confirms the truth of all observation that wine is a mocker, and whosoever is deceived thereby is not wise, and to him who tarrieth long thereat or imbibeth oft, its organic consequences are physical ruin and dissolution. This temple of the human soul in which a god might dwell and angels walk about, can by the unwisdom of

the alcoholic habit become transformed into a dwelling place of fiends and furies, can by the diseases it engenders be made the dwelling place of misery and woe, of mind and body, as the testimony of our advancing civilization with the human wrecks in its dreadful wake, distorted, crippled, dethroned, and dead, fearfully prove.

Besides the mental and physical destruction revealed by science in the pathway of alcohol as its immediate effects, she points with pitying finger to woes innumerable in the aftermath of its devastating violence which the hand of municipal and individual charity gathers into the hospitals for the insane, the homes for the feeble minded, the colonies for epileptics, the alms houses and penitentiaries of the land.

She points the transgressor with warning hand to the mentally and nervously maimed of the children and children's children of the drunkard.

Alas that one should put an enemy in his mouth not only to steal away his own brains but to rob an unerring heritage of that normal mentality which is or should be the inherent right of the innocent and unfit posterity for the battle of life. The testimony of science says: Be cautious! beware! "For in the last it biteth like a serpent." It poisons the blood, the heart, the brain, and the nerves. It distorts, depraves, degenerates the organism. It destroys the delicate mechanism of the mind's display and pollutes the fountain source of the soul's manifestation. It burns out the machinery of the mind with fire infernal, and where a spark of divinity might dwell it leaves but the cinders and ashes of a once brightly glowing and glorious mentality.

Its poisoned fangs are like unto those of the stealthy adder in the cradle. Through its baleful influences the unborn come into lives of misery, neurotically and mentally maimed, unfitted for normal life, and fortunate if they fill graves untimely; while hurt and helpless womanhood mourns and dies in the mists and blasts of the world's tardy awakening to the destructive effects of the drink habit.

DELIRIUM TREMENS IN MODERATE CONSUMERS
OF ALCOHOL.

BY FRANK H. PRITCHARD, M.D., MONROEVILLE, OHIO.

In the July number of *The Medical Times*, Dr. R. Elmergreen of Milwaukee has reported four interesting cases of delirium tremens in moderate consumers of alcohol which are very instructive, and particularly with regard to their pathology. The writer has done us a service in calling our attention to this peculiar variety of delirium, for one may meet with them in practice, and they may be very embarrassing and treat one to unpleasant surprises. He seems to think that he has found a form of delirium tremens that stands apart from the usual one and which has something more or less mysterious about it. I must admit that the general text-books do not give much attention to this peculiar variety, and that it certainly is confusing. Osler, for example, does not offer much light on it.

My view of these cases is that they are usually uræmic and that through the moderate consumption of alcohol, and especially of beer, the kidneys are undergoing parenchymatous degeneration, possibly without any external signs or evidence of these lesions, and with the oncoming of a "congestive attack," as the English call it, or an acute congestion, or better said, an acute nephritis, in an already damaged kidney, the delirium is precipitated, the degenerated organs are unequal to the strain, and going from bad to worse, there is a general "smash-up," and with a rapidly rising temperature which, just before death, in the pre-agonic stage, reaches a grade at the top of the thermometer.

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It will be noticed that in his first case there is a history of poor appetite, coated tongue, and morning nausea, with gastric distress three months preceding his death, all symptoms certainly demanding an examination of the urine, and probably due to renal insufficiency and parenchymatous degeneration. His second case offered signs of an oncoming congestive attack from the shock of seeing his comrade mangled.

Moderate consumption of alcohol will sooner or later lead to lesions or post-epileptic states, but where it was noticed before the convulsions which set in. Here, in this group, the urine was dark, reddish brown, a little turbid, cloudy, and sometimes of a slimy consistence. The specific gravity was high, 1020-1035, the quantity greatly diminished, 100, 150 ccms. daily, or even complete anuria, for a day. There were casts of different kinds, renal epithelium, red and white blood corpuscles; these elements were most numerous at the height of the attack or immediately after. After the patient became quiet they disappeared.

The next group was of those with pronounced and well developed delirium without convulsions, who entered in the prodromal stage. There was albuminuria in them all, with renal epithelium and cylindroids, and in one fatal case a decided organic lesion was found post-mortem.

In another group which came under observation with delirium, without convulsions and during the delirious stage, in all there was albuminuria, in varying degrees, from a mere trace to goodly quantities. The state of the urine was less abnormal than in those with convulsive phenomena, which agrees with the view that those cases with convulsions are the most serious.

The series of symptoms which are set forth as characteristic of latent nephritis have a striking similarity with those of the prodromal stage of delirium tremens. In both states there are both gastric and intestinal symptoms, cerebral and

nervous phenomena, and, indeed, even nose bleed is an accessory symptom in the not unusual hemorrhagic symptoms, which may be noted among the prodromes of Hertz's cases: hæmatemesis, epistaxis, bleeding from the gums, and hæmaturia. Dieulafoy calls this state "petite urémie," and even without this hint one is led to look upon a condition which often shows itself with headache, and nearly always with nausea and vomiting or slight gastro-intestinal disturbances, together with renal troubles, as allied to uræmia. Then it is but a step to regard the whole delirium, together with the convulsions, as a sort of uræmia. Such a parallelism is not difficult to demonstrate. Convulsions, that typical uræmic symptom, appear in grave forms of uræmia as well as in severe cases of delirium tremens; the vomiting never continues into the stage where the severe cerebral degenerative changes in the kidneys, several writers to the contrary notwithstanding, and that either directly or indirectly. Professor A. Villard of Marseilles — "Leçons sur l' Alcoolisme," p. 72, 1892 — in speaking of the effect of this poison on the kidneys, says: "In whatever way that it be brought about, whether gradually or by repeated congestions, chronic nephritis is the usual fate of the steady drinker. Anatomically, you will find in general the small, granular, and sclerosed kidney . . . and, indeed, the kidney of alcoholics is looked upon as the type of interstitial nephritis of arterial origin. . . . with secondary malnutrition of the exciting cells and consequent degeneration. . . . In some cases you will discover instead of the small and contracted kidney a kidney but little or not at all reduced in volume, which on section offers brown or raspberry colored areas on a pale background — c' est le rein tacheté ou bigarré. In these kidneys the fundamental lesion is still a sclerosis, with areas of congestion or even of hemorrhage. Do not forget that the fatty degeneration of which I spoke as occurring in the liver may be met within the kidney, concurring with cirrhosis — the small granulo-fatty kidney. At

times the fatty degeneration will be found as existing alone, and particularly in beer drinkers. The kidney is then soft, of a white and lardaceous appearance; on section shining and greasy. The line of demarcation between the two portions is ill-defined. Thus you may meet with cases of moderate drinkers where uræmia suddenly sets in under various circumstances and suddenly puts an end to life, whose other organs seem to bear the fatal poisoning well."

So much for these statements. In 1898, in Nos. 8, 9, and 10 of the Danish medical journal, *Hospitalstidende*, Dr. Paul Hertz published a very interesting and instructive article on the "Pathogenesis of Delirium Tremens," which throws light on Dr. Elmergreen's cases. With admirable, patient, and scientific thoroughness, which is characteristic of the Scandinavian physicians, he investigated for several months the cases of delirium tremens coming into the General Hospital in Copenhagen. He especially examined the urine of these patients before the delirium set in, when possible, as well as during and after. It was investigated immediately after entering, several times a day, microscopically, and as to specific gravity, quantity, etc. He had 124 cases of undoubted delirious tremens, which he divides into groups. The gravest were those where there was a severe and uncomplicated attack, with convulsions — nine cases — all with albuminuria, which was noted in the prodromal stage, in goodly quantities, and which was not a consequence of the convulsive symptoms appearing in delirium tremens. The delirium of uræmia is well known. Toulouse has made it the object of a thorough study — "Les Troubles Méntaux de L'Urémie," *Gazette des Hôpitaux*, No. 70, 1894 — and he characterizes it as an acute hallucinatory delirium. Delirium tremens is exactly the same form of psychosis. Indeed, one French writer, Lecorché, asserts that uræmic delirium may be still and quiet or violent, and easily confounded with delirium from other causes, as for example, that of alcoholism. That uræmic delirium more

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frequently is joined with convulsive than with comatose forms of uræmia also points to a relation with delirium tremens.

The temperature in delirium tremens has been difficult to understand, but possibly it is more easily comprehended if one remembers that it depends upon similar causes to that in uræmia. Hughes and Carter — "A Clinical and Experimental Study of Uræmia," *American Journal of the Medical Sciences*, Vol. 108, 1894 — claim that the temperature in uræmia is no constant nor pronounced symptom. It may be either above, below, or at the normal. It is more frequently observed above in parenchymatous nephritis. Stengel — "Fever in Nephritis," *American Journal of the Medical Sciences*, Vol. 110, 1895 — mentions that the temperature may rise with coma or delirium or convulsions. Dethlefsen has found rises of temperature after convulsions in forty-two per cent. of his cases.

Finally, Hughes and Carter have said that uræmia may set in without the urine being albuminous and yet the necropsy reveal a well developed renal disease. This must be comparatively rare, though I have noted the albumen in some renal affections to vanish at times, and to be plentiful at others. Therefore, the following conclusion may be drawn: if insufficiency of the renal functions during that state which is called uræmia, is able to produce hallucinatory confusion, therefore it is not illogical to assume that the hallucinatory confusion which is called delirium tremens, and which always has other symptoms in common with uræmia, is dependent upon an "insufficiency of the renal functions" when there are always signs of disturbed kidney function associated with it.

Hertz concludes his lengthy and very instructive article as follows. As a result of my investigations it may be concluded that:

1. A renal disturbance is a constant accompaniment of uncomplicated delirium tremens.

2. That the relation of time between the renal disturbance and the appearance of the delirium shows that the renal disease is primary and the delirium secondary.

3. That the anatomical base of the renal disturbance is an acute nephritis, which, as a rule, probably develops without any preceding chronic nephritis.

4. That the course of the renal disturbance follows so closely, step by step, with the delirium that there is good ground for assuming that there is a genetic connection between the two phenomena.

5. That there are so many similar points in the two states which are notoriously brought about by an insufficiency of the renal functions (uræmia), and delirium tremens, that there is reason to assume that *the delirium is an acute auto intoxication-psychosis as a consequence of the insufficient kidney function, which is due to the acute nephritis.*

6. That the peculiar form that this psychosis takes on is dependent upon its developing in chronic alcoholics.

Finally, 7. That there is a probability that delirium tremens in pneumonia is dependent not on the pneumo-toxines directly, but the always present renal lesion.

I have examined the urine of quite a number of beer and whisky drinkers, and I have found that even when they were in fair condition yet their kidneys were not normal, for the urine would be thin, with a slight trace of albumen, a few renal epithelia and an occasional cast, if they were a little under the normal. If they would take cold the quantity of albumen would increase, hyaline casts be thrown off, and symptoms of renal inadequacy set in. On leaving off the habit the urine would quickly or slowly return to the normal, according to the amount of renal mischief already done; of course, if decided alterations had already occurred, then much less restoration would follow. In short, I doubt whether the kidneys in cases of delirium tremens were so normal before the attack, and whether the renal insufficiency had developed on

such virgin soil as Hertz would assume. He had no means of examining the urine of these patients weeks before they entered. His evidence is somewhat contradictory, for on page 239 he asserts that in about one-third of the cases he had found pre-existing symptoms of chronic nephritis, in others stethoscopic and physical signs of a hypertrophy of the heart. He assumes that the delirium develops not with a background of a chronic renal disease, but as an actual acute process. I would not attempt to dispute him, but I have gained the impression that alcoholics have kidneys of lesser resistance. Dr. Elmergreen tells me nothing about the urine in his cases. Possibly he might have had more light had he examined the urine carefully.

Dr. Happel of Trenton, Tenn., in a presidential address, says: The moral degenerate is seen in the profession by the increasing numbers of alcoholics and morphine-habitués in the ranks of the profession. Men who are recognized as reputable practitioners of medicine are found totally unfitted to minister to the sick and suffering because their perceptions are blunted by the long-continued use of alcohol, morphine, or cocaine. These men should be barred by special statutes from continuing to practice any branch of medicine or surgery.

At the Seventh International Congress Against Alcoholism, which took place in Paris in 1899, it was decided, on motion of the Austrian delegate, to hold the next meeting in Vienna in 1901. A committee has already been formed for the purpose of arranging the business of the congress. The committee is made up of various medical men, with Prof. Max Grubier as their head. The committee is prepared to enter into communication with specialists abroad in order to make the congress as far-reaching as possible, and requests that those wishing to take part notify the fact to Dr. Daum.

Abstracts and Reviews.

ADDICTION TO DRUGS, ESPECIALLY IN REFERENCE TO THE MEDICAL PROFESSION.

BY RICHARD DEWEY, M.D., WAUWATOSA, WIS.

The recent general discussion of drug habits, especially with reference to the question whether an undue number of the medical profession are victims of this addiction, has aroused an interest which warrants further inquiry and renders discussion desirable, to bring out the facts whereon to base correct opinions.

The first question is, What predisposes to drug addiction? Why do certain persons, plainly knowing the injurious effects, slavishly employ morphine, cocaine, etc., until ruin of health and character is wrought? Lack of intelligence or of strength of purpose, or both, must be present, and it is generally true that victims of such addiction are so defective in equilibrium or limited in intelligence as to be inherently prone to excess.

Inquiring next whether inebriety in drugs differs from other vicious habits essentially or only accidentally, one is led to see that the vast preponderance of those who, for instance, are addicted to the use of alcohol are those who more closely come in contact with it, as persons in and near saloons, bars, liquor shops, breweries, distilleries, wine cellars; and in like manner, those who resort to drugs are those who

most easily reach them and have them ever at hand or before their eyes — physicians, druggists, nurses, and members of their families — although a certain *penchant* for certain intoxicants exists in some cases irrespective of accessibility. The resort to drink or drugs is, however, largely a matter of accident, and the essential things are the instability of the individual and ready access to the given intoxicant. The same ruin may be wrought by other poisonous agents. There are nitrogenous “sprees” and “jags” of carbohydrates which are as surely vicious to health. The victim of drink or drugs, however, becomes a spectacle to gods and men, while the destruction wrought by other sensual gratifications is often thought to be due to a mysterious providence. The drunkard, like the poet, is “born, not made,” but who is most prone to excess and suffers most under the tyranny of an intemperate and ill-balanced organization *may* so place himself as to escape the disaster lying in wait for him.

There are all possible degrees of continence, temptation, and opportunity, and there is no means of drawing hard and fast lines, but in a general way all victims of these excesses are unstable and neurotic.

Among those prone to excess, examples of great genius, rare gifts, and splendid talents are found, like Alexander the Great, Coleridge, De Quincey, Burns, Daniel Webster; but that the incontinence was no necessary part of genius itself is shown by the fact that still greater geniuses, like Dante, Shakespeare, Milton, Goethe, present none of these glaring defects; and on the other hand, the average of those who are inebriated is an average of low intelligence and morality.

Careful examination of these cases to determine if physical degeneracy was an associated factor has failed to show that it was; indeed, it has been noticeable in the essayist's cases that fine specimens of physical development abound, and yet the mental and moral stigmata, irritable mind, and nervous

system were almost invariably present. It is shown that the habit of resorting to drugs grows insidiously, and soon a state exists which is intensely sad to contemplate. The victim enmeshed in the snare will either emancipate himself by a series of toils and struggles like the combined tortures and labors of Tantalus and Sisyphus, or, like Prometheus bound, his vitals are, for all time to come, to be preyed upon by the ravening vultures of remorse, hopeless resistance, alternate prayers and curses. The puzzled will wrestles with the chains and bars of servitude. The contradictions are so great as to be not inaptly described by the couplet:

You can and you can't; you will and you won't;
You'll be damned if you do; you'll be damned if you don't!

Many, however, have no desire to reform from a moral point of view. The pains and penalties they suffer make them wish for relief — provided it can be accomplished without too much inconvenience. Others desire so much relief as will enable them to go on with a career of self-indulgence, and the physician who attempts to aid, sometimes has his choice between assisting at a farce or bidding his patient find some one else to participate in a course of deceit and chicanery.

In studying these addictions one is surprised to find how often several of them are combined. Alcoholic intemperance is exceedingly common with all drug addictions, and taking those patients given to morphine, one will find tobacco (especially cigarette smoking), chloral, cocaine, trional, all forms of alcohol, all the coal-tar preparations, tea and coffee, excessively indulged in, together with the greatest excess and irregularity in diet and exercise—there is no measure or moderation in such persons, who are constitutionally extremists. In the case of the cocainist it frequently becomes impossible to continue the cocaine, and the patient then “sobers off” for a time on morphine — to be able to go on again with the more attractive mistress of his affections. The quantities of these intoxicants that will be tolerated are also surprising. A young

man who consulted me had used thirty grains of morphine and four of cocaine daily for more than a month. Another, himself a physician who had been cured twice and remained well seven years the first time, but only a few months the second, in his third attack took in 128 consecutive days 6452 ounces of whisky, 725 grains of cocaine, 426 grains of codeine, and 292 grains of morphine.

Erlenmeyer remarks that those who treat disease furnish the larger number of habitués. Physicians, druggists, nurses, or the wives of such, are in the majority. This observation was made at least twelve years ago by Erlenmeyer, and as this question of the extent to which physicians use morphine is one of great interest at the present time, I shall seek in this paper to present some few details bearing upon this point.

In reference to the extent to which physicians are addicted to these habits, quotations are given from Crothers as follows: "In a general history of 3244 physicians residing in the eastern, middle, and some of the cities of the western states, twenty-one per cent. were found using spirits or opium to excess. Six per cent. of this number used morphine or opium prominently. Ten per cent. were using opium or other drugs secretly outside of this number. At least twenty per cent., including this number, used spirits in so-called moderation.

"In another study of 170 physicians, seven per cent. used opium or morphine, and six per cent. were secret drug-takers.

"From the personal observation of a number of physicians who have a large acquaintance with medical men, from eight to ten per cent. are either secret or open drug or morphine habitués.

"These figures appear to be approximately correct, and show that at least from six to ten per cent. of all medical men are opium inebriates. This is undoubtedly a conservative statement, considering the fact that drug-takers, and physicians in particular, are secretive and conceal their use of drugs, particularly where it implies weakness and reflects on their social standing."

Dr. Crothers has been criticized for giving occasion to unwarranted inferences, but the general consensus of opinion is whatever the details may be, attention has been drawn to a real evil.

Dr. Orpheus Everts informed me that about twenty per cent. of opium habitués within his knowledge were medical practitioners. He considers, however, that owing to the very large preponderance of the laity who seek Keeley cures, and employ various proprietary and secret means in the hands of the irregulars, the proportion of physicians in regular medical institutions is abnormally increased, and gives an incorrect idea of the relative number of physicians — a consideration undoubtedly entitled to much weight. The general medical officer of another large sanitarium found of all cases of drug addiction coming under his notice in the last five years, thirty-one per cent. were physicians. A friend, knowing the status in one of the larger hospitals in Greater New York, writes: "Since my connection with the hospital (not over fifteen years) I know twenty-one doctors on the staff (of internes) who were either morphine or cocaine fiends, or both. There may be and probably are many more that I know nothing about. . . . If you asked how many drank to excess my answer would be: For several years there have been only one or two of the whole staff who did not."

The statistics as to morphine habitués treated in Prussian sanitariums show that of sixty-two male patients, almost one-third were physicians, and of eighteen female patients, three were wives of physicians.

My experience is that in twenty-eight cases of morphine and cocaine addiction under my care in four and a half years, thirteen were physicians, a percentage of forty-six. Taking physicians and the sporting fraternity together, the percentage would have been seventy.

The sporting class and demi-monde are specially prone to drug as well as alcoholic excesses. I would emphasize, how-

ever, the fact that a great difference exists as to the reasons for these excesses in one case and the other. The physician is wearing himself out in loyal and unselfish service; the other class in vicious and licentious courses. He is watching at the sick bed, while they are reveling; he takes something to brace himself for a new effort for humanity, while they are engaged in plundering and pandering.

The conclusion arrived at is that the percentage may be overestimated or underestimated, and is likely never to be accurately determined. There is, nevertheless, far more inebriety of this kind than appears on the surface. It is also likely to be overestimated in the public mind, and an unjust suspicion to attach to the profession. As a professional body we should not only be virtuous, but *above suspicion*, and if necessary should promptly repudiate drug habits and those who practice them.

I have not sought to say anything here of the interesting subjects of diagnosis and symptoms of drug habits, of prognosis or of therapeutic means — all of which merit new and thorough study, and concerning which I hope to give my experience at another time.

I will close with a word concerning the most important subject of all — prophylaxis. It should be an inflexible rule with every physician neither to prescribe nor use the drugs that induce vicious habits except when absolutely indispensable, and when absolutely controlled by himself alone; and, furthermore, never to employ these powerful agents of good or evil *in his own person* except when prescribed for him on each occasion by a brother physician in whose skill and integrity he may place absolute confidence. — *Medical Age*.

THE LONDON COUNTY COUNCIL'S INEBRIATE REFORMATORY.

The *British Medical Journal* has the following editorial which is of interest to our readers:

This, we hope, marks the dawn of a new era of increased energy in combating drunkenness on the lines indicated in the report of the select committee of 1894, and in pursuance of the statutory powers conferred on county councils by the Act of 1898. Despite abundant criticism from magistrates and others, we are disposed to think that the London County Council has acted wisely and prudently in dealing with this matter. It has, we understand, utilized so far as practical existing agencies for the treatment of inebriates within the meaning of the Act. It entered into contracts with two out of the three certified reformatories in England, namely, Lady Henry Somerset's Home at Duxhurst, and the Roman Catholic Reformatory at Ashford. The council contributes one shilling a day per head for the maintenance of London cases sent to these institutions, and this carries with it the half-guinea grant per head per week authorized by the treasury from April, 1899, for three years. Some nineteen female cases are now under treatment at Duxhurst, and some forty at Ashford, for whom the London County Council contributes maintenance grants, and we understand that the contracts with these homes, which were entered into for one year from July, 1899, have recently been renewed. Time and experience alone can show the scope and value of the social betterment contemplated by recent legislation. The object aimed at is nothing less than the rehabilitation of the human will, and the period mentioned in the Act of 1898, namely, "a term not exceeding three years," even at its maximum, is probably not too long for the achievement of the end in view. In regard to the number of persons for whom it may be desirable in the interests alike of society at large and the ratepayer in particular to provide and maintain these reformatories, it is not possible to speak with pre-

cision. Section 3 of the Act under which the new reformatory at Farmfield has been established provides that any person who commits any of certain scheduled offences in which drunkenness is the main ingredient, and who within twelve months previously has been convicted summarily at least three times of any such offences, and who is an habitual drunkard, shall be liable upon conviction, upon indictment, or if he consents to be dealt with summarily on summary conviction, to be detained for a term not exceeding three years in any certified inebriate reformatory, the managers of which are willing to receive him.

It is manifestly intended that the new system is to provide a welcome alternative to the futile and discredited system of attempting to cure drunkenness by short terms of imprisonment. However sanguine or skeptical one may feel inclined to be as to the prospects of the reformatory plan, competent opinion is practically unanimous as to the dismal failure of that system which has hitherto been almost exclusively resorted to. It is stated on the authority of those who have had most experience in regard to voluntary retreats for inebriates, that some 50 per cent. of the cases treated are reclaimed to habitual sobriety. Much, however, necessarily depends on the age, disposition, and environment of the individual, to say nothing of the hereditary factor. Managers of reformatories will not only be justified but will be well advised in exercising the greatest care in selecting suitable cases on which to try the influences of the new system. The enhanced amenities of a well-contrived reformatory over the prison cell must secure not merely the advantage to society of the segregation of the drunkard but must reform the individual; the object of the reformatory must ever be not penal, but remedial. We observe that the Act of 1898 enables a secretary of state to establish a "State" reformatory for criminals who, under the influence of drink, have committed offences punishable with penal servitude. We are not aware of any action which

has yet been taken under this power. It may be well that the imperial government is not unwilling to watch the experiments which county councils are invited, and indeed, incited, to take under the same statute. In this as in other directions the intermediate agency of county councils is invoked where an initiative might have been expected from the fountain head. The reformatory at Farmfield is intended for females, although, we understand, the question of providing a male reformatory on the same estate is engaging active attention of the committee which has the matter in hand. There are more than 300 acres of land attached to the estate, and we gather from the committee's reports that this was purposely acquired with a view to considerable expansion as their experiment develops, and with especial regard to the great advantage to men and women alike of active out-door work in overcoming the craving for alcohol. The new reformatory is pleasantly situated midway between London and Brighton, about two miles from Horley Station, in the midst of a beautiful country. Two mansions on the same estate have been modified to suit the purpose for which they are intended, and their appearance belies the usual barrack-like structure which the very name "reformatory" is apt to call up in the mind. A large and well-stocked kitchen garden is attached to Farmfield House, and at the home farm, some three hundred yards off, is a dairy farm with a well-appointed cow-house, dairy, and bake-house. A fruit farm is shortly to be laid out, and the electric light installation, a costly item, is nearing completion. Mrs. Matthias, formerly of Bath, is the lady superintendent, and is assisted by a staff of five sisters. The accommodation already available is for thirty inmates, but we anticipate the work will develop and a rapid expansion may very soon be necessitated. We know there are those of the temperance party who regard reformatory work of this kind with suspicion — if not with dislike — as a tinkering with the drink evil at the wrong end. The restriction or the extinction of public

houses is with such the only panacea. While, however, the attainment of that goal does not appear as yet to be within measurable distance — and its advent is not accelerated by recent dissensions within the temperance party itself — we who have learned the interdependence of mental and physical disease with habits of drunkenness, who are convinced by reports innumerable from medical officers of asylums and jails, to say nothing of the domestic tragedies to which every practitioner can bear witness, are profoundly convinced of the value to the body politic if this new departure in municipal philanthropy, which is in our opinion alike demanded by a sense of public duty, and justified by scientific knowledge.

THE INFLUENCE OF ALCOHOL UPON SUSCEPTIBILITY TO INFECTION.

It is not long ago that alcohol enjoyed a wide range of therapeutic usefulness. It was given to reduce fever, and it was taken to produce warmth; it was prescribed for sleeplessness as well as for the purpose of arousing the flagging mental activities; it was supposed to stimulate the appetite and to furnish food, and it was used accordingly; and in the treatment of infections and certain intoxications, acute as well as chronic, alcohol has long played a very prominent part. In not a few instances the treatment of infections with alcohol in its various forms has been carried to such an extent that "heroic" is the most popular term to describe the doses given.

But the rôle of alcohol as a panacea is being rapidly curtailed. The light of exact investigation has shown that the therapeutic value of alcohol rests on an insecure basis, and it is constantly being made clearer that after all alcohol is a sort of poison to be handled with the same care and circumspection as other agents capable of producing noxious and deadly effect upon the organism. In reality, practically noth-

ing is known concerning the influence of alcohol on the susceptibility and the course of infections in man. Clinical observation cannot solve such questions properly. The basis for final judgment must be found in experiments, but so far little has been done in this line. It has been shown by Abbott and others that alcoholic animals are more susceptible to infections with various organisms than normal animals. And Laitinen, after having studied the influence of alcohol upon infections with anthrax bacilli, tubercle bacilli, and diphtheria toxine in dogs, rabbits, guinea-pigs, fowls, and pigeons, reaches the same general results, and this with certainty and directness.

Under all circumstances alcohol causes a marked increase in susceptibility, no matter whether given before or after infection, no matter whether the doses were few and massive, or numerous and small, and no matter whether the infection was acute — anthrax, or chronic — tuberculosis, or more the nature of an intoxication — diphtheria. The alcoholic animals either die while the control remains alive, or in case both die, death is earlier in the alcoholic. Without going into details in connection with the experiments — and there is room for further work here — it may be said at this time that the facts brought out by the researches of Abbott, Laitinen, and others do not furnish the slightest support for the use of alcohol in the treatment of infectious diseases in man.

EFFECTS OF ALCOHOL.

The well-known Viennese clinician, Prof. Max Kassowitz, asserts that the dogma concerning the nourishing and strengthening character of alcohol is one of the fatal errors of science. He holds the view that the majority of physicians take up an inconsistent position with regard to the use of alcohol, for the reason that while they are well aware of its

dangerous and poisonous qualities, they nevertheless contribute to making permanent the false ideas concerning the value and effects of alcohol which are so generally disseminated. Kassowitz explains these inconsistencies on the ground that the teaching which considers alcohol a food, because it is burned in the organism, has held its ground in spite of many disregarded newer investigations which have shown its indefensibility. He is, therefore, of the opinion that the assumption ascribing food properties to alcohol based on simple theoretical consideration is a grave scientific error, the removal of which is the most important preliminary condition to an effectual battle against alcoholism.

Dr. Hermann Blocher of Basle, Switzerland, comments upon Professor Kassowitz's utterances, and discusses the matter from the standpoint of physiological experiment. He refers to the investigations of Miura, which indicate that alcohol belongs to the same group of substances as glycerine, lactic acid, butyric acid, and so forth, which are, indeed, burned in the animal body, but which, nevertheless, are not fit, even to the smallest extent, to take the place of necessary food in the preservation of the body. Miura found that the addition of alcohol to the food before its being taken not only causes no diminution of the nitrogen output, but does not prevent the loss of body material.—*Medical Record.*

HEADACHE PREPARATIONS.

The danger from the so-called "Headache Powders" is an important question. The use of such powders is surely on the increase. It has been recommended that their composition be required on each package with the idea of attempting to minimize the evil results by thus warning the patients of the dangerous ingredients. This, however, would probably have

very little effect for the reason that the sufferer thinks little of the danger at the time — only looking for relief. Legislation is also suggested, but even this cannot put reason into the minds of those who are utterly oblivious to their own welfare.

Mr. Geo. A. Wilson, Ph.G., of the Massachusetts College of Pharmacy, obtained thirty-six different preparations, and submitted them to a qualitative analysis. Twenty-nine of the samples were obtained through the wholesale houses, and are those that are largely advertised in Boston. The remaining seven were purchased from different retail stores of good standing, and were sold on inquiry for “something for headache.”

In the analysis attention was paid to the active ingredients principally, and little or no time was spent upon diluents, coloring matter, aromatics, etc.

The following is the list of articles and the number of samples in which each was found:

Acetanilid,	in 30 samples,
Sodium Bicarbonate,	“ 19 “
Caffeine,	“ 14 “
Phenacetine,	“ 5 “
Tartaric Acid,	“ 4 “
Potassium Bromide,	“ 3 “
Camphor,	“ 3 “
Camphor Monobromate,	“ 2 “
Sodium Salicylate,	“ 2 “
Quinine Sulphate,	“ 1 “
Potassium Bicarbonate,	“ 1 “
Antipyrine,	“ 1 “
Sulfonal,	“ 1 “
Ammonium Carbonate,	“ 1 “
Ammonium Bromide,	“ 1 “
Salicylic Acid,	“ 1 “
Potassium and Sodium Tartrate,	“ 1 “

In addition to above, some contained sugar, milk sugar, celery, charcoal, calcium carbonate, and sanguinaria, while two evidently contained belladonna and gelsemium. — *Dr. Squibb.*

ACETIC ACID AS A MENSTRUUM IN THE PLACE
OF ALCOHOL.

Dr. Squibb of Brooklyn, New York, in a paper read before the N. Y. State Medical Association, makes the following reference to this subject:

The advantages of acetic acid as a menstruum over alcohol alluded to here last year have not only been thoroughly verified but the statements then made have been still more forcibly impressed upon those who have been working in this line. The following very broad statements or axioms may now be confidently laid down:

All the alkaloidal drugs are readily and thoroughly exhausted by this agent. From a series of experiments, now somewhat extended, acetic acid does *not* convert the alkaloids present into acetates, but acts simply *as a solvent*.

As far as experiments now show, in ninety per cent. of those drugs which have been successfully exhausted, it is a better solvent than alcohol — producing an extraction more thoroughly representing the drug than was ever accomplished with the alcohol menstruum.

For the purpose of prescription writing, it is important to realize that all water soluble salts are soluble in acetic acid, and thus combinations of the acetic fluid extracts with the bromides, iodides, sulphates, and chlorides can be accomplished, and without danger of decomposition.

The older preparations which are favored by many (especially the older practitioners), such as the acetæ, decoctions and infusions, can be safely prepared from the acetic fluid extracts.

After the experimental stage has been completed and sufficient time be allowed to offer a finished preparation by settling, the cost of the acetic fluid extracts will be found to be very much less than the officinal alcoholic preparations.

As another illustration of the advantage to be obtained by the substitution of acetic acid for some of the mineral acids in

the already official preparations, it may be interesting to mention that an aromatic acetic acid has already been sufficiently tried to establish its superiority over the present official aromatic sulphuric acid. This aromatic acetic acid is prepared simply by substituting 99.5 per cent. acetic acid for the sulphuric acid in the formula used in preparing the official preparation. A vegetable acid is undoubtedly less irritating and more beneficial to the alimentary tract than a mineral acid, and therefore it is claimed that this combination will prove useful in many cases.

A REPLY TO "ALCOHOL AS A GENERAL STIMULANT AND HEART TONIC."

(A paper read by Dr. T. J. Hillis, N. Y. State Medical Association, New York, Oct. 24, 1899.)

By ALBERT S. ASHMEAD, M.D., NEW YORK CITY.

In Santiago, Chili, during the first and the last four months of each year are observed the greatest number of entries of mental alienics into the hospitals. Dr. M. S. Beca, the superintendent in charge of the insane asylum there, says that the time of the year during which there are the most admissions from alcoholic causes corresponds to the epochs of excess in drink, and to the social class to which this custom is the more frequent. That period is the one which corresponds to the popular feasts, which the Chilians are accustomed to celebrate by abundant and prolonged libations. The national feasts of September and of the New Year are the pretexts for these rejoicings, whose consequences are found afterwards in the Hospital for Alienics. During these months the establishment receives a greater number of alcoholic insane than during the rest of the year. This observation has repeated itself many times. During these five months of 1891 there entered one hundred and twenty-three alcoholics more than during the rest of the

year, when there were counted only thirty-one, a total of one-hundred and fifty-four. The forms which affect these cases of alienation are very varied: Alcoholic delirium, fifty-four; maniacal excitation, twenty-three; acute mania, thirteen; melancholia, twenty-five; delirium of persecution, nine; alcoholic dementia, six; pseudo-paralyses, five, etc. In these one hundred and fifty-four cases were counted nineteen women. From the point of view of age, the greater number of insane were between twenty and thirty years. After that age until fifty years, the cases were equally numerous.

This is always observed: this period of thirty years comprised between the twenty-fifth and fiftieth year, says Dr. Beca, is that during which are presented the greater number of alienics caused by alcohol, that is to say, the mean period of life when the excesses of every class, the tangible manifestations of passions and vices, are more common, and are produced more easily and more imperiously. This is the period during which, for similar reasons, hereditary influences are found to be felt more effectually and occasion some special tendencies, some physical and psychical diseases, and among them, alcoholism.

The proof of the action which these divers causes could have exercised on the production of alcoholic alienation on these one hundred and fifty-four patients of the year 1891 is established by the following evidence: Nine men and one woman had alcoholic parentage, and six men were of consanguineous marriage, while eighty-nine men and seventeen women had no such hereditary antecedents.

THE DECREASE OF ALCOHOL.

The *Medical Times* gives the following facts which appeared in the *Philadelphia Press*:

In 1884 the highest point of annual consumption reached during a period of prosperity was 1.48 gallons per person.

After the panic a decrease followed to 1.21 gallons per capita in 1887. Consumption increased again to 1.51 in 1892. It fell under President Cleveland's administration, and reached the lowest level on record of a yearly consumption of spirits in 1896 of only 1 gallon per capita. From this point it increased, and in 1899 it was 1.15 gallons per person, or barely three-fourths the yearly capita consumption in 1892.

This decrease in the consumption of alcoholic liquors has been in progress for two generations, and the average annual amount of spirits consumed per capita in this country is now only two-fifths of what it was sixty years ago, according to the census of 1840, when the per capita consumption was 2.52 gallons. In 1860 it was still higher, or 2.86, so that from 1860 to 1897 the per capita consumption had fallen almost one-third.

It is remarkable that the consumption of wine varies in much the same way. It rose a little over one-half a gallon per head in 1880, .56 of a gallon; decreased steadily through the depression of 1885; rose again in 1888 to .61 of a gallon, and then continued to decrease, reaching its lowest point in 1896, when it was only .26 of a gallon per person. From this point it has increased, and in 1899 was .35 of a gallon. The consumption of wine does not follow so closely the general condition of prosperity as the consumption of spirits, but it bears a close relation to the general state of trade.

Malt liquors, on the other hand, have increased steadily in annual consumption with greater regularity and through all years. In 1875, a quarter of a century ago, the yearly average per capita consumption in this country was 6.71 gallons. An increase has gone on with great steadiness in good years and bad alike, until in 1892-93, the consumption reached the highest point which it has ever had — 16.08 gallons. Then for the first time since malt liquors were introduced in this country by the German emigration in 1848 there began a slight decrease in the per capita consumption of beer. It has fallen

slightly year by year, rising in 1898 as compared with 1897, but falling again in 1899, when it was 14.94 gallons per capita. The additional tax levied for war purposes of \$1.00 per barrel may have had its effect of decreasing the consumption by slightly increasing the price, but as the price of beer per glass has in general remained the same it is difficult to see how this can have affected retail consumption.

IS ALCOHOL A FOOD OR A POISON?

Kassowitz maintains that it is not so much a question as to whether alcohol *per se* is toxic or nutritive, for it can hardly be denied that it is an active poison capable of causing the death of any animal or vegetable protoplasm with which it comes in contact, but rather as to whether in spite of these injurious properties it can still be of value to the organism and serve to sustain it. A food-stuff to be classed as such must not only be capable of supplying the organism with energy to be dissipated as heat and in the performance of work, but must also under proper conditions enter into the bodily structure and replace tissue that has become worn out. Recent investigation has shown clearly enough that alcohol is easily and abundantly oxidizable in the human body, but the mere proof that a substance is consumed in this way does not entitle it to rank as a food, and still less can this supposition be entertained if in addition it at the same time causes decomposition and destruction of living protoplasm. That alcohol does this is not to be doubted in view of the present knowledge of metabolic processes, and this granted, it is evident that a substance capable of destroying body tissue cannot also at the same time serve to build it up and replace damaged parts. Therefore the position that alcohol may play the double role of food and poison is untenable, and the sooner it is dropped from the list of drugs for internal administration the better it will be for physician and patient. — *Medical Record.*

SIXTEENTH ANNUAL REPORT OF THE DAL-
RYMPLE HOME AT RICKMANSWORTH,
ENGLAND.

The following is an abstract of the year's work by Dr. Hogg, the superintendent.

During the year forty-five patients have been admitted and forty-three discharged, and there remain twenty in the Home.

These numbers are larger than any that have hitherto been recorded, but the record is not a matter entirely for congratulation, as it points to the fact that many short period (three months) patients have entered the Home, and that there are still large numbers who prefer to enter a retreat as private patients rather than to place themselves under the Act, amended though it be; for, out of the forty-three discharges, the duration of residence was three months in sixteen cases, while three patients stayed nine months, and only five remained in the Home for a year. The chief reason for this result, excluding the inebriate's inherent objection to being a party to his own compulsory retention, is the fear of publicity on the part of the inebriate's friends, to many of whom the idea of going before a magistrate, and a magistrate to whom perhaps their family is known, is repellent; and although the amending clauses of the 1898 Act simplified the procedure of entry into a retreat, this method of entry has not yet become popular.

The total number of patients admitted since the opening of the Home is 581, and the discharges now amount to 561.

During the year three patients have been discharged before the expiration of their time on the ground of misconduct, and on every occasion after such a discharge I have noted a marked improvement in the tone of the Home.

Of the remaining forty who have been discharged during the year, although so many stayed here for far too short a period to be of permanent benefit to them, I have heard excellent reports of fourteen, another fourteen are drinking either regularly or periodically in moderation, the results in ten cases

are unsatisfactory, and one, who after a short stay immediately reverted to his former habits, is dead.

It is a pleasure to note the continued prosperity of this famous Home for inebriates. Dr. Hogg is to be congratulated on the success of his work.

PRACTICAL URANALYSIS AND URINARY DIAGNOSIS. A Manual for the Use of Physicians, Surgeons, and Students. By Charles W. Purdy, LL.D., M.D., Queen's University, Fellow of the Royal College of Physicians and Surgeons, Kingston, Canada; Professor of Clinical Medicine at the Chicago Post-Graduate Medical School. Author of "Bright's Disease and Allied Affections of the Kidneys"; also of "Diabetes; Its Causes, Symptoms, and Treatment." Fifth Revised and Enlarged Edition. With Numerous Illustrations, Including Photo-engravings, Colored Plates, and Tables for estimating Total Solids from Specific Gravity, Chlorides, Phosphates, Sulphates, Albumin, Reaction of Proteids, Sugar, etc., etc., in Urine. Six by Nine Inches. Pages xvi-406. Extra Cloth, \$3.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

A very useful addition to this edition is a chapter on The Microscope, which comprises all that will be found necessary for a working knowledge of the instruments, together with numerous directions for the best possible employment of its different parts. These minor matters so requisite for a successful investigation are given a place. A number of "wrinkles" which the author has found to be of advantage are described. Such subjects as the manner of using the mirrors with the different objectives, the preparation of the sediment for examination and mounting, the method of using the condenser, the handling of cover glasses, and the making of a cell are mentioned. The chapter on the differentiation of epithelia is excellent. The anatomical and chemical sediments are

fittingly illustrated, in black and colors. Various improved apparatus for centrifugal analysis and quantitative estimation of sugar receive attention. It is a book to be commended.

STUDIES IN THE PSYCHOLOGY OF SEX. The Evolution of Modesty. — The Phenomena of Sexual Periodicity.—Auto-Erotism. By Havelock Ellis. Six and three-eighths by eight and seven-eighths inches. Pages xii--275. Extra Cloth, \$2.00, net. Sold only to Physicians and Lawyers. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

This work of three hundred pages comes from a very distinguished and careful author who has most successfully grouped and studied a great variety of facts from a scientific point of view. It occupies a new field in scientific medicine, and has great value in explaining phenomena of sex that are practically unknown. The grouping of authorities and facts bearing on the different topics is exceedingly interesting. This book will, undoubtedly, draw attention to a much neglected field, and enable students to have some starting point from which to base more accurate studies. The author has contributed a most important discussion, the interest of which will grow with the coming years. Many of the facts have a vital bearing on poison cases, and all of our readers would be immensely benefited by a perusal of this book. The type and index and charts associated are all well executed. The author and publisher are to be congratulated on bringing out such a valuable work.

SPRINGTOWN ON THE PIKE. By John Uri Lloyd, is announced by Dodd, Mead & Co. Price, \$1.50.

It is a study of Northern Kentucky during the war, and brings to view conditions that involved the people of that border state during the boyhood of the author. Of it, the talented writer, Judge J. Soule Smith of Lexington, Ky.,

writes: "No such vivid landscape painting of Kentucky seasons and Kentucky scenery is to be found in any other book." The *New York World* states that it "reminds one of the figure in American literature cut by physicians, from Dr. O. W. Holmes to Dr. Weir Mitchell and Dr. W. A. Hammond," and in this same line of thought the *American Journal of Pharmacy* states that "Our faith in American literature is strengthened by the entrance into it of professional men like Weir Mitchell and John Uri Lloyd."

MEDICINE AS A BUSINESS PROPOSITION. By G. Frank Lydston, M.D., of Chicago. A lecture delivered at the public meeting of the St. Joseph County Medical Society, South Bend, Ind., Jan. 30, 1900. Published by The Riverton Press of Chicago. Price, 25 cents.

This little work will be very helpful to every reader in pointing out some common and very grave mistakes being made by physicians in every section. The author is fearless and vivid in his descriptions of medical abuses which are fostered and encouraged by the carelessness and stupidity of doctors. Such efforts should be welcomed and the author warmly praised for attempting to correct abuses which are fast becoming a menace to all professional growth and development.

In the October number of *The Homiletic Review* (Funk & Wagnalls Co.), are several articles which should be read together as giving in their joint thought a clearer conception of evolution. Prof. Jesse B. Thomas, D.D., has written of "The Stampede Into Evolution," which he explains is more largely due to certain sentences in Mr. Darwin's "Origin of Species" than to any arguments presented therein. Robert Walter, M.D., shows in his "Mistakes of Modern Science" that Mr. Spencer has failed to scientifically explain his theory of transformism. The editorial entitled "The Supernatural Again Bowed Out" exposes the shallowness of "Guesses at the Riddles of Existence" by Prof. Goldwin Smith.

The *Literary Digest* is a weekly for the busy man who would like to keep in view the changes and movements of political events and history. A very impartial grouping of the opinions of the literature of the day is a striking characteristic of this valuable journal.

The *Scientific American* still comes freighted with the new facts constantly appearing along the frontiers of science. It is really one of the most valuable weeklies that appear in our exchange list.

DRUNKENNESS IN LONDON.

A parliamentary return on the working of the Inebriates Act, under which the magistrates are able to commit habitual drunkards to inebriate reformatories, discloses the startling fact that of ninety-two such convictions ninety were women. Such convictions would be more numerous but for the fact that state reformatories do not exist, but it is significant that of the six institutions existing five are for females. Within the London metropolitan police district there are 11,000 public houses. The temperance reformers say that this oversupply is greatly responsible for the fact that there were 46,899 arrests for drunkenness in London in 1897, but whatever may be the moral effect one result of the great number of licensed liquor shops is certain, viz., the hindrance of street improvements in London, for the value of the licenses in addition to the cost of acquiring property must be paid by the rate-payers. An example of the seriousness of this cost is seen in the case of an avenue now being made connecting the Strand with Holborn. The purchase price of liquor licenses along a route of less than half a mile in length was over £100,000. This has been the cause of the abandonment of many desirable improvements in London.

Editorial.

PREVENTION OF INSANITY BY TREATING INEBRIETY.

All observation shows that inebriety is closely related to insanity. While this is doubted by some persons, there is no question that inebriety induces many distinct forms of insanity. For a long time the influence of inebriety in the causation of insanity has been discussed with varying conclusions, and recently some leading authorities have pointed out many startling facts. Dr. Clouston of Edinburgh, in his last report, says that at least twenty-five per cent. of all insanity is traceable to alcoholic excess.

A leading American superintendent of asylums thinks that not over 10 per cent. of all insanity is due to inebriety.

Other authorities in this country think alcohol a comparatively small factor, or one of the most influential, in the production of insanity.

In Europe the magnitude of this cause is becoming more and more prominent.

Dr. R. Percy Smith, president of the psychological section of the British Medical Association and lecturer on Psychological Medicine at Charing Cross Hospital, in a late address, remarked as follows:

“Next to heredity alcohol figures most largely in the causes of insanity given in the commissioners’ tables, accounting for twenty-two per cent. of the male, and 9.1 per cent. of the female cases. This refers to the effect of alcohol on the individual alone, and takes no note of alcoholic inheritance as

leading to the production of insanity, idiocy, alcoholism, epilepsy, or other neuroses in the offspring, though it is well known to act in this way.

“This large percentage of what may well be looked upon as a preventable cause of insanity ought to give the legislature profound heart searching as to whether it is doing its duty to the community in checking the ravages of this destructive poison. I shall not be contradicted when I say that the percentages above quoted do not represent anything like the real amount of damage which is done to the nervous systems of the community by alcoholic excess.

“In addition to the actual numbers who are sufficiently poisoned by alcohol to be certified as insane, there are large numbers of individuals who are from time to time dangerously unsound, it may be for a few hours or a few days, who are the terror of their relatives, who form a large proportion of the cases at police courts, and ruin themselves in health and fortune. And those who have had charge of the insane will agree with me that the cases of mental disorder due to alcohol are among the most difficult to manage, the most hostile and litigious, and after recovery very often the most ungrateful of any patients with whom we have to do. No doubt in many cases the alcoholic is a person who starts in life with an unstable nervous system; he has either alcoholic or insane or neurotic inheritance, and to a certain extent he is defective *ab initio* in self-control, and goes without much resistance into the paths of chronic alcoholism, but at present the legislature has given him no assistance. The facilities for drinking are enormous, and the revenue of the country largely depends upon the quantity of alcohol consumed.”

Dr. Smith's statement that heredity, alcohol, and syphilis were the most active causes of insanity, is sustained by an increasing number of authorities. While heredity is a more complex problem, alcohol and syphilis are clearly preventable causes.

Inebriety when stripped of all theories and examined from the physical side is seen to be the result of causes whose origin, growth, and development can be controlled and checked. The medical recognition of inebriety and its treatment reveals these causes and points out the possibility of preventing them with great certainty. The startling fact that insanity is increasing gives new interest to this subject, and the fact that inebriety next to heredity is the most active cause opens a wider field for practical work. The conviction is strengthened every year that the recognition of inebriety as a preventable disease, and the use of legal means and measures will diminish a large part of the burdens of insanity, inebriety, crime, and its associated evils. The possibilities in this direction are increasing, and the successful treatment of individual cases under adverse conditions furnishes the strongest proof that inebriety as an active cause of insanity can be broken up and permanently driven out in the near future.

DANGER FROM THE USE OF STRYCHNINE IN INEBRIETY.

When strychnine is given in continuous large doses to inebriates, two very marked conditions appear — one is that of general depression, with muscular and mental feebleness and indisposition to all activity; all thought and desire for spirits pass away, and, although the mind is clear, energy and ambition to do more than is absolutely necessary is absent. The conviction that spirits will never be taken again is emphatic and clear, and the certainty of a cure is uppermost in the mind. The appetite is good, and sleep is without dreams, and no anxiety or care about any present condition exists. The second general condition is the opposite, and is marked by periods of excitement, both mental and muscular. The same confidence of cure and absence of desire for spirits exists. The

mind seems alternately clear and dull. In the dull periods apprehension and a feeling of insecurity and suspicion of disease and trouble exists. In the excited period there is trembling, hypersensitiveness, and great elation. Dreams occur at night, and strong disposition to be engaged in something all the time. Emotional states and muscular agitations come and go with the disposition to work it off by incessant activity. When strychnine is withdrawn, both of these conditions pass away, or improve to such an extent that the origin is apparent.

Persons who have taken the "Gold Cures" often display these two conditions, and speak of the profound impression which the medicines make on the mind and body. In some instances the stupid stage never passes away. Such persons exhibit a degree of mental and muscular feebleness the rest of their lives. It is evident that strychnine is a very unsafe remedy given indiscriminately in inebriety. Persons who suffer from the irritable stage following the use of this drug very frequently relapse, drinking to greater excess than before, with more prostration and general feebleness. Where strychnine is used to produce a disgust for spirits the result is very unsatisfactory, and it is doubtful if more harm does not follow than good. While an aversion for spirits is easily produced it is in the nature of a substitute supplying one narcotic for another. The impression from the strychnine extends to all of the functional and organic activities of the body, and when continued becomes a new source of poisoning, with still further organic derangements. Using strychnine with spirits is still more dangerous, and is often followed by low states of delirium and spasmodic conditions which disappear when the drugs are withdrawn. In these states the increased heart's action, with muscular trembling, is followed by a marked rigidity and tension of the muscular system which calls for more spirits until states of paralysis follow. Strychnine is, no doubt, a valuable tonic after the alcohol has been removed in very small doses for a few weeks. Care should be exercised

to discontinue its use on the first appearance of sedation and muscular excitement. It is to be remembered that many cases are very susceptible to the action of strychnine. In all probability the palsy from alcohol increases this susceptibility. These states should be recognized as possible in all cases, even when small doses are given for a long period. It is doubtful if strychnine can be used in all cases with safety, and usually it is inferior to nux vomica and many cinchona preparations.

A NEW MOVEMENT FOR THE DEVELOPMENT OF ASYLUM TREATMENT OF INEBRIETY.

During the past few years an increasing number of homes, asylums, and sanitariums have been opened for the treatment and cure of alcohol, opium, and other drug habitués, together with mental and nervous cases.

Many of the managers of these places claim to have discovered some specific remedy or combination of drugs for the absolute cure of inebriety in all its forms and allied diseases. They also claim most extraordinary results and cures in a limited time.

Such institutions are usually managed by unknown and so-called reformed men, and have no regular organization, and pursue very unusual methods of attracting and holding patients. Their remedies are always concealed from the profession and their assertions and statements are dependent entirely on faith.

Many of these asylums claim to belong to some syndicate, and move from place to place according to the success or adversity which they meet.

These irregular homes and sanitariums assume exemption from all supervision or control by authorities on the ground that they only receive alcohol, opium, and other drug-takers, also persons who are enfeebled by these drug habits, all of

which are moral disorders not recognized as insane or irresponsible. Hence anyone may open any kind of an asylum at any time and place and receive inebriates of all degrees — delusional, delirious, or imbecile — and treat them in any way or manner, and turn them out at the will of the officers.

Everything depends upon the credulity of the patient and his friends and the mystery and pretension of the manager.

The common result of this treatment is that the patients are made more incurable, and while the drink symptom is often suppressed for a time it breaks out again with greater intensity, leaving the victim more degenerate than before.

This indiscriminate treatment by so-called specifics and other means is a serious abuse which demands correction.

The state guards the insane and feeble-minded, and requires all private asylums to be organized and under some official control; also that they be open to observation and managed by reputable, scientific men, above suspicion of fraud and quackery.

These irregular asylums, advertised largely by circulars and pamphlets, and boastful claims of remarkable cures, are confusing to the public, who are unable to discriminate. As a result, all reputable institutions suffer both in reputation and ability to carry on legitimate scientific work.

In view of these facts, which are becoming more and more prominent, a committee of the Association for the Study and Cure of Inebriates called a meeting at Greenwich, Conn., July 17th, to consider the advisability of a more thorough organization of all asylums and homes, and for some uniform plan of action to correct this evil. A large number of superintendents of private asylums were present. Dr. Mason, the president, explained the object of the meeting and the necessity for conference and united effort to secure the best results in this work.

A very general discussion followed; after which the following propositions were unanimously adopted:

1. To promote the scientific study of alcohol, and other

drug neuroses, and to encourage desirable and special legislation with reference to the care and control of such cases. 2. To discourage and prevent all efforts to treat alcoholic inebriety or the opium and the other drug addictions with secret drugs and so-called specifics, and to prohibit the sale of all nostrums which claim to be absolute cures and which contain alcohol, opium, or its alkaloids, or other pernicious and harmful drugs, or which contain substances which are inert and are fraudulent impositions on the public. 3. To secure in all states the special supervision and inspection of all institutions for the care and control of inebriates and other drug neuroses. 4. To encourage as an association every individual and organized effort to study scientifically and practically all the various means and methods of both cure and prevention which are found valuable in the treatment of alcohol and other drug addictions. 5. There are many institutions in this country which treat the alcoholic and other forms of drug addiction associated with mental and nervous cases. These institutions should all be organized and follow some general principles and methods of practical work. By this means public opinion could be more effectually influenced and legislation secured, resulting in a great advance in the uniform scientific treatment of these cases. To isolate the chronic, pauper inebriate from the insane and criminal class, and secure the erection and maintenance by the several states of institutions for the segregation and special treatment of chronic, pauper inebriates, and to incorporate farm colonies or other forms of institutional relief which shall combine medical care with occupation, control, and discipline. 7. We urge all asylums and institutions to unite with us in an effort to raise the subject of the medical treatment of these borderland cases out of the realm of quackery into that of exact scientific work, and in this way be able to treat these obscure diseased conditions in a rational way and along rational lines.

A resolution was offered to have a second conference meet-

ing at Hartford at Walnut Lodge Hospital, Oct. 25, 1900. Other meetings were projected and great interest was manifested to raise and develop the standard of asylum work for the successful cure of inebriety and its allied diseases. Dr. J. J. Wagner gave the association a dinner at the Ardenale Asylum, and the occasion will be long remembered by all present.

The following interesting case illustrates the power of heredity: The only son of a distinguished man who drank moderately and at the table from early life, has been the subject of very great interest in the circle in which he lives. The mother of the boy is a strong physical and intellectual woman, who, like her husband, has drunk wine at the table since marriage. The child was healthy up to five years of age. At that time he suffered from an attack of either malarial fever or some form of meningitis. The facts on this point are obscure. Recovery followed, and physical development went on progressively to manhood, but the brain remained the same as that of a child. There was no idiocy or dementia, but simply a child-mind. Up to twenty-six years of age he was well and strong, and in every way seemed vigorous except the mind failed to go beyond the childhood point. At about that time a change appeared. His nervous centers gradually gave way, and physically, he seemed to be aging fast. The heart's action decreased, the skin became shriveled and old, his form was bent, and the least exertion prostrated him. Constipation appeared, appetite became irregular. He was treated vigorously with tonics and strychnine, without results. His mind at this time from being placid and tractable exhibited irritation and extreme nervousness. At times excited and destructive to small objects about him. Then quiet and still with a dreamy, absent look. In this condition he is at present evidently rapidly declining, and in the opinion of his physician becoming a decrepid old man. The alcoholic inheritance is no doubt responsible for this extraordinary condition.

The death of Robert Rae of England removes one of the most picturesque, energetic reformers in the temperance field of the century. He was not an orator nor brilliant writer, but he was essentially a great organizer and diplomatic worker, whose tactful efforts and wise direction of events have revolutionized English drinking society. His influence extended to all circles of society, including the learned professions, and he was able to bend and mold them into adherents and advocates of total abstinence. Men high up in both the medical and theological professions united in advocating total abstinence through his personal magnetism. While John B. Gough aroused the masses by his personal oratory, Robert Rae, through his mild winning ways and earnest personality, persuaded men to give up spirits and beer and adopt total abstinence. He was influential in forming many large societies and giving shape and direction to their work more than any one man in England. Such a man in America would revolutionize all our distracted temperance efforts. Mr. Rae visited America a few years ago and was recognized as a great genius in this field. Our Journal sends its warmest condolence to his family and friends at the sad loss which is felt in both countries.

Tea inebriety has been brought into prominence in a recent case where the diagnosis was disputed by the physicians. The facts were: A prominent lady suffered from obscure mental and nervous symptoms which puzzled the family physician and consultants, the chief symptoms of which were headache, hallucinations of sight and hearing, nausea, and, finally, convulsions, with periods of unconsciousness following; then recovery, and later, within a day or two, a return of these symptoms. Anæmia, and finally dropsy, appeared. There was no history of using spirits. She had been healthy and took much exercise. After various widely differing diagnoses were made, it was

ascertained that she kept in her private bathroom a pot of tea constantly in use, and at times she would drink nearly a quart in a few hours. This was followed by a paroxysm and abstinence for two or three days, and then another secretive use of the tea. Her recovery followed the removal of the teapot. The prostration and defective vision and general nervousness lasted for some time.

Atlantic City is, no doubt, one of the finest watering-places on the Atlantic coast. It certainly is one of the most populous and largely frequented by all classes. To the tired physician and invalid it has more attractions than any other place. The Hotel Dennis, which has been under one management since 1866, is an ideal one for the brain and nervous-tired man or woman. The rooms, parlors, and dining-room are homelike, and a general air of quiet and serenity pervades the house. There is a rare combination of hotel and cottage life with the best features of each that is very unusual in sea-side hotels. We urge all our readers who go to Atlantic City to stop at the Hotel Dennis.

We call especial attention to the advertisement of the Chautauqua Literary files which comprise a series of envelopes arranged in a box for the purpose of grouping and making available a vast amount of facts and clippings of the daily press. This appears to be the most practical and useful of all the various methods for collecting and classifying matter to be used in the future. We urge our readers to write to the Educational Specialty Co. for circulars of this practical savings bank. We shall refer to this again.

Clinical Notes and Comments.

EFFECTS OF TOBACCO.

E. E. Harve presents these statements in the *Medical Student*. The case of the human organism against tobacco is made out by Dr. Richardson and others to be something as follows: In smoking tobacco we take in carbonic acid and carbonic oxide, several ammonias, and an oily substance which is crude nicotine, while the amount of aqueous vapor given off by respiration is lessened, amount of fæces, of urine, of urea, and chlorine is also diminished, and the amount of free acid, phosphoric and sulphuric, eliminated through the kidneys is increased. In the crude nicotine is the nicotine proper, a volatile substance, and a bitter extract. The ammonia and the nicotine especially are the substances which so sadly poison the system, and they act in numerous directions: 1. The ammonias entering the blood make it alkaline and fluid, thus interfering in its proper nutritive activity. 2. The stomach is debilitated, and dyspepsia induced by the general influence of the drug. 3. The throat is made dry and red, the tonsils enlarged and morbid condition known as "smoker's sore throat" results. 4. The innervation of the heart is disturbed, its action being weak, irregular, and intermittent; palpitation, præcordial pains, faintness, and vertigo are the consequence, forming the well-recognized symptom of the "tobacco heart." 5. The laryngeal and bronchial mucous membrane, if already irritable, are made more so. 6. Owing chiefly to the disturbance in the blood and heart, the processes of nutrition are slowed and in the young may be seriously

affected. All the evils of tobacco are intensified a hundred fold upon the young. It stunts the growth, poisons the heart, weakens the sexual organs, impairs the mental powers, and cripples the individual in every way. Sewer gas is bad enough, but a boy had better learn his Latin over a man-trap than get the habit of smoking cigarettes. These facts ought to be taught in our public schools. 7. The sexual organs are at first stimulated, especially by cigarette smoking, but are eventually weakened in power. Excessive smokers, if very young, never acquire, and if older rapidly lose, their virile powers. 8. Vision is impaired, especially if alcohol is used in conjunction with the tobacco, "tobacco amblyopia" being produced. 9. Muscular co-ordination is impaired, especially in the young. 10. The antidotal effects of alcohol to tobacco lead to forming the habit of drinking. 11. The power of concentrating the mind, and, perhaps of intellectual activity in general, is lessened. A person can do more intellectual work without tobacco than with it. All smokers can do more work if they smoke moderately than if they smoke excessively. The symptoms of mild poisoning by tobacco smoking are increased flow of secretion from the eyes, nose, and mouth, with feeling of tightness in the head as though a band was stretched around it, disturbance of vision, with tinnitus and vertigo. Palpitation and præcordial distress follow, and aching and feebleness of the arms. Then comes nausea, eructations, vomiting, clammy sweats, voidance of the bowels, in fact, a general state of collapse. The copious perspiration causes lowering of the superficial temperature, and probably depends upon and is in consequence of vaso-motor paralysis.

In general, the excessive use of tobacco becomes mischievous, both by the waste it causes of a precious animal fluid, and by its direct influence upon the nervous system and digestive apparatus. In both these respects, chewing tobacco is infinitely the more hurtful mode of using it.

ALCOHOL IN EMERGENCIES.

Dr. J. V. Bell remarks as follows on this subject:

“Fetch the brandy” is the shibboleth of the neurotics, and we have all seen fainting persons revive after the *cau de vie*, but how often a recumbent position, or a glass of cold water, or the splash of a wet towel, would be just as effective, without entailing the headache which often follows the spirituous draught. There are, also, risks attending the giving spirits to persons apparently faint. A slight leakage may have taken place in a small vessel inside the head, resulting in faintness. During the faint condition, the wound in the vessel may be temporarily healed. Absolute quiet is essential, but some bystander gives brandy; the heart’s action is excited by it, and the leakage in the vessel is aggravated, the patient’s chance of recovery being correspondingly diminished. Take also the case of an accident. A man falls on his head, becomes faint from some vessel giving way, and causing pressure on some vital part. The chance of life may depend on complete repose, but some mischievous person comes in and gives spirit to save life, instead of which the life may be extinguished by alcohol.

The reasons against the use of alcohol in ordinary faintness apply still more in epileptic attacks, as the danger that these may pass into apoplexy would be increased by giving brandy. Mustard plasters and sal volatile are more effectual and less risky. So, too, the commencement of an apoplectic attack would often be overlooked by an ignorant observer.

The recovery of persons from drowning is best compassed by skilled manipulation, together with the application of hot bottles and copious draughts of hot coffee. Here again the danger of apoplexy following long immersion is a great reason against alcohol, unless in a few selected cases.

Another case in which the same poison is given is that of some over-wrought, emotional woman, whose mental balance is tottering already. She wants to escape stress and strain,

but the brandy prescribed by an injudicious friend deprives her of the opportunity of placid reflection, and aggravates her ultimate disquiet by distorting the medium through which she looks at the burden of circumstances, as well as by the sense of exhaustion which soon follows as a reaction from her excitement. Little by little the alcoholic habit is induced, and the draught which seemed, to an illogical friend, a necessity for a temporary emergency, becomes the predisposing or exciting cause of actually unhinging the ill-balanced mind, which will probably find refuge in an asylum, after alcohol has wrought its perfect work on it.

The idea prevailed for many years that, in all cases of heart-failure, brandy must be given to stave off impending death. We know now that there are several drugs which are much more effective than alcohol in these emergencies, although it is desirable that the administration of these should be retained by the medical profession, or should be under their direct supervision, because those who are not experts in the use of drugs might do great harm by giving them in unsuitable doses and in inappropriate cases.

Devotees of strong tea are very apt to complete a vicious circle by alternating this dram with one of spirits. The palpitation caused by one poison seems to them to need the other to counteract it, and thus the alcoholic excitement has, in its turn, to be mitigated or temporarily suspended by the tea drinking.

Chloretone is the name adopted for a new hypnotic and anæsthetic known chemically as Tri-chlor-Butyl Alcohol. This article differs from acetone chloroform, and therefore the investigators thought best to coin the new word *Chloretone* to avoid confusion. The investigators who have reported on it are: Drs. E. M. Houghton of Detroit, Mich., and I. B. Aldrich of Baltimore, Md. They report that "it is formed when

caustic potash is slowly added to equal weights of chloroform and acetone, and may be isolated from this mixture, after the removal of any excess of acetone and chloroform, by distilling with steam. Obtained in this manner, it is a white crystalline compound, having a camphoraceous odor. When freed from water by melting, and allowed to cool, the camphoraceous odor is more pronounced, and its general appearance resembles camphor more closely. It is very soluble in chloroform, acetone, strong alcohol, ether, benzine, and glacial acetic acid, sparingly soluble in cold water (1 per cent.), more soluble in boiling water. Dilute acids and alkalies are apparently without effect; concentrated sulphuric acid decomposes it."

In a general way the claims for this drug may be summarized by stating that its action on the central nervous system is similar to the anæsthetics and hypnotics of the fatty acid series without depressing the center of the medulla; locally it acts like cocaine as a peripheral anæsthetic. It is too early to prophecy what position chloretone will take in medicine, but the results as a hypnotic and local anæsthetic are very encouraging. — *Dr. Squibb in N. Y. State Medical Association Report.*

W. C. Frederick, M.D., Lono, Ark., says: I have used S. H. Kennedy's Extract of *Pinus Canadensis* (Dark), one to three of water, in sore throat from cold, with splendid results, and have now under treatment a little boy three years old, suffering from strumous diathesis, who has been afflicted over a year with otorrhea. Have been using as an injection two drachms of S. H. Kennedy's Extract of *Pinus Canadensis* to four drachms of water, three to five drops, two or three times a day, the ear previously cleansed with castile soap. The little fellow commenced to improve from the very start, and is rapidly improving daily; the discharge has almost ceased. He has been on this treatment for about two weeks.

Treatment of Cancerous Cachexia, Lawrence (*The Medical Brief*, April, 1900), gives as the best treatment for cancer and the cachexia attending it, teaspoonful doses of ecthol four times daily in conjunction with alterative doses of iodide of arsenic. The latter should be administered in doses ranging from one-sixtieth to one-thirtieth of a grain three times a day, and continued for a long period. Ecthol contains the active principle of thuja, which is accorded specific value in cancer. The treatment outlined is aimed to cause absorption of the cancerous tissues. — *Medical News*.

Fellows' Hypophosphites has come into a great prominence as a remedy for debility and general exhaustion. Many imitations are on the market, but none of them compare with the original.

The *Acid Phosphate of Horsford* has been so long on the market both as a beverage and medicine that no commendation is necessary to anyone who has used it.

Rickine, combined with codeia, quinine, and salol, are separate formulas of very great value in various forms of headache and neuralgia. They have proved very valuable whenever used, and evidently are to come into great prominence in the near future. The G. F. Harvey Co. of Saratoga Springs manufacture them.

Blanke's Kafeka is one of the most popular grain coffees on the market, and should have a very large demand among neurotics and those who cannot use other coffees. It is both healthful and nourishing, and seems to bear the test of experience.

The Ammonol Chemical Co. will send samples of *Ammonol* to all physicians not acquainted with this remedy, which has become so prominent as a stimulant and narcotic.

We have from time to time mentioned *Bovinine* as a very excellent remedy for the exhaustion following the withdrawal of alcohol and opium. We recur to it again for the purpose of showing its influence in a case of inebriety which was reported to us. A gentleman who had drank many years and

become very much exhausted was persuaded to use Bovinine. Through some mistake he took two ounces every two hours the first day. The next day all desire for spirits disappeared and sharp diarrhoea followed. He was alarmed and went to the doctor, who advised him to take one ounce twice a day. From this time his recovery was rapid and marked. He has no appetite for spirits and ascribes his cure entirely to Bovinine.

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III. The active membership of this association is composed of physicians in good and regular standing who are actively connected with such institutions or who have been honorably retired from active service in connection therewith.

IV. Physicians not connected with such institutions, and members of boards of direction of such special hospitals, asylums, etc., are eligible as associate or lay members of this association upon payment of the dues of membership.

V. The object of the association is:

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Second, to isolate the chronic pauper inebriate from the insane and criminal class, and secure the erection and maintenance by the several states of institutions for the segregation and special treatment of chronic pauper inebriates, and to incorporate farm colonies, or other forms of institutional relief, which shall combine medical care with proper occupation, judicious control, and discipline.

•

Third, to secure in all states the special supervision and inspection of all institutions for the care and control of inebriates or other drug habitués.

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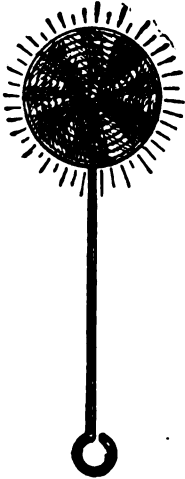
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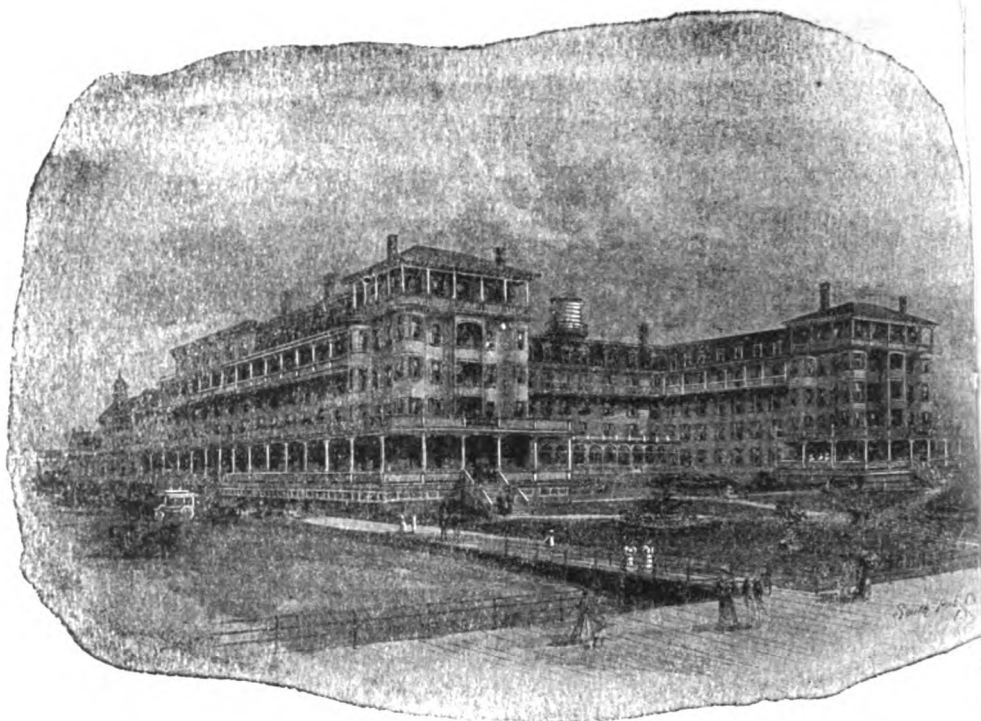
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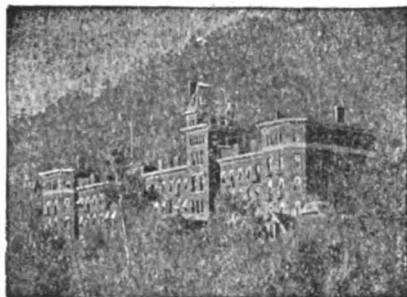
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