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THE
QUARTERLY JOURNAL OF INEBRIETY.

Vol. VIII. OCTOBER, 1886. No. 4.

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ALCOHOL ON THE RESPIRATION.

BY DAVID BRODIE, M.D.,

Honorary member of the American Association for the Cure of Inebriates, Canterbury, England.

Seventy-three years ago the distinguished chemist and original inquirer, Dr. William Prout, made some most interesting and valuable experiments on the various conditions which influence the discharge of carbonic acid gas by the lungs in breathing. In the course of his observations, Dr. Prout was much surprised to find that the quantity was much diminished after he had taken porter with his dinner, while the reverse was the case when he took only water. After repeated experiments, the fact was established that alcohol in its various forms, has a constant and a very marked influence in diminishing the quantity of carbonic acid in the respired air.

Several important researches on the same lines have been undertaken by practical chemists in later times; but to Dr. Prout must be accorded the honor of initiating this inquiry, and of carrying it sufficiently far to supply most valuable and trustworthy data to elucidate the history of the action of that most mysterious spirituous agent in the animal economy. It

were vain to dwell on what might have been the position of humanity in relation to the terrible alcohol question at this day, had this fact and its true significance been recognized in 1813, and upheld as a beacon light from that day to this. Of this much we may be sure, that much of the learned and labored disquisition on the benignant influence of alcohol, which has been inflicted on these later ages, and which goes on under full pressure to this present hour, would never have been heard, the contest which brave and enlightened men have so long and nobly upheld against the drinking usages of society, and the disease and desolation and death which follow in their train, would have been more effectively sustained, and would have had more decided and conclusive results than we can yet boast of, and, what is of more importance than aught else, the medical profession would not have been disgraced and degraded by the pseudo-science and specious fallacies which have been so liberally presented in maintaining the usefulness of alcohol as a supporter of life and a remedial resource in disease, men of high standing in the profession would not have hazarded their reputation for scientific precision, on such flimsy arguments as have been often so confidently and complacently adduced, had Dr. Prout's sagacious and scientific conclusions been before them. That this precious and signally instructive fact in the history of alcohol, with practical bearings on human well-being of the most urgent importance, and which had been revealed to us by an observer so enlightened and trustworthy as Prout has been proved to be, should have been so overlaid and buried, as Carlyle would say in the rubbish heaps and dust whirlwinds of the past, as to have been almost wholly lost, is truly difficult to explain.

It is a sad illustration of the truth that when facts conflict with prevailing prejudices, they are pretty sure to be ignored, and, unfortunately, in this case, the seductive character of the material has given extensive currency to the prejudice that people are benefited by the use of alcohol, and that it deports itself as a salutary agent in the system; and this

prejudice is not only deeply ingrained in the vulgar and unthinking portion of society, but it largely pervades the theories and practices of the medical profession.

The more famous chemist, Liebig, followed Prout at an interval of about twenty years, and his name also stands prominently associated with the alcohol question, but in such contrast to that of Prout as is painful and humiliating to contemplate. Liebig has not left us a single observation of value on this subject, but he has flooded the age with ingenious and plausible hypotheses, under which most mischievous fallacies as to the influence of alcohol in the living economy have received extensive circulation, and have become deeply entrenched both in the popular and professional mind of the times, apparently almost beyond eradication: while the grand demonstration of the true action of alcohol by the patient and painstaking and unpretending investigator, tracing out the secret and unsuspected working of the insidious spirit, has been allowed to lie almost unheeded, noticed only by a few sympathetic seekers after truth. The truth according to Prout, has been practically ignored, while the specious fallacies of Liebig have had universal acceptance, have been as widely swallowed as the dangerous and deluding agent they were intended to commend. Such is too often the fate at once of the flatterers, as of benefactors of humanity, *veritas vincit*, sometimes very slowly. A remarkable reference to these two chemists by Dr. Marshall Hall, in 1837, came recently under our notice. Marshall Hall had to fight a hard battle for the acceptance of the results of his original investigations on the nervous system by the profession, as all discoverers of great truths have had to do, and he keenly resented, in words more plain than pleasant, the opposition he received. The present, he says, has been too justly designated the age of medical degradation, when members of our profession shall be really and fully imbued with all its literature, they, and it, will take the station which is due to them. But there are those who actually boast that they never read! that is that they are

without literature; that for them, Prout and Liebig have labored and written in vain. The result is that our profession is indeed in a state of degradation. We fear that we can only intensify rather than mitigate, which would have been a much more agreeable task, this severe censure; for we have to point out that the labors and writings of Prout, which require some reflection and study to appreciate, have been neglected and laid on the shelf, wholly lost to the cause of temperance, while the baseless and arbitrary assertions, as they are characterized by one of his own countrymen, with which Herr von Liebig has a peculiarly facile talent for propping up his conclusions, dazzling and bribing his public withal, have been received as gospel truths, and have been retailed in vindication of most discreditable recklessness in the employment of alcohol.

Dr. Prout's whole inquiry is of the greatest interest and importance, as illustrating the extreme caution and carefulness which he brought to the investigation of a new and strange subject, for we must remember that it was undertaken in the very early days of pneumatic chemistry, a department of science in which subsequent investigators have added much to our knowledge. But as a great base-ment fact, second in importance to none, in the great campaign against alcohol, of which we have not yet seen the end, the paper of Dr. Prout should be republished in full and widely distributed, so that no one, especially in the medical profession, could undertake to speak on the subject without being confronted with the facts put on record by that distinguished and enlightened authority. In the meantime we must be content to present in the shortest possible compass, the observations which directly bear on our present subject, and we shall endeavor to place the facts in such a light that both friends and foes to the temperance movement may read, mark, learn, and inwardly digest their significance. Prout's observations were extended over a period of weeks, and the experiments were made every hour, and sometimes oftener, during the day and occasionally during the night.

The first step in the procedure was to determine his normal or health standard, and after careful observations, Prout found the mean for the twenty-four hours, viz.: 3.43 per cent. of carbolic acid gas in the respired air, the maximum being 4.10 about noon, and the minimum 3.30, which prevailed during the night. The effect of rest exercise (bodily and mental), was noted, and some interesting results are recorded.

On the immediate effects of taking food, Dr. Prout remarks: The effects observed from food have not been remarkable, and apparently little more than to keep up the quantity to the standard, and sometimes to raise it a little above. Certainly never to depress it below, unless I took some fermented liquor, and then it was always depressed, as will be seen immediately. Abstinence from food for twenty-one hours, was found to depress the quantity of carbolic acid very little below the usual standard. We quote Prout's own words as to the effect of alcohol. He says: "Alcohol and all liquors containing it which I have tried, have been found to have the remarkable property of diminishing the quantity much more than anything else that has been made the subject of experiment. This was so unexpected on my part, that I was prepared to meet with the reverse. I was first led, however, to suspect the accuracy of my opinions by observing that when I took porter with my dinner, the quantity was always reduced much below the standard, the reverse was the case when I only took water. This induced me to make some experiments on the subject, and their results were such as fully to persuade me that alcohol in every state, and in every quantity, uniformly lessens in a greater or less degree, the quantity of carbolic acid gas elicited, according to the quantity and circumstances under which it is taken.

"When taken on an empty stomach, its effects are most remarkable; in this case they appear to take place, and the depression to be greatest, almost instantaneously; after a short time, however, the powers of the constitution appear to

rally, and the quantity rapidly increases ; then it sinks again, and afterwards slowly rises to the standard. I have generally observed this sort of oscillation when the quantity has been suddenly and greatly raised or depressed from any cause, and I have been ready to account for it by supposing that the sudden and great exertions of the animal powers required to counteract the effects of a poison or other injurious cause operating, made them, as it were, overact themselves. Upon a full stomach, as after dinner, the effects of vinous liquors are more slow, but no less sure and remarkable: I have even thought them more permanent, but this might arise from my having taken a larger quantity than I chose to do on an empty stomach."

As long as their effects are perceptible, so long is the quantity of carbolic acid gas emitted, below the standard. The results of Dr. Prout's experiments are presented in twelve tabular statements ; of three experiments only, we present the most striking details.

Hours of Observation.	Observed Quantity of Carbolic Acid, Percentage in Respired Air.	REMARKS.
P. M.		
1.15	3.85	Before dinner.
2.25	3.55	Twenty minutes after dinner.
3.55	3.60	
4.55	3.60	
A. M.		
11.40	4.00	Before taken wine.
P. M.		
12.10	3.00	Five minutes after taking 3 ozs. of wine.
1.25	3.10	Twenty minutes after a walk and dinner.
3.00	3.00	
3.30	3.10	
3.55	3.00	Ten minutes after taking half a pint of wine.
4.30	2.70	Very strong effects of wine, vertigo, etc. This is the largest point to which I have ever seen the quantity reduced.
5.00	2.90	
8.05	3.60	Here the effects wore off. Frequent yawnings, and a sensation of having just awoke from a deep sleep.

9.30	3.30	Standard resumed five hours forty-five minutes after having taken wine.
NOON.		
12.00	3.90	
12.30	3.60	Five minutes after taking 1 oz. of diluted alcohol.
12.50	3.45	Five minutes after taking 2 ozs. of diluted alcohol.
1.20	3.40	Five minutes after taking 3 ozs. of diluted alcohol.
2.15	3.35	
2.45	3.30	This shows that even in divided doses which have been supposed to injure the stimulating effects of alcohol, it still acts by diminishing the quantity of carbonic acid.

We desire that the marked effect "almost instantaneously" produced by small doses of alcohol, reducing the exhaled carbonic acid by one-fourth, be specially noted, and also the prolonged depression (nearly six hours) which attended what would be regarded as a very moderate quantity of wine. The depressing effect of small and repeated doses Dr. Prout has pointed out, and it is very noteworthy.

"In the annals of philosophy" for 1814, Dr. Prout presents a second paper in continuance of this subject, in which he mentions with special satisfaction that Dr. Andrew Fyfe, of Edinburg, had been prosecuting the same inquiry which he had just made the subject of his inaugural thesis. Dr. Fyfe had followed very much the same lines of inquiry as Dr. Prout. Wine, he found, reduced the quantity of carbonic acid from 8.5 per cent., which he had found to be his standard quantity, in one experiment to between 2 and 3 per cent., and in another, to 5.75 per cent. He found also that on the day after a much greater quantity of wine than usual was taken, the quantity of carbonic acid, by repeated experiments, was as low as above stated; with less wine the quantity was considerably reduced, though not so much as before.

In a paper on the phenomena of sanguification, in the same work for 1819, Dr. Prout refers to his own and Dr. Fyfe's researches, and in a *résumé* of the causes which depress the elicitation of carbonic acid, he says: "The greatest decrease experienced was from the use of alcohol and vinous liquors in general, especially when taken on an

empty stomach, whatever diminishes the powers of life, as low diet, etc., appears, from Dr. Fyfe's experiments as well as my own, to have the effect of diminishing the quantity."

With great reluctance we must leave our readers to draw their own references from this wonderful revelation of the secret doings of alcohol. But we are most unwilling to part with this interpreter of Nature, this guide, philosopher, and friend without a shout of triumph over such testimony, from such a witness on such a subject. Has the stern logic of truth ever read such a lesson to men and the times we live in? That alcohol in all its forms is always and under all conditions a depressor of vital energy; that its vaunted power as a vital stimulant is a mockery, a delusion, and a snare.

But we must forbear, and hasten to gather up some additional evidence, some of it from most unwilling witnesses, to complete, as we may be able, the grand superstructure, of which the foundation has been so nobly laid by William Prout. Nearly thirty years elapsed before this important inquiry was resumed; but the classical work on respiration, by Vierordt (Carlsruhe, 1845), was worth waiting for. It represents a most extensive research, embracing numerous series of experiments on his own person, 600 in number, and extending over a period of fifteen months. In a few words Vierordt condenses the results of his experiments on the action of alcohol. He says: "As Dr. Prout (and Fyfe, we must add) has already, I, also, have found a considerable decrease in the elimination of carbonic acid after the use of spirituous liquors. The mean of four observations showed that the carbonic acid fell after taking from one-half to a bottle of wine very quickly (*wahr schnell*) from 4.54 per cent. to 4.01, and retained through one to two hours the latter value. Thus the absolute amount of carbonic acid is remarkably lessened, viz., by about one-eighth. This influence shows itself during digestion, as the elimination of carbonic acid after meals taken with wine is far less energetic than after meals without wine. Digestion is delayed when spirituous liquids are taken with the meals." He further remarks,

"Prout, of whose excellent observations I could hardly dispute a single one in the long succession of my experiments, points to this: that lively agitations of the mind cause an increase of carbonic acid." The late Dr. Carpenter did not contribute any new observations on this subject, but he was deeply interested in the alcohol controversy. On our present subject he says (writing in 1858): "That the presence of alcohol in the circulating current does interfere with the processes to which the functions of respiration is normally subservient, appears from the fact, which has been verified by many observers, that its introduction almost immediately causes the arterial blood to present the venous aspect." And again "The introduction of alcohol into the blood has the effect (as has been determined by the careful and repeated experiments of Drs. Prout and Vierordt) of occasioning a considerable diminution in the percentage of carbonic acid in the expired air."

Of the inevitable and very serious consequences which must attend this restrained respiratory action, Dr. Carpenter speaks very forcibly. He says: "As the channel by which decomposing organic matter in the blood is chiefly eliminated, is the respiratory process, it will most powerfully favor the action of zymotic poisons on the body, and if there be anything certain in medicine, it is the fact that deficient aeration of the blood, by whatever cause induced, does exert such an influence. Further, it may be stated with confidence, that the tendency of the habitual use of alcoholic liquors is to induce a state of the blood exactly resembling (so far as this point is concerned) that which is brought about by imperfect ventilation, bad sewerage, noxious emanations, etc., namely, to contaminate it with the refuse generated in the body itself, whose due elimination is checked no less effectually by the presence of alcohol in the circulating current, than it is by constantly shutting up the doors and windows of our apartments, or by heaping together a mass of putrefying rubbish in our cellars, or by damming up our sewers and causing them to overflow into our kitchens, or by any other

similar approved means of causing the fever-germs (and a great many germs besides fever-germs are now recognized) to take root and flourish in our systems."

In 1849, M. Hervier and St. Layer, presented to the French Academy of Sciences an exhaustive and valuable memoir on the exhalation of carbonic acid in health and disease, or rather under physiological and pathological conditions. Among many most interesting and most important deductions, is the statement that the use of alcoholic drinks diminishes the carbonic acid exhaled, and, also, that the inhalation of ether and chloroform produces the same effect. It is further stated that the air expired by young persons contains a larger proportion of carbonic acid than that exhaled by adults. In connection with this last observation we submit the statement that for equal weights, children of nine or ten years of age exhale nearly double as much carbonic acid as adults. We can thus explain the greatly intensified effects of alcohol upon young persons. The more recent observations of Boeker (Bonn, 1854) confirms the previous evidence of the effects of spirituous and fermented liquors in impeding the proper functions of the lungs in eliminating carbonic matters from the blood. His researches were made with great care, and were conducted through upwards of sixty experiments upon his own person. He lived as usual, and seven or eight times a day, took a teaspoonfull of spirits of wine. This was continued for six days in succession. The effects of wine were also subjected to observations, from one and one-half to two and one-half bottles daily of a white rhenish wine, or a red wine from a Burgundy grape, were taken alone or with food. In both cases there was a diminution of the carbonic acid expired. The alcohol diminished not only the absolute quantity of carbonic acid exhaled by the lungs, but also the relative proportion of it in the products of respiration, and the augmentation which accompanies the period of digestion was materially lessened. Boeker calculates that when using alcohol, he excreted daily 165-744 cubic centimeters less

than his ordinary quantity, and he proved that the want of action in the lungs was not compensated by any increased action in the intestinal canal or the skin. Boeker extended his observations to the action of beer, the effects of which on the respiration were found to be the same as those of pure spirits. After fourteen days' use of four or five pints daily of German beer, one-third of the strength of Bass, he examined the condition of the blood and he reports some interesting particulars. He especially notices a much increased proportion of the pale unnuclated globules, and these Boeker holds to be defunct bodies, no longer capable of absorbing oxygen, and he infers that this increase of solid matter in the blood, in beer drinkers, is no evidence of increased vital powers, but merely a retention of partially effete materials.

(To be continued).

In the excellent work published by J. H. Vail & Co. of New York city, entitled *Unconscious Memory in Disease* by Dr. Creighton, some very suggestive ranges of thought occur that bear on the philosophy of inebriety. He shows that memory is a general function of all organized matter. That impressions are stored up and let loose again under the influence of some powerful emotion, and disease is a habit contracted from the repetition of abnormal impressions memorized and made permanent. That errors in diet and drink affect the nervous mechanism of the body, and produce tropho-neuroses, hyperæsthesia, followed by anæsthesia, impaired power of movement and control of the body. The effects of alcohol leave a constantly accumulating store of tissue memories, which permanently impair the brain and nerve centers, and incapacitate them from healthy action.

The world wants clear, authoritative facts on the nature and character of inebriety, and not the confusing, contradictory, uncertain theories which are spread out in papers, books, and sermons.

ALCOHOLIC NEURASTHENIA.

BY EDWARD C. MANN, M. D.,

Member New York County Medical Society, American Association for the Cure of Inebriates, and Supt. Sunnyside Home for Nervous Invalids, 204 Lefferts Place, Brooklyn, N. Y.

That neuropathic decay and degeneracy of brain power is often due to alcohol, no observant physician will deny. That it is the duty of the family practitioner to see, that as far as practicable, healthy brains and vigorous nervous systems are transmitted to descendants is equally indisputable. The abuse of alcohol, and conjoined with this, the abuse of tobacco and sexual excess, is responsible for much of the increase of the neuropathic diathesis which eventually terminates in insanity and hereditary degeneracy of brain and mind. Alcoholic excess in an individual, which may perhaps do him personally no further harm than to set up a curable state of neurasthenia or nervous exhaustion, is a tremendous power for evil, a morbid force, which starts in his children a neuropathic diathesis which for two or three generations may result in epilepsy, dipsomania, imbecility, and every grade of mental unsoundness. The marriage of two persons, one of whom use alcohol to excess, means simply the founding of a family with a tendency to brain degeneracy. The neuropathic diathesis which the children born of such a union will have, is liable at any time to develop into positive mental unsoundness. It is very problematical if the children with an alcoholic neuropathic diathesis will grow up to come under Judge Edmunds' definition of sanity: "a sane man was one whose senses bore truthful evidence; whose understanding was capable of receiving that evidence; whose reason could draw proper conclusions from the evidence thus received; whose will could guide the thought thus obtained; whose moral sense could

tell the right and wrong of any act growing out of that thought, and whose act could at his own pleasure be in conformity with the action of all these qualities. All these things unite to make sanity."

Alcohol cannot supply a growing organism with the chemical element of nerve repair, and the young, therefore, should never touch it. In later years alcohol is the most dangerous thing imaginable with which to spur the brain and nerves as fast as they feel the necessity for something to antagonize the influence of mental or physical overwork. Many brilliant men and women go to pieces every year because they rely on alcohol instead of rest and change.

Some eminent English physicians a few years ago, wrote a few articles endeavoring to show that moderation in drinking was true temperance. This somewhat seductive doctrine may hold good for England; it does not, in my opinion, for America. It is rare in England to see the premature decrepitude and nerve degeneracy and breakdown met with in our country. We live faster and have more causes of nerve disturbance than the English people. There is no such ceaseless bustle and din of business in England as here. They have more time for recuperative rest to brain and mind, and do not suffer from so much wear and tear of brain and nerve as does the busy American. The Englishman rests more and longer, and therefore gets well repaired, and he also lives more in the open air, and therefore does not suffer from overstrain, but has a vigorous, well-poised nervous system as a rule. In this country, and more particularly on the Atlantic coast, the stimulating nature of the climate and the extremes of heat and cold, result in the production of a very sensitive nervous organization. Add to this overstudy when young, or educational pressure unwisely applied to delicate children, and we see, as a result, too much brain and spinal cord, and too little physique and a very susceptible nervous system in both men and women. Let such men and women, with exceptional quickness of intellect and exceptional delicacy of nerve organization, lay down for themselves, as a rule of life, that moderation in the use of

alcohol is true temperance, and we can but tremble for the nervous system and mind of the next generation. To such persons, the daily use of a moderate amount of alcohol will inevitably, sooner or later, confuse and injure the finer operation of the brain and mind, and result in a certain proportion of the number thus using alcohol moderately daily, in the disease of dipsomania. The victims of this disease now drink, not because they choose, but because they have developed a craving for alcohol which has mastered their will and which they cannot resist; a condition which may be acute, periodic, or chronic: generally periodic.

Another proportion of moderate drinkers will go through life apparently uninjured, if they happen to have inherited particularly good nervous systems, but their children will pay the penalty; while some will progressively retrograde and become typical inebriates. It is decidedly the exception where an American is a moderate drinker, that both he and his descendants escape unscathed, and the reason for this we have explained.

We come now to speak more particularly of that form of neurasthenia or nervous exhaustion which, personally, we have so frequently seen as the result of alcohol. We have never, in a somewhat extensive observation of these cases, treated the alcohol question otherwise than one of purely scientific inquiry, and all facts stated are those legitimately deducible from the cases which we have seen as a physician, and studied in their relation to the hygiene of the nervous system and mind. The over-worked business or professional man finds that he can maintain an habitual system of over-exertion of the nervous system for a longer time with the assistance of alcoholic stimulants than without them. Instead of the rest he should take, he prolongs the term of over-exertion by the daily repeated application of stimulus, expending more and more of the powers of his nervous system, and preparing for a more complete nervous prostration at a later period. He then suffers from a sudden failure of mental and bodily vigor, shown by deficiency of power of

continued mental exertion, depression of spirits, want of appetite, enfeebled digestion, and a whole train of nervous symptoms. There is failure of memory and of mental energy generally. When the patient has no occasion to exercise his mind, this symptom of failure of memory may not attract his attention, but if he has, he soon finds that it is simply impossible to do what he once could. He cannot fix his thoughts, and it is an effort to follow up any train of thought consecutively. Wakefulness is another marked symptom, and a patient now under my care cannot sleep at night, he tells me, unless he takes whisky at bedtime. Of course he was put at once under treatment that obviated the necessity of this. The depression of spirits amounts often to melancholia, and there is very frequently a great irritability of temper. There is an intermittent craving for alcohol, which temporarily makes the patient feel better, but which leaves him suffering more than before. There is a lessened control over the bladder. The locomotive power is lessened, and the patient is easily tired. There is marked inactivity in the sexual functions. There are inequalities in the circulation. The hands and feet are cold, while the head is hot. The patient looks prematurely old. There is a tired feeling, feeling of weight at the back of the head and neck, and vertigo is very frequent. The patient is unduly emotional, and the eyes fill and the lips quiver in a person who previously had good control over his feelings. The patient becomes breathless and faint very easily. Epileptiform symptoms may be present, very frequently all that is noticed, being fits of unaccountable sleepiness, followed by forgetfulness or weakness or faintness with numbness or tingling. There may be transitory hemiplegia. There is a lessened tolerance of stimulants, so that a very small quantity produces intoxication.

Our patient suffering from alcoholic neurasthenia, must stop alcohol at once. Upon rising in the morning, he should take, fasting, one drachm of Warburg tincture, should take a cold sponge bath with subsequent friction with a Turkish towel, and should discard too much meat from his diet list.

Electricity in the form of central galvanization I find very useful to improve the nutrition of the central nervous system. The bowels should be carefully regulated. Wakefulness should be combatted by taking prolonged warm baths at bedtime, of half an hour duration, with a cold towel wound round the head, followed by the administration of from a pint to a quart of milk, which by giving the stomach work to do draws off nervous irritation from the brain, and directly induces sleep, doing away with the necessity for alcohol or drugs at bedtime to overcome the insomnia. Rest is imperative. The patient should leave his business and spend as long a time as he can in an invigorating mountain region like the Catskills, at an altitude of about 2,000 feet or 2,500 feet above the sea level. In this way, if stimulants are entirely stopped, the lost vigor will be restored to the brain and nervous system, the patient no longer having to rely on the delusive support afforded by alcoholic liquors.

If we have written somewhat strongly upon this subject, it is because we feel strongly. The nervous and mental deterioration, the result of alcohol, is on the increase, and is most painful to witness. The ready writer, the bright and witty talker, the man of natural ability, with a powerful memory and a gift of ready application, has the higher mental faculties in constant operation, and he is the man above all others who should never touch alcohol. If he does, he soon finds that his mind when unaided by the stimulus becomes barren and unproductive. That man is in a very dangerous position who finds that only under the influence of his accustomed dose of alcohol, can he command his intellect, for this control is only a temporary one, and this deceptive health is replaced by pallor, pain, and distress, and a generally miserable condition which can only be relieved by alcohol again. It is this abnormal condition of the centric nervous system set up by the use of alcohol that is essentially the disease we call alcoholic neurasthenia, which if not antagonized by the proper means leads to degraded intellectuality, and even to mental unsoundness.

Abstracts and Reviews.

DE L'ALCOOLISME ET DE SES DIVERSES
MANIFESTATIONS.

Considérées au point de vue physiologique, pathologique, clinique et médico-legal. Par Dr. F. Lentz, Médecine Directeur de l'asile d'aliénés de l'Etat à Tournai. Bruxelles, 1884.

This work extends over 600 pages and treats of alcoholism in all its ramifications. The author deals in general considerations of the physiological action of alcoholic drinks upon digestion, circulation, the heat of the body, respiration, the blood, the kidneys, and the nervous system. He acknowledges that this last is the most difficult to determine. New researches are indispensable to establish the true nature of the action which alcohol exercises upon the whole nervous system. He endeavors to prove, however, that alcoholic stimulation which is usually believed to infuse fresh energy and vigor into the brain and nerves is only factitious, that it very indirectly reaches the nervous system itself, and exercises an indirect influence upon the motor, sensory, and intellectual functions. In fact the stimulation of the nervous system is regarded as the consequence of cerebral excitement, the complex nature of which may be difficult to establish, but is analogous to the effect of good news upon the mind. Passing over these sections which refer only to ordinary intoxication, we note the description of maniacal excitement due to alcohol, which contains a good sketch of the prodrome, course, and termination of the attack. Lethargic sleep lasting from twelve to twenty-four hours may completely put an end to the outbreak of fury. The most characteristic circumstance here is the complete re-establishment of the previous mental activity without the persistence of

any morbid manifestations. Homicide or suicide may have been attempted during this attack of acute alcoholism, and striking cases are given in illustration. Closely allied is convulsive intoxication, the stress of the attack falling on the motor system. The attack is sudden, being preceded by little more than irritability, precordial pain, and headache. A graphic description follows of the contortion, dangerous violence, and loss of consciousness, the manifestations of mental activity being mainly hoarse cries and inarticulate sounds. When aroused from the profound sleep which terminates the crisis, the patient retains no memory of the storm through which he has passed.

Dr. Lentz treats of the abnormal state of intoxication which occurs among the insane, imbeciles, and epileptics. It is laid down as a general principle that all who fall under the great class of mental maladies present a greater susceptibility to alcohol, and display in their symptoms of intoxication special characters which carry it beyond its ordinary type. The general paralytic is usually very susceptible to alcohol, in fact he can rarely absorb a sufficient quantity to permit the successive symptoms of intoxication to follow their normal course. A true maniacal excitement is the principal symptom, and often in the first stage occasional vagabondage, quarrels, thefts, assaults, and even murders. As the author observes, it is strange to see this same general paralytic who bears alcohol so badly, in the fully-developed stage of the disease able to bear great excesses and yield with difficulty to intoxication, when dipsomania results from and constitutes the first symptom of general paralysis. Dr. Lentz insists, with reason, that the intoxication of the weak-minded is the most abnormal and generally the most dangerous. With regard to the dipsomaniac he scarcely knows, paradoxical as it seems to say so, what true intoxication is during the active stage of his disorder; it consists rather of a continual, semi-maniacal agitation with rambling and incoherence. Certain authors, as we know, hold that intoxication is always due to a pre-existing chronic alcoholism.

Granted that it is rare with those who only occasionally take alcohol, still glaring exceptions do not permit us to regard it as an absolute rule; in the exceptional cases there is a neurotic predisposition which explains the origin of the abnormal intoxication. This altogether special susceptibility to intoxicating beverages which may so easily lead to a maniacal attack, nearly always depends upon a constitution marked, in the neurotic, by a tendency to delirium and hallucination in the course of various disorders, especially fever, great mobility, excessive susceptibility to atmospheric influences and to diet, and exaggeration of vaso-motor excitability under the action of the slightest mental impression. Hence, breathlessness, palpitations, blushing, precordial anxiety, vague uneasiness, rapid and facile appearance of the same phenomena under the influence of drink, excessive irritability of the nerves and senses to a continuous state of irritation and emotion; increases of reflex irritability, and tendency to convulsions. In the psychopathic constitution there is great excitability, instability of the moral sentiments, frequent change of humor without cause, inconstant sympathies and antipathies, too vivid an imagination, and rapid and exaggerated but very momentary, voluntary determination. Dr. Lentz is one of the few medical writers who point out that the neurotic or psychopathic constitution, although usually hereditary, is not necessarily so, but may be acquired by causes which profoundly affect the cerebral and nervous functions, as traumatism, typhus fever, and other zymotic affections, meningitis, moral shocks, etc. From these causes as well as from heredity may unquestionably arise a tendency or susceptibility to alcohol which gives rise to many forms of pathological intoxication.

In diagnosing maniacal from ordinary drunkenness it is necessary to bear in mind that the former is marked by sudden outbreak, while the latter pursues a regular course in its commencement and progress, a certain period of continuance and then decline. In the former, movements are well directed and remain under the control of the will. In the

latter, motor action is not long maintained and soon becomes feeble, the drunkard having little power of resistance. Hence the childish conduct of ordinary intoxication, and the violent and well-combined acts of the pathological form; in one there is restlessness and progressive relaxation, in the other the display of extraordinary force. The mental condition is fundamentally different. The maniac, although unable to give an exact account of the situation, will recognize his entourage, will understand the question asked of him, and may even reply sensibly, there being, therefore, a certain conscious intelligence which renders the patient all the more dangerous. There is, however, in that variety of pathological intoxication which assumes a convulsive form, an almost complete mental stupor, and in this respect it is more allied to the grave forms of ordinary inebriety. Pathological intoxication is marked by profound sleep, and as the quantity of alcohol has been insufficient to cause general disorder in other organs its disappearance is complete. Ordinary drunkenness, although usually followed by profound sleep, is not marked by the elimination of alcohol, the effects of which on the system continue for a considerable time. Its victim awakes fatigued, vertiginous, or dyspeptic, while the maniacal inebriate shows no signs of indisposition. Lastly, the patient, on recovering from maniacal or convulsive intoxication, remembers nothing.

This rarely happens after a drunken bout. Attacks of acute alcoholic mania, arising in the course of chronic alcoholism, are often confounded with pathological intoxication, but the former is characterized more especially by terrific hallucinations, emotional paroxysms, furor, and stupidity. Unfortunately, clearly defined as these distinctions seem on paper, the several forms are considerably mixed in practice.

Dr. Lentz has to confess that the different forms of abnormal intoxication are not connected as yet with a definite pathology. Pathological intoxication is only a transitory insanity, having a special origin, and yet alcohol is often so

little taken into the constitution that in most cases it does not offer the general character of alcoholic delirium. Of hallucination there is not a trace, the change is moral sensibility, so characteristic of really alcoholic disorder, is wanting. It is, indeed, as far removed on the one hand from the group of true alcoholic mental disorders, as it is on the other from ordinary intoxication. The term pathological intoxication is, therefore, employed to mark its relations with alcohol, and at the same time the differences which separate it therefrom. In discussing the relations of intoxication and insanity, the author points out in a philosophical manner, the resemblance and the difference between the two. The analogies between general paralysis and the effects of alcohol are minutely described, and the author adopts the opinion of Bayle, that drunkenness, if permanent instead of transitory, would be nothing else than general paralysis. The pathological analogy lies not only in the organ affected, but in the region namely, in the pia-mater; and the cortex, as also in the nerve cells, and the morbid evolution which mark the two affections. It does not, however, follow that intoxication is a state identical with general paralysis.

The medico-legal questions arising out of intoxication, are clearly stated by Dr. Lentz, both in regard to ordinary and pathological drunkenness.

It may be remarked, in passing, that the simulation of drunkenness at a stage which would carry with it complete irresponsibility is so difficult, that the author has not found a single case on record.

The author's great point in regard to the responsibility of drunkards, is that they are punished for their drunkenness and not for the crime which they commit when intoxicated; just as a man guilty of homicide, through carelessness, is not punished for the homicide, but for the carelessness. The drunkard places himself voluntarily in a condition of transitory insanity, knowing beforehand the risks to which he may expose himself, and therefore he must take the con-

sequences. Lentz alike rejects the German law, that intoxication diminishes responsibility, and the English law, which regards it as an aggravation. It does not seem, to us, quite consistent to say that a man is punished for his drunkenness, and not for his crime, and yet maintain that he must be punished more severely if he commits an injury during his intoxication.

The author holds, that if there is complete amnesia there can be no responsibility, but this again seems hardly consistent with the foregoing. The condition of drunkenness in which hallucinations are present forms a transition between normal and pathological intoxication, and, in the author's experience, the hallucinations are not, strictly speaking, such, but illusions always excited by external objects. On either supposition, however, the individual should be regarded as irresponsible. As the pathological intoxication already described is a well-characterized insanity, the question of responsibility rests on a correct diagnosis alone.

But we must pass on to the chapter which describes chronic alcoholism, the definition of which varies from the inclusion of all the consequences of the prolonged use of spirits to that of an affection slow and chronic, caused by alcoholic excess, and characterized anatomically by inflammation, sclerosis, and fatty liver, and clinically by physical, moral, and intellectual changes. The author, however, prefers description to definition. He treats, first, of chronic visceral alcoholism, with local disorders, hepatic, etc., or with general disorder, as cachexia, and, secondly, of cerebro-spinal chronic alcoholism, which is divided into four forms; namely, alcoholic degeneration, hallucinations, simple dementia, and alcoholic dementia, of which forms the complications are pachy-meningitis, epileptic convulsions, cerebral congestion, softening, sclerosis, and paraplegia. These disorders are detailed minutely, and cannot be summarized, but the reader will find them worthy of study.

Innumerable as are the phenomena of cerebral alcoholism, they preserve the same type: namely, enfeeblement,

wear and tear of mind, and dementia. The first form, the foundation of cerebral alcoholism, is designated alcoholic moral degeneration; the term dementia being scarcely appropriate, seeing that the intellectual weakness is often the least apparent symptom, and it is well remarked that the term moral brutishness would be more appropriate were it scientific enough. This form usually characterizes the first stage of alcoholism, and may never advance further, and is almost automatic in character. More commonly the second form, that of alcoholic hallucination, quickly follows, and constitutes a well-marked emotional and sensorial disorder.

The third form consists of simple alcoholic dementia; there is real mental weakness, intellectual and, especially, moral, wear and tear of the faculties, and this state may remain uncomplicated with other morbid manifestations. More frequently, however, it is only transitory, and rapidly ends in the last form, alcoholic dementia, with paralysis, which must not in the early stage be confounded with true general paralysis, although it nearly always terminates in it. Anæsthesia, which, as every one knows, is much more common than hyperæsthesia, is usually present at an advanced period only of chronic alcoholism.

Objects fall from the hand unless the patient looks at it, and patients can prick or wound themselves without feeling anything, while tickling the arch of the palate or uvula excites no reflection.

Affections of the sight, diplopia, polyopia, dyschromatopsia, became marked. The ophthalmoscope does not fully explain the phenomena of amblyopia and amaurosis. Myasthenia or tremor of the eyes is frequently present.

The pupils are often uniformly dilated and react slowly to light; their inequality may occur without any symptom of real paralysis. Affections of hearing occur in chronic alcoholism more frequently in the direction of anæsthesia than of hyperæsthesia.

Disorders of smell and taste are well known to arise. Motor troubles appear mainly under the form of cramp and

tremor, chiefly in the hand and arm, then the organs of speech and the lower extremities.

Paretic and ataxic phenomena pass insensibly into complete paralysis. After death the dura mater is frequently the seat of false membranes. Dr. Lentz clearly distinguishes the changes which may be found in the arachnoid and in the pia mater and the brain itself, some being due to the direct action of alcohol, and others being only secondary. The reader will find them carefully described as also the changes in the spinal cord.

The cases reported are of great value, in conjunction with the commentaries of the author, in illustrating the several forms of inebriety already mentioned, and deserve careful study. The symptoms in that form of chronic alcoholism which the author designates expansive alcoholic general paralysis exhibit all the symptoms of the latter.

To diagnose alcoholic general paralysis the previous existence of symptoms of intoxication must be proved; the simple abuse of alcohol is not sufficient. There may have been attacks of delirium tremens, or disorders of motility, or moral dementia.

There is no certain sign to indicate the transition from chronic alcoholism to general paralysis, and even the autopsy may not decide the question, for adhesion of the membranes, which is the chief pathological appearance, may be so limited as to escape observation. When alcoholic general paralysis follows upon pre-existing alcoholism, optimism does not appear to constitute the symptoms of transition, but rather intellectual enfeeblement. Ideas of grandeur, when present, assume a different character in the two affections — in general paralysis they are more infantile and silly, in alcoholic paralysis more definite and coherent, and there are frequently at first ideas of jealousy, followed by delusions of persecution and general hallucinations.

In general paralysis the motor trouble is scarcely perceptible at first, the tongue and articulation being alone affected. In alcoholic paralysis the fingers and toes are at

first affected, extending afterward to the elbows and knees. Another point is that in ordinary general paralysis the motor trouble is rather ataxic, while in alcoholic paralysis it is more of a paralytic nature. In the former the movements are irregular and jerky, while in the latter they are marked by weakness. In the former the patient is active-restless, often petulant, and may be firm of gait; in the latter he is feeble, heavy, and trails along with difficulty. The paralytic will raise a weight which the alcoholic would be scarcely able to move; the one will shake hands firmly, while the other's pressure is scarcely felt.

The tremor in the general paralysis type is frequently absent or scarcely appreciable early, and when present is limited; in alcoholic paralysis, on the contrary, it is ordinarily generalized, and obvious at first sight, the body, including the head, being affected. The fibrillar tremors of the lips and orbicularis palpebrarum and elevator oris are observed when the patient makes the last effort. The tremor of the tongue is much more marked in the one than in the other form, but the difference in the hesitation of the speech is still more striking, for in alcoholic paralysis the speech is tremulous in consequence of the tremor of the different parts which come into play in attempting to speak, while the hesitation of the genuine paralytic is an ataxic disorder due to defective association, as much physical as mental. When the alcoholic paralytic wishes to speak all the labial muscles tremble, and verbal expression is the result of a painful muscular effort. When, on the contrary, the general paralytic speaks the words come easily, except at intervals when one or other muscles, or even the mind, makes a false step. Again, on the side of sensation, dysæsthesia is almost constant in alcoholic paralysis, while it is rare in ordinary general paralysis, for we rarely meet with formication, pain, cramp, and numbness in general paralysis. Dizziness, vertigo, dimness of vision, muscæ volitantes, buzzing in the ears, are constant symptoms in the one disorder, and rare in the other. The mental symptoms also differ, especially as to the form of de-

mentia, mental weakness being nearly always marked in the expansive form of the insanity. In alcoholic paralysis the dementia occupies the first place, and presents special characters, the delusions being less pronounced and often transitory. Intellectual inertia and moral atrophy predominate, but in spite of this the patient seems to preserve more lucidity and consciousness of his condition. M. Lentz agrees with the opinion of a French physician that general paralysis distinct from alcoholic influence exhibits much oftener than is supposed persistent hallucinations of sight and hearing.

But sensorial troubles in alcoholic paralysis present a peculiar aspect. These are rather visions than auditory hallucinations. They are accompanied by anxiety, agitation, dreams, nightmare, and insomnia, while on the contrary, the hallucinations of general paralysis are much more disseminated, and are less persistent. In alcoholic paralysis the delusion seems to be directly derived from the hallucinations; in general paralysis it is more spontaneous and the hallucinations do not at all modify it. It must be borne in mind that M. Lentz is speaking only of the expansive variety of alcoholic insanity, the rarest of all, so much so that Voisin is able to write that ideas of grandeur are rare in this form of paralysis. It would, perhaps, be more correct to say that they are not exclusive or predominant, but are very often mixed up with ideas of persecution of a hypochondriacal kind, with ideas of magnetic influence, proceeding from the remains of sensory hallucinations or disordered sensations.

Under the head of complications of chronic alcoholism a careful description is given of pachymeningitis, three successive stages of which are recognized, but our space will not allow of citation from this important section of the work. We must also pass over the valuable observations on alcoholic epilepsy.

After some remarks on spinal alcoholism, comprising the hyperæsthetic form of Leudet, and the paraplegic of Wilks, the latter of which is considered better established than the former, M. Lentz enters upon the study of progressive causes

of chronic alcoholism, the laws which govern, and the relations between its different manifestations, in other words the pathogeny.

The triple action of alcohol upon the vascular system, general nutrition, and the formative process is fully detailed.

An interesting sketch is drawn of the analogies between chronic alcoholism with insanity and inebriety. Clearly the mental weakness, as also the paralysis of mind and body due to alcohol, present all the characters of ordinary dementia. In that form of alcoholic insanity characterized by hallucinations, the enfeeblement may not be so evident, but its epiphenomena remove it from the more clearly marked forms of insanity of which it presents, in other respects, the leading symptoms. There remains the first form, described under alcoholic degeneration and drunkenness. A man becomes a drunkard, properly speaking, when excesses have produced that moral degradation of which the most advanced state constitutes Dr. Lentz's first form, namely, alcoholic degeneration, and not merely the vicious condition of him who abandons himself to drink. Is intemperance a vice or a disease? is a question which the author scarcely ventures to answer in an unqualified manner. He, however, formulates his position thus: drunkenness, so far as it consists in that state of immorality which is induced by alcoholic excess, ought not to be regarded as a vice; it is a pathological condition in the same sense that all the modifications of the moral and intellectual being, due to extra physiological causes, are pathological; drunkenness ought to be considered as the analogue of the prodromic period of mental maladies, and really constitutes the prodromic period of confirmed chronic alcoholism. It is quite otherwise in regard to the craving for alcoholic drinks. With the exception of cases in which this craving is instinctive, and therefore hereditary, it is only a vice which human nature is capable of resisting, and therefore entails responsibility.

In the section on the medico-legal bearing of chronic alcoholism, Dr. Lentz observes that the three forms or

stages, namely, acute, subacute, and chronic, are insufficient. The subject is, therefore, considered on the lines already laid down, that is to say, under the three forms of alcoholic degeneration, hallucination, and dementia. No exact criterion can determine the responsibility of a man laboring under alcoholic degeneration. Different degrees of moral and intellectual arrangements carry with them corresponding grades of responsibility. However degraded may be the moral feelings in this form, there remain sufficient lucidity and self-control to resist the suggestions of the passions. If the drunkard is indifferent to the moral aspect of things, he at least understands them; if the mental functions act slowly and imperfectly, his understanding is at least sufficient to appreciate the character of the acts he commits. Doubtless the power of resistance is diminished, and his perception more limited, but with this we can only associate a corresponding diminution of responsibility. Between the two extremes, of very slight change and that of moral degradation and intellectual hebetude, there is a long period during which it would be as unjust as dangerous to absolve the unfortunate men whose faculties have been weakened by alcohol. In the hallucinatory form, acts of violence, usually unreasonable and repulsive, cannot be regarded as involving absolute responsibility, if there is any mental obliviousness. If, however, the hallucinations are fleeting, and the memory is preserved, we cannot claim irresponsibility for the individual. In the last form, that of alcoholic dementia, there is, of course, no more responsibility than in ordinary dementia.

The fourth chapter discusses alcoholic delirium, delirium tremens, and alcoholic psychosis. Passing over the two forms, it may be stated that the last is divided into three orders; the first being associated with depression, the second with exaltation, and the third comprising chronic alcoholic mental disorders. In the depressive group we have alcoholic lypemania; and in the expansive group, ambitious exaltation, which Marcé was the first to describe; and in the chronic

group, the mania of persecution and megalomania. Dr. Lentz regards the last as usually a chronic form of the first group, in which ideas of persecution have been effaced, or at least obscured, by the shadow of ambitious conceptions.

Dr. Lentz, in concluding this chapter, makes the important remark that psychical alcoholism, from the simplest to the most complex form, constitutes a state of genuine insanity, presenting no difference whatever from that which is of non-alcoholic origin. The only form which assumes a specific difference — delirium tremens — ought not to raise the slightest medico-legal difficulty. Complete irresponsibility is its necessary accompaniment. To record cases would only confirm the rule universally accepted up to the present time, that delirium tremens is not a form of drunkenness which can be induced voluntarily, but a mental disorder of which the genesis is independent of the human will, and is often even not immediately dependent upon the alcohol which a man imbibes.

In the fifth and last chapter, the author speaks of hereditary alcoholism, of which Morel has given the best description. It is treated by our author under two forms; hereditary transmission of the same affection, the hereditary transmission of a transformed alcoholism, or rather of alcoholism transformed into numerous nervous manifestations. Of 379 intemperate patients admitted into the asylum of Binghamton (New York), 180 were hereditary drinkers; but, on an average, the statistics of several countries do not give more than twenty-five per cent. In the second form, we have the symptoms of chronic alcoholism in the descendants of drunkards, without intemperance in the former. Sensation is perverted, the lower extremities are generally affected, cephalalgia and migraine are common; the sight is affected, vertigo and dazzlings are not rare, and sleeplessness is frequent, while there may be chronic indigestion along with complete sobriety. Such persons are subject to hallucinations from slight causes; facial tremor and weakened motor power are also simple. Convulsions are induced with extreme

facility, or even epilepsy itself. With women hereditary alcoholism is transformed into hysteria, and with men the peculiar nervous affection denominated "nervosisme" by Bouchot.

Hereditary alcoholism frequently gives a clue to those moral perversions which raise the question of moral insanity. In youth, the descendants have low instincts and evil propensities; they are cruel, vindictive, choleric; the pain and suffering of others gives them pleasure; their greatest pleasure consists in tormenting and killing animals; others are never happy unless they can tease, plague, and cause suffering to their little playfellows, whom they fill with fear; they habitually reveal, at an early age, their evil tendencies by the depravity of their character, by the precocious vices in which they take pleasure. When older they become indolent vagabonds, and incapable of discipline; sometimes they prove refractory to all education, or, if they have painfully learnt a profession or trade, their capacity vanishes at the moment of mental development at puberty. Indecision, sloth, vagabondage, an obscure moral sense, instability of character, the impossibility of settling to anything, the tendency to intemperance, and sexual vice, and, lastly, intellectual enfeeblement, are the chief characters of their perverted nature. When this supervenes there is something more than moral insanity, but, as Dr. Lentz observes, many are examples of "folie morale instinctive."

The volume concludes with a notice of dipsomania, which Dr. Lentz, with his accustomed discrimination, distinguishes alike from alcoholism and drunkenness, observing that it has only distant relations with intoxication. He defines it as a true insanity, which should be referred to the class of impulsive affections, the craving for drink being only a simple symptom, which might be replaced by any other irresistible desire without at all modifying the essential nature of the mental disease. The only relation it has with alcohol is that it too frequently gives place to alcoholism, whose symptoms efface those of the affection which produced

them. Dipsomania is regarded under two forms: the essential and the symptomatic, the latter being the most frequent, and occurs especially at the commencement of certain maniacal states and general paralysis; indeed, the craving for drink is sometimes the most prominent symptom of the latter. In circular insanity the stage of excitement is often characterized by an almost instinctive propensity to excess, and appears to be a veritable dipsomania. The invasion of true dipsomania is generally slow, the attacks increase little by little in intensity and duration, and at last the disorder assumes a circular character; the mental condition is absolutely different in the two periods of the circle. Heredity plays nowhere a more important part than in dipsomania. The principal symptoms are the disorders of moral sensibility, returning periodically, and accompanied with an invincible tendency to intemperance. At first the character changes, the patient becomes irritable, and even violent, the sleep is disturbed, an indefinable malaise renders him anxious and restless; while vague apprehensions put a stop to ordinary occupations. Dr. Lentz forcibly describes the condition as one of "véritable effervescence intérieur." On the termination of the attack the patient falls into a state of moral weakness, and the patient, conscious of his condition, shuns society and often seeks admission into an asylum. The medico-legal aspect of dipsomania offers little difficulty; it involves complete irresponsibility. The ordinary abnormal manifestations include an irregular and fantastic character, arrested development, or singular inequality of the intellectual and moral faculties, natural tendency to lying, dissimulation, cruelty, excesses of all kinds, periodical return of various nervous disorders, sometimes always alike, at others variable in their form; with these are often combined physical imperfections, such as malformations of the head, etc.

Of course, during the attack, the dipsomaniac must be considered irresponsible, but during the remission he cannot be allowed to enjoy the same immunity, although his absolute responsibility must not be assumed without inquiring into

the special features of the case. We have given a full analysis of this very able work on alcoholism, in order that the author's views on so practically important a subject may be accurately followed, and it has been thought that a sketch of the ramifications of alcoholism will prove useful to our readers.—Dr. HACK TUKE, in *Journal of Mental Science*.

TRAUMATIC DELIRIUM TREMENS; BY JOHN B. ROBERTS, M. D., PROFESSOR OF ANATOMY AND SURGERY IN THE PHILADELPHIA POLYCLINIC.

This nervous affection, characterized by muscular tremor and a peculiar restless delirium, not infrequently follows the receipt of injuries in those accustomed to alcoholic stimulation.

Some writers describe, under the terms traumatic delirium and nervous delirium, a condition frequently very similar to delirium tremens, which is said to occur in patients free from the alcohol habit, and to depend upon nervous prostration, often associated with shock and hemorrhage. It is possible that failure to investigate previous habits with judicial acumen has allowed to arise a confusion between delirium dependent simply upon traumatism and delirium induced by traumatism in alcohol drinkers. The muttering delirium and muscular twitching that supervene in asthenia, from surgical as from medical causes, and the noisy delirium after injury that is exhibited by quick, rapid, and full pulse, and by febrile reaction, are two very different conditions to which the name traumatic delirium might with propriety be applied. These forms of mental disturbance, in my opinion better called asthenic and inflammatory delirium respectively, arise without reference to personal habits.

The group of symptoms which I propose describing as traumatic delirium tremens, however, is found especially, if not exclusively, indeed, in those whose nervous systems have

undergone prior to injury, the deterioration due to absorption of alcohol. I have not been convinced by my experience, nor by my reading, that such a concatenation of symptoms can occur after traumatism in the absolutely abstemious. The amount of drinking requisite to induce the predisposition varies with the individual. The repeated ingestion of quite small quantities of alcohol may give rise to the delirious susceptibility. It is possible that a similar deterioration of constitution, and a consequent liability to trembling delirium, may be caused by the opium, chloral, and tobacco habits; but it is difficult to differentiate these because of their frequent association with alcoholic excess.

Traumatic delirium tremens may follow even slight injuries, but compound fractures and burns seem to have a special tendency to develop this serious complication. Its occurrence should not be ascribed to the restraint imposed upon the patient's habits by the injury, but to a traumatic disturbance of a previously unstable nervous equilibrium. Medical authorities vary in their appreciation of the causative influence exerted by sudden deprivation of accustomed stimulants in exciting attacks of ordinary delirium tremens. It is probable, however, that in a vast majority of such cases the directly exciting causes are the deficient assimilation of food, the anxiety, and the nervous strain which go hand in hand with a period of debauch, and which persist after the ingestion of alcohol is stopped. Neither is the occurrence of the malady to be imputed to the directly poisonous effect of a large amount of consumed alcohol, since acute alcohol poisoning, in persons unaccustomed to the use of alcohol, gives rise to stupor and death, but not to delirium.

Traumatic delirium tremens occurs because chronic changes in the nervous tissue or blood, or perhaps in both, have rendered the alcohol drinker susceptible to such an outbreak upon the application of any disturbing influence. The receipt of injury is a sufficient perturbing force, especially if the patient be on the verge of an idiopathic attack. It has been thought that the use of beverages containing amylic alcohol (fusel oil) especially predisposes to delirium tremens.

The alteration in nerve structure or blood, which is the essential pathological factor of delirium tremens, is unknown to us. At autopsies, an abnormal amount of serum is usually found in the substance, and within the ventricles of the brain; meningeal congestion and hemorrhage are often seen; the cells of the gray matter, the cerebral connective tissue, the lymph spaces and the vessels may show sclerotic or fatty changes; and the liver, kidneys, and digestive tract may exhibit the characteristic lesions found in chronic alcoholism; but there is nothing to which we can point as the distinctive lesion of delirium tremens.

The initiatory symptoms of traumatic delirium tremens are sleeplessness at night, and slight tremor, which is readily noticed by ordering the patient to hold out the hand with widely-separated fingers. Subsequently, restlessness, insomnia, and tremor increase, and delirium is shown.

The delirium, which is often first exhibited at night, is peculiar. The patient sees numerous small animals or insects creeping over the bed and about his person, or is pursued by some hideous spectre. Hence, he is constantly endeavoring to eject the vermin from his clothing, or trying to escape the persecutions of his tormentor. I have now under my care a patient with traumatic delirium tremens, after an open fracture of the leg, who imagines that elephants are moving over his bed and tramping on his legs. He may, in his efforts to get rid of these disgusting and distressing annoyances, leave his bed and fall from a window or down a flight of steps. The mental condition is one of depression, trepidation, and great activity. He is exceedingly restless, and is constantly chattering in a low tone, but, though he may cry out because of fear, he shows little or no maniacal excitement. He is good-natured, not prone to violence, and can often be aroused, by emphatically spoken words, to an understanding of his surroundings: but he soon relapses into the previous incessant chattering and motion. Very often a single idea recurs again and again to his delirious fancy, and not infrequently the delirium has a comical or tragedo-comical aspect.

The muscular tremor is not like the twitching of tendons seen in asthenic conditions, but resembles the shakiness, from want of coördination, seen in cerebro-spinal sclerosis. Often there is hurry in movement, and the limbs or tongue will then be thrust forward with a jerk. The tremor of delirium tremens reminds me much of the movements that would be expected in an association of chorea with sclerosis of the nervous centres.

During these symptoms, the patient is unable to sleep, is incessantly in motion, and has a bright eye with dilated pupils, and an unsteady, restless look. He exhibits a moist, flabby, tremulous tongue with a whitish fur, desires no food, has constipated bowels, and passes a scanty, high-colored urine. In idiopathic delirium tremens of moderate severity there is no great acceleration of the pulse, and the temperature does not rise much above 100° , except during active muscular exertion. In those graver cases, which Magnan calls febrile delirium tremens, the bodily heat is apt to remain in the neighborhood of 102° – 105° , though there is no intercurrent affection to keep up the temperature, and the pulse rate is also increased. In traumatic delirium tremens the constitutional disturbance, due to the wound, affects the pulse and temperature. The patient will often remove the dressings from his wound, or subject the injured limb to violent motion without appearing to experience pain.

Traumatic delirium tremens arises, as a rule, within two or three days after the receipt of injury, and lasts usually not more than five or six days. The illusions are apt to continue during the night, even after the patient has become convalescent and quite rational in the daytime.

The peculiarity of the tremor and delirium renders the diagnosis easy. If my view of its causation be correct, the existence of the characteristic symptoms is evidence of previous habits of stimulation; but it is not always well to mention this suspicion, nor to call the disease delirium tremens, since the patient's friends may be unaware of the existence of such habits.

Death may occur from exhaustion, coma, or some intercurrent affection, and is sometimes inexplicably sudden. The character of the traumatism may determine the mode of death. Pneumonia is frequently associated with idiopathic delirium tremens. It is often, in fact, the exciting cause of the delirious outbreak, and, of course, in traumatic cases greatly diminishes the chances of recovery. When the temperature shows a tendency to remain high without a sufficient traumatic cause, and especially when the tremor affects all the muscles of the trunk as well as those of the head and extremities, and is not arrested during sleep, the prognosis is bad. A history of previous attacks of the disease renders the outlook more grave.

In considering treatment, it is important to bear in mind that delirium tremens is an asthenic condition. There is action, but it is the activity of weakness, not of power. Depressants are therefore injurious. Five or ten grains of calomel, or one or two seidlitz powders, may be administered in the beginning of the disease, or when its occurrence is feared, because of the anorexia and gastric derangement. Concentrated liquid food, bitter tonics, and capsicum add to the patient's strength, and tend to give tone to the impaired digestive organs. Bathing and mild diuretics may be employed, in the endeavor to eliminate the alcohol that has entered the system. Chloral hydrate (gr. x-xx) with potassium bromide (gr. xxx-xl) should be given every two or three hours, as soon as sleeplessness and slight tremor are noticeable; no visitors should be allowed in the room. If the development of the attack is not prevented, the same treatment is continued but the doses may be increased. The object is to quiet the nervous system and induce sleep. In this endeavor an occasional dose of morphia (gr. $\frac{1}{4}$ to $\frac{1}{2}$), may be combined with the chloral and potassium bromide. The excessive use of opiates is undesirable, for it is not narcotism that is desired but sleep; cerebral congestion is induced by overdosing with morphia. If fatty heart exists, opiates should be pushed, perhaps rather than the chloral and potassium

bromide. The combination treatment with the three hypnotics allows the surgeon to diminish or increase each element according to indications. Tincture of digitalis (m. x-xxx) every two or three hours is valuable in cases of weak but not fatty heart, where there is palor and cyanosis with probable anæmia of the brain. Strychnia also has been recommended in delirium tremens. Mechanical restraint, with the straps and the straight jacket, is only to be adopted when efficient watching and soothing by attendants is impracticable. All such apparatus excites the patient and is very liable to interfere with respiration. The best appliance is a loose but strong garment consisting of trowsers and shirt, in one piece, with loops attached for fastening the patient in bed. Fractures should be dressed with plaster of Paris bandages, because ordinary splints will probably be displaced by the patient. If failure of vital powers is to be feared, alcoholic stimulants in small amounts administered only when food is given, are judicious because in chronic drinkers digestion will sometimes not go on sufficiently without the aid of alcohol. Such failure of assimilation in delirium tremens may turn the scale against the patient. Whisky or brandy (F. ii3-F. iv3 during the twenty-four hours) in the form of milk punch or egg-nog, is probably the best form of administration. Many patients will not require any stimulants. Vomiting occurring in delirium tremens, is to be treated by milk and lime water, cracked ice, effervescing drinks, bismuth sub-nitrate, pepsin, and carbolic acid mixtures.

LAST WORDS ON COCAINE.

Dr. Hughes in the *Medical Review*, writes as follows:

"The truth about cocaine is that it is a tonic and stimulating exhilarant of some power in melancholia, mental depression, and nerve weariness. That it acts rapidly but much more evanescently than morphia.

"That excessively used, it intoxicates and converts melancholia into mania.

"That given largely in the upright position, it is capable of inducing vertigo, whether, as Dujardin-Beaumetz thinks, by inducing anæmia, is not proven.

"That as an antidote to alcoholism and its effects, it is not equal to morphia.

"That it is not equal to morphia as a tonic in melancholia, or as a narcotic in certain states of nervous debility.

"That in equal doses it nauseates more certainly than morphia.

"That it is not an antidote to meconophaggism, though beneficial if judiciously used and timely abandoned.

"That it may be used with advantage, if carefully given, in the withdrawal of opium, and the cure of opium habit as one of many substitutes, but cannot be alone relied upon.

"That it intoxicates some persons, and poisons them.

"That its continuous use is difficult to break off.

"That it is probably capable of developing permanent madness like similar intoxicants, as a few doses occasion temporary insanity.

"That it is a dangerous therapeutic toy, not to be used as a sensational plaything.

"That it will probably help to fill, rather than to deplete the asylums, inebriate and insane, if it should unfortunately come into as general use as the other intoxicants of its class.

"As an intoxicant, it is more dangerous if continuously given, than alcohol or opium, and more difficult to abandon."

— *Medical and Surgical Reporter.*

INEBRIETY AND CRIMINAL RESPONSIBILITY IN MEXICO; BY DR. A. FRIMONT OF OZULUAMA, MEXICO.

The penal code of this State endeavors to answer all circumstances pertaining to crimes, but does not mention in a single instance inebriety, neither incidentally nor accidentally. In chapter IV of the code, occurs the following: Art. 32, "He is not a delinquent who commits an action when sleep-

ing or in a state of dementia or in any other manner, when not in the full possession of his reason and power of deliberation."

Voluntary inebriety or any other privation or derangement of the reason of this character can not be regarded as an excuse for crime committed under such influence; neither will the penalty be diminished, but on the contrary it will be considered as an aggravated circumstance of the crime!!

I suppose that the legislators who created this code were guided perhaps by the vulgar idea that inebriety is a general vice among the proletarian class; and that in the greater number of crimes committed they should recognize principally the use or abuse of intoxicating beverages as a prominent cause of the extravagances which carry off our people—and that for the public weal and morality they should choose such legislation, to check by extreme penal statutes the tragic inclinations of the lower classes. In so doing they separate themselves from the principles laid down in other codes—thus actually establishing in inebriety a legal circumstance which shall be paramount to even any temptation to the commission of the crime, while it really does aggravate and makes the criminal responsibility of the accused greater and less defensible.

Almost all civilized nations are ruled by codes which establish incontrovertibly that the idea of crime necessarily involves two elements, viz.:

- 1st. The consciousness that the commission of the act which constitutes the crime is contrary to law.
- 2d. The unimpaired and free use and exercise of will, with power to commit the offense or not.

The legislators of Vera Cruz have doubtless intended to refer on this point only to the insane, recognizing that there are lunatics who in spite of the consciousness that they are committing a punishable act, are, by infirmity of the disease, destitute of their power of will and of self control. Other insane persons may know that the act is contrary to law, but are impelled by a conviction or irresistible impulse against

their will or by a force which they can neither control nor resist.

I am convinced that inebriety is a trance state clearly allied to insanity. We should therefore understand that every act committed under such circumstances should be regarded as a *medico-legal* case and considered and determined by the peculiar facts attending it.

Only the physician could establish the difference between "not to want" and "not to be able" to obey the law, or precisely indicate the peculiar conditions of the malady which constitutes the incapacity, or responsibility of the offender against the law, and determine how far the accused had exercise of his reason, his will, or power to control or regulate his action.

I venture to assert that the law can not properly recognize as a fact that which is known to science not to be a fact.

Health cannot be legally adjudicated to exist where science has detected and demonstrated disease. The courts of Vera Cruz therefore should not insist upon enforcing this error, against and in violation of the laws of nature in deciding those things which belong to medical science exclusively, and which should be recognized by all law makers.— *Medico-Legal Journal*.

INTRACRANIAL HEMORRHAGE IN INEBRIETY.

In a recent paper read before the Connecticut State Medical Society, Dr. Lewis of Hartford, makes the following remarks:

"The condition of an intoxicated person, so closely simulates that of cerebral compression, and of concussion, that it is sometimes difficult to recognize the difference between the two states. Especially is this difficulty increased when, as often happens, a drunken man has sustained a blow upon his head by an accidental fall, or while engaged in fighting, or at the hands of an officer making an arrest.

Medico-legal questions should naturally suggest themselves at the time to the medical examiner under such circumstances. Even when there is no perceptible alcoholic odor in the breath, and no history of the case to indicate intoxication, serious mistakes in diagnosis have been made by medical men. It is not singular, then, that a police officer, on finding a man who has been rendered insensible by compression, should send him to the station-house for the night as "found drunk." Such fatal mistakes should not occur, and need not if municipal laws required all drowsy persons to be taken to a place where the few hours required to reveal the true nature of the case, could pass without harm to the victim, and where he could be under medical observation. In other words, a hospital ward should receive all such persons.

"The following case, which came under my investigation, is one where an unfortunate mistake of this sort was made.

"H. W. B. who had been away from home, arrived by railway after ten o'clock P. M. and started at once to walk to his residence, which was located several blocks distant from the railway station. At one o'clock A. M. he was found by a private watchman, about half a square from his house, in a half reclining posture upon some door-steps, in an unconscious condition. The watchman finding he could not arouse him from sleep, and supposing him to be drunk, took him to the police station, where he remained without any further care until about six o'clock that morning, when, upon examination, it was found that he had sustained a penetrating fracture of the cranium by a pistol ball. He died the same day. He had always been a temperate man, and an estimable citizen. The mystery of the shooting was never fully cleared away; but it probably occurred about eleven o'clock that night, in an alley where his traveling satchel was found. If it then and there took place, two hours passed before he was found by the watchman at a considerable distance from where the shooting occurred. Our explanation of this is, that when shot, he was immediately

rendered unconscious by concussion of the brain, and lay in that condition until the first stage of concussion had passed, when he partially regained his senses. He then in a dazed condition, started for home, and the cerebral hemorrhage, which had been arrested by the effects of concussion upon the vascular system of the brain, became more abundant, and he sat or stumbled down upon the steps, where he was soon after found, laboring under the commencing stage of compression. His forced walk to the police station, and the disposition there made of him, before his real condition was known, favored the increase of extravasated blood, and he died comatose.

"Many of the semi-unconscious persons that come into the custody of the night police, have a more or less strong odor of spirituous liquor in their clothing which renders it somewhat difficult to determine whether there is the same odor in their breath or not. In doubtful cases, the examining surgeon should always test the urine for alcohol."

INEBRIATE LEGACIES.

Dr. Butcher lately read a paper before the Medico-Legal society of Philadelphia, Pa., entitled "Curious Legacies," in which he referred to inebriety as follows:

"I think it is clear that a large portion of the crime of to-day is attributed to intemperance. This unnatural appetite or desire for stimulation seems to be hereditary, and may be called one of those curious legacies which we are speaking of."

In the discussion which followed, Dr. Stewart said: "From my own observations, intemperance is inherited where the son has followed the footsteps of his father to a drunkard's grave; the example could in no way have been one that we could suppose was attractive, but on the contrary repulsive and disgusting. Here they seem to have been bound together by the same debasing desires that apparently no power could restrain their headlong career."

Dr. Stubbs remarked: "In the study of anatomy it has been shown that every tissue of the animal body comes from the cell, whether muscular, bone, nerve, or otherwise. If now such cell be changed in any way by the mode of life or the use of drugs or alcohol, at such time as conception takes place, may not such change result in a changed offspring? I remember the case of a man who was a drunkard at the time of his marrying. His first child was weak mentally; reforming, the children born after were among the brightest in the town."

Dr. Waugh said: "We do not by any means say the last word when we prove the heredity of alcoholism. In the best marked case I have seen, every male member of a certain family for two hundred years had been addicted to alcoholic excess. I found that debauches were preceded for a week by acholia. The stools were white and fetid, there was no jaundice, the man was uneasy and irritable, and suddenly began drinking. On several occasions when the acholia became apparent, I administered hepatic stimulants, and prevented the outbreak of alcoholism."

Dr. Nash thought that the fact of such an inheritance was a powerful influence in lessening the power of resistance in such cases exposed to temptation.

Dr. Buckley contended that the drink tendency was the result of bad surroundings and artificiality.

Dr. Connor said that heredity was as well established as the law of gravitation. That an uncontrollable desire for stimulants was a family legacy as much so as the form and shape of the face.—*From the Journal of Heredity.*

MENTAL DEGENERATION IN INEBRIETY FROM BRAIN INJURY.

Dr. Maudsley calls attention to a certain condition resulting from injury to the head; whether by a blow upon the brain, or saturated by alcohol or other drugs, the pathological condition is the same. I frequently meet such cases, and

indeed more or less of them are under our care most of the time.

"Examples of marred moral character and will to which I call attention, are those which sometimes follow injuries to the head. It happens in these cases after an injury that may or may not have caused immediate symptoms of a serious nature, that slow degenerative changes are set up in the brain, which go on in an insidious way for months or years, and produce, first, great irritability, then little by little a weakening, and eventually a destruction of mind."

The person who appears, perhaps, to be all right soon after his accident or the inordinate indulgence in alcohol, turns out to be all wrong, and after several years to be beyond cure. Now the instructive matter is, that the moral character is usually impaired first in these cases, and in some of them is completely perverted without a corresponding deterioration of the understanding. They are intelligent, and capable of performing many of the duties of life, but the truth is, the boundaries of mental health are narrowed, and when the brain receives certain impressions from external surroundings, the man is insane, although it may be temporary, and if he would in the future preserve his mental integrity, he must live and work within the circle of his mental capacity.

The injury has given rise to disorder in the most delicate part of the mental organization,—the part which is only separated from actual contact with the internal surface of the skull by the thin investing membranes of the brain,—and once this delicate organization has been seriously damaged, from whatever cause, it is seldom that it is ever restored completely to its former state of soundness.

Thus far it has been shown that moral feelings and will are impaired or destroyed, by degeneration going on through generations by the disorganizing effects of disease, mostly caused by alcohol, opium, and kindred drugs. These, by their chemical action, poison the nervous system by the abuse of such nerve stimulation and nerve narcotizing substances.

It is not enough to say that passion is strengthened and will weakened by indulgence, as a moral effect; that is so, no doubt; but beneath that effect there lies a deeper fact of a physical deterioration of nerve-element; for the alcohol and the opium enter the blood, are carried by it to the inmost minute recesses of the brain, and act there injuriously upon the elements of the exquisitely delicate structures. So its finest, latest organized, least stable parts, which subserve moral feelings and supreme will, are marred. Vain is it to preach reformation to one who has brought himself into this wretched predicament; if any good is to be done with him, he must be forcibly restrained from his besetting impulse in a properly appointed asylum, and under the care of intelligent management, where the brain will soon get rid of the poison, and the brain tissues may, after a long time, recover their healthy tone.

MEDICAL AND SURGICAL DIRECTORY OF
THE UNITED STATES.

Cloth, pp. 1452; in one volume. Price, \$7.00. Detroit: R. L. Polk & Co., Publishers.

This is a work containing the names and addresses of over 80,000 persons who are practicing medicine in the United States. All the medical schools and hospitals are represented. All the medical journals published; and a great variety of medical information is given. The status of each physician is noted, and in brief it is a perfect dictionary of facts and statistics concerning physicians and medical matters. This work is solitary and alone, and gives the information so often needed by medical men. We commend it for its accuracy and general value to the profession. To anyone who wishes to communicate with the profession of this country it is invaluable. Such a work has a value in any library of the country.

The Humboldt Library, J. Fitzgerald, publisher, 108 Chambers street, New York city, is practically indispensable to every scientific man.

Science, an illustrated weekly journal published in New York city, represents the latest aspects of scientific research in all departments. To the scholar such a journal is indispensable, and we most heartily commend it.

Lend a Hand, a Boston journal of philanthropy, is a commendable work to place the best facts and conclusions of science on social questions before the public.

The Electrical Engineer of New York city, is the leading journal of the world, representing all the marvelous advances in the practical field of harnessing this mysterious force into the service of mankind.

The Scientific American brings weekly glimpses of the mighty progress of science in every department. Like the dailies, they are indispensable. Munn & Co., of New York city, are the publishers.

George Stinson & Co., of Portland, Me., are the great art publishers of this country. They make a specialty of steel engravings, which are really the finest pictures that can be had for parlors and office. We commend them to all our friends.

The Popular Science Monthly, D. Appleton & Co., New York city, is a most welcome visitor to every scientist. The October and November numbers are volumes in themselves of the greatest value. No more practical present can be made, than a year's subscription to this journal.

The following are some of the works lately published, and sold at 15 and 20 cents each. "Anthropology," by Dr. Wilson; "Evolution in History and Language," lectures delivered at the London School of Arts; "Descent of Man," by Charles Darwin; "The Dancing Mania of the Middle Ages," by Dr. Hecker; "Profit Sharing between Capital and Labor," by Sedley Taylor, M. A.; "Studies in Animated Nature." These are only a few of the most celebrated scientific works of the day, published by this firm.

A gentleman, from Chicago, writes that he has become fully restored, and is able to control all desire for spirits, and live a temperate life. This he accomplished by following my advice some years ago, to take turkish baths every day, while the paroxysm was on him. This soon broke up this drink impulse, and finally would ward it off. In some cases this remedy is practically a specific. Dr. Shepard's Turkish Baths, on Columbia Hights, Brooklyn, N. Y., may be said to be the most thorough system of baths, given on scientific principles, in this country.

Editorial.

TEMPERANCE, PARTIES, AND POLITICS.

Like an army unexpectedly attacked and thrown into confusion, or a ship struck by a squall, in disorder until the authority of the captain is asserted, the temperance moralist and reformer are astounded at the sudden alarming prevalence of inebriety. In the confusion of this discovery they seize on the wildest means for relief, and follow the noisiest enthusiasts and the most impracticable schemes. Leaving to one side all the various means of cure by prayer and pledge, they turn to politics, and are trying to unite their confused efforts in a political party, which will enforce by law their theories of the causes and cure of inebriety.

This prohibition movement, from a scientific point of view, has never attracted much attention. But to-day it assumes such arrogant claims of power to remedy the evils of drink, condemning all who differ, that it most naturally invites the scientists to examine its pretensions and theories.

In this inquiry the *JOURNAL OF INEBRIETY* has no political interest or theory to sustain. As the organ of men who are making inebriety a scientific study, it demands the facts, and the evidence upon which they are based must be presented and compared before the truth of any phase of this subject is accepted. Any views supported by facts are welcomed, and the kindest sympathy is extended to all measures and movements for the relief of inebriety, no matter how crude and impracticable. All such efforts are regarded as agitations and revolutionary struggles incident to every advance of science.

The prohibitory movement is based on the theory that inebriety is only caused by alcohol, and that this drug is a

which can be withdrawn at will, thus removing the evil. Also, that inebriety depends upon the manufacture and sale of alcoholic compounds, and will disappear when the supply ceases. The remedy is to drive out the maker and seller of spirits, and banish alcohol. It is a curious fact that prohibitory legislation has been tried for over a thousand years, from time to time, against alcohol, tobacco, tea, coffee, coca, and opium. Moral, social, theological, and governmental forces have most fiercely and violently tried to suppress the use of these drugs. Despots who held the lives and thoughts of their subjects, and controlled all their acts, have failed to break up the use of stimulants and narcotics. Even the Chinese despotic rule failed to stop the use of opium. Kings and popes have combined against the use of tobacco, only to be defeated, and over and over again legislation against the use of alcohol has been unsuccessful. Now and then temporary, local, and limited successes follow, but after a time this disappears, and the evil continues in even greater proportions than before. Thus history repeats itself in the movement of prohibition to stop the evils of inebriety.

The theory of prohibition is not sustained from a study of the inebriate and inebriety. Alcohol is not a luxury, to be used or not at the will of anyone. It is a narcotic spirit which has been used in all ages, climes, and by all peoples, to soothe and relieve the wearied brain and unstable organization. Alcohol and its compounds have ever been used to supply some demand of brain and nerves, some defect or debility. This demand is not created by the form or the prevalence of alcohol, it is an inherited or acquired defect. The army of inebriates are recruited from states and conditions of life far back of the distillery or saloon. In this country they are often victims of our high-pressure civilization; of continuous nerve strains and drains, which not only exhaust but cripple the race and its descendants. The demand for relief which is found in spirits brings out the manufacturer and retailer to supply it. They may increase this demand, but they do not create it.

When once the victim finds relief from this drug, law and moral suasion are powerless. Banish the maker and dealer of spirits, and the current is turned into other channels equally dangerous. Opium, ether, and other drugs come to supply the demand.

The chemists of to-day are constantly discovering new and endless varieties of alcohols, which will always have a place in the arts and sciences; and wherever they are found to bring rest and quiet to this abnormal craving of the race they will be used under all circumstances. No prohibitory measures can discriminate in this field, and no present knowledge will indicate the alcoholic compounds that are dangerous or safe which should or should not be sold. Prohibition is a delusion when it assumes that to stop the manufacture and sale of alcohol is to break up inebriety and cure the inebriate. It is a delusion to expect that politics, party, and law can break up the disease of inebriety, or that a knowledge of the evils of inebriety will point out the causes and remedies. It is a delusion to suppose that the evils of inebriety can be remedied and controlled when its causes and nature are practically unknown. Opinions, theories, and beliefs by earnest enthusiasts cannot bring the authority of knowledge based on well-observed facts. Until inebriety is made the subject of exact study, and the laws which govern its rise and progress are ascertained, and the complex causes and conditions of life from which it springs are pointed out, prohibition will fail to prohibit, and every other means of treatment not founded on exact study will die out. Prohibitory legislation may act as a dam to the drink current for a time, and the stream appear to be stopped, but the certain breaking down of the dam and overflowing ruin that follows point to the error of not beginning back at the source. The drink problem cannot be solved by moral suasion or prohibition; it is a question for science and scientific study. In the march of progress, beyond the noise and enthusiasm of temperance reformers, the great forces of civilization are seen recruiting inebriates along lines of cause

and effect as fixed as the motion of the stars. In the same range the scientists catch glimpses of the laws of prevention and cure, from which in slow, measured steps inebriety and its evils can be reached, cured, and prevented.

PREMEDITATION IN INEBRIETY.

The frequent instances where inebriates in apparent possession of good judgment, go away and drink to great excess, displaying a degree of forethought and premeditation fully characteristic of all the ordinary events of life, are often very confusing to the ordinary observer. When the drink paroxysm comes all unexpectedly upon the victim, in some unforeseen state and circumstance, and he falls, it is dimly apparent that he is suffering from some unstable or diseased brain state, which has burst out from the application of some exciting cause. But when the paroxysm is anticipated and prepared for, and all the surroundings are made subservient to this end, when every facility to procure spirits are increased, when money is secured and business arrangements are made in view of this coming paroxysm, the conclusion most commonly reached by all non-expert observers is that it is deliberate vice and wickedness. When the history of a number of these cases is studied and compared, they are found to be well-marked cases of reasoning insanity, with drink paroxysm. These paroxysms are the acute attacks—the deliriums which expend themselves like storms which gather and burst—and are preceded by long periods of rest. A typical case is that of a banker, who is a man of excellent judgment in all business and social matters. He will prepare for a week or ten days in advance for a drink paroxysm. He is a temperance advocate, yet he will display great cunning to conceal the approach of this “spell.” He will become very active in his temperance efforts. His friends realize his danger, and try by every means to help him, but find that all their efforts are turned to aid him in concealing it. He will not begin unless he can find some way to con-

ceal his presence while the paroxysm is on him. When his friends were vigilant, he has been kept sober for a week or more, but with the first opportunity he disappears, and all their work has been thwarted by his cunning. In another case, the most deliberate reasoning and planning will mark the paroxysm. In another case, all at once he will rush away and drink in the most suicidal and insane way, only giving as an excuse some real or fancied injury or trouble. This deliberation and cunning is a symptom of mental unsoundness, and is most obviously reasoning insanity, and will be recognized when these cases are better understood. Dipsomaniac and periodical inebriety very soon became reasoning maniacs, dangerous because they are unknown and misunderstood.

COLONIAL AND INTERNATIONAL CONGRESS ON INEBRIETY.

A council of eminent English physicians have arranged for an International Congress, to be held in London, England, in July, 1887, the date to be fixed later. The object of this meeting will be the presentation of scientific papers and addresses on inebriety and its remedies, with discussions by the most eminent men who have made this subject a study.

For years moralists and reformers have discussed inebriety in great meetings, both in this country and Europe, but this will be the first great gathering of scientific men for the study of this subject, above the levels of theory and opinion.

The importance of this subject is felt all over the world, and the scientific facts which a few specialists have gathered in this country and Europe, are at last to be formulated and accepted, and a new road opened for temperance agitators.

This congress will be the culmination of many efforts to study inebriety in its true relations, by earnest men in this country and Europe. Our American pioneers in this field, who have struggled up through good and evil reports so long, will feel a thrill of joy at this first great recognition of the facts of inebriety. It will not only rouse the British public

to take hold of this subject practically, but excite new interest in the inebriate all over the world.

Papers have already been promised from Dr. Magnan of Paris, Dr. Moelier of Brussels, Dr. Joseph Parrish of America, Count de Praskow-Marstorf, president of the Austrian Society for the Study of Inebriety, Dr. Norman Kerr of London, Dr. T. D. Crothers of America, Dr. Binz of Bonn, Prussia, Dr. De Colleville of Paris, and many others. This congress will close with a public dinner.

The following is a partial list of officers: President, Dr. Norman Kerr; vice-presidents, the Archbishop of Armagh, the Bishops of Cork, Gloucester, Liverpool, London, Newcastle, Ripon, and Rochester, Rev. Canons Barker, Duckworth, Ellison, Hopkins, and Leigh, the Duke of Westminster, Lords Lichfield and Mount Temple, Sir George Burrows, F.R.S., Dr. J. S. Bristowe, F.R.S., Mr. D. B. Balding, F.R.C.S., Mr. Wickham Barnes, F.R.C.S., Dr. Beverly of Norwich, Mr. Harrison Branthwaite, F.R.C.S., London, Mr. R. W. Branthwaite, Mr. C. M. Burton, Dr. Bridgewater of Harrow, Dr. Binz of Bonn, Prussia, Mr. T. H. Barker of Manchester, Mr. J. Barlow, J.P., of Bolton, Dr. Cameron, M.P., Dr. Alfred Carpenter, J.P., Sir W. Collins of Glasgow, Dr. T. D. Crothers of the U.S.A., Dr. De Colleville, Dr. N. S. Davis, U.S.A., Dr. Eastwood, J.P., of Darlington, Surgeon-Major Evatt, Dr. Farquharson, M.P., Surgeon-General C. R. Francis, M.B., Dr. Simon Fitch of Halifax, Nova Scotia, Dr. Hill Gibson, Dr. Stanley Haynes of Malvern, Mr. J. S. Hicks, F.L.S., of Liverpool, Dr. J. B. Hurry of Reading, Dr. Magnus Huss of Stockholm, Dr. C. J. Hare, Dr. G. Harley, F.R.S., Surgeon-General Logie, F.R.C.S., England, Dr. Murray Lindsay of Derby, Dr. F. R. Lees of Leeds, Sir W. Miller of Londonderry, Dr. Magnan of Paris, Dr. Moelier of Brussels, Count de Proskow Marstorf of Vienna, Dr. Withers Moore, President British Medical Association of Brighton, Professor Sir Douglas MacLagan of Edinburgh, Professor Macalister, F.R.S., of Cambridge, Professor McKendrich, F.R.S., of Glasgow, Dr. W. Ogle of Derby, Dr. A. Peddie of Edinburgh,

Surgeon-Major G. K. Poole, M.D., Sir G. H. Porter of Dublin, Dr. B. W. Richardson, F.R.S., Dr. George Robertson, Mr. Robert Rae, Mr. J. H. Raper, Sir Edwin Saunders, F.R.C.S., Dr. Danford Thomas, Mr. S. Urdahl Senior of Norway, Dr. Hart Vinen, F.L.S., Sir Spencer Wells, F.R.C.S., Dr. W. H. Walshe, Dr. A. T. H. Waters of Liverpool, Dr. H. W. Williams; Treasurer, Dr. C. R. Drysdale, 23 Sackville street, W.; Hon. Secretary, Mr. C. H. Bishop, 42 Grove Road, Regent's Park, N.W.

CASE OF DRUG TOLERANCE.

The following case is worthy of note, as pointing to some unusual physiological state of the organism, where narcotics have very little influence. A merchant 42 years of age, in active life, had been a paroxysmal inebriate for ten years. When the drink paroxysm came on, he acted so wildly that both his moneyed interests and that of his friends suffered greatly. It was found that moderate narcotism from chloral and morphia, kept him in bed and cut short the paroxysm. It was customary to get a two ounce mixture of chloral, morphia, and bromide, giving the officinal dose until he became stupid or sleepy. On this occasion, the usual bottle was procured, and given without any results, a second one was given, then a third one, after which the patient went to sleep. The bottles had not been labeled, and the doses had been given every ten minutes, by a new nurse, who claimed to know all about such cases. His son, returning a few hours after, noticing the heavy unnatural sleep, sent for me. I found that he had taken in three hours about nine grains of morphia, 320 grains of chloral, and over an ounce of bromide of sodium. Four hours had passed since the last dose had been taken, and excepting a heavy stupor and general pallor, no alarming symptoms were present. It was decided to pursue an expectant plan, and watch the case rather than attempt any active antidotal treatment. For the next ten hours he remained in a general stupor, from which he could

be easily roused, and was rational, but quickly relapsed into a quiet heavy slumber. This stupor continued for four days, gradually growing less with longer waking periods. Then he rode out, but was drowsy and heavy for a week more. The drink paroxysm had passed, and he returned to his usual work and health, not conscious of any unusual drug taking. This person was a delicate, nervous man, apparently sensitive to all the surroundings, and with no indication of any peculiar organization or debility.

A CORRESPONDENT of the *British Medical Journal* states that aneurism of the middle cerebral arteries followed by hemorrhage and death, are common in chronic inebriety. Atheroma and fatty changes take place, resulting in aneurism, which after a time break, causing death. In cases of sudden death in chronic cases of inebriates, such a pathological condition will be found.

DR. BEAULIEU in the *Economiste Français* gives the following as the quantity of tobacco consumed by each 1,000 people in Europe: In Spain, 110 lbs.; Italy, 128 lbs.; Great Britain, 138 lbs.; Prussia, 182 lbs.; Hungary, 207 lbs.; France, 210 lbs.; Denmark, 284 lbs.; Norway, 229 lbs.; Austria, 273 lbs.; Germany, 336 lbs.; Holland, 448 lbs.; Belgium, 560 lbs.

THE statements of the teaching of science in many of the temperance papers of to-day are strange enough to make the hair of a scientific man, or one accustomed to scientific methods of thought, stand on end.

MANY good temperance people can only see inebriety from one point of view. All the relations and surroundings of the subject are not considered. The one view is considered correct beyond all doubt and question.

Clinical Notes and Comments.

OPIUM INEBRIETY IN AN IDIOT.

BY J. C. CARSON, M.D., SUPERINTENDENT N. Y. STATE ASYLUM FOR IDIOTS.

On the 23d of April, 1884, application was received at the New York Asylum for Idiots for a boy, B. M——, aged eight years, twin born, and a subject of the opium habit since the day of his birth. The father of this boy was stated to be a native of New York, and was about thirty years of age when the twins were born. He is said to have been a healthy, temperate man, and had never been subject to any form of mental, nervous, or scrofulous disease.

The application stated that the father's mother's sister married an own uncle and had three idiotic and deformed children with seven toes and seven fingers, all of whom were unhealthy. The mother was a native of Ohio, and about thirty-six years of age. Previous to the birth of the twins she had had four children, all of whom were still-born. She had always been healthy, except being troubled with neuralgia, for the relief of which affection she acquired the opium habit at twenty-eight years of age. Her family history, as obtained, gave no hereditary predisposition to any form of disease. It is stated that the accoucheur in attendance at the birth of the twins administered ergot to the mother, and about four hours after their birth she was seized with convulsions which continued for two days following, when her death occurred.

The physician, in making the application, ascribes the convulsions to the combined action of the opium she herself had taken and the ergot administered by the attending accoucheur. This opinion, I think, however, is not warranted by therapeutical authority. Aside from the effect of the

ergot administered, the labor is said to have been a natural one, not requiring the use of instruments.

The applicant at birth weighed four pounds, and the twin brother two pounds. They were both very quiet, and lay peacefully resting until about six hours old, when they each almost simultaneously began worrying, crying, and at last screaming, and kept it up without any indications of abatement for hours afterwards. The mother being in convulsions at this time, it was thought her condition might be aggravated by the noise of the screaming infants, and it was suggested, prompted by the known habits of the mother (all other measures tried having ingloriously failed), to give them some opium.

The grandmother says she then took a bit of opium resin about the size of a grain of wheat, dissolved it in a little water, and gave each a teaspoonful. Its effect was almost magical, as in a few minutes they ceased their tossing and screaming, and slept quietly for six to eight hours afterwards. Then they again began to cry, or to "screech and jerk," as the grandmother says, and "kept it up" until the opium was again administered, and so on from time to time and the days and days that followed. Mrs. Winslow's, other soothing syrups, whisky, and various drugs, were tried in vain as substitutes for the opium, but opium alone seemed to possess the charm to allay their "screeching and jerking," which followed each time about eight hours after its administration. It, too, was soon found to be losing its control, and the next step toward peace in the family was to increase the quantity, which was done accordingly as future occasions demanded.

At the end of the first month the smaller twin died in convulsions.

When five years of age the applicant had a severe attack of typhoid pneumonia, from which he eventually recovered, but during which he had convulsions. Subsequent, however, to his recovery from it he would have convulsive attacks, lasting for a few moments, several times a day, and about once in four to six months a severe epileptic seizure.

During this sickness the opium was materially increased, and at the age of seven he was taking ten grains of solid opium every twenty-four hours, or in doses, three times a day, of three and one-third grains each.

The grandmother relates that during these years she made repeated and desperate efforts to discontinue the drug to him, but each time, after about forty-eight hours' trial and endurance, the condition of the child would become so pitiful her courage would fail her, and it was again and again resumed. Soon after his seventh birthday, she says, she determined that the drug would eventually kill the child, and finally resolved it might as well die from the want of it as from its effects. She then commenced to diminish the quantity gradually from time to time, and by May, 1884, had succeeded in reducing it to one grain at bedtime. This amount she continued to give until his admission to the asylum in September following, or a year ago. Since that time no opium has been given to him. The matron tells me that he was restless and uneasy and did not sleep much for a few nights immediately following his admission, but otherwise she did not observe any ill effects from its complete withdrawal.

The grandmother says as soon as she began to reduce the quantity of opium the epileptic attacks became less and less frequent, and have now entirely disappeared, none having occurred since a year ago last May, the time of the opium reduction to one grain at bedtime.

The following additional facts concerning him were elicited from the physician's application made in April, 1884: General health good. He began to walk at two years and eight months. At fourteen months it was noticed that he could not articulate. Before this he appeared very stupid, but this was attributed to the opium habit. Has a fairly developed forehead; vertex flat, with a depression over posterior surface of parietal bones; head wide. Has a slight halt in left leg, but growing less. Has had partial paralysis of left arm, also diminishing. Is of average size for his age,

active and vigorous, and not nervous except when out from under the influence of opium.

Appetite irregular, scarcely ever eats breakfast; likes sweet things, and particular what he eats. Sight and hearing good; is fond of music; notices bright colors, recognizes form, observes and distinguishes pictures; understands language and commands; will do errands, like bringing in wood and water. Commenced to speak at seven years of age. Says "pitty" for pretty, and attempts to call animals by names of his own, corresponding to their habits, as "pee-pee" for birds. Is cleanly in his habits; undresses himself, but cannot button his clothes. Feeds himself with a knife, and sleeps well after taking a grain of opium. Likes to tear things. Is of fairly good temper and obedient, but cannot be trusted. Wants or tries to talk all the time, and amuses himself by running about the house riding a stick which he calls "pony."

The head measurements, as taken by myself recently, are as follows: Circumference, twenty inches; transverse circumference from the external auditory foramina, thirteen and a half inches; from the intercilium to the occiput, eleven and a half inches. The vertex looks flattened, with a depression or valley along the line of the sagittal suture, or between the parietal bones. The palate a little narrow and vaulted; teeth a little irregular.

This case was admitted previous to my arrival at the asylum last fall, and my attention was not directed to his remarkable history until a few weeks ago.

I have with some care inquired into and elaborated his case thus fully, not for the reason that the features of his idiocy present any striking or unusual peculiarities or characteristics, but because I believed it a rare and exceptional case of the opium habit in one so young, and really acquired from a time, at least, commencing with the day of his birth. My memory does not recall any similar or parallel case on record, and during the brief period and opportunity I have had to look up the authorities on the subject, I have been

unable to find or learn of a single case approaching it in character, reported. Whether these twin boys born of this mother, an opium-eater for seven or eight years previous, and in the habit of consuming, as her mother supposes, from ten to twenty grains of solid opium daily, and probably more during the natural anxieties of her pregnancy, really directly inherited this habit from her *in utero*, is one of the questions that arises from the history just narrated. Were the crying, the struggles, and the restlessness of these babes as described, that commenced about six hours after their appearance into the world, due to the want of opium from an inherited opium habit, and obtained *in utero* through the medium of the mother's blood? The time that elapsed before the uneasiness and screaming commenced; the quiet and repose that followed the opium administration, its resumption again after a period of about eight hours, and continuance until the second administration, a tranquil condition for another eight hours, and a subsequent corresponding history, that repeated itself over and over in this manner in these cases, would incline to the opinion of the possibility of the direct transmission to them of the habit through the mother, and a consequent acquisition of the habit at birth. Another point which makes these cases extraordinary and adds weight to the possibility of such a condition, is the fact that here were two babes, twins, each beginning to cry and fret about six hours after their birth, and from the history given, pertinaciously, frantically, and rebelliously persisting again and again until appeased by the opium draughts, and both having been subjected to precisely the same pre-natal influences.—*From the Proceedings of the Association of Medical Superintendents of Asylums for Idiots and Feeble-minded.*

The *Wine and Spirit Review*, published at Louisville, Ky., is a large journal devoted to the production and sale of spirits. It is replete with interesting and curious facts, which in these times of temperance agitation are very suggestive.

RESULTS OF TREATMENT.

No intelligent person who has observed the march of human thought into the recently explored realms of Psychological medicine and the treatment of mental diseases, but will get new views as to modes of treatment, more especially of that class for whom nearly thirty years ago this institution was organized. The favorable results of each succeeding year, only confirm and demonstrate the truth of the humane and wise idea that led to the organization of the institution, viz. : that intemperance in all its stages may be not only checked and mitigated, but in many instances permanently cured, and the subject fully restored to his normal condition of health and sobriety.

Such results may not be reached by the final and utter extinction of the morbid desire for alcohol, so much as by a development and cultivation of opposite and ennobling qualities, which by their vital action, hold the depraved mental tendencies of the subject in constant and absolute subjection, so that they become as inoperative as if they did not exist.

This is as near an absolute cure as we can hope to reach, as the testimony of all inebriates concurs in the fact that the appetite for intoxicating drink never dies, though it may be put to a life-long sleep.

It cannot be expected that the final and complete results of the treatment of our patients, so variously circumstanced and conditioned, can be fully known. From this common center of reform, hundreds have struck out in new and divergent paths, and are lost to our view in the general whirl of business and laudable enterprise. Whenever any one does fall into his previous habits, we are certain to be informed of the fact, as few things travel so fast and so sure as ill tidings of man's vices and misfortunes.

We can congratulate ourselves on the fact that hundreds who have been under our care are now in active life in our immediate vicinity, of whose doings we are cognizant, and it is a source of pleasure to us to know that their correct and

consistent conduct is productive of happiness to themselves, and does honor to the institution and the humane work which it has in hand.

DR. ALBERT DAY.

Dr. Shepard of Brooklyn, N. Y., sends us the following item in the practice of Dr. Rand of Brooklyn, which is worthy of note:

Male; age, 23; American. Has been a hard drinker for two or three years. When seen, patient was complaining of anorexia, insomnia, and muscular tremor—the latter especially well marked. Ordered the following:

℞ Tinct. nucis. vom.,	ʒ iss.	
Tinct. capsici,	ʒ iii.	
Tinct. cinchon. les. ad,	ʒ ii.	
		M.

Sig. ʒ i. every three hours.

℞ Squibbs chloral hydrat.,	ʒ ii.	
Potass. Bromide,	ʒ ss.	
Aquae, ad,	ʒ i.	
		M.

Sig. ʒ i. every one to three hours, as required.

Within the hour after the first dose, the nurse left the room for a few moments, and the patient drank the contents of both bottles. When seen, one hour later, sleep was profound; pulse, 80, and regular; respiration, slow and deep. It was impossible to rouse the patient, except so far as to get him to swallow some brandy and water.

Considering the chloral and bromide as the physiological antidotes to nux vomica, and the nux vomica as bearing the same relation to chloral, I concluded to do nothing but watch for symptoms that might indicate danger from either of the drugs mentioned.

During the six hours following, the pulse ranged between 70 and 90, and the respiration between 14 and 20; but there seemed to be no definite relation of the accelerated pulse to the quickened respiration, the latter being sometimes 20 per minute, when the former was 70.

Patient did not vary his position during this time, except once, when, in endeavoring to rouse him, he turned over

suddenly and fell from the bed to the floor, without evincing any pain from the fall. Anæsthesia appeared to be complete. Pulling the hair caused no evidence of pain. There were no symptoms of strychnia poisoning. The prescriptions were put up by a reliable druggist, and Dr. Squibb's nux vomica and chloral used.

The patient slept for sixteen hours, and came to my office the next morning, having, as he said, no recollection of anything that transpired from the time he took the drugs up to the time of awakening, sixteen hours afterwards.

By HOWARD RAND, M.D., Brooklyn, N. Y.

Dr. Taylor, in a late discussion before the Richmond Medical Society, mentioned the following case to illustrate the danger from cocaine intoxication. A young physician who, while a student, had cocaine prescribed for him for some supposed kidney disease. The cravings of his system for more of the drug became more and more pressing. If his own knowledge warned him of his danger, he probably consoled himself with the reflection that his kidney disease was progressing, and more of the remedy was demanded. For weeks before he was seen by Dr. Taylor he had been in Richmond on a protracted spree, and his conduct was so strange as to give rise to the suspicion that he was insane. It was then discovered that he was taking cocaine hypodermically every few hours. When a stop was put to this he was a raving madman; swore he would kill himself, and had to be watched constantly to keep him from carrying his threat into execution. His delirium finally became so violent that a commission of lunacy sent him to an asylum, but in a few days he made his escape and returned home. His brothers then took charge of him, confined him to his room, and kept a guard over him constantly, and in that way finally broke him of the habit, to which he was a slave. For six weeks his ravings were represented as violent, and his delirium was acute and distressing.

In the *Southern Practitioner* for September a very practical fact is mentioned concerning capsules as vehicles for unpleasant medicines. When any form of alcohol is taken with them, they are rendered insoluble. Tannic acid also precipitates the gelatine covering and renders it innocuous. When the stomach is inflamed and irritable, following excess in the use of spirits, never use medicines in capsules. Never give chloral or morphia in this form to inebriates; it is useless.

Minutes of the *Twelfth Annual Meeting of the National Women's Christian Temperance Union* is a volume of 230 pages. Organizations, like individuals, not infrequently become ambitious, and attempt too much, and thus fail to accomplish the good which would follow from more concentrated effort.

In Miss Willard's address before the Christian Temperance Union, she calls attention to the need of "Reformatories for Women, Homes for Adult Incapables, Homes for Moral Incapables, Inebriate Asylums for Men and Women, Normal Institutes, Training Schools," and so on.

A correspondent writes that over thirty thousand gallons of *Horsford's Acid Phosphate* are bottled and sold yearly.

The Coca Cordial, of Parke, Davis & Co., is no doubt the best form of this most powerful drug that is sold to-day. We especially commend it to all.

Wheeler's Tissue Phosphates: Combine calcium phosphate, sodium phosphate, and iron phosphate and they seem to have great value in bad nutrition, and general nerve debility.

Lactated Food, prepared by Wells, Richardson & Co., of Burlington, Vt., has taken a high rank among the remedial foods on the market. In our hands it has proved of great value in cases of opium inebriety, associated with functional stomach disorders.

The *Anglo-Swiss Milk Food* is endorsed by most excellent authorities, for all cases of deranged digestion among children and invalids. It should be tried in all such cases.

Fellows' Hypophosphites is used very extensively in both Europe and America, and its reputation is fully sustained wherever it is used as a remedy of great value in nerve and brain exhaustion.

Murdock's Liquid Food claims to be the only raw condensed food, free from insoluble matter, on the market. It has been before the public a long time, and has won a place among the valuable remedies.

Lactopeptine is now put up with gentian, strychnia, quinine, iron, bismuth, calisaya, cinchona, and phosphates, and in these forms are undoubtedly the most valuable of all known remedies for nerve and brain disorders.

Peptonized Cod Liver Oil and Milk, prepared by Reed & Carnrick, of New York city, claims to present the oil globules twenty-five per cent. finer than that found in any other preparation in the market. Hence its superiority.

Prof. Doremus of New York, writes: That the various preparations of *Maltine*, are superior in therapeutic value to any other extracts of malt made, and as nutrients they supply almost every tissue of the body, from bone to brain.

Dr. Frazier of St. Louis, writes: I have used with flattering results, *Colden's Liquid Beef Tonic*, as a food in a variety of cases — notably in cases of gastric irritability, and such acute inflammatory conditions of the gastric mucous membrane.

Dr. Crittenden of Unionville, Va., says: In pneumonitis, pleuritis, and bronchitis, I have found *Papine* to answer an excellent purpose. In dysentery it is useful both as an anodyne and in relieving the tenesmus. In the diarrhoea of children, I frequently combine with it bismuth subnitrate and prepared chalk. I have used it also in cystitis. In neuralgia, when I wish an anodyne, I use *Papine*. As an anodyne it is equal if not superior to morphia; and I have never yet seen any unpleasant effects from its use. As a hypnotic I find it to be an agent of great value.

Established 15 Years. OBSERVE THE NAME. Beware of Imitations.

COLDEN'S

Liquid Beef Tonic.

ORIGINAL LABEL:

"Colden's Liebig's Liquid Extract of Beef and Tonic Invigorator."

An Invaluable Aid in Medical Practice.

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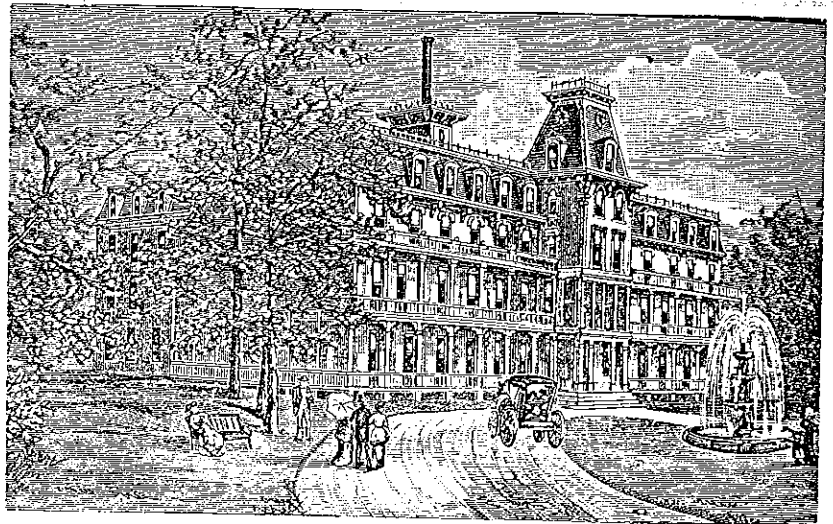
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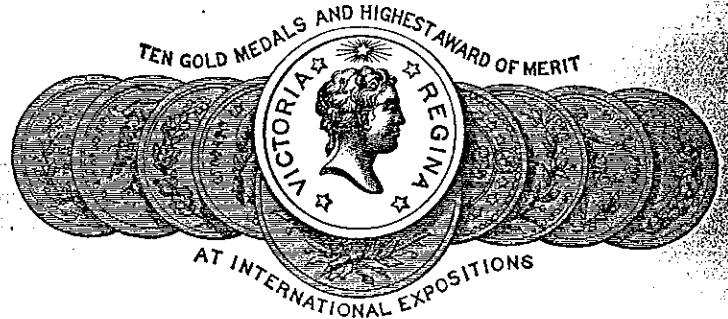
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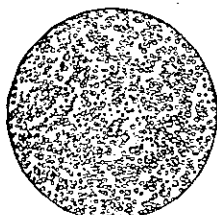
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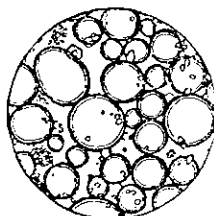


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Cod Liver Oil and Milk
200 Diameters.

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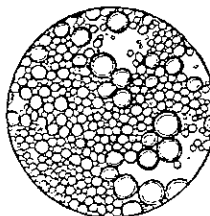


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200 Diameters.



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in some form, regardless of
the names given them. Their
value and easy digestibility
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globules. Any physician who
has a microscope of any
power can compare COD
LIVER OIL AND MILK with
the various preparations of



* No. 2.
200 Diameters.

Cod Liver Oil, and he will find that the oil globules of COD LIVER OIL AND MILK are from 10 to 100 times finer than any preparation of Cod Liver Oil in the market, and 25 per cent. finer than in nature's Emulsion, milk. This should be the guide in the use of Cod Liver Oil with every practitioner.

Messrs. REED & CARRICK, New York City.—Dear Sirs: I have examined your PEPTONIZED COD LIVER OIL AND MILK microscopically, with the following results:

This preparation shows extremely minute oil globules suspended in a clear solution. The mean diameter of these globules is rather less than 0.003 m.m. (about 1-8000 inch), and the largest are not over 0.006 m.m. (about 1-4000 inch). For comparison it may be stated that their average diameter is from one-third to one-half that of the red blood corpuscles. These photomicrographs show their size as compared to milk, and Emulsions of cod liver oil in the market. They have all been photographed under exactly the same conditions. In some of the specimens, the globules, when spread out in a very thin layer, gather in clusters, giving an uneven field, but not affecting their size. Very truly yours, JAMES R. DUGAN, M. D., Ph.D.
Feb. 26, 1885. Fellow in the Johns Hopkins University, Sec'y Baltimore Microsc' Society.

ANALYSIS OF PEPTONIZED COD LIVER OIL AND MILK, by Prof. ATTFIELD, Ph.D., F.C.S., Etc., author of a Manual of General Medicine and Pharmaceutical Society.

I have analyzed PEPTONIZED COD LIVER OIL AND MILK, and find that it is exactly what the makers state it to be. The sample submitted to me has all the properties of a specimen prepared by myself except that their machinery has produced a more perfect emulsion than my hand labor can effect. Indeed, I find by aid of the microscope, that as regards perfection of emulsion—that is, admixture of a fatty with a non-fatty fluid—the oil in PEPTONIZED COD LIVER AND MILK is in a finer state of division than the butter is in ordinary milk.
(Signed) JOHN ATTFIELD.

Peptonized Cod Liver Oil and Milk is also combined with Hypophosphites of Lime and Soda.

* Of the preparations of Oil on the market No. 1 contained the largest and No. 2 the smallest oil globules next to Peptonized Cod Liver Oil and Milk, in comparison with all the other preparations of Cod Liver Oil in the market.

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A predigested, non-irritating, easily assimilated food indicated in all weak and inflamed conditions of the digestive organs, either in infants or adults.

SUGAR OF MILK

Is now recognized as an important element of any artificial food for infants which can be claimed to be similar in composition to mother's milk, which contains it in larger proportion than does cow's or goat's milk.

It has an important influence in overcoming any irritable condition of the stomach and bowels, and thus its presence in an Infant Food is of the greatest value.

Being a pure carbo-hydrate, however, it is not of itself sufficient to constitute a nutritious and healthful food. With it should be combined that best of all foods for the muscular and nervous systems, the Gluten of Wheat, rendered easily soluble by proper treatment.

With these the infant should be given that digestive agent, which it most lacks, diastase. This is easily obtained from Malted Barley, and may be so combined with the other constituents that the result will be a food which will nourish every portion of the system, and be digested and assimilated with the greatest ease. This is our claim for Lactated Food. As indicated by its name, it has for its basis Sugar of Milk or Lactose. To this is added the purified Gluten of Wheat and Oats with Barley Diastase and Malt Extract. The small amount of starchy matter remaining is wholly changed to a soluble form by the action of the diastase.

It has met with remarkable success in the hands of the Medical profession in all parts of the country, both as a food for infants, and for adults recovering from acute diseases, or suffering from chronic debility of the digestive organs.

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It is the chief reliance of many eminent practitioners, and it is the safest food in summer for all young or delicate children.

Another important consideration is its low price, it being much more economical than other foods. We make four sizes, selling for 25 cents, 50 cents, \$1.00, and \$2.50. A dollar can will furnish one hundred and fifty meals for an infant.

If any physician that has not yet made a trial of the Lactated Food will write us, we will send a package of our regular size, post-paid, without charge, with the understanding that it will be given a careful trial as soon as possible.

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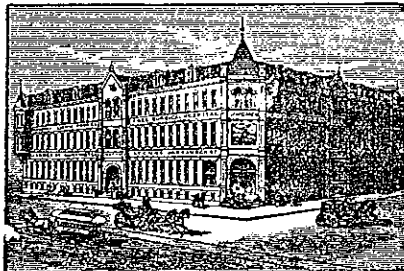
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**The value of Murdock's Liquid Food is Recognized in All Countries,
and is Indorsed by all National Medical Societies
that have Investigated its Value.**

There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for Essay and DISCUSSION before the British Medical Association at Brighton, England, 1886 (Essay), by the Vice-President of the American Medical Association and others on the value of Murdock's Liquid Food over all Foods and Extracts known, it being the ONLY Raw Condensed Food, free from insoluble matter.

Also essay read before the American Medical Association at Richmond, Va., and Washington, D. C.:



Its value was recognized by the Profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal

140 FREE BEDS,
and contain 34,000 feet of Floor.

Our Liquid food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

Send for the report of the Chairman of the Section of Obstetrics of the

American Institute of Homoeopathy, read at Saratoga at the Annual Meeting of 1886.

Circulars were sent by him to all the Physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under, as well as over, one year old.

Then what results, with all the different Milk preparations, Grain Foods, Peptonoid Foods, and Beef Extracts, compared with Murdock's Liquid Food.

The returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homoeopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks:

"It is singularly adapted to scrofulous, syphilitic, and tubercular constitutions, its life-restoring power manifesting itself in each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to grow fleshy it is more symptomatically recommended, while Duncan's acid babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaints. Should a child vomit all milk food, and suffer synchronously with diarrhoea or dysentery, the demand for this food is emphatic and unmistakable; also in general irritability of the stomach, particularly if there be sour-smelling diarrhoea, the food passing through undigested. For the prematurely born it stands preëminent. For those 'weak and debilitated from any cause, Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use vomiting and diarrhoea ensue; the child has been overfed. *Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.* When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

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Our Free Surgical Hospital for Women, located on Huntington avenue, above West Chester park, contains fifty (50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

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From the fact that no two beeves or sheep are alike is the reason of our different brands being different in flavor.

All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver, free of express, 12 oz. for \$1. Any physician that has not used our Liquid Food, we will deliver free to the Boston express 12 oz. **MURDOCK'S LIQUID FOOD CO., BOSTON.**

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Combined in the form of a syrup, with *slight alkaline reaction*.

It Differs in Effect from all Others, being pleasant to taste, acceptable to the stomach, and harmless under prolonged use.

It has Sustained a High Reputation in America and England for efficiency in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs, and is employed also in various nervous and debilitating diseases with success.

Its Curative Properties are largely attributable to Stimulant, Tonic, and Nutritive qualities, whereby the various organic functions are recruited.

In Cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction.

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From its exerting a double tonic effect and influencing a healthy flow of the secretions, its use is indicated in a wide range of diseases.

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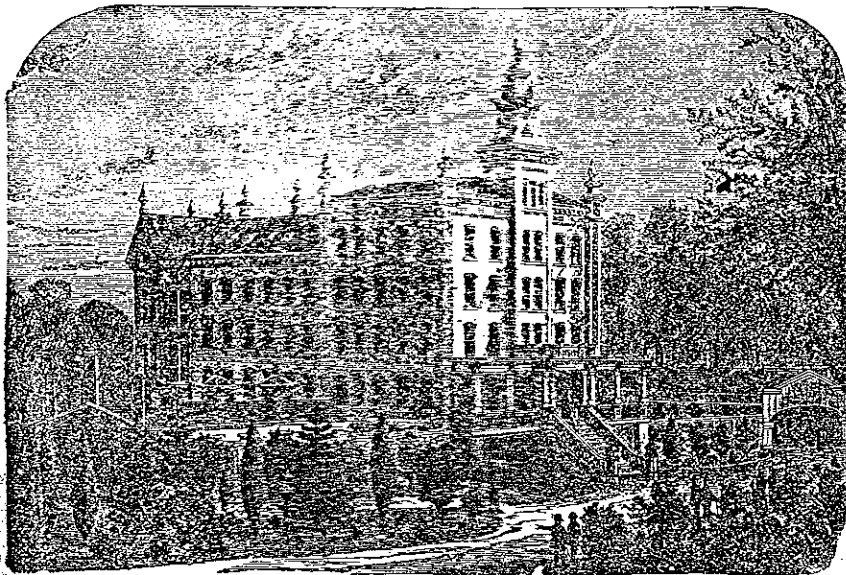
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By this equitable arrangement all are enabled to offer board, washing and medical attendance at rates varying from \$10 to \$40 per week. Those paying \$15 and upwards, according to size and situation of quarters selected, are provided with a single apartment and a seat at table in private dining-room—the accommodations in the select rooms and the table being in every respect equal to those of a first-class hotel. Rooms in suit may be had on terms to be agreed upon.

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In a great variety of affections it has proved itself to be a drug ranking in therapeutic importance with opium and quinine.

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