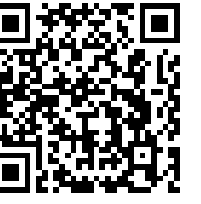

THE QUARTERLY JOURNAL

OF

INEBRIETY.

Published under the Auspices of the American Association for the Study and Cure of Inebriates.

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

$2.00 Per Year.

Vol. XXI, 1899.

HARTFORD, CONN.:
THE CASE, LOCKWOOD & BRAINARD COMPANY, PRINTERS.

EUROPEAN AGENCY: BAILLIERE, TINDALL & COX,
20 KING WILLIAM STREET, ON THE STRAND, LONDON, W. C.

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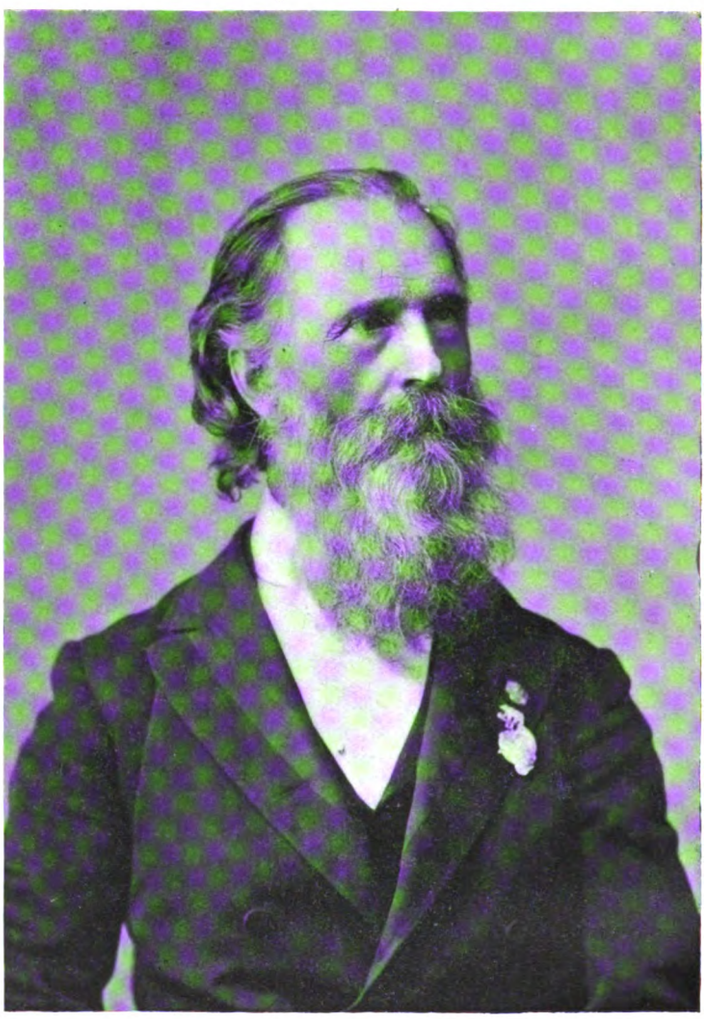

ISAAC N. QUIMBY, M. D.

THE
QUARTERLY JOURNAL OF INEBRIETY
Subscription, $2.00 per year.

Vol. XXI. JANUARY, 1899. No. 1.

THE LATE DR. ISAAC N. QUIMBY.

Biographical Sketch.

By T. D. Crothers, M.D., Hartford, Conn.

The pioneers in a new field of research are always distinctive for a certain vigilant self-reliant cast of character. Like explorers, the difficulties and obstacles which they encounter give renewed impetus to their work. When theories, heavy with age and intense prejudices fostered and grown through many generations, oppose every effort, the true pioneer becomes more resolute, and the faith of his convictions more intense. Such men are picturesque in earnestness and impetuosity. They stand out alone with a certain halo and glamor of superiority which is unmistakable. Dr. Quimby was a pioneer of this class. He early moved out of the field of mediocrity and current theories of the present, and started up the road to clear away the dense ignorance and mark out lines and paths for the coming generations. The story of his life and work can only be outlined at present. Isaac N. Quimby was born at Bernardsville, N. J., in 1831. His father was Nicholas Emmons Quimby, a farmer, and great

grandson of Judge Emmons, a judge in the Supreme Court of New Jersey. His mother was Rachel Stout, from an old New Jersey family. Both his grandparents were patriotic soldiers in the Revolutionary War. His father also served in the War of 1812. Dr. Quimby lost both parents, and early in life learned to depend on his own resources. Beginning on the farm, he learned the trade of a miller, and when nineteen years of age went to Zanesville, Ohio. Here, through the influence of Dr. Barr, he determined to become a physician. After a preparatory course at Chester Collegiate Institute, New Jersey, in which he ranked very high as a student, he prepared to take up medicine. In 1856 he entered the University Medical College of New York and graduated, second in his class, with a special certificate of honor, in 1859. Upon the breaking out of the Rebellion, Dr. Quimby entered the army as a volunteer surgeon; served with General McClellan's forces in the swamps of the Chickahominy, in the Seven-days Battle, and "change of base" to the James River and the retreat to Harrison's Landing; was at Antietam and remained with his division until after the battles of the Wilderness, when, on account of illness, he returned home, and shortly after resumed the practice of medicine, in which he continued up to death.

Dr. Quimby was lecturer in the spring course of the University Medical College, New York, 1866-68, and also assistant to Professor A. C. Post in his surgical clinic at the same institution. He was the originator of the Hudson County, now Christ's, Hospital in 1868, and was surgeon to the same until 1873. He was also one of the attending surgeons of the City Hospital, Jersey City.

Dr. Quimby was a member of the American Medical Association, and of its judicial council; also one of the founders and the first chairman of the section of Medical Jurisprudence of that association; was a member of the Hudson County District Medical Society; of the American Public Health Association; of the Medico-Legal Society of New York; of the New York

Society of Jurisprudence and State Medicine; of the Mississippi Valley Medical Association; honorary member of the Gynecological Society of Boston; of the British Medical Association; of the American Association for the Cure of Inebriety, and vice-president of this Association at the time of his death; also a delegate from the American Medical Association to the International Medical Congress, London, 1881, and again in 1884, in Copenhagen, and again in 1894 at Rome, Italy. He was a member of the first Pan-American Medical Congress, which met at Washington, D. C., in September, 1893.

Dr. Quimby devised several important improvements in surgical operations: "A New Mode of Treatment of Congenital Talipes," Transactions of the American Medical Association, Vol. XIX; "A New Method of Amputation of the Ankle-Joint," *ibid.*, Vol. XXI; "A Case of Compound Fracture of the Tibia and Fibula," and operation on parallel bones by which the amputation of a limb may be avoided, *ibid.*, 1879; "The Criminal Use of Chloroform," an original investigation which grew out of his work as an expert in the Smith-Bennett trial in Jersey City, *ibid.*, Vol. XXXI. Dr. Quimby was one of the founders of the American Medical Temperance Association in 1891, vice-president up to death, and delivered an address before the World's Temperance Congress at Chicago in 1893. He also wrote a paper on the "Pathological Action of Alcohol in Health and Disease," read before the New Jersey Temperance Alliance, printed by that society in a pamphlet edition of five thousand copies, and circulated throughout the state. He was nominated for governor by the Prohibitionists of New Jersey in 1883, but declined the honor.

Married, first, in 1863, Miss Helen Stark, daughter of the late Thomas McKie, a retired merchant of New York city. Of their children, one, Alfred Charles Post Quimby, survives his mother, who died in 1868. Dr. Quimby married, second, in 1875, Miss Frances H., daughter of the late James Flem-

ming of Jersey City. They have one son, Isaac Newton Quimby, Jr.

This is a mere outline of his life work as seen from a distance. Farther back, some of the conditions which entered into his inner life and its activities may be traced.

First of all, Dr. Quimby was naturally a joyous optimist. The bright colors and joyous movements of events in life had more attraction than shadows and the background of sorrows. All through life this sunny disposition never lost its brightness, but constantly attracted a large class of sorrow-stricken men and women, who continually gathered around him for counsel, advice, and help, in all times of trouble. This led him to continually carry round the burdens of others and be the center of a storm circle which he was ever guiding and directing. His very clear conviction of the danger from alcohol brought to him another still more depressing class of patients, who at all times and at all places begged for counsel and advice on the saddest of all misfortunes. His clear views of human motives and conduct gave him a pathetic cast of thought on business matters, and this brought him another equally exacting crowd who sought for the same counsel and advice. To these different classes of persons he was the same positive, emphatic, sunny man, always prodigal of his strength and energy, and always ready to give his time and sympathy to any cause. Dr. Quimby was literally a soldier always on duty with his drawn sword in his hand ready at any moment to challenge wrong and defend the right. He was never caught sleeping or was indifferent to the consequences of acts or events. There was a certain chivalric alertness that characterized all his conduct, and even when he was in error his earnestness was contagious, and it was remarkable how he could produce conviction on the minds of his followers. His work as a temperance reformer will be of most interest. This began thirty years ago, and was based on solid convictions of right and duty which grew and widened as the years went on. Total abstinence was no theory to him; it was a solid fact which every year's experience

enlarged. He had no bitter personal experience, but his observations in his daily rounds of practice brought convictions which he realized in all their suggestive meanings. From this he was ever a student of the problem of what to do with the inebriate, and how to prevent the use of alcohol as a beverage, and to teach the actual facts and the nature of the action of alcohol. While he was keenly sensible of the honor of leading the party of prohibitionists in the state campaign, he saw that his influence would be greater along other lines of work. In company with others he fully recognized that no condemnation of alcohol could exceed the facts and no charge of extravagant language concerning alcohol and its effects would bear the slightest test. He saw with a clear prophetic vision that the battles against alcohol and its settled delusions could only be won by a long progressive siege. A systematic marshaling of forces and persistent bombardment with facts, statistics, and new views revealing the errors and mistakes of the nature and effects of alcohol. Like a general who has mastered the facts fully and knows the position and resources of the enemy, he gathered and concentrated his forces along lines where its effect would be most powerful. For many years he accepted invitations to speak before churches and societies on the injury from alcohol as a beverage and against promiscuous medicinal use. He enjoyed these meetings and often spoke of the pleasure it gave him to correct the errors of others. A clergyman was so much impressed with his remarks that he finally left the church and is now one of the most influential platform speakers on temperance in this country. Dr. Quimby's work on Mrs. Hunt's advisory board was very pleasing to him, and gave him a wider opportunity to help on a siege train in the great conflict. He realized the tremendous power of this work, and had he lived would have rendered most important services in this field. He joined most enthusiastically in the effort to rouse a scientific sentiment among the leaders of the medical profession concerning alcohol and break up the delusive conservatism which accepts the theories of the

past without challenge or question. He had both the boldness of Luther and the firmness of Knox in asserting and defending his convictions in medical meetings. He was impetuous and revolutionary when opposed by medical men in public debate, and carried his conviction by storm, dividing the convictions of his hearers into two opposing camps. Dr. Quimby also gathered around him a warm following, men who believed implicitly in his conceptions, and at the same time he fused the opposition, and concentrated them into a distinct body who doubted and distrusted his reasoning. Such persons had no personal feelings and always manifested warm interest in his genial personality while condemning his opinions. In all this his prodigality of energy, diffusive and concentrative, on small as well as large matters, was a sore mistake. He wore out before his natural time. A slower pace with more rest and change would have given him a longer life and fuller opportunity for working out the great problems.

At this time I can only stop to recall that a really great man has been with us and gone. We saw him too near to secure a proper prospective of his mental magnitude. Our feeble vision caught sight of his power, but his limitation and weakness obscured all the rest. Now that he has passed away and we stop to see what he has done, a new impression comes to us. We look about to see if some one is not ready to fill the gap he left, and are startled that he can have no followers to fill the place he occupied. The ranks will fill up with other men, but no one will take his place. While the dreary slow battle goes on, and the noise and smoke of the conflict fills all the air, we shall miss the ringing clarion tones of Dr. Quimby. But his spirit, which comprehended the great impending conflict, is with us yet.

Dr. Quimby will be remembered as a man of intense activity, who mastered details readily, and, like General Sherman, wanted to know all the details personally before deciding. His home life was a practical university to which he invited

and entertained professional men and reformers and students of all classes, who in turn felt free to discuss all the various topics they were familiar with. It was from this circle of intense mental activity that he drew inspiration and force for his daily duties.

While it is too early to judge of the results of Dr. Quimby's life work, there is unmistakable evidence that our knowledge of the delusions of alcohol have been immensely advanced by his work. The general subject has been widened and pressed home in many ways, and conviction and conversion has followed along new and unexpected lines. On many occasions I have noted this in small companies of physicians and in individuals who were startled at the personal setting of the facts which Dr. Quimby gave. This to me was one of the signs of his greatness. It was earnestness, intense and contagious, living and consuming in its zeal. This is the real secret of all progress in this work. The great reformers, martyrs, and pioneers of every advance of civilization have been terribly in earnest. All growth along evolutionary lines has been of this character. Dr. Quimby's temperance convictions and facts concerning alcohol were burning truths that called for vivid expressions and could not be expressed in drowsy, sleepy sentences.

For ourselves, the battle is going on; the work Dr. Quimby left we must take up. While the end is not in sight, the obstacles to be overcome and the obstructions to be removed are threatening and formidable. The saloons will disappear, all forms of alcohol as beverages are doomed, and will pass away among the great delusions of this childhood age of our race. Dr. Quimby realized that progress was not alone dependent on weak human efforts; that the real temperance cause was a great evolutionary movement of the race; that all our reform efforts were forming in line and marching to the orders of unseen commanders who direct and shape the results. Our friends and co-workers die and yet the movement goes on, and we ourselves will disappear by and by and other persons will

fill up the ranks, and yet there is a consciousness that all our efforts are parts of a great evolutionary struggle upwards.

Dr. Quimby was vice-president of the Association for the Study and Cure of Inebriety, and took a lively interest in all its meetings. He had some very practical ideas of treatment which he tested fully in his hospital work, and often applied in private practice with good results. He was most emphatic in his convictions of the need of asylum care of inebriates, and often urged the hospital plan of treatment by the authorities, in public meetings. He urged that until the dangerous effects of alcohol was fully recognized by the profession, inebriate asylums would not become popular. Hence the need of a crusade along this line was the most pressing need of the hour. Had he lived he would have been at the head of a lecture bureau to carry on a regular systematic agitation of the dangers of alcohol, exclusively by physicians. This was to be an independent movement, not under any society auspices. In the midst of most active work and plans for the benefit of others, he was taken with acute pneumonia, and died after a few days' illness. The funeral was the occasion for the silent tribute of large crowds of people, and many stirring eulogies from the press and clergy. Thus the intense, impetuous, hurried journey of his life was ended. The curtain went down while the play was in full progress, and the central figure of the scene disappeared. Dr. Quimby was known to a very large number of medical men in the American Medical Association as one of the most active ready speakers and managers. He was intensely loyal to the best interests of the Association, and always served willingly on all committees and in all positions of honor for the best interest of all. He was above rings, and was always broad and generous and fair in all questions of difference of opinion. As a surgeon, he was resourceful and very quick to conceive and act for the best interests at the time and occasion. As a physician, he was conservative, sympathetic, and judicial, winning and retaining the respect of a large clientage. As a man and neighbor he was very popular,

and was often appealed to for advice on many subjects outside of professional work. He was a man of strong intuitional mind, who saw the meaning of thoughts and events that were not clear to the average person. Often this involved him in apparent inconsistencies, which were cleared away after a time. In this way he was often misunderstood and criticised, but finally was recognized and admired by many of the previous most bitter detractors.

Dr. Quimby will be remembered in his day and generation as a most active man in every good work for the benefit of his fellows. He impressed his individuality and spirit on all he came in contact with, and we can say truly the world is better for his life and living. His pioneer work is ended and he is called away, and we can follow in his pathway, thankful for his influence, his spirit, and example.

The opium specific discoverers who claim such marvelous results, and offer to verify their statements, fail to realize that a great army of scientific workers are waiting to test their work, and are ready to welcome with open arms any new discovery and discoverer. If any man has found a drug or combination of drugs that in any way is a specific, he can have no fear of his facts and reputation. They are assured beyond all question. New truths cannot be hid in a bushel, or stolen from the finder. The scientific public are not selfish or mercenary, and concealment and mystery is fatal to the growth of any new truth. If the discoverer is afraid of publicity of his new facts, it is a fatal admission that they are not realities, and that they cannot stand the test of examination, but must seek concealment and mystery to live.

TOXIC AGENTS AND DEGENERACY.*

By Eugene S. Talbot, M.D., D.D.S.

Fellow of the Chicago Academy of Medicine; Professor of Dental and Oral Surgery, Woman's Medical College, Chicago, etc.

The toxic agents which influence the race toward degeneracy exert that deterioration in a mode which closely resembles that of the degenerative powers of the acute and chronic contagions and infections. The acute poisonings by these toxic agencies resemble the acute, nervous, and other exhaustion caused by the toxin of the germs underlying the infections and contagions. The chronic conditions due to these toxic agents agree in many respects with the chronic states produced by the infections and contagions. The toxic agencies are divisible into those belonging to the condiments, medicines, foods, and beverages, and those arising from occupations.

Tobacco is the most common, while alcohol and opium contend for second place both as to use and as to deleterious effects. Alcohol has been repeatedly charged with being *the* factor in degeneracy. Statistics of the first half of the present century seem to justify the conclusion that it is apparently the most potent factor, yet these statistics as a rule confound coincidence and cause, or effect and cause, or the vicious circles thereby resulting, to a remarkable degree. There are but few races in which alcohol has not been used and abused. The American Indians had tizwein, chica, and pulque long ere Columbus; the Tartars and Russians, bouza, kvas, and kumyss; the South Sea Islanders ava and toddy (from the

* A chapter from degeneracy, its signs, causes, and effects. Now in press in the Contemporary Science Series.

cocoanut); the Tunisians, laymi. The vast majority of the races of mankind have used alcoholic beverages. Each was called by a local name and not by a word, a most demonstrable evidence of local origin.

Even the social insects (bees and ants) at times indulge in fruit ferments. The claim, therefore, that alcohol is the product of high civilization, hence of recent origin, and hence peculiarly destructive, is untenable. That excess in alcohol frequently occurs in degenerate stocks is, however, undeniable.

Kiernan cites twenty-three cases in which degenerate stocks were charged to alcoholic parentage, but which on analysis proved to be due to a degenerative factor in the parents, of which alcoholism was merely an expression. Nearly all the offspring born after inebriety were prematurely born, defective, epileptic, hysteric, insane, idiots, or criminals. Some few were healthy, apart from their intolerance of alcohol. In eighteen cases both father and mother were alcoholists. The fathers in four of these cases had been temperate, industrious, and affectionate ere being sunstruck. Following this came periods of irritability, excessive drinking, and spendthriftiness. The mothers had remained for some years after the fathers' breakdown free from the use of alcohol, but were nervously exhausted from the strain. One became depressed during pregnancy, was given gin for the depression, and the habit persisted after the delivery. In the three other cases painful menses developed during the nervous exhaustion. The popular prescription for these, gin, was given, with the result of producing inebriety. In ten cases skull injury to the father had like results on both mother and father. In two cases the mother became a victim of painful menstruation after a railroad accident; gin drinking, to relieve this, followed and became a habit. The father's nervous system broke down under the strain, and both became inebriates. In two other cases nervous exhaustion from typhoid and typhus fever produced the same outcome in inebriety on the part of the father and mother. In the re-

maining cases the inebriety was an expression of nerve exhaustion after various protracted infections. The alcoholism in these cases was clearly an expression of the factors of race deterioration, producing degeneracy, and not its cause.

The influence of alcohol must, therefore, first be studied on the individual to determine its value and method of action as a cause of race deterioration. Careful medical researches have shown that alcohol produces a nervous state closely resembling that induced by the contagions and infections, often accompanied with mental disturbance (delirium tremens and acute types of insanity). The acute nervous state to which the term alcoholism was applied by Magnus Huss has all the essential characteristics of the nervous state due to the contagions and infections. There is, however, a greater tendency to impotence and sterility in the alcohol nervous state than in the others, and consequently a lesser influence on race deterioration. The condition, moreover, has a tendency to set into action degenerative tendencies latent in the liver and kidneys charged to alcohol, and justly, but as an exciting cause only. This action of alcohol on the liver and kidneys so interferes with their functions as to produce the effect already described as resulting in the contagions and infections from their toxins. Alcohol exerts a similarly deteriorating influence on the antitoxin-forming organs (especially on the testicles, ovaries, and their appendages) to that already described as exerted by the toxins of the contagions and infections. To the direct toxic effects of alcohol are, therefore, added results of imperfect liver and kidney action and defective strengthening powers from deficient antitoxin secretion. Like all toxic agents, alcohol interferes with the functions of the eye and ear nerves. Special weakness thus created is transmissible to the offspring. The chronic type of alcoholism may well be compared in its effect with chronic contagions. There is, however, less tendency to infection with the microbes forming pus. There is a greater tendency to deteriorating action on the nervous system. There is in chronic

alcoholism, as in syphilis, special tendency to that formation of connective tissue which destroys organs. The chronic mental disorders of chronic alcoholism resemble those of tuberculosis except than the capricious state and exaltation are less frequent than the suspicional tendency which is deeper, and takes the direction of delusions of poisoning and insane jealousy. The last are due to the deteriorating influence of alcohol on the generative organs. The parallel between the chronic infections and contagions and alcohol could be extended still further, since worry breaks down the abstinent parent in alcoholism, and thus destroys resistance to infection.

Alcohol may limit its action to the central nervous system, and thus produce hereditary losses of power. It causes changes in the peripheral nerves which in the offspring find expression in spinal cord and brain disorder through extension of the morbid process. But for its deteriorating effects on the ovaries and testicles, alcohol would be the most serious social danger. Through these last it tends to prevent the survival of the unfit, rather than to develop degenerates.

Opium seems to be the Charybdis on which the human bark strikes when escaping from the Scylla of alcohol. Its abuse as a narcotic is much older, even among the English-speaking races, than is generally suspected. Murrell, over ten years ago, demonstrated that the inhabitants of the fens of Lincolnshire had long employed opium as a prophylactic against malaria. The ratio of insanity in these regions proved to be very great. The same conditions obtained in certain malarial regions of New Jersey and Pennsylvania, where the use of strong infusions of poppy was common. The statistics of Rush as to opium-caused insanity in Pennsylvania indicate that the percentage of American opium abuses at the beginning of the nineteenth century was very great. The drug differs in two serious respects from alcohol. It is nearer in chemical composition to nerve tissue, and the tendency to its use may be transmitted by the mother directly to the foetus. This, as Bureau and Ringer have shown, receives through the

placenta from its opium-using mother a certain amount of morphine. In consequence, the child in the first month of infancy must be nourished on the milk of an opium-using woman, or given opium in some other way lest it perish. To this fact Calkins was the first to call attention. His results were corroborated later by Hubbard, Kiernan of Chicago, Erlenmeyer of Berlin, E. P. Earle of Chicago, Mattison of Brooklyn, Hughes of St. Louis, and others. Amabile of New York showed that not only were the children of opium-using mothers born with tendency to the opium habit, but that the mothers aborted frequently with twins, and that the children who survived were very liable to convulsions. Independently of this factor the mental state produced by opium habit resembles in many respects that of the lunatic, in that the victim of opium is as unable to distinguish between his wishes and the facts, and, therefore, often utters what appear to be sheer lies. Hence, he is totally unreliable and has taken a step in mental and moral degeneracy that, by the ordinary laws of heredity, must greatly increase, unless corrected by healthy atavism and training in the next generation. Opium is a more dangerous factor of degeneracy than alcohol, since the opium-user must be in a continuous state of intoxication to carry on his usual avocation, while abstinence is perfectly compatible with proper work on the part of the drunkard. The opium habit is increased by the peculiar propaganda carried on by the *habitués* who justify their position by urging the use of opium for any ailment, however minimal. Opium, like alcohol, causes nervous exhaustion similar to, but greater than those of the contagions and infections. From the affinity of opium to nerve tissue, from its tendency to stimulate the heart, thus causing increased blood supply to the brain; from its action on the bowels and the increased resultant work of the liver, this nervous state is much intensified. Opium does not have as great tendencies to interfere with the structure of the ovary and testicles as alcohol, hence, the greater danger of the opium *habitué's* children surviving.

Opium, when smoked, stimulates the reproductive apparatus, and thus would greatly increase the number of degenerates due to this habit but for the defects due to the inheritance of the habit and their consequences.

The origin of the use of tobacco is usually ascribed to the New World. There is no doubt that immediately subsequent to the discovery of America, the use of tobacco spread over the world, and that its employment by Sir Walter Raleigh made its use fashionable. It is certain, however, that the Romans and Irish employed pipes for smoking long ere the Christian era, but the substances smoked were not tobacco but dried aromatic leaves. The English before Columbus did the same. In Western Asia historic botanical evidence leaves no doubt that tobacco was indigenous. Tobacco use from the East hence probably encountered tobacco from the West, both currents meeting in Asia Minor. As with alcohol and opium, the statistic method generally adopted proves fallacious when applied to the degenerative effects of tobacco. Study of its effects on the individual is needed to determine its effects on the race. The most careful researches show that the typical effects occur as a rule after long-continued use of tobacco, sometimes not until twenty years or more. While many smokers reach old age, many fail to live to old age because they are smokers. The skin is the subject of itching and reddening, the nerves of taste are blunted, and patches develop in throat, loss of appetite, epigastric fullness, pain, vomiting, and disturbance of bowel function are common. Menstrual disturbance occurs in women. In female cigar-makers abortion and pluriparity are frequent. The sexual appetite is impaired and sometimes sterility and impotence occur. Disturbed heart action, palpitation, rapid and intermitting pulse, precardial anxiety, weakness, faintness, and collapse with sclerosis of the coronary arteries of the heart and left ventricular hypertrophy. Cigars and cigarettes produce irritation of the nose, mucous membrane, diminished smell, chronic hyperaemia of the epiglottis and larynx, and

sometimes of the trachea and bronchi predisposing to consumption. Nicotine amblyopia, or sight weakness, is common, with central disturbances of the field of vision and with color-weakness of sight. Often there is disorder of the ear tubes and congestion of drum, with loss of power of the hearing nerves, and consequent noises in the ear. The central nervous system is affected. In high schools, non-smokers get on better than smokers. Children from 9 to 15 years of age exhibit less intelligence, laziness, or other degenerative tendencies. Adults have head-pressure, sleeplessness, or drowsy stupor, depression, apathy, and dizziness. There may also be ataxic symptoms, paretic weakness of bowel and bladder, trembling and spasms. Tobacco insanities are comparatively rare in smokers, but are common in snuffers and still oftener in chewers. In the precursory stage, which lasts about three months, there is general uneasiness, restlessness, anxiety, sleeplessness, and mental depression, often of a religious type. After this occurs precardial anxiety, and finally the psychosis proper, consisting of three stages: 1. Hallucinations of all senses, suicidal tendency, depression of spirits, attacks of fright with tendency to violence and sleeplessness. 2. Exhilaration, slight emotional exaltation, agreeable hallucinations after from two to four weeks' relaxation, again followed by excitement. 3. The intervals between exaltation and depression diminish, the patient becomes irritable, but otherwise not alive to his surroundings, and perception and attention are lessened. The patient may be cured in five or six months if he stop tobacco during the first stage. In a year or so he may recover during the second stage. After the third stage the disease is frequently incurable. As the patient often becomes (especially by the use of the cigarette) an *habitué* ere puberty, the proper development and balance of the sexual and intellectual system is checked. These patients break down mentally and physically between 14 and 25. The moral delinquencies, other than sexual, are often an especial tendency to forgery and deceit of parents. Fre-

quently the insanity of puberty (hebephrenia) is precipitated by tobacco. The cigarette, if used moderately, may be a sedative, but as used is a stimulant, and is often made of spoiled tobacco, resembling in reaction morphine, and on animals acting in a somewhat similar manner. As tobacco turns the salivary glands (which are concerned in digestion of starch) into excretory glands, it leads to imperfect digestion of starch, to consequent irregular fermentation in the bowel, thus at once furnishing a culture medium for microbes, to form more violent toxins from and also creating leucomaines, to interfere especially with a nervous system overstimulated by nicotine. This is one great reason why those who snuff and chew tobacco more frequently become insane from tobacco than smokers, albeit these last are not exempt.

Statistics from the female employes of the Spanish, French, Cuban, and American tobacco factories, while defective and somewhat vitiated by the co-existence of other conditions producing degeneracy, support the opinion that the maternal tobacco habit (whether intentional or the result of an atmosphere consequent on occupation) is the cause of frequent miscarriage, of high infantile mortality, of defective children, and of infantile convulsions.

Tobacco, therefore, in its influence on the paternal and maternal organism, exhausts the nervous system so that an acquired neurosis results in such a way as to be transmissible.

Professional tea-tasters have long been known to suffer from nervous symptoms; very early in the practice of their occupation the head pressure symptoms of neurasthenia occur. Tremor also occurs early. While changes in the optic nerve have not been demonstrated beyond a doubt, still eye disorders have been observed in the pauper tea-drinkers of the United States and in the tea-tasters of Russia, thus indicating that similar changes to those produced by tobacco and alcohol are likely to occur in the optic nerve from tea. Brullard has found that tea has a cumulative effect. In his experience toxic

effects are not produced by less than five cups daily. The symptoms manifested are those of nervous excitement resembling hysteria, at times almost amounting to fury; nervous dyspepsia; rapid and irregular heart action; neuralgia of the heart; helmet-like sensation on the head, and tenderness along the spine. James Wood of Brooklyn found that ten per cent. of those under treatment at the city hospitals exhibited similar symptoms. Of these, 69 per cent. were females. Every symptom ascribed by Brullard to tea was found by Wood in his cases, who also found that the women manifested irregularities in menstruation of neurasthenic or hysteric type. He has found these symptoms to be produced by one-half of the quantity of tea charged with these effects by Brullard. The *Lancet*, several years ago, from an editorial analysis of the effects of tea-tippling, took the position that in no small degree nervous symptoms occurring in children during infancy were due to the practice of the mothers, both of the working and society class, indulging in the excessive use of tea, the excess being judged by its effects on the individual and not by the amount taken. Convulsions and resultant infantile paralysis were frequently noticed among the children of these tea-tipplers. Observations among the factory population and the workers in the clothing sweating-shops show that tea neurasthenia, presenting all the ordinary symptoms of nervous exhaustion, is especially common among these. It is evident that tea produces a grave form of neurasthenia readily transmissible to descendants. In addition to its effects directly upon the nervous system, tea tends to check both stomach and bowel digestion, and thus increases the self-poisoning which is so prominent a cause, consequence, and aggravation of these nervous conditions.

Coffee exerts a very similar action to that of tea, albeit the nervous symptoms produced by it are usually secondary to the disturbances of the stomach and bowel digestion. Coffee produces tremor, insomnia, nervous dyspepsia, and helmet sensa-

tions. With the exception of certain districts of the United States, coffee abuse is not carried to such an extent as tea, albeit in these, as in some portions of Germany, the habit is an excessive one. The conditions described result in Germany as frequently as they do in the United States. Mendel finds that in Germany coffee inebriety is increasing and supplanting alcohol. Profound depression with sleeplessness and frequent vertex headache are early symptoms. Strong coffee will remove these temporarily, but it soon loses its effects, and they recur. There is much tremor, especially of the hands. The heart's action is rapid and irregular. Nervous dyspepsia is frequent. L. Bremer of St. Louis, Mo., has observed similar conditions among both Germans and Americans there.

While coca took its place only recently among the toxic causes of degeneracy, it was old as a factor in the degeneration of the Peruvian long ere the discovery of America by Columbus. Forty-three years ago Johnston wrote that even Europeans in different parts of Peru had fallen into the coca habit long practiced by the Indians. A confirmed chewer of coca is called a *coquéro*, and he becomes more thoroughly a slave to the leaf than the inveterate drunkard is to alcohol. Sometimes the *coquéro* is overtaken by an irresistible craving, and betakes himself for days together to the woods, and there indulges unrestrainedly in coca. Young men of the best families of Peru are considered incurable when addicted to this extreme degree of excess. They abandon white society, and live in the woods or in Indian villages. In Peru the term white *coquéro* has the same sense as irreclaimable drunken tramp. The inveterate *coquéro* has an unsteady gait, yellow skin, quivering lips, hesitant speech, and general apathy. The drug has assumed an unusual prominence in the field of degeneracy since the discovery of its alkaloid, cocaine. Since then there has sprung into existence, in both Europe and the English-speaking countries the world over, a habit which, while much over-estimated, is undoubtedly growing and aggravating as well as producing degeneracy. Many of the

cases reported as due to cocaine are, however, chargeable to the desire of the hysteric or neurasthenic to secure a new sensation, or the desire on the part of the opium or whisky *habitué* to try a dodge for forgiveness by friends. The habit is very frequently induced by patent medicines taken to cure catarrh by the neurasthenic, or to cure nervousness by hysterics as well. As the deformities of the nose passages predispose to what is called "catarrh," patent medicines for local application containing cocaine are frequently employed in the treatment of this supposed constitutional disease, with the result of aggravating the original degeneracy. As the youth under the stress of puberty generally ascribes all his ills to catarrh, he also employs very frequently snuffs containing cocaine, and has his nervous condition much aggravated thereby. Among the nostrums urged in the newspapers and magazines for this condition so often resultant on nerve stress is a certain notorious snuff containing 3 per cent. of cocaine. From the description given by Johnston of the *coquéro* there can be no doubt but tramps, errabund lunatics, and paupers result from this habit, to give birth to degenerates in the next generation.

Lead has been found to produce in those exposed to its fumes a systematic nervous exhaustion, characterized by local paralysis about the wrist as well as the general symptoms of profound systemic nerve tire. This may result, as Tanquerel de Planches pointed out nearly half a century ago, in acute insanity of the confusional type followed very often by forms of mental disorder of a chronic type resembling paretic dementia. In some cases the patient recovers from the acute insanity to suffer thereafter from epilepsy. In other cases, as Kiernan has shown, an irritable suspicional condition results, in which the patient may live for years, marry, and leave offspring. This last condition and the epileptic are the most dangerous as to the production of degeneracy. As has already been pointed out, the women employed in the pottery factories in Germany suffer, according to Rennert,

from a form of lead poisoning which produces decidedly degenerative effects upon the offspring. These women had frequent abortions, often produced deaf-mutes, and very frequently macrocephalic children.

Brass-workers suffer from a very similar nervous condition to that produced by lead. Hogden of Birmingham called attention to the grave forms of nervous exhaustion produced among brass-workers. The period during which the patient is able to pursue the occupation without breaking down is longer than that of the lead workers. Women, like men, are exposed to this condition. The chief effect produced, so far as offspring have been observed, is chiefly frequent abortions and infantile paralysis.

The occupations employing mercury, whether mining, mirror-making, or gilding, produce forms of systemic nervous exhaustion in which the most marked (but least important from a sanitary standpoint) symptom is a tremor amounting at times almost to shaking-palsy. Like all other systemic nervous exhaustions, the mercurial one may appear as degeneracy in the offspring. The employment of women in match factories and tenement-house sweating shops is growing. The chief toxic effects of phosphorus are not the localized jaw necrosis. This is but an evidence of the progressive system saturation with phosphorus. It bears the same relation to the more dangerous effects of phosphorus that "blue gum" does to the systemic effects of lead.

Every condition arising from a toxic cause capable of producing profound systemic nervous exhaustion in the ancestor, and especially the ancestress, is likely to be transmitted as degeneracy to the descendant. Undoubtedly, with the growing tendency of woman to pass from the ill-paid work of the seamstress to the better paid but dangerous occupations, a certain seeming increase in degeneracy must result.

THE INFLUENCE OF ALCOHOL ON MUSCULAR WORK.

By Dr. E. Destree,

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The members of the Anti-Alcohol Leagues have often been blamed for their extreme zeal in the struggle in which they are engaged, and there are those who fear that their efforts will be futile on account of the vehemence with which they labor. Scientific considerations are relied upon to show that alcohol is by no means the fearful monster to which statistics attribute so many evils. The defenders of alcohol renounce the confirmed alcoholic who drinks under all circumstances of life, to drown his sorrow, to give better expression to his joy, to sweeten his repose, to stimulate his power for work, to refresh him, and to warm him when cold. But these same advocates seek to make apparent the good that alcohol can do in many cases, and recommend its use, considering it a useful and necessary stimulant.

Is alcohol a stimulant. Hitherto a large number of physiologists had appeared to admit it, but the arguments on which they base this reasoning have all, one after another, been tested by experiment, especially in these latter days. We are just arriving at the idea that the exhilarating effects of alcohol, momentary as they are, are in no sense especially characteristic of alcohol; that they only result from local irritation with reflex radiation, and that in reality the characteristic action of alcohol is depressant and narcotic. In the last analysis it seems the first effect of alcohol is due only to its irritating action on the stomach, and alcohol is hardly more a stimulant to the nervous system than mustard, for example;

whereas what is alone evident is the depression of the nervous system.

Thus it seems that all the vigor which alcohol produces, even momentarily, is factitious: that alcohol cannot of itself stimulate the intellectual faculties nor the circulatory system, for example, and that experiments which show us alcohol as a stimulant, those of Bintz, for example, are simply phenomena badly interpreted, as the alcoholic stimulation which every one has had opportunity to observe is but a delusion.

In proportion as researches multiply, the opinion of Schmeideberg, who regards alcohol as a paralyzing agent, tends to prevail. The phenomena of drunkenness in its first stages, moreover, which we have been accustomed to look upon as due to stimulation of the cerebral centers, have been interpreted quite otherwise. All modern experimenters are beginning more and more to admit the progressive paralysis of the brain centers, commencing with the highest and extending gradually to those oldest in the course of evolution. The highest faculties disappear first, the judgment and reflection are paralyzed, and as Schmiedeberg says:

"The soldier becomes more courageous because he is less concerned about the dangers and thinks less about himself. The speaker does not allow himself to be embarrassed by his audience, and so he speaks with greater freedom and enthusiasm."

Its depressing effect on temperature and on the process of nutrition is generally admitted. It has been proved by experiment that alcohol lowers the temperature, and if the man who takes brandy to warm himself has a sensation of warmth, this is but a subjective impression due to the dilation of the blood vessels of the skin. We have only such sensations of warmth as are transmitted by the skin, and in this instance we are the sport of a delusion.

The stimulating action of alcohol upon the heart, which has been thought to admit of no dispute, may be explained in quite another way; and if the heart under certain conditions,

and not always, begins to beat more vigorously under the influence of alcoholic drinks, this results partly from the paralytic dilation of the blood vessels and partly from the momentary irritation of the mucous membrane of the stomach, leading by reflex action to an exaggeration of the heart's action. But in all this there are no real effects of stimulation due to the alcohol itself and conveyed to the nervous system, which controls the action of the heart.

Thus, one after another, the so-called stimulating effects of alcohol upon the organism must be abandoned, these are but the indirect results of local causes, and the alcohol in itself possesses only a narcotic action which is quickly evident and alone remains manifest and indisputable.

There are two classes of effects on which the partisans of the theory that alcohol is a stimulant have been able to count with apparent justice in combating the opinion of Schmiedeberg, who admits only narcotic effects as characteristic of alcoholic drinks. These effects are, first, the exaggeration of the movements of respiration, noticeable after the administration of alcohol, and, second, the muscular power which the use of alcohol seems to furnish.

As to the phenomena of stimulation that alcohol is said to cause in connection with respiration, a recent work of Jacquet seems to settle the question. This author has proved that the stimulating action of alcohol on respiration is due to excitation of nerve centers whose source of irritation is peripheral. By suppressing the direct irritation at the point of application the respiratory centers are no longer stimulated, and the movements of respiration are no longer increased.

There remains finally the stimulating effect of alcohol on muscular work. Is alcohol really advantageous, and does it really develop more kilogrammeters of energy? Does it lessen fatigue, does it make work not only easier but more productive, or is not this, too, a fatal delusion?

This is the question to which I wish to draw particular attention, for it is being much discussed at the present time,

and its positive solution would destroy the main argument of those who maintain that the use of alcohol is a necessity for the working man.

We now find ourselves face to face with a discussion which is not concluded, which, prosecuted in the laboratories for almost a century, treated in many monographs, has led in turn to the admission with Liebig and Bouchardat that alcohol is a respiratory, hydrocarbonate food, then with Gubler and Bintz that it is a conserving agent, one of those extraordinary remedies, almost supernatural, I may say, which, furnishing nothing to be transformed into work, would permit the organism to produce more work; then finally to the admission, with Carpenter, that the effect of alcohol is merely a spur, a means which may be of use, it is true, to produce a momentary effect, but one which, with a rider who considers the health of his charger, will never take the place of the measure of oats.

To which of these opinions shall the preference be given? Has any one of them been experimentally demonstrated? The experience of everyday life has been brought forward to excuse the use of alcohol by the manual laborer, and even to show its necessity, but this is in no sense a rigorously scientific argument. The use of tobacco is universal, yet nobody will maintain that smoking can be considered an act capable of furnishing useful elements in work and even of increasing its product.

In this series of observations it would be easy to collect many proofs which condemn the use of alcohol. In expeditions to warm countries its use is considered injurious.

Says Arnold, quoting Parkes:

"Sir Garnet Wolsey, in his expedition against the Ashanti, found himself better off in all respects by having replaced alcohol by tea among his soldiers. In strength, discipline, and good spirits they were markedly superior to armies which drink alcoholic liquors."

It is the same in cold countries and in temperate regions. Most arctic explorers reject the use of alcohol, which they

consider a temporary stimulant for effects of which they pay too dearly. And we know that mountain guides, balloonists, bicyclists, so numerous nowadays, and athletes in general, recognize the bad effect of alcohol on the muscular energy developed.

But these are the conclusions of a superficial observation and the facts may have been wrongly interpreted on account of the varying circumstances under which these phenomena have been produced.

If we wish to solve the problem in a scientific manner, two ways are open. Either we may employ the methods of biological chemistry, to trace the course of alcohol taken into the system, studying its transformations and the number of calories it can furnish the muscles to be transformed into work; or we may eliminate accessory conditions and investigate the energy developed by a muscle or group of muscles when the organism is under the influence of alcoholic drinks and when it is not.

The first method of research, that based on physiological chemistry, has led to some very interesting discoveries. By this means it has been learned that alcohol is to a great extent oxidized in the organisms, and that its combustion serves, therefore, to produce a certain amount of energy by which our body may profit. But there is no proof that this energy can be transformed into work; on the contrary, it appears that this energy is only expended in the form of heat, and that really all the good which we can find alcohol does is to cause a certain economy in the combustion of other elements.

This is no great advantage, for the slight heat caused by the internal combustion of alcohol, which contains but little carbon and hydrogen compared with real foods, is counterbalanced by the effect of alcohol in lowering the temperature of the body. The dilation of the blood vessels of the skin, the increased radiation from the surface of the body, facts proven by experiments, far more than compensate for the slight gain

in heat which the combustion of a few grams of alcohol can produce in the system.

Nothing whatever in physiological chemistry authorizes us to admit that alcohol has a favorable influence on muscular work. Bunge asserts that the effects felt are only a symptom of brain paralysis, a benumbing of all feeling of weariness.

"It is a common idea," remarks this author, "that alcohol gives strength to the weary, and renders one better able to endure further exertion. The sensation of fatigue is the safety-valve, as it were, of our machine. To stifle the feeling of fatigue in order to be able to work on is like forcibly closing the safety-valve to increase the steam pressure. The belief that alcohol gives strength to the weary is particularly dangerous to working men as a class. We see poor people who can hardly live on their wages spending a large portion of their earnings for wine and brandy, instead of using their money to buy plenty of wholesome food, which alone can give them strength for their hard work."

This is the conclusion of modern physiologists. It is once more a question of prejudice and delusion.

One method of research remains to us: it is the direct study of the work obtained under the influence of alcohol. To aid us in this study, we have at our disposal statistics obtained by means of the dynameter, and the very precise tests made with the ergograph by Moss.

The construction of this apparatus is tolerably well known. A special arrangement prevents the action of any other muscle than those which bend the middle finger of the hand. By means of a small cord passed around a pulley, the finger raises vertically a weight, which in our experiments was about five kilograms; to the cord is attached a needle which records on a dial the height to which the weight has been raised. The different heights recorded, multiplied by five, the number of kilograms and fractions of a kilogram of work produced in each series of experiments.

With this apparatus, Mr. Herman Frey recently investi-

gated the subject of the influence of alcohol on muscular fatigue. Of these researches I shall speak presently at some length. As a result of his experiments, Mr. Frey arrived at some conclusions which were so unexpected that I have thought it would be of interest to repeat them, taking care to preserve the same conditions for my experiments as the Swiss author.

Mr. Frey first investigated the influence of alcohol on a muscle which had performed no work. Following the suggestions of Moss and Maggiora, he had a weight of four or five kilos raised successively every two seconds.

The author then gave the subject of the experiment an alcoholic drink (beer, alcoholized water), and had this followed, after a greater or less interval, by a new series of elevations. He thus obtained a series of results of great interest. Let us take, for example, one of the most typical:

1st series, ...	1.995 kgm.
2d series, ...	1.875 kgm.
3d series (ten min. after giving ten gr. alc. in 90 gr. H_2O), . . .	1.750 kgm.

The conclusion to be drawn from almost all, but not all, the tables is that alcohol has an injurious effect on an unwearied muscle, and manifestly diminishes the quantity of work produced. On the other hand, the sensation of fatigue is lessened by the use of alcohol, and work, consequently, appears easier.

These first conclusions are, of course, interesting, but they will surprise no one. It is quite otherwise when we compare the first part of the work with the second, where the author studies the action of alcohol on a wearied muscle.

The experiments are made in the same way: the subject of the experiment is required to raise a weight of five kilograms by his middle finger. The successive tests are made every two seconds, with interruptions of two or three minutes between each two series. Under these conditions Frey obtained constant results in the case of all persons tested. There is a decrease in the feeling of weariness, and giving alcohol causes an

increment of work not otherwise obtained. Let us now consider, for an example, one of the records obtained by Frey:

1st series . .	1.500	2d series . .	0.575
3d series . .	0.370	4th series . .	0.155
5th series . .	1.700	6th series . .	1.150

It is thus evident, according to Frey, that there is a considerable difference in the effects produced by alcohol on muscular work, whether it acts on a wearied muscle or not. This conclusion was certainly unexpected, and the author felt this, and endeavored, in the last part of his work, to explain the reasons for this difference.

As the result of a new series of experiments, he concludes that alcohol has a double action; first a paralyzing effect on the central nervous system, causing a lessening of the sense of fatigue, and a peripheral action, rendering the muscles less excitable; second, an action due to the supply of new combustible matter which the muscles can use.

On the theory of this double action, all phenomena are readily explained. The first action, paralysis of the nervous system, is shown in the experiments with muscles which were not tired. In the tests with tired muscles this same effect is shown, but less plainly, we must admit, for we observe only that even the greatest elevations are not as high under the influence of alcohol as when the muscle is not submitted to the action of this depressant.

As to the supply of new materials for combustion, it is evident, especially from the results obtained with tired muscles transforming rapidly and effectively the latent force set free, that the gain resulting from the new materials for combustion far outweighs the paralyzing action of the alcohol.

Frey found himself quite naturally led to ask why this second action of alcohol is more plainly manifest when the muscle is tired and is not evident when that is not the case. The introduction of new matter as a result of combustion would seem at first thought to be as advantageous to a rested muscle as to a tired one.

According to Frey, the unwearied muscle is already supplied with the necessary material for producing its maximum of work, and this maximum it cannot surpass even with the addition of new matter. Of this new matter, the muscle has no need and it cannot make use of it.

In spite of the ingenuity of this explanation, and in spite of the records of several experiments made by the Swiss author, we must confess we are not yet positively convinced on this point, and that we have some hesitation in accepting as conclusion these two series of effects due to alcohol, which manifest themselves in turn with greater or less intensity.

We reviewed the question and repeated a long series of experiments of which we now wish to give the results. That which seemed to us most worthy of note is the question of the real existence of a difference in the effect of alcohol when taken in a state of fatigue or otherwise.

It should be stated at the outset that our investigations gave results identical with those of Frey when he studied the effect of alcohol on the tired muscle. The results obtained are always an increment of work.

We then investigated the effect of alcohol on the unwearied muscle. We believed that in doing as Frey did, that is, giving alcohol to the subject during a series of tests, when he had already exercised to the point of exhaustion, we were no longer dealing with an unwearied muscle, even after waiting ten minutes, but with a muscle already fatigued.

What then? We thought that by taking a subject of sober life and habits, always under the same conditions, at the same hour, three in the afternoon, drinking a glass of ordinary beer with his meal, we might, after repeated experiments take a mean of the work produced by this subject, according to the ergograph. The tests that we made in this case give us, for a medical student, M—— W———, age 24, a mean of

10.385 kilograms for the first series of elevations.
7.520 kilograms for the second series of elevations.
5.110 kilograms for the third series of elevations.

It is well to remember that these experiments are made by lifting a weight of five kilograms every second. The interval of rest after each series is two minutes.

If the subject of the experiment takes some alcohol before performing any work, all the other conditions remaining the same, the mean of work obtained changes, and we get the following:

14.315 kilogrammeters for the first series of lifts.
6.530 kilogrammeters for the second series of lifts.
4.325 kilogrammeters for the third series of lifts.

It appears that the first series gives about four kilogrammeters more of work in the second case than that obtained from the first series without the help of alcohol.

In this first series of experiments we come then to a conclusion entirely different from Frey's. We find that alcohol has a favorable effect on muscular work whether the muscle is fatigued or not. We found this effect in all the charts which we made. In trying to determine the reason why Frey came to such a different conclusion in his investigations on the tired muscle, we were able to throw light on a second effect of alcohol, to our mind by far the most important.

It should be noted in the preceding data that the second series gives an immediate result much lower when alcohol is taken; the product is even decidedly below that of the second series, where no alcohol had been taken. Moreover, this second series of trials to lift the weight was made two or three minutes after having taken alcohol, and the question may very properly be asked whether the subject had not at that time begun to feel the retarding and paralyzing effect of the alcohol.

If this be true, it is clear why Frey obtained as the result of alcohol only a paralyzing effect on an unwearied muscle, since in his experiments he took records of and exercised the muscle only after the alcohol had been given ten or twenty minutes.

We have thus sought to consider with the utmost detail the retarding effects of alcohol on muscular work. The subject is

one of profound interest, for it is a question of estimating the real value of alcohol. To recommend or tolerate the use of alcoholic beverages it is not enough to obtain a momentary gain such as is given by an effort; this temporary advantage must not be offset by prolonged exhaustion afterward.

Frey came to the conclusion, from his experiments, that this action is not so very transient, and also that fatigue often occurs following the use of alcohol.

It must be understood at once that our results in this investigation are quite unlike those of Frey.

Thus far, in all the experiments we have made we have observed that the stimulating effects of alcohol is very quickly manifested (one or two minutes after its ingestion), but that it disappears just as quickly (about fifteen minutes after its ingestion).

To define the exact moment when the effects disappear, we undertook a series of experiments, the results of which we will summarize by giving one or two examples.

All our experiments were made at the same hour, as much as possible under the same conditions, in order to get comparable results. Below is given an experiment made upon myself.

On the 31st of October, at 3 o'clock in the afternoon, I made six series of trials to lift a weight of five kilograms every second, with intervals of two minutes' rest after each series. These six tests gave the following results:

1st series,	3.210 kilogrammeters.
2d series,	1.360 kilogrammeters.
3d series,	0.935 kilogrammeters.
4th series,	1.015 kilogrammeters.
5th series,	0.585 kilogrammeters.
6th series,	0.595 kilogrammeters.
Total,	7.700 kilogrammeters.

I then took a rest of thirty minutes, and repeated the six series of tests with the following result:

1st series, 1.440 kilogrammeters.
2d series, 0.655 kilogrammeters.
3d series, 0.590 kilogrammeters.
4th series, 0.385 kilogrammeters.
5th series, 0.490 kilogrammeters.
6th series, 0.475 kilogrammeters.

Total, 4.035 kilogrammeters.

The difference between the two series (3.665) is the result of fatigue. Let us see if alcohol can remedy this feeling of fatigue.

Immediately after this last test, I took ten grams of cognac, 50 per cent. in 90 grams of water, and rested again for thirty minutes. I then obtained the following series:

1st series, 0.540 kilogrammeters.
2d series, 0.325 kilogrammeters.
3d series, 0.225 kilogrammeters.
4th series, 0.235 kilogrammeters.
5th series, 0.215 kilogrammeters.
6th series, 0.100 kilogrammeters.

Total, 1.540 kilogrammeters.

The alcohol had not overcome my fatigue; it had even added a paralyzing effect, such that this time my total work hardly equaled that which I was able to perform in the first series of my first repetition.

This paralyzing effect becomes more evident in the following example:

On the 29th of October, at 3 o'clock in the afternoon, I made a series of tests in raising a weight of five kilograms every second, with intervals of two minutes' rest between the series, until I was completely tired. I obtained the following results:

1st series, 4.770 kilogrammeters.
2d series, 1.755 kilogrammeters.
3d series, 1.620 kilogrammeters.
4th series, 1.110 kilogrammeters.
5th series, 1.320 kilogrammeters.
6th series, 1.145 kilogrammeters.
7th series, 1.090 kilogrammeters.

8th series, 0.815 kilogrammeters.
9th series, 1.020 kilogrammeters.
10th series, 0.485 kilogrammeters.

Total, 15.131 kilogrammeters.

Immediately afterward I took 10 grams of cognac in 90 grams of water and rested thirty minutes. I then undertook another series of tests, but could scarcely move the apparatus. The product of my work was ridiculously small. I took ten more grams of cognac, and not till then was my work appreciable. I recorded 0.455 kilogrammeters and stopped, exhausted.

From these experiments we see how intense is the final paralyzing effect of alcohol, and what bad policy it is, from a practical point of view, as regards the final product of work, to take alcoholic drinks with the vain hope of dispelling fatigue.

In the following experiment I sought to find out if the result would be the same when alcohol was taken during the progress of the work.

On the 7th of November, 1896, at 3 o'clock in the afternoon, I made thirteen series of tests in lifting a weight of five kilograms, under the same conditions as the preceding. I took 10 grams of alcohol (90 per cent.) in 90 grams of water before the sixth and the tenth series. These series gave me the following results:

1st series, 5.415 kilogrammeters. 2d series, 1.760 kilogrammeters.
3d series, 2.110 kilogrammeters. 4th series, 0.940 kilogrammeters.
5th series, 0 890 kilogrammeters. 6th series, 1.185 kilogrammeters.
7th series, 2.015 kilogrammeters. 8th series, 1.630 kilogrammeters.
9th series, 1.460 kilogrammeters. 10th series, 1.460 kilogrammeters.
11th series, 1.500 kilogrammeters. 12th series, 1.620 kilogrammeters.
13th series, 1.225 kilogrammeters.

I rested twenty minutes and could only produce in the

1st series, 0.225 kilogrammeters.
2d series, 0.170 kilogrammeters.
3d series, 0.160 kilogrammeters.

after which I stopped, exhausted.

Whatever be the time at which alcohol is given, we see that after a momentary increase in the work product there is a profound drop in the scale. All my experiments agreed in this respect, and in certain cases, especially those of temperate persons, the paralyzing effect of alcohol was complete. In the case of a young physician, Dr. ———, whose muscular force was considerable, and who registered about eight kilogrammeters in a previous series of tests, he appeared half an hour after taking 10 grams of alcohol entirely without muscular power, to his own great mortification.

The precise moment when the paralyzing effect of alcohol becomes manifest varies slightly with the subject, but it is noticeable in the majority of cases in ten minutes after the alcohol has been given. This effect becomes more and more marked till the maximum is reached, usually twenty or thirty minutes after the alcohol has been taken.

The question may be asked whether this paralyzing effect, appearing as it does somewhat late, may not be overbalanced by the useful effect obtained at first, since under its influence we obtained a larger work product, from a wearied as well as from an unwearied muscle. Do these two effects exactly balance? Is there or is there not a benefit to the final work product resulting from the use of a little alcohol?

In answering this question the experiment below seems to me to point some interesting conclusions.

Dr. P., aged 28, whose power of work we already knew from various tests, made the following series of trials on the 6th of January.

1st series, 3.600 kilogrammeters.
2d series, 2.720 kilogrammeters.
3d series, 2.315 kilogrammeters.
4th series, 2.160 kilogrammeters.
5th series, 1.790 kilogrammeters.
6th series, 1.690 kilogrammeters.

Total, 14.075 kilogrammeters.

He paused and rested for half an hour, and then produced the following showing:

1st series, 2.520 kilogrammeters.
2d series, 1.370 kilogrammeters.
3d series, 1.450 kilogrammeters.
4th series, 1.055 kilogrammeters.
5th series, 0.910 kilogrammeters.
6th series, 0.950 kilogrammeters.

Total, 8.255 kilogrammeters.

The total result obtained is 22.330 kilogrammeters, a result quite similar to those previously obtained.

The same experiment was made the next day under exactly the same conditions, the only difference being that in the latter case Dr. P. took 20 grams of alcohol immediately before commencing. The first series of tests in raising the weight was much more productive; the work product being a kilogrammeter more (0.930), but immediately afterwards, from 4.530 kilogrammeters, the product drops to

1.550 kilogrammeters. 0.995 kilogrammeters.
0.920 kilogrammeters. 0.750 kilogrammeters.
0.970 kilogrammeters.

Making a total of 10.765 kilogrammeters.

Under the influence of alcohol we obtain then, in spite of this splendid beginning, 3.310 kilogrammeters less.

If, after a period of 30 minutes' rest, the work is resumed, results are obtained thus:

1st series, 1.700 kilogrammeters.
2d series, 0.760 kilogrammeters.
3d series, 0.725 kilogrammeters.
4th series, 0.660 kilogrammeters.
5th series, 0.635 kilogrammeters.
6th series, 0.650 kilogrammeters.

Total, 5.170 kilogrammeters.

Which represents a diminution of 3.085 kilogrammeters in the product as compared to the work produced without alcohol.

To summarize:

Without the effect of alcohol, the product is 22.330.
With the effect of alcohol, the product is 15.935.
Loss, ... 6.395

The inevitable conclusion of all this is: alcohol is a deceptive means of dulling the sense of fatigue; but its action is temporary and in the end injurious, the paralyzing effects upon the nervous system increasing rapidly and with such force that any momentary good effect can not counterbalance them.

We thought it of interest to compare with the action of alcohol that of kola, coffee, and tea, the stimulating effect of which upon the nervous system is due chiefly to the presence of caffeine, and in recent years have often been made use of. A large number of hygienists recommend their use, and there is a general tendency among total abstainers to seek to replace alcoholic drinks by tea and coffee. From our special point of view has caffeine a good or bad influence on muscular work?

This is the last question to which I wish to draw your attention.

If, in the midst of some work, we take some citrate of caffeine, we get a stimulating effect much less marked than from alcohol, but this effect is much more prolonged, and no such rapid exhaustion of muscle occurs.

Thus, in the experiments which have been noted, we raised at the

1st trial, 3.020 kilogrammeters.
2d trial, 2.160 kilogrammeters.
3d trial, 1.920 kilogrammeters.

I took 20 centigrams of caffeine, and I obtained:

At the 4th trial, 1.785 kilogrammeters.
At the 5th trial, 1.485 kilogrammeters.
At the 6th trial, 0.970 kilogrammeters.
At the 7th trial, 1.120 kilogrammeters.
At the 8th trial, 0.850 kilogrammeters.
At the 9th trial, 1.015 kilogrammeters.
At the 10th trial, 0.980 kilogrammeters.

Mean total, 15.205 kilogrammeters.

Let us compare the result thus obtained with the mean total, 14 or 15 kilogrammeters obtained from 10 consecutive tests, in another series, and note the very slight gain. If I then rest half an hour, to give an opportunity for the manifestation of depressing effects if they exist, as in the case of alcohol, I succeed in recording:

For the 1st series, 1.875 kilogrammeters.
For the 2d series, 1.055 kilogrammeters.
For the 3d series, 0.955 kilogrammeters.

Which may be the result of fatigue, but is plainly not to be compared to the results obtained when I took alcohol and waited the necessary time for the appearance of paralyzing effects.

Conclusions. According to these experiments it seems to us evident that:

1. Alcohol has a favorable effect on the work product, whether the muscle is weary or not.

2. This favorable effect appears almost immediately, but is very transitory.

3. Immediately afterward alcohol has a very decided paralyzing effect. About half an hour after taking alcohol, the muscular power reaches a maximum that subsequent doses increase with difficulty.

4. The subsequent paralyzing effect of alcohol outweighs the momentary stimulation, and the total work product obtained with the use of alcohol is less than that obtained without it.

5. Paralyzing effects are not observed to follow the use of tea, coffee, and kola.

The conclusions from these experiments offer one more justification from the realm of science, for the struggle against alcoholism, for the highest welfare of society.

MORAL INSANITY IN INEBRIETY.

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The term "moral insanity" is applied to a class of symptoms about which much difference of opinion exists. Formerly this was a veritable battle-ground between metaphysicians and alienists, but latterly this has subsided, and the questions now in dispute are differentiations and exact meanings of terms. I shall limit my study of the subject to certain well-marked symptoms which, taken alone or associated with other symptoms, appear to have the same significance. Moral insanity is marked by a low sense of right and wrong, and by conduct which does not recognize the rights of others, or duty and obligation to any one. The ethical sense and consciousness of the relation to others, of truthfulness, of honesty, of respect for the good and true, for law, or for the opinions of others, is enfeebled or wanting altogether. Such cases may not exhibit marked intellectual weakness and may appear to have average judgment and discrimination in the conduct of affairs; yet have no moral sense of obligation to do right and to be truthful and honest to others. Such men are intriguing, deceitful, dishonest, taking advantage of every opportunity to gratify their most selfish desires irrespective of all consequences to others. The higher levels of cerebral development, which are the altruistic sentiments, the capacity to recognize and adjust conduct to the general good of all, are wanting. What is called character motive, purpose in life, or the morale of the man, his relations to others, are all the last-formed elements of brain growth. Insanity, which is confined to these psychic centers, is well established. Without doubt other

parts of the brain are affected, but they do not appear, except from a careful study. I think it also well established that sudden changes of character are always due to changes in the organic activities of the brain centers. It is asserted, and defended with many good reasons, that consciousness is an element of the brain which recognizes the higher relations of right and wrong, of duty, and all the higher psychic claims of justice and truthfulness and the relation to our fellow-man. The higher this development the stronger the man, and its absence or feebleness approaches imbecility. The general term " character and morale " describes this best. A veritable insanity in which this part of the brain was the most seriously affected has been described over a century ago. All the authorities recognize it, but attach widely differing importance to its meaning.

Cases like the following are not uncommon, and probably illustrate this condition more clearly than by theories: A. B., a physician of average ability, culture, and good character, with an excellent reputation for honesty and sobriety, began gradually to be untruthful, intriguing, and dishonest. He made out double bills and denied payment even when his signature on receipts was shown. He exaggerated his business, drove his children away from home, was cruel to his wife, and tyrannical to every one under his care. This increased and was not associated with any apparent intellectual changes. He was not passionate or emotional, but cool, and gave no explanation for his conduct. He became involved in forgery and assault, and died before the trial from some heart failure. This was moral insanity in which the physical basis was not recognized.

In inebriety these symptoms of moral defects and insanity are common, no matter what the conditions and standing of the person may be. It seems to follow the poisoning from alcohol inevitably, and in some cases very markedly. Two classes appear very prominently, one with heredity and the other apparently acquired. Wherever there is a marked

history of heredity, of alcoholic parents, or of neurotic degenerate ancestors, a feeble or deficient consciousness of right and wrong is found. Alcohol used continuously retards growth, diminishes vitality, and prevents development. Drinking parents have deficient vitality and are unable to transmit to the next generation full normal vigor. The last and highest formed element of brain power — consciousness —is the first to suffer from alcohol. Hence drinking parents cannot have children with full normal consciousness. This faculty will be wanting or very feebly developed. This is the rule to which the exceptions are rare. This defect may be associated with much intelligence and intellectual capacity and power to cover it up.

A man prominent in the political world is in private life devoid of all sense of justice, of right, and wrong, and duty to others. He is untruthful and dishonest, and, when his own interests are in conflict, will sacrifice any person or principle to gain his ends. He is of unsound intellect, yet able to pose behind a mask of honesty often acting honestly and talking of duty, but always from the most selfish motives. He is married, has a position in society, but keeps mistresses, and is open to every suggestion that promises his personal and selfish gratification. His parents were wine-dealers and drinkers, both of them waiting on customers over the bar. Only one child grew to manhood, and entered politics as a trade. He is temperate, but a moral paralytic, or a moral maniac with capacity to conceal this condition. A man who became one of the great swindlers and forgers of the day, but who was able to keep out of prison by intrigue and cunning, came from drinking parentage. To his associates he is known as without any sense of duty and obligation to any one and is a literal Bedouin.

That these conditions are due to inheritance is apparent from the following: A boy with excessive drinking parents was taken in infancy and educated in the most careful way.

All the higher faculties were cultivated to an unusual degree, and he entered the church as a brilliant clergyman. He was found to be untruthful in regard to himself, suspicious of others in matters of personal reputation, and grasping even up to the border of theft on many matters. The collections in the church had to be kept out of sight and always suffered if they passed through his hands. He became involved in spreading scandal, and seemed oblivious of the danger of such conduct, and broke up the church by his irregularities. For ten years, until his death, he was in continual trouble with every church he was associated with. Here the evidence was clear that he had inherited defective consciousness, which no training or surroundings could overcome.

In cases where inebriety has been acquired by accident, contagion, surroundings, and conditions of living, these moral insanities vary widely and are not so general, but are confined to particular things. In one case excessive untruthfulness and dishonesty in all business relations was associated with sympathetic tenderness to all his associates. In another, intense suspicion and doubt of the honesty of others was associated with excessive desire to be truthful. Another was excessively immoral, seeking opportunities for sexual intercourse at all times, was hysterically religious and anxious for the conversion of the world. Another was intriguing, secretive, treacherous, and uncertain in his talk and conduct, and yet lived a moral, upright life. These are almost infinite in variety and manifestation, and all show profound changes in the moral faculties. The more common forms are illustreated in this case: A. B., a business man of good reputation and standing in the community, began to drink after a protracted illness from typhoid fever. Two years later he was an inebriate. His mind continued bright and clear, but his character changed. He was deceitful, suspicious, and slanderous. He thought his sons and clerks were robbing him, and that his wife was in league with them. He had his books examined by an expert and was in doubt when they were

found correct. He told falsehoods about his business and family, and grew more and more egotistical about his mental capacity to reason and decide on all matters. He was harsh and tyrannical to his wife at times, lost all pride of character in the community and sense of duty to others. He was exacting to have anything done for his own interests, and oblivious of others and their feelings and tastes. As a patient, he was intensely selfish and grasping, even up to theft; was fawning and obsequious, promising everything and doing the opposite. He imagined evil of every one and told malicious stories without any foundation, then denied them. He was always reporting others as doing wrong, and supposed every one to have only the basest motives. He stopped drinking, but thought all others drank and concealed it. This man left the asylum and is yet sober after some years, but is morally insane.

In a general summary of the common symptoms following the use of alcohol, untruthfulness, or a low respect for their word, is most prominent. A man who previously took pride in the correctness of his promises and statements, will become indifferent, promise anything, make any statements, whether true or false. A man previously honest and trustworthy will be found doing dishonest things, cheating persons, taking advantage in little matters, and failing to act fairly in the interest of others. Then follows suspicion of motives and conduct, doubting the honesty and purity of persons. This deepens into delusions of intrigue and deception of others, extreme pessimism and doubt of everything, or a state of mind which may be called "combative erythesiasm" follows, in which the distress of others is pleasing. This is manifest in malicious criticism and scandal, pointing out faults and magnifying them, apparently enjoying the knowledge of the dishonesty and malice of others and the irritation which follows from the publicity which they give to it. Sexual conduct is without restraint; the ties of family and duty become less and less; intense personal selfishness to gratify every impulse at all expense follows. The taste for gambling and speculation

becomes a morbid impulse, often to retrieve their waning fortunes. Recklessness in the use of money, throwing it away without motive or purpose; or extreme parsimony to hoard it, and grasping selfishness, equally unseasonable, are common. As in other insanities, exaltation of the *ego* follows, and intense confidence in themselves and their power of reasoning and ability to do anything possible is present.

Many persons who exhibit all these symptoms appear to be but little changed in other respects. They carry on business, seemingly make plans and execute them, and appear to casual observers the same. These insanities seem to concentrate into particular lines or ranges of thought. Consciousness of truthfulness may be almost entirely absent, and in other respects appear the same. Moral recognition of the higher truths of faith and trust are gone, yet he may act sensibly and be a church member. In one case an inebriate lawyer doubted the honesty of every one and thought no one was pure or had good motives, and yet he acted on what seemed the opposite. It was surroundings alone that held him; the restraints of society covered up an insanity which only needed a favorable opportunity to break out. In another case, a teacher who had drank many years became a secret thief, purloining everything which he fancied, and when likely to be detected restoring it in some mysterious way. He appeared and talked honestly, and yet when not observed took advantage of every opportunity to appropriate anything that came in his way. A number of cases of inebriates have been reported where this kleptomaniac impulse took on certain peculiar forms. Thus one man when drinking stole Bibles, another jewelry, and when discovered gave it up freely. One man stole washtubs. A woman inebriate always took aprons and towels; another man stole soap, and so on. The most unusual and unreasonable things were taken, concealed, and given up freely without any sense of the nature of the acts. One class of inebriates exhibit this insanity in malicious slander, another in extreme suspicion, another in vindictiveness to resent real or

imaginary evils, another in immorality and impurity of act and thought. Many of the chronic cases exhibit all these phases in one. The oft-repeated expression that "inebriety is criminality" is true in a general sense, when criminality is understood as a course of conduct in which duty, right, and obligation to each other are ignored. The inebriate has physically defective senses; he is not able to adjust himself to the outside world correctly, because his knowledge of their relations is imperfect. His power of reasoning is also deranged, because the impressions from without are faulty and the integrity of the normal action of the nervous system is impaired. The coarser lesions are well recognized and can be traced in all cases. Beyond this, conduct indicates the higher moral defects and changes. Psychical changes, as loss of pride, of character, of honor, respect for the truth, of duty to others, low motives or no motives, extreme pessimism, are the first and common changes which lead up to criminal acts. The paralyzing action of alcohol is first seen on the moral brain of consciousness; in the dullness and defective workings of the higher functional activities. The changes observed when a man is under the influence of spirits, is vaguely called the removal of the restraint of reason, and dominance of the animal impulses — the brute triumphing over the real man. In reality it is palsy of the consciousness, a cutting off of some part of the higher brain, and consequent confusion of the lower brain and its workings. Impressions and their meaning are confused and obscure; the higher relation of events and conditions of life are unrecognized. It is asserted that three per cent. of all persons born are without normal consciousness of right and wrong and their relations to others. They have retarded brain development. The part of the brain which constitutes the moral control or consciousness of the higher duties is wanting or undeveloped. Such persons are defectives, and insane in the general meaning of that word, and, like dements, are incapable of normal healthy adjustment to the relations of life. When an apparently normal

state of this brain function has existed and then a great abnormality follows in thought, word, and conduct, disease is present. Comparison of the conduct and character of inebriates before alcohol is used and after they become habitués, brings out some startling facts that are unrecognized.

From the lowest type of a demented inebriate on one side to the moderate drinker at meals and the fashionable clubman, there is a distinct relation and chain of cause and effect. The clear moral insanity of the one is traceable to the other without any sharp dividing lines. The moderate drinker and clubman who proves to be the defaulter, or who is involved in conduct that is criminal, or who becomes a principal in crime, is suffering from disease differing only in degree from the degenerate inebriate tramp. Moral insanity is a very prominent phase of all inebriety. Its absence in any given case is always an exception to the rule. A man with a high moral development after he becomes an inebriate may retain the form and externals of his previous character. He may be more emphatic in his display of some qualities, such as religion, truthfulness, and duty, and yet in other matters be oblivious of all obligation and duty. One such man, who prayed for inebriates and lectured on temperance, carried on an intrigue and sold his influence to the highest bidder. Another man acted as an agent for the sale of stolen goods, and at the same time carried on a great reform revival; and another was engaged in gold mine swindles, while lecturing every night for temperance. The moral insanity was called hypocrisy, and, in a legal phrase was malicious, criminal, and vicious. In reality it was degeneration and disease, the breaking down of one part of the brain while the others remained apparently clear. In our Civil War a noted general was drunk to excess at times; previously he was noted for his hearty frankness and honesty, but was found unreliable, intriguing, and failed when needed most. He showed petty weaknesses and untruthfulness, with malice that was unknown before in his character. He finally died a moral

wreck after the war was over, having become almost criminal in his thoughts and acts. A clergyman became a secret inebriate and later became involved in a low intrigue and was turned out of the pulpit. He was insane, his consciousness became palsied, and for a time he taught ethical truth automatically. The possibility of one part of the brain being affected and the rest doing normal work, and this condition being concealed, is a reality which every experience confirms. The very close relation of one part of the brain with the other makes it impossible for health and disease to exist together, and yet moral insanity may be present and be concealed from general observation. A study of conduct will reveal it and a comparison with previous conduct will show its growth and development. The inebriate who has lost pride of character and sense of duty and obligation, truthfulness and honor, may seem to be the same in many ways for a long time, but sooner or later this moral diseased condition will spread and his whole organism show degeneration. I shall conclude this brief study with the records of two cases which have occupied public attention and been the topic of bitter discussion.

Case 1. John Blank. Father was a strolling actor of irregular character and an inebriate. He married a woman of average ability from a good family. The father died before John was born, and two years later his mother married again. John was brought up with great care and tenderness. His later education was of the best character. He was a leader of his class as a scholar and an athlete. To his mother and intimates he displayed an intense selfishness, putting his interests and desires above all others, and had no consideration of the pain and distress of others. He was cruel in his conduct to any one who was in his way to the achievement of any purpose or desire. He finally became a lawyer and was thoroughly unscrupulous in money matters, although not miserly or avaricious. As a politician he was without honor or pride of character and would stoop to anything to accomplish his purpose. He married a rich woman and soon after swindled his father-in-law and possessed himself of a large property. Then he drank and began to live a fast life, had

a mistress, attended horse races. Wherever he went he swindled and falsified and was feared by every one who had any dealings with him. He went into stock gambling and was swindled and swindled others. To his wife and children he was cruel and violent in his conduct. After a period of excessive use of spirits, he killed his wife and made no effort to conceal it, or run away. On the trial his schemes for deception and fraud were revealed, to the astonishment of every one. Truthfulness, honor, duty, and all the qualities which go to make character were absent. He was convicted, but the sentence was commuted to a life imprisonment. In this case moral idiocy was inherited. The higher part of the brain was undeveloped and beyond the reach of culture and education. Without culture he would have early sunk to a low tramp criminal and burglar, and been a pauper degenerate, dying early. With culture he became a higher grade of criminal, and yet he was unable to appreciate ethical truth or moral relations. He was insane from birth; alcohol intensified and developed this condition. The insanity was of the higher ethical brain, and concealed except to those who knew him intimately.

Case 2. The second case came from a good family and was normal in all his relations to others. Was truthful, honest, and seemed generous and very kind. After a severe attack of typhoid fever, in which he was given large quantities of spirits, he began to use alcohol daily. His father died and left him in charge of a large business interest. His character changed. His regard for his word was lost. He was suspicious of his mother and brothers, and took money out of the business and concealed it. He left his home for a hotel, and, when drinking excessively, wrote violent scandalous letters to his family and employes. He associated with low women, but treated them harshly, refused to give them money, and was constantly in trouble. No public exposure disturbed him. He was frequently in court for petty swindles and refused to pay unless forced to. His business declined and was finally taken out of his hands, and he became a low blackmailer and beggar, drinking at all times and places. He was examined for lunacy and decided to be sane. No symptoms of insanity were found, nothing but willfulness and vicious cunning, was the opinion of Philadelphia experts. Finally, he was convicted as an acces-

sory to murder and incendiarism, and sent to prison for life. This was clearly moral insanity acquired. His family and early history showed no trace of defective consciousness or moral weakness. His parents were temperate, moral people, church members, above all suspicion. In his early life he attended church and Sunday-school, and was a lovable, attractive character. He began his business career with his father, and seemed in every way most honorable and honest. He displayed excellent judgment and was intrusted with large business interests which he faithfully executed. During the illness from typhoid fever his father died, and on his recovery he was put in charge of the business. A total change of character which followed his recovery might have been due to the spirits given, or the injury of some local center from the fever. At all events, the use of alcohol intensified and fixed this condition. In both of these a great deal of mental vigor and superficial sanity was associated with this low moral brain force. The experts could find no impairment of his reasoning and memory, and concluded his conduct was simply vicious.

In the first case immoralities and dishonesties of conduct were judged from the same point of view. To these experts, failures to observe the relations of right and wrong, duty and obligation, had no physical basis, and were mere psychic temporary lapses. The use of alcohol was accountable for this, and as this could be stopped any moment, it was a condition which the person could control at will. Fortunately, such views are but the survival of theories of long ago. The central point I wish to emphasize is that moral insanity follows all use of alcohol, and is present in all inebriates to a greater or less degree. This condition is inherited and acquired, and exists to a far greater extent than would be supposed. There are many excellent men who use spirits, not to a great excess, who are sufferers from disease. The constant beer and spirit drinker will be found to present the most numerous examples. This field of study will furnish defects and degenerations, which follow the same uniform laws as other more apparent lesions.

Abstracts and Reviews.

DIPSOMANIA.

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While the term dipsomania may be properly applied to the irresistible craving for any one of a long list of drugs, its use will be confined to its most common meaning, namely, periodic alcoholic inebriety.

Although the moralist and theologian may assert that inebriety is nothing more than a phase of moral depravity, either inherent or acquired, as a result of willful neglect and gratification of the passions, and while the jurist holding ideas the outcome of the moral theory, assumes that it is a disposition to lawlessness and self-indulgence regardless of order and society, the physician must affirm dipsomania to be a physical condition, the tendency to which is, beyond question, often inherited, but may be acquired; that it is not alone a disease, but in many cases a modified or pronounced form of insanity and a degeneration of the brain with the same distinct causes, development, and progress as have other diseases.

The morbid impulse to obtain spirits at all hazards, recurring again and again in a strange cycle-like movement, apparently uninfluenced by circumstances or conditions, is a feature common to all well-defined cases, although individual traits and peculiarities of conduct are developed.

In a certain small proportion of cases, in which the predisposition by heredity is strongly marked, the first indulgence in alcohol may be carried to excess, and a true dipsomania

rapidly develop. As a rule, however, there is a variable period of social drinking when in the company of boon companions, until, under the influence of some violent emotion or upon some unusual occasion, moderation gives way to a debauch. Then a protesting nervous system and a rebellious stomach proclaim in no uncertain language the outrage done, and then follows a short period of complete abstinence.

Moderation becomes more and more difficult, and, as the period of self-restraint is shortened, the interval of sobriety is correspondingly decreased. The apparently normal condition following these drink-storms varies in different subjects from a few weeks to several months, and in rare cases, even years. Almost unconsciously at first, an irritability of the nervous system becomes manifest; uncalled-for fears fill the mind; excitement or depression, unusual and unaccountable, may be exhibited, while intense suspicions, or even delusions, are not infrequent. Anorexia and insomnia add to the already miserable person's state, until, tortured in mind and body by his unseen foe, and knowing that alcohol alone will give prompt and complete relief, some slight exciting cause, such as the sight or odor of spirits, or the nearness of some former drinking resort, conquers his feeble will, and he takes what he often believes will be a single drink; but in so doing, the fuse is lighted and the drink explosion follows.

As before stated, individual characteristics are developed. Even those who were formerly social drinkers may be secretive and guard their condition from their friends most carefully. Some are solitary midnight drinkers, and seek some unusual or obscure resort; others confine themselves to their rooms, supplying themselves, if need be, with spirits at night. In many cases, where a long experience has proved the weakness of the will, plans are formed for the approaching debauch, as complete in detail as those of a great general outlining a campaign. Even those remedies that have been found most effectual in alleviating the after symptoms, will be purchased, sometimes weeks in advance. Men of wealth will purposely

have business interests in distant cities, that they may have a plausible excuse to leave their homes when the period of inebriety is upon them. It is such cases, in which the paroxysms are anticipated and every facility for procuring spirits increased, that lead the non-expert observer to the conclusion that it is nothing more than a deliberate vice.

During the debauch, the amount of alcohol consumed without producing marked symptoms of intoxication is often extraordinary, while food is taken in small quantities, if at all. Acute alcoholism may result, but in many cases, the period of craving ends abruptly, the condition of the nervous system that calls for spirits seemingly having been satisfied. More often, the debauch is limited only by the inability of the stomach to retain either food or drink. Should this condition result before full satisfaction has been obtained, so irresistible is the terrible desire, that drink after drink will be taken, even though almost instantly rejected.

During the period of recovery from a debauch, the dipsomaniac conscientiously avows his firm intention to ever after lead a life of model abstinence. His former fondness for liquor is succeeded by aversion and disgust, while his suffering is so acute and so difficult to bear, that he resorts to the moderate use of any remedy that promises relief.

During the last century, when total abstinence was rare, and men vied with each other in their ability to keep awake while drinking spirits, cases of true dipsomania were comparatively rare, and drunkenness was not marked by the delirium and frenzy so frequently seen in modern times. Doubtless, the more simple lives led by our ancestors, and the purer forms of spirits used by them, will account, in a measure, for the less harmful effects.

Though moral theories still invest the realm of causation in all forms of inebriety, the recent accumulation of scientific facts, relating especially to the periodic type, confirms the opinions held by close observers for more than a century, that alcohol may produce a form of brain and nerve degeneration

resulting in what might be termed a moral anesthesia, and rendering the drink-impulse stronger than any healthy mental faculty or power.

In dipsomania there is a variation in type, as well as conduct, of the nerve-centers and cells. The result of this variation is an automatism requiring a periodic poisoning by alcohol. The alcoholized cells acquire a habit or rhythm which dominates the individual as completely and powerfully as does instinct a migratory bird, which, though tamed, housed, and fed bountifully, will, at the appointed season, migrate if it can, not from necessity of climate, but because of the inherited function of the nerve-cells.

It is not within the limits of this paper to discuss the numerous theories regarding the pathology of this disease. It is needless to say, that all are more or less speculative; while the general pathologic changes resulting from alcohol are too well known to demand consideration. The causes predisposing to this condition, however, are better known. The grouping of the histories of a large number of cases shows hereditary degenerations, transmitted either from intemperate, insane, epileptic, or hysteric ancestors, to be found in fully three-fourths of all cases. Defective nutrition during the period of growth, injuries to the brain, shocks, sunstroke, diseases attended with delirium or a neurotic diathesis also act as exciting causes. Those suffering from mental strain are especially prone to seek relief by indulgence in spirits.

All authorities agree that the number of dipsomaniacs among the great army of the intemperate is increasing at an alarming rate. That the medical profession in the past has failed to scientificially study and treat this disease, can only be explained on the ground that it has not been entirely free from the superstition of moral responsibility. At the present time, however, there exist in nearly all countries societies devoted to the study and cure of inebriates, that have already done much toward solving the many complex questions of a legal, as well as of a medical nature, that present themselves.

In the treatment of inebriety, as in all other new fields in medicine, while scientific physicians are diligently seeking after the truth, a small army of charlatans has appeared, each offering a means or a drug which is claimed to be superior to all others. Adopting the usual tactics of their class, by posing as public benefactors, claiming persecution by a conservative profession and appealing for sympathy to a liberal-minded public, they have not failed in their object — the reaping of a rich pecuniary harvest. One of these has led all others in prominence and magnitude of operations, proclaiming as a specific an agent used as a fetish by empirics since the days of Pliny. It must be admitted that a certain number of inebriates have been restored by each of these methods; almost without exception, however, they have been moderate or social drinkers, the result of unfavorable environment.

The removal of the exciting cause, the psychologic effect of a secret, and what they believe to be a potent, remedy, and the payment of a liberal fee, account fully for the limited success of these means. The great majority of inebriates, and practically all dipsomaniacs, not only relapse under such treatment, but are rendered more incurable and degenerate as a result of the failure. It must be admitted that the treatment of these cases by the family physician has been anything but satisfactory. He has added his warnings and appeals to those of the family, but all in vain; he has secretly administered remedies to cause nausea, hoping to produce a disgust for spirits, or has given narcotics to check the morbid impulse or to relieve the effects of a debauch, which has too often ended in drug-habits. The salts of strychnin, atropin, and potassium, gentian, and numerous other drugs, have been used, but it is doubtful if the physical action of any remedy, unless administered under the most favorable conditions, has any permanent beneficial effect. Intimidation by punishment renders recovery more and more improbable, and eventually destroys the victim. Statistics of station-houses and jails show that more than ninety-five per cent. of periodic

inebriates, punished for the first time by imprisonment, are arrested for the offense continually through life—their judges holding much the same opinion as did Lord Coke nearly three centuries ago, who declared — "A drunkard who is *voluntarius demon* hath no privilege thereby; but what hurt or ill soever he doeth, his drunkenness doth aggravate it."

The dipsomaniac is literally a madman, who is often a criminal, and is always dangerous to society; yet he is allowed to persist in destroying himself on the ground of personal liberty, while the law places restrictions upon those suffering from less dangerous types of insanity. It is true that if he commits acts of violence in public, he temporarily forfeits his liberty to the State; but in countless homes, these same acts are committed from day to day, while the law provides no means of escape for his helpless victims.

Many important questions of a medicolegal nature involving the rights of these degenerates must be solved; such as their marriage under the common delusion that the love and sympathy of the wife will bring about a reform, or the legality of business contracts made during the drink-storm, the whole period of which may afterwards be a perfect blank, although the ability to reason logically may have been apparently normal. The medical profession should recognize the great field for practical work to be done in the way of legal reforms, giving proper protection both to and against these unfortunates, as well as in affecting their cure.

Almost every inebriate appeals for relief, first, to his family physician, whose knowledge of the environment and psychologic conditions influencing his patient's life should enable him to make use of the general therapeutic principles, available and practical, with a greater certainty of a favorable result than could any other. Much can be accomplished in the earlier stages of the disease by the careful study of each case. The exciting cause must be determined, and, as far as possible, removed; while every means should be used to keep the general health to a high standard. When these means

fail and the case becomes chronic, confinement in special hospitals for a period of months or years is the only method that promises permanent restoration.

Dr. Crothers, editor of the QUARTERLY JOURNAL OF INEBRIETY, and one of the highest authorities on the subject, advocates asylums conducted on a military industrial system, under the control of the state, and made self-supporting as far as possible; any deficiency to be met by a direct tax upon the liquor-traffic. Quarantined in these asylums, and living a life of military exactness under the care of physicians making use of every hygienic, physical, and mental remedy known, the dipsomaniac is offered the best, and often the only possible means of becoming a temperate and useful member of society.

In the discussion, Dr. L. B. Tuckerman said, there is one fact which it seems to me the general profession has not yet got hold of. The race that has lived long enough in this climate to become thoroughly acclimated, the Indian race, is dipsomaniac, every man, woman, and child. And as families live longer in the climate, and I speak of that matter from somewhat of experience, because my family has been here for 250 years and over; as families live long enough in this climate to get the full effect of the climate, there comes a time in each family when the dividing line is drawn between the dipsomaniac and the sober. One branch of the family remains liquor-using, the dipsomaniac dies out; the other branch of the family becomes totally abstinent and survives. About thirty years ago the German physiologic chemists noted that the ingestion of alcohol regularly between meals changed the regular daily secretion of urea to a critical secretion, the daily amount secreted falling to a minimum, then suddenly rising to a maximum and then declining again, but the total excretion fell considerably below the average normal secretion. The alcohol, then, produces a chronic uremic toxemia by its intoxicating effect on the epithelium of the kidney. In 1840 Laycock called attention to hysteric cases in which there was paroxysmal ischuria, and such cases have been reported, with

at times a vicarious excretion of urea, by intestine, by the stomach, by the skin, and even the nose.

I believe cases of dipsomania have a certain similarity to such hysteric paroxysms. The first symptom of an oncoming attack of dipsomania comes by way of defective excretion of urinary solids. That goes on until there come uremic intoxication, and then comes the craving for liquor, which gives a temporary relief, while it aggravates the condition. The man drinks, and drinks, and keeps on drinking until he vomits continuously, because the stomach refuses to do anything but secrete, and then he has to stop drinking by virtue of necessity.

The successful treatment of delirium tremens, of inebriety, by men like Crothers and others, is directly along the line of promoting elimination by the kidneys and intestines and skin as rapidly as possible. Those men who are making a study of this question are paying less attention to drugs and more to the excretions. They put the patient into a hot bath. They fill him up with hot water. They give him pilocarpin, strophanthus, calomel, and salines. They bring elimination up to the highest possible point, and just as soon as the elimination is complete, as soon as the kidneys and intestines have become active again, this restlessness goes and sleep comes. The moment you get free elimination sleep will come without any drugs whatever. Bleeding sometimes does good in these cases. Lately I have used a twentieth of a grain of strychnin every three hours, and five minims of the tincture of strophanthus with 10 minims of the tincture of capsicum in a pint of hot water every hour. A druggist down town had a friend who was a dipsomaniac, and he was taking "eucrasy" (which is fluid extract of lupulin and fluid extract of capsicum, equal parts. I think there is a little atropin with the first bottle). The druggist asked him if it stopped the craving, and he said: "How can a fellow crave anything with his stomach full of hell-fire." There is this advantage in the use of capsicum. Hare has shown that in these conditions a drug which

"scratches" the stomach, as one gentleman suggested, will promote the absorption of other drugs. See also that the bowels move. I have quit using bromids as a routine practice, because I have found that if you get free elimination sleep will take care of itself. If we can teach these men to have this disease treated just as they do a paroxysmal headache, just as they do an oncoming attack of ague or rheumatism, you can get them to go a good deal longer between attacks, and you will get them as near cured as they ever can be.

Dr. W. E. Wirt: Some years ago in England a commission was appointed to observe the effect of alcohol on the length of life. They stated that the excessive drinker was the shortest-lived of those they observed. Next to the excessive drinker was the total abstainer. His life was the next shortest, and the length of the life of the light drinker was the greatest. They attempted to explain this by saying that the total abstainer was of such constitution that he could not drink. He was usually of a delicate and weaker constitution and was unable to stand alcohol.

Dr. M. J. Parke: In regard to Dr. Tuckerman's theory of urea, I can accept it as applying only in a limited number of cases. A man may revisit a scene of former dissipation and the environment that the thoughts recalled by his surroundings will bring about a debauch, often when it is the least expected. I recall one dipsomaniac in particular, who was restored to health as a result of confinement in a special asylum and for several years lived a life of sobriety. He was at a banquet where wine was served and thoughtlessly raised a glass of wine to his lips. The effect was that he went upon a debauch which lasted three weeks. This occurred seven years ago, and he has since been a confirmed periodic drinker, his periods occurring about every three months. It certainly could not have been urea in that man's case.

As to Dr. Friedman's examples of longevity among the intemperate, it certainly is the exception, not the rule. We all know that life insurance companies are very careful in this

matter. The confirmed dipsomaniac, when his periods occur as often as every six weeks or two months, has a very limited life period. If he does not meet with sudden death he develops epilepsy, cirrhosis of the liver, and different brain and nerve-degenerations that end his life in a very few years.

INEBRIETY IN WOMEN.

Inebriety from a fondness for alcohol for its own sake — vicious indulgence — is far less frequent in women than in men, and well that it is so. Drunkenness is bad enough in a man, but in a woman it is even more pitiable, and, if it be possible, more far-reaching and more dreadful in its results. With women it would, we think, be safe to say that the origin of the drink habit lies in perturbed physical conditions — in fact, that it is a disease, and not a mere moral obliquity, as many would have us believe. The consequences of alcoholism in women are not so quickly evident as in men. In the earlier stages of inebriety in those cases in which there is power of volition, a peculiar shrinking from publicity protects some women against the symptoms noted among men at a like period. Two causes may be given for the lapse of women into inebriety. First is the nervous condition due to lack of nutrition and the wear and worry of domestic life and the demands of society — an exhaustion for which relief is mistakenly sought in the transient aid of alcohol; secondly, the pain and unrest incident to disorders of their sex, for which solace is sought in the anæsthetic and paralyzing effects of alcohol. In the first case, the woman who flies to drink must be unaware or unmindful of the fact that its taking involves a great risk of creating a morbid condition that often finds expression in constant inebriety. In the second case, the so-called solace, with startling and sorrowful frequency, ends in confirmed alcoholism. — *Temperance Record.*

THE MORPHINE HABIT.

By William F. Waugh, M.D.,
Professor of Practice, Ill. Med. Coll., Chicago.

Can the morphine habit be cured at the patient's house? Yes, provided the doctor has the three prime requisites at his command: (1) Complete control of the patient's supply of morphine; (2) the patient gives up all work and devotes himself exclusively to the business of throwing off the habit; (3) the physician has the necessary means and appliances to relieve suffering and the skill to use them properly.

Without these the most skillful specialist will fail in any but the easiest cases. And let me say that the asserted painless cures one reads about in the advertising circular are either lies, pure and simple, or they are cures of the easy cases, hardly deserving of the name of "habit." Nevertheless, we must not expect the patient to admit that his was an easy case. Nothing affronts a man more deeply than to intimate that his own case has not been peculiarly difficult or his suffering phenomenally excruciating. But when one has conducted hundreds of men and women through the ordeal of breaking off drug-habits, he learns to estimate pretty accurately the relative amount of suffering of each, the silent endurance of one of nature's noblemen, and the eloquent exaggeration of the most trifling discomfort on the part of the morphine-hungry party, who thinks she will get her drug if she only makes fuss enough.

The specialists who have devoted their lives to the treatment of this disease, narcomania, agree in affirming that no confirmed habitue can free himself without a struggle, and devote their energies to reducing the unavoidable suffering to a minimum, making the ordeal as short and as easy as possible. Regnier, Erlenmeyer, and Crothers, men whose names are known all over the world for their scientific work in this department, all recognize the truth so well expressed by Hare,

that "when a patient goes through the withdrawal without suffering, you need not flatter yourself that it is on account of your treatment; it is because he has a secret supply of his drug."

Compare these statements with those of the advertising community and it will be seen how far these unknown, often illiterate individuals are ahead of the scientific specialists. The advertisers cure their patients at the latter's homes, without detention from business; the cure is easy and painless; the patient never knows when the morphine is withdrawn, so imperceptibly is it accomplished. Any case can be cured in periods varying from three weeks down to fifteen minutes.

That these miraculous powers should be denied to the educated man of science and lodged in the hands of these persons would seem remarkable, were it not that we know that these gentlemen are not in business for their health, and that, viewing the matter from a strictly commercial standpoint, it has a different aspect than when looked upon from the purely scientific point of view.

Do not imagine that I believe no good can come out of such sources. There is some chance of a quack discovering a good thing, as well as any one else. The only question is as to whether he really has done so, or merely claims this credit, which is a very different thing. I have taken pains to investigate all these claims which came within my cognizance, and these are some of the results of my investigations:

A doctor wrote me of a popular "home treatment," saying he had known of its success, and had analyzed samples sent at his request, and found no morphine in them. By my advice, he obtained a sample from a patient who was under treatment by it, and in this I found abundance of morphine. The remedy for the morphine habit was morphine, and the method contemplated a gradual reduction of the dose until it was entirely withdrawn. I have met a number of persons who had tried this method, and their testimony has invariably been that they could reduce the dose to a certain point, when the

symptoms of withdrawal began, and then they had to increase the dose or add an opiate. The withdrawal symptoms will show up whenever the cells have been drained of morphine, no matter how slowly it is done.

Another party stupefies his patient with chloral, keeps him thus for some weeks, and then sends him home with the assurance that he is cured. When the chloral has been eliminated, the withdrawal symptoms appear in full force, and the victim has the whole struggle before him, just as if he had simply stopped short, only that he is poorer by the sums paid for his "cure."

A third variation of the miracle-cure is to get the patient off the morphine and upon alcohol, cocaine, cannabis, or codeine. Of these drugs alcohol is known to every one, and whether it or morphine is the worse as a habit-drug my readers are as able as I to judge. Cocaine is the most disastrous in its effects on the human brain of any habit-drug I have ever heard of. Between it and morphine there is no question as to the choice. Cannabis is possibly less injurious than the opiates. But as yet no observations upon its effects, immediate and remote, upon numerous individuals, have been made public. My own experience has been that every case, after using the cannabis for a time, went back to the morphine. The same thing is true of codeine. The use of these two drugs keeps up the appetite for, and habit of reliance upon, a narcotic drug, and keeps the door open for the return of the arch-fiend morphine.

There is one method of the advertisers that has real value — the elimination system. By this they guarantee to cure any case of opiate addiction in forty-eight hours. The patient is given emetics and cathartics until the bowel is completely emptied, the "residual bile" and the morphine stored up in the tissues are discharged. If thoroughly done, the urine will not respond to the test for morphine. The withdrawal symptoms come on at once, and if the patient has the nerve to bear them for a limited time, crisis occurs, and he is free.

This method, then, is Lewinstein's abrupt withdrawal, with the great improvement of the thorough evacuation and rapid elimination. It is suitable for young and strong patients, with sound heart and good will-power, who have not taken the drug very long or in large doses. With the ordinary habitué there are the grave dangers of collapse, inflammation of the bowels and a sudden stoppage of the activity of one or other of the vital organs, long accustomed to perform its functions only under the influence of the drug. These dangers are reduced greatly if the patient is under the constant surveillance of his physician, and the latter has the requisite skill and experience in the treatment of drug-cases; but still it is a method suitable only for selected cases, and not by any means generally applicable.

Having thus cleared the ground, we are prepared to consider: (1) What is the pathological condition present? (2) What is the best mode of treatment? (3) What results are to be expected from treatment?

The 34th annual report of the commissioners of public charities and correction for the city of New York gives the reports of all city institutions under the board's control for the year 1893. It is the last report of the commissioners that has been printed. The statistical data, giving the cost of liquors consumed and the death-rate of the various hospitals under its control, indicate a startling relationship between the cost of liquors used and the percentage of deaths. The table given below is compiled from this report.

Hospital.	Number of Patients.	Cost of Liquors.	Deaths.	Cost of Liquors Per Patient.	Percentage of Deaths.
Fordham,	383	$274.38	44	$0.72	11.49
Gouverneur,	3,025	124.09	279	.41	9.22
Bellevue,	16,141	2,969.75	1,592	.18	9.86
Harlem,	2,842	356.53	130	.12	4.87
City,	8,075	824.63	675	.10	8.35
Ward Island,	6,529	388.83	399	.05	6.11

ACUTE CHLORAL DEMENTIA SIMULATING PARETIC DEMENTIA.*

By Hanry Waldo Coe, M.D.,

In charge Mindsease Sanitarium, Portland, Oregon.

Drugs play an important role in the pathogenesis of mental states, and the clincal picture presented by these varying conditions is often puzzling and difficult to analyze. Chloral is infrequently employed by drug *habitués*, and its symptoms are often misinterpreted with consequent erroneous diagnosis and prognosis. These often involve the rights of the patient.

The basic principles of paretic dementia are well known and are in the initial stages more or less pronounced ataxia, delusions of a grandiose type, fibrillary or general tremor, hyperhidrosis, and pupillary inequality. Evidences of dementia are found which later become pronounced. Not infrequently insomnia is a prominent symptom early in the affection. A patient coming under observation suffering from such symptoms is naturally classed as a paretic. In some of these cases it is found that chloral has been used for obtaining sleep for weeks before the patient comes under observation. The prompt withdrawal of the drug is often followed by a disappearance of the symptoms and the restoration of the patient to mental health. The asylum records of this country show a considerable number of incorrectly diagnosticated cases of acute chloral dementia in which a short residence in the asylum has resulted in a cure, and the patients were discharged with the stigma attached to them of having been committed to an insane asylum, an error that might have been avoided by a correct appreciation of the etiology of these symptoms.

It would seem wise to keep cases in which hypnotics have been employed under observation a sufficient length of time

* Read before the Washington State Medical Society, May 12. 1898.

to learn if perchance it may not be a case of drug-habit insanity. The fact that even learned alienists may be mistaken in the diagnosis of these cases emphasizes the necessity of the ordinary practitioner exercising great caution in their commitment.

Two cases have recently come under my care which emphasize what has already been said upon this subject.

A lady, aged 56, married, of good family and without hereditary taint, who had been ill during the past five years, had delusions, transitory in character, of a grandiose form, some months previous to the time of coming under the observation of a most excellent family physician. Ataxia was marked, especially in the lower limbs. General tremor was present, and the tongue could scarcely be extended, so marked was the trembling of that organ. There was pupillary inequality and the speech was tremulous. Insomnia was marked, and for this and the shifting pains in the back and limbs a well known proprietary article, the chief constituent of which is hydrate of chloral, had been employed in moderate quantities for about a year and a half. Recently this amount had been increased, yet the total amount taken did not exceed on an average twenty grains of chloral daily. A few days before the patient came under my care she had become somewhat violent at times, and delusions of persecution had led her to become demonstrative and difficult to manage at home, and the attending physician called in as a consultant a gentleman of large experience with the insane. The prognosis was gloomy; so bad, in fact, that the advice of the physicians that private treatment and restraint should first be employed for the purpose of clearing up the diagnosis would have been disregarded had it not been for the kindly interest of a friend outside of the family, and the patient would have been consigned to the State Asylum for the Insane. Upon coming under my care I declined to make a diagnosis. The symptoms seemed to point to paretic dementia or some chronic de-

mentia of a hopeless character. It did not seem possible that the drug employed could be the cause of the diseased condition, the amount being so small, and had not my attention been previously attracted to the subject of chloralism I fear I should not have considered it.

All hypnotics were discontinued, and in a few days her delusions began to wane and her general nervous state to improve. Tremors lessened, speech sharpened, and the pupils reacted equally. In two weeks sleep became fairly good, although not normal. Six weeks after coming under my care she went home and resumed the management of her estate.

The second case was a man aged 57, by occupation a sea-captain, and married. Mental alienation had been noticed by friends and ship-fellows for some months, finally resulting in delusions of mixed character, and to such an extent that the command of the ship was taken by the mate while at sea. The patient was placed in a hospital in Portland upon the arrival of the vessel at that port. As the man's delusions were of a seemingly harmless character, he was allowed to remain in the hospital three weeks. Finally, becoming somewhat demonstrative and at time noisy, the hospital authorities declined to keep him longer, and arrangements were made with me to give him separate care. The symptoms were much like those of the first case, except that the general mental break-down seemed more pronounced. The diagnosis of paretic dementia had been made, and was quite natural under the circumstances. The arrangements made with me did not look to a cure, but merely to have the patient in a safe and pleasant place while awaiting the arrival of relatives from England. The patient had been a chloral-taker. He had taken, as he said, " tons of the stuff," and while in the hospital either that drug, sulphonal, or other hypnotics were employed in the endeavor to restrain the nervous excitement for the time being.

Under a strong suspicion that the case was only a chloral habituation, all hypnotics and alcoholics were promptly withdrawn. The patient was a most distressing one to care for.

Four weeks later the captain was once more his own self, and was able to take a trip across the continent and ocean to his old home in London. The case proved to be one of acute chloral dementia and not paresis. — *Medicine.*

MORPHINE CRYSTALS IN THE BLOOD.

Dr. Fuller, the pathologist of the Westborough, Mass., Insane Asylum, in the last report, makes the following statement of some observations on morphine cases:

Perhaps the most interesting were five cases addicted to the morphine habit, and one case in which the patient took the crude opium by mouth. Two cases on admission were taking 25 grains each per diem, one case 90 grains per diem, with 30 grains of cocaine to antidote the effect, one 6 grains, and one 8 grains. There was marked anæmia in all the cases, the erythrocytes and hæmoglobin greatly reduced. The first two cases came under observation in July, 1897, the others were admitted early in the present hospital year. While making the count of the red cells, several needle-like crystals were observed, 30 μ to 60 μ(micro-millimeter) in length, tapering to a point at one end and the other broken off or jagged. Some had their ends squarely cut, the former variety, however, being the type. They were colorless and highly refractive. The greatest number were observed in the cases taking 25 grains per day, and were observed respectively in the blood diluted 1-50, 1-100, and 1-200. When first seen they were thought to be due to the diluting solution (Gowers being used); a fresh solution of the same was then made, and still the crystals were noted. Blood from cases not morphine-takers were examined with the two solutions and did not show them. In examinations of specimens of blood from the morphine cases diluted with distilled water, hydrant water, one-third per cent. acetic acid in distilled water, they could not be demonstrated. Samples of undiluted fresh blood failed

to show them, as well as stained and unstained cover slip preparations.

Another morphine case, who was admitted at the same time, when examined a day later gave the same results as to the crystals. In the second case the drug was immediately cut off, and the crystals were observed ten days later, after which time I failed to observe them. In the first case, where the drug was gradually decreased, when the patient was taking less than three grains per diem I could not demonstrate them. The second case was readmitted to the hospital during the present year, at which time was taking eight grains per diem, and they were readily observed. Was immediately cut off, and five days later could not demonstrate them. All the others admitted in the present hospital year showed similar crystals when diluted with Gowers solution, but would disappear with cessation of administration of the drug in three to seven days. The case taking 90 grains per diem with 30 grains cocaine showed fewer crystals in number, but they were much larger, and, though the drug was not immediately stopped, it was decreased 90 per cent. The crystals were observed only on the first examination. To what extent the cocaine influenced them I am not able to offer an opinion. The case who took the crude opium by mouth, although she had been taking the drug for twenty years, at no time in my examinations showed them. The other cases took the morphine hypodermatically. Case 2, referred to above, on second admission, however, was taking the drug by mouth, but readily showed them on first examination one day after admission.

I have inferred that these colorless, needle-like crystals, closely resembling the finer crystals of morphia sulphate, have some connection with that drug when taken into the system, and that there must be some chemical action between the blood of cases taking morphia sulphate and the Gowers solution to cause their formation. I have already called your attention to the fact that in undiluted specimens, and in specimens diluted with water, distilled water, one-third per

cent. acetic acid in distilled water, and in dried smears, stained and unstained, I could not demonstrate them.

Through the interest taken in the matter by Dr. J. P. Sutherland, registrar of the Boston University School of Medicine, and Dr. J. W. Rockwell, professor of physiology in the same school, there have been conducted in the physiological laboratory of the University, under the direction of Professor Rockwell, a series of experiments on five pairs of rabbits. One pair were used as checks, and to the other pairs, in varying doses, morphine was given. At the expiration of six weeks the highest pair were receiving 17 grains per diem, but before this point was reached, in a pair taking 8 grains per diem, crystals resembling those observed in the laboratory here were observed, the checks at no time showing them.

HEREDITY AS A CAUSE OF ALCOHOLISM.

That heredity is a cause of alcoholism and that alcoholism is a disease are becoming quite apparent.

We are reminded every day of the proverb in the good book, that " the sins of the parents are visited upon their children to the third and fourth generations," this has been proven to be a fact in the hereditary effects of alcohol upon the system.

The person whose brain and nervous system have been injured, and whose moral and will power have been weakened, and whose stomach, liver, and other organs have become deranged by the use of alcohol will transmit some of these derangements to his offspring.

The modern study of alcohol has proven without a doubt that it is not a stimulant or a tonic, but an anæsthetic and a narcotic, and it has also been proven that it is a remedy of but little therapeutic value and could be dispensed with, even for medicinal purposes, with universal benefit to mankind. The transmissibility of an alcoholic inheritance has been very generally admitted by many writers, among whom are Aristotle,

Darwin, Rush, Morel, Carpenter, Richardson, Thompson, and Forel.

The actual number of cases in which an ancestral history has been traced is probably much below the actual amount, as it is difficult to get relatives to admit the existence of an alcoholic taint, but it has been proven that the proportion of hereditary cases have increased five per cent. over the acquired during the past twelve or fifteen years. Norman Kerr found in over 3,000 cases of alcoholism fully one-half with an inherited ancestry, and about the same proportion has been the experience of others, who have studied the subject. Piper puts the proportion of hereditary to acquired cases as two to one.

Hereditary craving for strong drink can be transmitted by parents who have not that craving, but who drink very moderately and only by custom or sociability. As more light is thrown upon the therapeutic action of alcohol this customary drinking will gradually be abandoned, in fact, it is becoming less customary at the present time. There has never been a time in America when every indication pointed so strongly to a decrease of intemperance as at present, and there has never been such a tendency toward moderation in quarters where alcoholic indulgences are general.

In conclusion we would ask if one of the principal causes of inebriety is heredity, how is this form of inebriety to be cured and our future generation saved? There is but one answer, and that is, to stop the drink habit at once, and as it has been proven by medical men that alcohol is not a food, and that it does not promote digestion, and that it does cause gastric disturbances, and that it does not increase muscular strength nor promote physical or mental endurance, and it is not a tonic or a stimulant, therefore we believe medical men ought to do all in their power to prevent its universal use as a beverage in social and political life. — Editorial in *Charlotte Medical Journal.*

STRYCHNINE.

By H. C. Wood, M.D., LL.D.

It is a curious fact that strychnine certainly was until very lately, and probably is still, almost altogether manufactured in the United States; this growing out of the circumstance that the amount of strychnine used in the practice of medicine is a mere bagatelle compared with that which is employed upon the American frontier for the destruction of wild animals. Strychnine may therefore be considered an especially American drug, and it is fitting that the increasing recognition of its value in medicine which has come of late years should be largely of American origin. In this article I want to discuss briefly the dose that should be used of the drug; for unless it be alcohol there is scarcely any other drug whose proper doses vary so much.

Very commonly strychnine is given in too small doses to produce the effect it is capable of. One-sixtieth or one-fortieth grain of the alkaloid is of very little value even as a simple tonic, except in persons of abnormal susceptibility. I have habitually given, for many years, the tonic dose as one-twentieth grain three times a day, and have never seen a case in which it produced anything like serious symptoms. In nervous females such doses will sometimes cause increased nervousness, or perhaps sleeplessness. In a very few cases that I have met with, as an idiosyncrasy even the smallest doses of strychnine cause vomiting. Very frequently it is better in the use of the drug to give none of it after 3 or 4 o'clock in the afternoon, and then secure the patient from wakeful nights.

As a general and respiratory stimulant strychnine is very valuable in acute pulmonic diseases, but here in order to be effective it should be given in full dose at short intervals. One-twentieth of a grain hypodermically, every four hours, in a pneumonia or in a low fever, is only moderate dosing, and

especially do the old bear strychnine well. Their nerve centers are evidently so hardened by the vicissitudes of years that they are only to be affected by inordinate stimulation.

A rare condition in which strychnine has seemed to me to act almost as specifically as quinine does in intermittent fevers, is that form of subacute lead-poisoning in which the symptoms closely resemble those of acute poliomyelitis; differing from them, however, in that they occur in the adult; that they involve almost the whole body, and that they attack the sphincters as well as the muscles of voluntary life. An almost universal paralysis with rapid wasting of the muscles, appearance of reaction of degeneration, and involvement of the sphincters, constitute the series of manifestations of the cases under discussion.

Another condition in which strychnine is often of the greatest service is chronic alcoholism, and especially in those forms of chronic alcoholism in which the mental symptoms are pronounced and take upon themselves not the shape of a delirium tremens, but of a maniacal dementia; although in delirium tremens strychnine is often of the greatest service.

Then, again, there are certain cases of organic heart disease in which, in some way at present inexplicable, strychnine is of immense service. I have never been able to determine certainly from the symptoms of a cardiac case whether it was or was not one to be especially benefited by massive doses of strychnine, neither in a discoverable lesion, nor yet in the symptoms themselves. But although abnormal slowness of beat does seem to be a distinct indication for the use of strychnine, only by the therapeutic test does it seem to be possible to decide the relations of any individual case to the alkaloid.

In all cases spoken of in the last paragraph it is essential to give the strychnine to the point of physiological toleration, or, rather, non-toleration. Twenty-five years ago I was in consultation in a case in which the feebleness and exhaustion following an acute pulmonic attack seemed utterly unconquerable. After the thing had been going on for some weeks,

owing to a misunderstanding between the nurse and the physician, four doses of strychnine were given at one time and repeated in four or five hours. Shortly after these doses violent convulsions came on, not severe enough to urgently threaten the life of the patient, but to alarm everyone greatly. The next day the patient was practically convalescent; the exhaustion and symptoms which had dragged on for weeks, under the administration of the ordinary therapeutic dose of the drug and of other tonics, nursing, stimulants, etc., was practically put an end to at once by the toxic dose of the strychnine.

As illustrative of the matter under discussion, I may mention two cases which have occurred in my practice during the past spring. One was the case of a saloon-keeper, who was brought to the University Hospital from another hospital, where he had been treated for six to eight weeks for alcoholic insanity or dementia; the man's physical condition was that of chronic alcoholism, while mentally he was a jabbering idiot, giving no evidence of knowing where or who he was, talking incessantly and irrationally. He was put in bed, where he was kept by the nurses during the day and by straps at night, and the order given to the Resident to administer strychnine at intervals of six hours, hypodermically, increasing as rapidly as it could be done. This treatment was very earnestly and very boldly carried out by the doctor; within two weeks the man was taking three-quarters of a grain of strychnine a day hypodermically, was rational, and practically convalescent.

The second case was seen in consultation in private practice. Mr. ——— was a man of about 64 years of age, suffering from mitral insufficiency, of which the origin was in an obscure and distant past. The valvular lesion was, however, known to have existed for twelve years, and probably went back nearly thirty years to an acute attack of rheumatism. The patient had paid no attention to himself until about five months before I saw him, when he had a sudden anginose attack so severe that he lost consciousness and was pronounced

by his physician dead. From that time on he had had at short intervals severe attacks of heart failure, not attended with much pain, but with excessive weakness and breathlessness, and a badly failing, very slow pulse, the rate usually being about 50. When I first saw him he was in bed, where he had been for weeks, unable to feed himself without bringing on an attack; life being maintained apparently only by the most rigid quiet. The cardiac murmur was distinct; the diagnosis absolute, except that there was some doubt whether there was, in addition to the insufficiency, also stenosis. The impulse was exceedingly weak, the pulse very irregular and feeble. Digitalis and strophanthus both had been tried. The digitalis treatment, however, was thoroughly re-tried, the drug being given at various times in small and in enormous doses, in every form and method of administration, and always doing harm rather than good. Strophanthus was then tried, and, while it seemed to suit the patient a little better than did digitalis, accomplished nothing. The patient was then put upon strychnine, which was rapidly increased and given both by the mouth and hypodermically. At one time Mr. ——— was violently tetanized, owing to the nurse unwittingly giving a hypodermic injection a few minutes after his wife had administered a dose of the strychnine by the mouth; but the symptoms readily yielded to remedies and the paroxysm seemed to do good rather than harm. During many weeks the object of the treatment was the keeping up of a perpetual chronic poisoning by strychnine. After Mr. ——— had so much improved that it was considered safe to allow the professional nurse to leave, the strychnine was given by the mouth, under the supervision of his wife.

A solution was made, one minim of which represented one-sixtieth of a grain of the alkaloid, and for weeks together eight minims of this solution were taken six times in the twenty-four hours, that is, during the twenty-four hours forty-eight-sixtieths (4-5ths) of a grain of strychnine were given by the mouth. Almost the whole time there was pronounced

rigidity of the back and limbs, with markedly excited reflexes. The patient did not seem to become accustomed to the use of the drug, and after some weeks this condition of rigidity was so irksome that the dose was reduced to half a grain of strychnine a day. From the very beginning of the strychnine treatment the effect upon the circulation was very pronounced, and now Mr. ———, who before the treatment had been unable to turn himself in bed without bringing on an attack, gets up, dresses himself, goes about the house and up and down stairs at will, moves his chair from one side of the room to the other, and lives a comfortable though still semi-invalid life. His pulse is fairly regular and strong, and for several months there has been no attack of cardiac failure.

Whenever strychnine is being pushed very rapidly and actively it should be given hypodermically. The maximum effect of such a dose is probably felt in about twenty minutes after its administration, and its influence probably lasts six hours, although it may be considered to be nearly gone at the end of four hours. — *Amer. Medico-Surg. Bulletin.*

INEBRIETY FROM TRAUMATISM.

The following case is mentioned by Dr. Tuckerman of Cleveland in a valuable paper on Craniotomy for Traumatic Psychosis, read before the Medico-Legal Section of Cayuhoga County Medical Society.

A gentleman, aged 48, an exemplary husband and father, and a man of excellent reputation in the community for integrity and sobriety, was kicked upon the forehead by a mule. There was produced a depression of the frontal bone in the median line just at the margin of the hairy scalp. The man was unconscious but a few moments, exhibited no symptoms of cerebral compression, and in a short time was able to be about his business. It soon became apparent, however, that his

character was totally changed. He deserted his wife and sought the companionship of prostitutes. He became abusive to his children when at home, so that they would flee from him in terror. Hitherto a strict abstainer from the use of intoxicating liquors, he developed such a taste for whisky and became so addicted to its use that he wasted his property and became a drunken sot, profane, vulgar, obscene, lost to all sense of decency and manhood. This condition, interrupted by occasional promises of and feeble attempts at "reform," continued for over three years. Finally, after a long debauch, suicidal and homicidal impulses became prominent, and the relatives consented to operation. Upon removing the depressed bone a large fragment of the vitreous plate was found projecting through the dura for an inch or more into the frontal lobes. The superior longitudinal sinus was crushed and filled with organized blood-clot, and the middle frontal convolutions showed signs of pressure, but not of decided degeneration. The operation was followed by but little shock and no inflammation. Constant restlessness was succeeded by marked quietness. The countenance became more serene, the voice less coarse. As convalescence progressed, he greeted his wife and children pleasantly instead of with scowls and curses as heretofore, and as recovery went on it was evident that he had become his old self again, gentle, affectionate, trustworthy, remaining so when last observed — two years after the operation. (This case was operated by Dr. Emory Lanphear of St. Louis.)

From six to ten per cent. of all soldiers in the United States army are treated yearly for inebriety. This, in times of peace and in forts and garrisons. Of this number, three and a half per cent. die from the effects of spirits. These are said to be minimum statistics and far below the actual number treated and dying. These facts reflect on the intelligence of the authorities, and call for a change.

NOTES ON SOME ANATOMIC CHANGES IN THE BRAIN-CELLS IN ACUTE ALCOHOLISM.

Dr. Charles L. Dana read a paper before the New York Neurological Society with this title, reporting ten cases, and the results of his studies in this direction during the past two years. He had used Nissl's stain for the most part. He stated that what was ordinarily known as acute alcoholic meningitis could not be said to be a meningitis at all, although, clinically, these patients died with all the symptoms of meningitis. The autopsy reveals simple congestion and edema of the brain, and even the microscope but rarely shows any migration of leucocytes or anything approaching encephalitis. In some cases, not even vascular activity will be observed. Alcoholic meningitis is not primarily a vascular disorder, but a slow poisoning; hence, we must study the cell to determine the changes produced. It has been stated by some investigators that all forms of cell degeneration are the same, and that it is impossible, as Nissl claimed, to make out different cell degenerations in accordance with the particular pathologic irritant. Whether this is so, or not, certainly the microscopic appearances are different in different cases of alcoholic meningitis, and in other cases associated with delirium and acute disorder prior to death. There is one type of degeneration quite characteristic of those dying from sunstroke, with intense delirium and very high fever. It consists in a distinct and general pigmentation, involving the larger cells. This sudden development of pigmentary degeneration would seem to be characteristic of acute febrile degeneration, associated with acute toxemia. Another kind of pigmentary cell degeneration was found in a case of pericious anemia. Here, the pigmentation involved both the small and large cells. In a case of prolonged use of morphine and whisky, in which death was due to exhaustion and malnutrition, the brain showed quite a general atrophy of both the nuclei and the cell bodies. There are three types of cell degeneration, viz.: (1) Intense pig-

mentation of the larger cells, chiefly with degeneration of the cytoplasm; (2) a general cell atrophy of the body and nucleus; and (3) a good deal of change in the cell-body, with many neuraglia nuclei in the pericellular spaces. In the cases of alcoholism and alcoholic meningitis, it was not possible to make out a distinct type of cell degeneration, nor could this be expected, as these patients die not so much from the alcohol as from autotoxemias, and from the febrile process. — *Medical News.*

POISONING FROM WOOD ALCOHOL.

At the regular meeting of the Nashville Academy of Medicine March, 17th ult., T. Hilliard Wood, M.D., Professor of Diseases of Eye, Ear, and Throat, Medical Department University of Tennessee, reported the case of a lawyer, æt. 27, a periodical drinker, but lived in a prohibition town. His physician had given him a prescription for bay rum f 3 j., alcohol f 3 iv., which he was in the habit of having refilled from time to time. The last time the druggist dispensed bay rum f 3 j., instead of f 3 j., stating that it had been made with wood alcohol. Within the next few days after drinking it, his vision became greatly impaired, resulting in five days in total blindness. Pupils dilated, but would respond to light. Peripheral vision not gone, but very slight. Ophthalmoscope showed nothing abnormal. Diagnosis: paralysis of center of vision in occipital lobe. Patient was put on strychnia and bitter tonics, and ordered Russian baths, which was followed by gradual improvement, and vision was much better.

Dr. Paul F. Eve thought the diagnosis certainly correct and that the trouble was most probably caused by the wood alcohol.

Dr. Deering J. Roberts said that *wood* alcohol was the cause unquestionably, and that *Wood* treatment would certainly relieve him. He stated that of the three principal forms of alcohol, while all where hydro-carbons with the addi-

tion of water, their chemical composition varied materially. Ethyl alcohol, C_2H_5OH, made from fermented grains and sugars, and found in brandy, whisky, etc., was the only one for use either as a beverage or in the composition of drugs, such as tinctures, etc., to be taken internally, or introduced into the circulation. Amyl alcohol $C_5H_{11}OH$ — potato-spirit or fusel oil — sometimes found combined with ethyl alcohol (and distillers endeavor to get rid of it simply ageing the combination by which the fusel oil was eliminated). You will be very apt to find "moonshine," warm from the still, quite rich with it.

Methyl alcohol — wood-spirit — CH_3OH, should not be called an alcohol, and was only fit for combustion in lamps or as a solvent in the mechanic arts. It should be rigidly excluded from the manufacture of any medicine used internally.

At the meeting of the Academy March 31st, Dr. Wood made a farther report of the case, stating that the patient had entirely recovered and had returned to his home.—*Southern Practitioner.*

ALCOHOLIC SOMNAMBULISM.

Dr. Francotte, of Liége, has published a carefully prepared paper, having special reference to the medico-legal relations of the somnambulism which is met with as a result of alcoholism. Somnambulism, regarded as the condition in which, during loss of consciousness, co-ordinated actions are carried out, of which there is no recollection afterward, is met with not only in hysteria, epilepsy, and the hypnotic state, but also as a result of alcoholic indulgence. The author relates the following case of a man who was arrested for disorderly conduct in a public place. He could not be induced to answer questions or even to speak, and appeared to be quite demented. There was no sign of intoxication, but next morning at the medical examination, he confessed that at a place

far distant from that at which he had been arrested, he had imbibed a large quantity of alcohol. He had completely lost recollection of what had occurred during the next forty-eight hours. He confessed to other excesses in alcohol, and there was marked tremor of the hands and of the tongue. A sister had been the subject of mental disease. The author, after citing several examples, concludes that there is a species of alcoholic somnambulism in which the patient behaves to all appearance in a normal way, but without consciousness, or at least without having any recollection of what he has done. In reality, however, during such a time, certain slight peculiarities of conduct are present which may easily escape the observer. The condition manifests itself only in degenerate individuals, or at least in those who have inherited some psychic weakness, and as it is one which implies the absence of responsibility, unless it is intentionally induced, it is of great medico-legal importance. — *Neurologisches Centralblatt.*

Dr. Legrain, physician to the insane asylum in the department of Seine, has made an extended study of alcoholic heredity, from which he formulates the following conclusions: 1. Double parental alcoholism creates an irresistible tendency to drinking in the children. 2. Parental absinthism seems to transmit epilepsy directly to the offspring. 3. The parental combination of absinthe drinking and epilepsy is a common cause of epilepsy in the children.

PERIPHERAL NEURITIS DUE TO HEPATIC INSUFFICIENCY.

Gouget (*Rev. de Méd.*, July, 1897) gives a detailed account of the case of a woman of alcoholic habits, aged 33 years, who died from the effects of hepatic cirrhosis. Two weeks before her death she rapidly developed peripheral neuritis of the arms and legs. The toxic coefficient of the urine, as tested on rabbits, was much above the normal. Death took place from ex-

haustion and delirium. At the necropsy there was fatty cirrhosis of the liver, obsolete tubercle at the apices of both lungs, and sero-fibrinous pleurisy on the left side. Microscopic examination of the peripheral nerves showed degeneration. Although the patient had been addicted to alcoholic excess, it appeared improbable that the neuritis was due to this cause, since she had had no stimulant for the two months previous to the onset of the symptoms. In addition, the simultaneous onset of neuritis in the arms and legs is rare in the alcoholic form. The sero-fibrinous pleurisy could not have given rise to toxic neuritis, and the author concludes that the neuritis was due to hepatic insufficiency. In support of this contention are the facts that the toxic coefficient of the urine was much higher at the time of the onset of neuritis than on her admission to the hospital, and that other signs of hepatic insufficiency, such as repeated epistaxis and progressive somnolence passing into coma, were also present.

CAUSES OF SUDDEN DEATH FROM ALCOHOLISM.

Alcoholism is more frequently the cause of sudden death than is reported, because some do not want the stigma in the family recorded, and because they die of alcoholism some are refused burial in consecrated ground. It may cause death by producing a congestion of all the principal organs of the body, with no appreciable lesion in any.

A middle-aged gentleman of this city, of fine physique, carrying over $100,000 life insurance, died suddenly one morning while dressing. Autopsy showed considerable congestion of the brain, lungs, liver, kidneys, stomach, and slight atheroma of the aorta. A chemical examination of the contents of the stomach revealed no poison and the death certificate was filed, giving as the cause of death no appreciable lesion sufficient to produce death. It was afterward learned that he was a very hard drinker, but not becoming intoxicated

easily it was not known to many of his friends. The evening preceding his death he used alcoholic beverages freely. Nervous inhibition is the only way to account for some deaths from alcoholism.

Alcoholism produces more sudden deaths, including accidents, than any other disease, and would when treated greatly reduce the death-rate from suicide. — *Dr. Dunham in Buffalo Medical Journal.*

THE ANNUAL INDIVIDUAL CONSUMPTION OF ALCOHOL IN VARIOUS COUNTRIES.

Debove, according to the *Lyon médical* for December 4th, computes the average consumption by the individual (man, woman, and child) as follows. France, 14 pints; Belgium, 10.5 pints; Germany, 10.5 pints; British Isles, 9.25 pints; Switzerland, 8.75 pints; Italy, 6.60 pints; Holland, 6.25 pints; United States, 6.10 pints; Sweden, 4.50 pints; Norway, 3 pints; Canada, 2 pints.

ALCOHOL IN BABY'S STOMACH.

It requires no argument to convince any one that the drunkard injures his intellect and ruins his nerves by every fit of drunken delirium and stupor, but it is not so easy to make the mother understand that she is damaging her infant's brain by a similar kind of toxic excitement when it lies in a stupor from the effects of an improper meal of food which has undergone decomposition in the stomach. It is bad to put poisons already formed into the stomach, as does the inebriate, but it is even worse to turn the stomach into a poison factory by filling it with unsuitable food, which it cannot digest, and which, by spoiling, forms alcohol and many other nerve poisons. — Kate Lindsay, M.D., in *Good Health*, December.

THE DIFFERENTIAL DIAGNOSIS BETWEEN MENTAL ABERRATION FROM INDULGENCE IN SPIRITUOUS LIQUORS AND CEREBRAL DISTURBANCE AND CONFUSION OF THOUGHT FROM BEING STRUCK BY A TROLLEY CAR.

STEINERT "SEEMED DAZED."

Arrested for intoxication after being struck by a trolley car.

Louis Steinert, a court stenographer, living at 241 East Fifty-third street, Manhattan, spent last night in a Flatbush police station. His crime was, according to the policemen who arrested him, that he "seemed dazed" after being knocked down and rolled twenty-five feet by a trolley car.

Mr. Steinert, whose card indicates that he is a stenographer in the Municipal Court of the Borough of Queens, was riding a bicycle in Fort Hamilton avenue. According to witnesses, he was riding rapidly and steadily and had perfect command of his wheel. He turned into Flatbush avenue, and as he did so was struck by a car of the Brooklyn Heights Railroad, in charge of Motorman Charles Kuhne. The bicycle was smashed, but Steinert fortunately escaped from getting under the car. The fender struck him and pushed him along for a distance of twenty-five feet before the car was stopped.

Steinert was badly shaken up and much bruised. Roundsman Knox, of the Grant Street station, came up and asked him if he wanted an ambulance called. Steinert replied in a dazed way that he did not think he was seriously enough hurt for that. Then Knox arrested him and locked him up for intoxication. When the sergeant at the desk was asked if Steinert was intoxicated, he replied: "Well, he seemed dazed."

Read the above carefully, and compare the ordinary symptoms of alcoholic intoxication — either in your own unfortunate experience or that of your equally unfortunate neighbors. Did you feel or did they feel as if they had been struck

by a trolley car? Roundsman Knox and the sergeant, who locked up Steinert, certainly and literally added "insult to injury," and after the trolley man had "got through with him" deliberately took away his good character "because he seemed dazed." Neither Roundsman Knox or the sergeant at the desk had a right (after a severe accident, the man being pushed along the track twenty-five feet, and otherwise bruised and confused) to place him in a cell. A physician or surgeon should have been summoned and their judgment under the circumstances acted on.

Some time since the Kings County Medical Society appointed a committee to investigate concerning the care of persons who were found unconscious on the street or elsewhere by the police, and also more particularly to reform the action of the hospital authorities concerning the reception or refusal to receive all such persons — under certain conditions. The conclusions that the special committee finally arrived at after considering the whole matter from a scientific and humane standpoint, was that all persons found upon the street in an unconscious or semi-conscious condition, or in such condition as not to care for themselves, should receive prompt medical aid, and if necessary be removed to the nearest hospital, and that the mere supposition of intoxication should not interfere with such care or disposal of the persons rendered unconscious or unable to care for themselves. The committee showed that not unfrequently persons were seriously injured while intoxicated, and that frequently alcoholic liquors were given to persons after injury or sickness; so that the mere fact that the patient was under alcoholic influence should not exclude the possibility of possible serious injury or disease.

The fact was that Steinert was suffering from slight cerebral concussion, resulting in confusion of thought and simulating a mild form of alcoholic intoxication. It was simply a case of mistaken diagnosis on the part of doctor Roundsman Knox and the sergeant who acted as consulting surgeon in the case.

The remedy, a night in the lock-up, was rather severe and totally uncalled for. The system is a wrong one that put Roundsman Knox in the position to differentiate between cerebral concussion from a trolley-car accident and a mild form of alcoholic intoxication. We suggest a new question to be answered by all applicants for the police force, in accordance with the rules governing the civil service examination: "What are the main points in the differential diagnosis between moderate cerebral concussion and consequent mental disturbance and the milder forms of alcoholic intoxication?" — *Dr. Mason in Brooklyn Medical Journal.*

RESPONSIBILITY OF INEBRIATES.

Dr. John F. Sutherland, Commissioner of Lunacy for Scotland, remarked as follows in a discussion at the late meeting of the British Medical Association:

"A person intoxicated cannot and does not know the nature and quality of the act, or that it was a wrong act, because intoxication is insanity of the most perfect type, no matter how transient. But while 'insane at the time' is a proper defense in such cases, how many specialists will enter the witness-box and testify to that effect? If they did, I do not believe any jury would convict of the capital charge. No; the judicial dictum of 1843 is not, at all events in regard to them, at fault. It is not the law that is at fault, rather is it the hesitancy of medical witnesses to take a proper stand, which is blameworthy, and likewise the fact that the accused as a rule, being poor, have not the means to secure legal aid commensurate with the gravity and responsibility of the case. Consequently such cases, for the most part, fall into the hands of inexperienced lawyers, and matters are made worse by the knowledge that the aid of the specialist cannot be got. No fund for such special cases is available in Scotland. Were it in existence, several of the verdicts of recent years would have

been different. In some of the worst cases there was practically not the semblance of a defense.

"It is in this direction a change is needed. In regard to such case I would venture to point out some of the judicial fallacies that have arisen. One hears of the occupant of the bench sometimes speaking of the 'willful' nature of the drunken attack, the 'voluntarily' induced state of mind of accused, and not least that the death sentence is a 'terror' to drunkards. In none of these views can I concur. Can a drunken man do a 'willful' act? I should be inclined to think that this is highly problematical, and that it does not even afford that presumptive evidence required in a court of law. Much might be said against the theory of 'voluntary' drinking. Who can say with a degree of certainty in the advanced stage of a chronic drunkard's bout that the drinking was voluntary? for that would imply the certainty of an absence of latent or patent physical and mental degeneration induced by the vicious or the diseased habit. The former in time merges into the latter. All is uncertainty. Then there is the supposed deterrent effect which the scaffold is said to produce in the minds of drunkards. There could be no greater delusion, and drunkards were as numerous on the next 'pay day' as ever they were, and deal out violence as freely and as maniacally as ever they did. The marvel is that, instead of having thirty indictments for murder every year, there are not 1,000, and as a consequence capital punishment multiplied a thousandfold. This is an aspect of the question which is overlooked. The violence of the drunkard is not measured, so great is the mental disturbance of the senses and faculties. It could not be otherwise real: consciousness either does not exist, or is of the dimmest. The intoxicated authors of crimes of violence are insane; the duration of the insanity from a medico-legal point of view is of no moment, and by the criterion of a possibility laid down in 1843, the drunkard should not be responsible, and would not if the expert looked at the matter from the point of view now submitted. But if

this view be not accepted, then the crime should be reduced from murder to culpable homicide, as is the case in many countries. Some Scottish judges view it in this light. If 'insane at the time' were proved, there would still be the protection for society by detention in a safe place of custody."

CHRISTIAN SCIENCE, A SOCIOLOGICAL STUDY. By Charles A. L. Reed, A.M., M.D., Cincinnati, O. Gynecologist to the Cincinnati Hospital; ex-President and Fellow of the American Association of Obstetricians and Gynecologists.

The history, philosophy, and methods of Christian Science, and the law governing its practice considered, in a well-printed 12mo book, handsomely bound in paper. Single copies, 10 cents. Sent postpaid on receipt of price. McClelland & Co., publishers, Cincinnati, Ohio.

THE NATIONAL TEMPERANCE ALMANAC AND TEETOTALER'S YEAR-BOOK FOR 1899. Compiled by J. B. Dunn, D.D.

Contains statistical tables of liquor traffic, army of liquor dealers, government drink saloons, revenue receipts, doctors and drink, America's great drink waste, drink and the labor problem, drink and crime, object lessons, the church, liquor sellers, with a list of the temperance periodicals in North America. Tables of names and post-office addresses of the National and state chief officers of the Sons of Temperance, Good Templars, Templars of Honor and Temperance, National W. C. T. U., National Non-Partisan W. C. T. U., Catholic Total Abstinence Union of America, Royal Templars of Temperance, Sons of Jonadab, Independent Order of Rechabites, National Prohibition Party, American Anti-Saloon League, State Temperance Societies. National Temperance Society and Publication House, 3 and 5 West 18th Street, New York city.

The *Physicians' Visiting List for 1899*, by P. Blakiston Son & Co., of Philadelphia, Pa., maintains its superiority as before. The arrangement of pages, and the tables of practical facts are invaluable for the physician. Once this book is used it becomes a fixture indispensable every year.

THE PHONENDOSCOPE AND ITS PRACTICAL APPLICATION. By Aurelio Bianchi, M.D., Professor of Preparatory Clinical Medicine and of Pathology, Parma; translated by A. George Baker, A.M., M.D., author of "Revival of Learning," etc. George P. Billings & Son, Philadelphia. 1898.

This volume graphically explains the great value and practical uses of the Bazzi-Bianchi phonendoscope. The phonendoscopy of the various organs, with illustrations of the surface markings of the lungs, heart, liver, stomach, is excellent. There is a chapter on the relation between the outlines of the internal organs as determined by the X-ray and by the phonendoscope, and another chapter is devoted to the mechanical description of this instrument. The application of the phoendoscope in the course of pregnancy, as explained and illustrated in this book, is unique. In the hands of the general practitioner this instrument will be found of inestimable value.

THE DETERMINATION OF SEX. By Leopold Schenk, M.D., Professor in the Royal University, and Director of the Embryological Institute in Vienna. The Werner Company, Chicago, Akron, O., New York, publishers. 1898.

In this work are grouped a great variety of facts, both old and new, and most of which are marshaled to prove the theory, viz.: that sex can be determined by feeding and nutrition. Certain diets will determine the sex with certainty. The vigor or poverty of the parent are asserted to be the great factors in this question. The presence in the excreta of certain substances indicate the possibility of the sex in the coming

child. Certain articles of food favor the growth of one or the other sex, and finally it is a matter which can be regulated by intelligent and scientific feeding and use of the means and measures. The reader is deeply interested, and while not always convinced, is impressed with the theories and the possibility of the conclusions. The work is well worth reading, and will stimulate a new investigation in an unknown field.

Its practical interest to our readers will come from its bearing on the children of inebriates. The question is often asked: "What influence on sex has the use of spirits?" This is unanswered so far. As a contribution, throwing sidelights on the subject, this work is of great interest, and we commend it to our readers. The translator and publisher have brought out the work very clearly, both in expression and topography.

CRIME AND CRIMINALS. By J. Sanderson Christison, M.D., formerly of the New York City Asylums for the Insane; author of Normal Mind, etc. Chicago Medical Book Co., 35-37 Randolph Street, Chicago, Ill. 1898.

This little work is a grouping of recent cases which have become prominent, pointing out the particular hereditary and degeneracy. He divides all cases into three classes: The insane, those defective in reason; the moral paretics, defective in self-control; the criminal, those defective in conscience. His efforts to study these classes from photographs and life histories is the most satisfactory way of getting any clear view of the facts and laws of degeneration. We trust the author will bring out a larger volume on the same lines.

DEGENERACY: ITS CAUSES, SIGNS, AND RESULTS. By Eugene S. Talbot, M.D., D.D.S., Fellow Chicago Academy of Medicine; Professor of Dental and Oral Surgery, Northwestern University, Chicago, Ill., etc. Walter Scott, Ltd., Paternoster Square, London; Charles Scribner's Sons, Fifth Ave., New York, importers. 1898. Price, $1.50.

This is a volume of the Contemporary Science Series, issued by Walter Scott, London, the object of which is to condense and put into a readable form the latest researches of science for the popular reader. This work compares most favorably with other volumes of this series, and will take equal rank with books of Huxley, Maudsley, Ribot, Cloud, and other masters of science.

This volume covers three hundred and sixty pages, with eighteen short chapters, in which the following subjects are discussed: Ethical Degeneracy, Intellectual Degeneracy, Sensory Degeneracy, Spinal and various congenital hereditary Dengenerations, Nutritive Degeneracy, and reversionary tendencies. Among the most interesting parts are the studies of the external signs of degeneracy in the head, face, mouth, throat, ears, and other parts of the body. The author has made some very original studies of these symptoms, which have attracted much attention, and constitute a new and very significant field of study. The work comprises a mass of graphically condensed facts on all the general causes of degeneracy. The grouping of these facts to support definite conclusions is at least very suggestive, and, while often unsatisfactory in brevity, is always very stimulating. The reader is left with an intense desire to go over the facts again and verify the conclusions. The chapter printed elsewhere gives a good idea of the value of this work. We commend this work to our readers as one of the very few books which is not exhausted by one reading; also a rare work for the facts which it compiles and places before its readers in an available form.

Dr. Talbot has the intense satisfaction of knowing that his work will be a monument that will live far down in the future. Such works have a permanent encyclopedic character for the facts they contain, which outlive both the author and the generation he lives in. Again, we commend this work as an essential to every working library of every thinking man. We hope to quote freely from its pages in the future.

SAJOUS'S ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE, VOL. II, BROMIDE OF ETHYL TO DIPHTHERIA. Edited by Charles E. de M. Sajous, M.D., assisted by one hundred associate editors. F. A. Davis Company, publishers, Philadelphia. 1899.

The second volume of this really great work more than fulfills the expectations of the first volume. The articles presented, and the grouping of the facts are eminently practical and clear, and especially useful for rapid review of any subject by a busy man. All the topics are fresh and contain the latest facts put in a very satisfactory way for ready reference. No more valuable and practical volume can be added to a working library than this. Dr. Kerr, one of the associate editors, has a rich contribution on cocainism in this number.

Dr. Gros has compiled an excellent monograph on a modern study of rheumatism, gout, and allied affections, which is of more than usual interest, and will repay a careful reading. Fongera & Co. of William Street, New York, are the publishers.

We receive a large number of exchanges of temperance and philanthropic journals that are welcomed in the field of reform. They are all doing good work, and are helpful to their constituents, and it is a source of pleasure to know that the interest along these lines is growing rapidly. There are over one hundred papers in this country and Canada devoted to the temperance cause, issued weekly, monthly, and quarterly. Another hundred journals are devoted to special forms of philanthropic work, in which temperance is made prominent next to the cause they are promoting. All this is significant of change and growth. The theories and customs of the present are evolving outward and upward.

We have received from Boehninger and Soehne, chemists, of New York, a very interesting pamphlet by Dr. Thompson, on " Clinical Observations of Lactophenin "; also an elaborate study of Ferratin, by five different physicians on different phases of the action of this drug.

Appleton's Popular Science Monthly begins the new year with a continuation of Prof. Ripley's " Racial Geography of Europe," one of the most interesting studies of the times.

The evolution of the colonies, by Prof. Collier, is another most interesting study of history from a new point of view. Other short articles of equal interest appear with these, making this one of the really most indispensable magazines of the times.

The *New Voice* has turned to the more peaceable fields of literature, and, while preserving its original pioneer character, is still the able advocate of prohibition, and a family paper of unusual excellence.

The *Homiletic Review* is one of the most thoughtful, suggestive visitors that can come to any literary table. The publishers, Funk & Wagnalls of New York city, offer great inducements to new subscribers.

The *Scientific American* grows richer in facts and illustrations of new discoveries every year. A weekly reading keeps one in touch with the great events of science.

The *International Dictionary*, the evolutionary growth of over a quarter of a century of Webster's, is a vast library in one volume, and should be in the home of every family in the country. See advertisement.

Editorial.

1899.

The JOURNAL OF INEBRIETY enters upon the closing year of the century pleased that its twenty-one years of constant effort in collecting and presenting the facts relating to inebriety has far exceeded the most sanguine exepectations. The JOURNAL has literally organized an army of facts into the realm of science, and prepared the way for larger and more extended studies. The disease of inebriety and its prevention and cure has practically been discovered, and a new field of medical research opened up for investigation. The great drink problem of past ages has come into the province of science. The JOURNAL and its founders have been marking out boundaries where inebriety, insanity, epilepsy, hysteria, and a host of border-land diseases join and overlap. Also they have outlined the great streams of heredity, nutrition, exhaustion, climate, poisoning, and other forces at work in causing inebriety.

No other journal has ever lived to see the principles and truths it attempted to promulgate so fully accepted and endorsed in so brief a time. No other journal has passed so successfully the three stages which all new truths must encounter, neglect, indifference, denial, opposition, then endorsement and acceptance. No other journal has opened up so wide a field for medical research, and cleared away so many theories and delusions of long centuries. The wild bitter criticism which concentrated on the JOURNAL and its founders has been constructive, and not destructive, as it was intended.

The facts concerning the disease of inebriety is no longer misty theory and dogmatic opinions; it is no longer a battle-ground for the conflicts of superstition, logic, and morals. It

is a new continent where each can glean the facts and their meaning for himself. To all critics and friends the JOURNAL sends its warmest greetings. The light of the new century coming up the dawn is already radiant with promises of greater progress and greater discoveries along the line of inebriety and the laws of development and prevention.

MORPHINISM AND CRIME.

Recently I have seen some new phases of the palsy from morphine which are very significant, and have not been noticed before. This case brings out the facts. A clergyman of higher average ability and culture, a doctor of divinity, with strong mental and physical qualities, began to use morphine after the sudden death of his wife. Soon a change appeared in his character. He became untruthful and began intrigue to secure a larger salary, and took advantage of every opportunity to procure money. He left the church under a financial cloud, and for the next five years became a ministerial tramp. Then he appeared as a confidence man, collecting money for fictitious purposes, preaching and praying with great earnestness and fervor, collecting money and using it in stock gambling. I found him using from four to ten grains of morphia a day in half-grain doses. When the effects of the morphine passed away, deep contrition and a partial consciousness of his condition would appear. He would cry and pray and be very penitent, and ask for help and prayers of every one. After using two half-grains of morphia he became composed and reserved, and all his mind seemed concentrated on some scheme to take advantage, by borrowing money on promises, begging it for charity, and stealing it if the chance of detection seemed small. He would falsify with boldness and frankness that was convincing. He would make oath to falsehoods, and then explain them with great adroitness and criminal skill. The action of the drug changed him completely. His mind

became alert, clear, and resourceful. All fear of consequences or results of words and conduct passed away. His moral nature and all consciousness of right and wrong were cut off. He lost all power to judge of his acts and words, and acted as if they were real, deceiving and lying with a frank earnestness that was convincing beyond all question. He forged notes, borrowed money, and contracted bills, collected money for the Red Cross Society, then disappeared. He came to me for treatment, and was penitent and sad at his failures, but was not clear as to the nature of his acts and conduct before. After a single dose of morphine, all his criminal boldness and cunning returned, and he ran away, taking with him some clothes. There was no failure of mind apparently when using morphine, but rather more activity and steadiness of act and thought, but a total change of his moral nature. He talked of honesty, of truthfulness, and all the noble traits of character, but seemed powerless to apply them in his case. He secreted morphine about his person and stole it from others on every occasion, seldom using more than a limited quantity himself.

The second case was that of a married woman, the mother of two children, with every surrounding luxury, who after some temporary illness began to use morphine. Two years later she became a kleptomaniac and practical confidence woman, not only stealing but begging money, and falsifying on every occasion. In the stores she would buy goods and order them sent to a fictitious address, to be paid for on delivery. She would beg money for fictitious charities. She would steal silver at parties and receptions, and when caught display boldness and cunning unusual. Her mind seemed unchanged, but rather clearer and more sharp. There was no passion or emotion, but a certain independence and apparent consciousness of honesty of action and thought was noticed. To her family the same tenderness and truthfulness were manifest, but out among strangers she was the most cunning, intriguing woman possible. Her schemes were so bold and

original that the detectives were baffled, and finally she was discovered, and a lunacy commission hesitated, then refused to certify to her insanity. In this case the same extraordinary palsy of her moral character was apparent. It was confined to the acquisition of money and property, and to petty acts of deception. Her sexual character was unaffected, but all her mental powers were concentrated on taking advantage of others, creating confidence in others and then taking advantage of them. During this time she was using from two to four grains of morphine a day. There seemed to be a time when she appeared to be in highest mental vigor; this would last two or three hours, and unless she could secure another dose would be followed by increasing nervousness and shrinking from all observation. Her face would become haggard and eyes twitch and her form bowed down. The change would be so great that she would hardly be recognized unless by those who knew her. It appeared that she did not realize her condition or the character of her acts when using morphine. Her memory was indistinct, and a very dull sense of her condition, also feeble powers of comparison of the ethical character of her conduct. She acted when using morphine as if she believed her words and acts were in the highest degree honest. The boldest thefts and deceptions were carried out as if no doubt of their nature existed.

In both of these cases there was not the slightest appearance of deception in the manner, tone of voice, or general conduct. The most apparent frauds were perpetrated with perfect coolness and conscientiousness of right. These were extreme cases, and yet they throw light on the common symptoms of deception noted in nearly all morphine-users. The higher brain suffers first, and questions of duty, right, and wrong become obscured. Certain forms of crime, particularly theft and intrigue, become fascinating, not so much for the money or articles to be secured, but there seems to be a keen pleasure in the intellectual triumph over their fellows, a

form of egoism to secure power over some one and to act under a mask, to have secret motives not apparent to others. With this occurs a certain faith in themselves and belief in their statements after being made. This is a transient condition, but can be kept up for some time after morphine is taken in small doses at intervals. It is probable that the withdrawal of morphia lifts this mask in part, but its renewal causes its return with more intensity. This after a time ends in delirium and dementia. This crime stage is not uncommon in all cases of morphine takers, and may vary in many ways, according to the mentality of the person. A fuller discussion will appear in a later journal.

SOME SIGNIFICANT FACTS.

The famous pioneer leader of the school temperance educational movement, Mrs. M. H. Hunt, is convinced that the decrease in the use of spirits in this country is due very largely to the school instruction of the dangerous effects of alcohol. This instruction began twelve years ago, and at present includes all the states of the Union except four. In most of the states this instruction is compulsory; and in all government schools it is a regular compulsory study. Two years after these laws went into effect a per capita decrease of the use of wine was apparent in the revenue returns. Five years later a marked decrease in the consumption of distilled spirits began. From 1888 to 1898 this decrease amounted to thirty per cent. Before this time there had been an increase, notwithstanding all the efforts of temperance people. Mrs. Hunt says on this point:

"During these ten years the only new feature in temperance effort that has been introduced so generally as to touch all parts of our country, has been temperance education in the public schools. During this period some of our prohibitory laws have been repealed and others have been weakened. Less,

rather than more, temperance platform work has been done in this time than during the preceding years. In addition to these untoward conditions, 4,301,452 people have come to abide in our country since 1888, bringing with them the wine, the beer, whisky, and gin drinking habits of lands across the sea. They have become American citizens, voting at our elections and drinking at our saloons. That the incoming millions, almost to a man, have been an addition to the alcohol consumers of this land, is a matter of public knowledge, and yet in the face of all these discouraging facts the consumption of some of the alcoholic liquors has steadily decreased during the past ten years, and that of all alcoholic liquors for the last five years.

"The brewers in their annual report for the year ending June 30, 1897, show that there was a decrease of 1,402,999 barrels in the sales of beer for the revenue year of 1897, as compared with those of 1896. There were 9,690 fewer liquor dealers in the United States in 1897 than the year before."

This is most significantly called by Mrs. Hunt "the beginning of the end." She further says:

"While not denying that other causes may have contributed something toward this marked decrease in the consumption of alcohol, a study of the tabulated reports from year to year shows a steady unmistakable decline in the consumption of alcoholic liquors, co-ordinate with the gathering momentum of the temperance education movement. We should not for a moment question the value of other temperance efforts which have helped to secure these results, but the figures show that such efforts without temperance education were not adequate to produce this decline in the treasury."

There is deep significance in these statements, and no one can doubt that a tremendous power is at work in all schools and wherever the dangers of alcohol are taught. The growing interest in the drink problem noticed very generally all over the country is very likely to be intensified and increased by

this school instruction. It would appear that these statistics of a decrease in the use of spirits is clear evidence of a psychical epoch, and great wane of public opinion setting in against the present opinions and theories concerning alcohol. Beyond all question, temperance instruction in schools is a mighty power which will be manifest some day in a new generation of total abstainers.

Psychologically, the subject is of intense interest. The gathering hosts of temperance workers with all their theories and opinions of what the problem is and how to cure it; the few pioneer scientists who are trying to read the laws from the facts which they can note; together with the army of children being taught the dangers from this source, are all conditions which will certainly tell in the future. A great revolution and evolution is going on all about us, and some day it will be a great surprise that we did not recognize it and aid it in every way.

STUDY OF INEBRIETY.

A number of arrogant critics condemn the JOURNAL for not giving more facts and less theories. Their idea of progress in the study of inebriety is the collection of facts of pathological anatomy, to gather a great mass of microscopical and bacteriological facts, and go into the field of chemical physiology and determine the excreta and the chemical changes following the use of alcohol, and from this to determine the causes and progress of the disease of inebriety. This is a mistake which is apparent in the field of psychiatry. Insanity has not been discovered by these means, or is not understood more accurately to-day than a quarter of a century ago; yet the facts along these lines have been enormously accumulated. Laboratory researches have been increasing yearly, but from this point no new or startling facts have appeared. Inebriety, a state of poisoning, starvation, and degeneration, more complex than insanity, although a form of insanity, cannot be known by studies along these lines alone. If the gross disorders termed

insanity cannot be found by studies with the microscope and in laboratories, how futile to attempt to understand inebriety by this means.

For years great prominence has been given to psychopathological studies and clinical histories of cases. From these the uniformity of certain causes following certain states pointed to laws which could not be mistaken. Theories of disease following a uniform line from cause to effect have been found supported by clinical and psychological observations. Theories of alcoholic heredity, theories of palsies of the higher brain centers, theories of defective consciousness, theories of lowered sensory activities, theories of the presence of poison-products in the body, and other theories, have been sustained and confirmed by studies of cases. There has been far more accuracy in this, and greater advances toward the solution of the problem of inebriety, than from any microscopic or laboratory studies of dead tissue.

The JOURNAL publishes theories, philosophies, and opinions freely, together with facts from all sources; but the most important facts have come from studies of patients; also studies of the conditions of living and of functional activities of both mind and body. The psychopathology of these cases show more tangible evidence of the actual condition going on and the causes than other inquiries. This is the path of the JOURNAL, not ignoring any line of inquiry, but always conscious of advance and progress along these higher fields of psychological research.

M. Jules Le Jeune, ex-Minister of Justice, gives the following statistics of the condition of Belgium: Seventy-four per cent. of all convictions in the criminal courts come from the use of alcohol. Seventy-nine per cent. of all paupers are drunkards. Eighty per cent. of all suicides have a similar origin. Forty-five per cent. of all lunatics came from the excessive use of alcohol. He concludes that the drink problem is a very serious question in the deterioration of the country.

SEVENTH INTERNATIONAL CONGRESS AGAINST THE ABUSE OF ALCOHOLIC LIQUORS, TO BE HELD IN PARIS, 4TH TO 9TH, APRIL, 1899.

The preliminary program of this congress gives promise of the widest discussion of this topic ever made at any one gathering. Nearly every aspect or phase of alcoholic injury and loss is treated by persons familiar and able to discuss it.

The morning sessions are to be confined to scientific studies. The following are some of the topics announced under three heads:

First, A. "Medical Science and Hygiene."

"The Doctor and Alcohol," Dr. Mapain, Liege.
"Prejudice and Alcohol," Dr. Bienfait, Liege.
"Scientific Knowledge and Alcohol," Dr. Smith, Bordensea.
"Physiology and Alcohol," Pasteur Martale, Berne.
"Child Life and Alcohol," Lady Henry Somerset.
"Mortality and Alcohol," Dr. Baer, Berlin.
"Muscular Effect and Alcohol," Dr. Laborde and Dr. Lapicsque, Paris.
"Exciting Action of Alcohol," Dr. Gilbaut, Toulouse.
"Medical Value of Alcohol," Dr. Kantoroviez, Hanover.
"Therapeutics of Alcohol," Dr. Drysdale, London.
"Public Institutions and Alcohol," Dr. Amery.
"Tuberculosis and Alcohol," Dr. Uhiron, Roumania.
"Inebriate Asylums," Dr. Forel, Zurich; Dr. Colla, Pomerania; Dr. Crothers, America; and Pasteur Marthaler, Berne.
"Non-Alcoholic Drinks," Dr. Jordy, Berne.
"Fruit Diet and Alcohol," Dr. Kamp, Frankfort.

Second, B. "Political and Social Economy and Legislation."

"Longevity and Alcohol," Dr. Drysdale, and Mr. White, U. K. A., England.

"Assurance and Alcohol," Dr. Jordy, Berne, and Mr. Bingham, London.
"Prohibition of Alcohol," Dr. Dawson Burns and Mr. Fielden Thorp.
"Women's Duty," Miss Grey.
"Inebriate Legislation," Dr. Norman Kerr.
"High License," M. Caudelier.
"Number of Drink Shops," M. Caudelier.
"Local Option," Dr. Legrain.
"Netherlands Legislation," M. Van don Meulen.
"Effect of Alcohol on Commerce," Dr. Brunon.
"Number of Victims of Alcohol," Pasteur Marthaler, Berne.

Third, C. "Teaching, Education, and Propagation."
"Bands of Hope," Miss Hilda Dillon.
"Abstinence and Moderation," Dr. Alice Drysdale, and Dr. de Colleville.
"The Bases of the British Movement," Mr. Robert Rae.
"Reform of Public Houses," Mr. W. Bode.
"Recreations," Dr. Daum, Vienna.
"Temperance Establishments," Dr. Legrain.
"Sailors' Home," M. Ruyssen, Rochelle.
"Catering," Mr. Clarke Wilson.
"Counter Attractions against Alcohol," Rev. James Sylvester.
"Origin and Work of the National Temperance League," Mr. J. T. Rae.
"Good Templars," Mr. Councillor Malins.
"W. W. C. T. A.," Miss Agnes Slack.
"Railway Union," Mr. A. C. Thomson.

The afternoon meetings are to be open for educational, moral, and sociological studies of the drink problem. The first day the various questions of the relation of alcohol taking to the higher university training will be presented. The following are some the speakers: M. Brisson, Professor at the

Sorbonne; Dr. Brunon, Director of the School of Medicine, Rouen; M. Ruyssen, Professor at the Lycee, Rochelle; M. Gilbaut, Professor at the Lycee, Toulouse.

The second afternoon the temperance cause in the primary schools will be discussed by many of the leading educators of France, Germany, Switzerland, the Netherlands, and other places.

The third afternoon session will take up alcoholism among workmen in city and country.

The fourth session will study alcoholism on native races and the means of prevention.

The evenings will be open for the discussion of special topics by leaders and specialists. One will be devoted to the work of societies, the other to the influence of law and legislation, the other to women's work, the other to the crime phases of the question, and so on.

The President of this congress, Dr. Legrain, is the Medical Director of one of the largest Insane Asylums of France, and an author of eminence on diseases of the brain and nervous system. Other officers include many prominent medical teachers, scientists, and government officials, and distinguished philanthropists. It is proposed to have representatives of every society and organization for temperance in the world, and if possible arouse a new interest in this topic, which is fast becoming the great theme of civilization. Twelve great countries of Europe have announced delegates to this meeting, and nearly a hundred leading men have been enrolled to take part. Five hundred delegates are expected, and it is expected that this meeting will be one of the most memorable ever held devoted to this subject. Short papers are earnestly solicited on any one phase of the subject from American workers in this field. All letters should be addressed to the American Chairman of the Organization, T. D. Crothers, M.D., Hartford, Conn.

SEASONABLE PRESCRIPTIONS.

Douche for Nasal Catarrh, Ozaena, etc.

℞ Antikamnia and Codeine Tablets, No. xxiv.

Sig.— Crush and dissolve six tablets in a pint of tepid water and use one-third as a douche three times a day. Shake well before using.

Snuff for Acute Coryza, Rhinitis, etc.

℞ Acidi Borici Pulv., dr. i. Acidi Salicylici, gr. vi.
Antikamnia (genuine), dr. i. Bismuth Sub.-Nit., dr. ii.

M. Sig.— Use as snuff every one, two, or three hours, as required.

The *Courier of Sobriety* is the title of the first temperance journal published at St. Petersburgh, Russia. It is edited by Dr. Grigorief, who has long been a subscriber to our journal. It appears to be both a popular and scientific journal, and addressed to clergymen and physicians and philanthropists generally. Dr. Grigorief is about to issue a book on "Hospitals for Inebriates," which will serve as a guide for further study and advance.

HOW MUCH CRIME AND PAUPERISM IS DUE TO DRINK?

The Massachusetts Legislature of 1894 directed Hon. Horace G. Wadlin, Chief of its Labor Bureau, to investigate and answer this question. For his subjects he took all of the inmates of our state institutions for the twelve months of 1895. His results were reported in 1896, and are substantially as I give them to you under the three heads.

PAUPERISM. 3,620 CASES.

Sixty-five in each 100 addicted to alcoholic drink habit; 48 in each 100 had one or both parents likewise addicted; of all, 62 in each 100 used tobacco; of all the male adults, 75 in each 100 used tobacco. His conclusion is that alcohol "tends directly to create a permanently pauperized population." John Bright declared that, in the British Parliament, many years ago.

CRIME. 26,672 CASES.

In liquor at commission of offense, 21,863, or 82 in each 100; 4,852 others in liquor when intent to commit crime was formed; 4,295 other offenses caused by the habit; in 16,115 cases, others, drink habits influenced the crime; of the 26,672, .94 addicted to the drink habit; of the adults, .96 addicted; of all, .58 had drinking fathers, .21 drinking mothers; of all, .85 used tobacco.

Mr. Wadlin's conclusion under the crime head, is that the traffic or habit "tends to create criminal instincts."

INSANITY.

(Connecticut has about 3,000 insane.) Examined, 1,836 cases. Of these he found .52 addicted to the drink habit; .68 of those had one or both parents thus addicted; .51 had grandparents with like habits; of the males, .51 used tobacco.

Dr. Debove declared that alcoholism was present everywhere in France, in the towns, in country villages, and among all classes. The resources and strength of the country were impoverished by this vice. It was no longer a condition of acute and sporadic alcoholism; alcoholism was now chronic in France. That country, according to Dr. Debove, has the unfortunate supremacy of being at the head of all the "ethylic nations." The proportion of alcohol at 100° drunk in Paris amounts to 14½ liters per head; in Belgium and Germany, 10 liters; England, 9 liters; Switzerland, 8; Italy, 6; Sweden, 4; Norway, 3; Canada, 2. This unenviable supremacy is on the increase, as it is in Belgium, the proportion in the other countries being a descending scale. There are in France 500,000 wine shops; in the North of France one for every 25 adults; in the Seine Inferieure Department one for every twenty-two adults, in Paris one for every three houses, not

counting the railway station bars. Dr. Debove told his hearers that no one escapes this epidemic; children, young girls, men, women, all suffer from it. In some parts of Paris nurslings are brought up by bottle a l'alcool. Dr. Debove calls upon the medical world by example, and by carrying on a crusade against this invading tide of alcoholism, to try to stem it.

His conclusions under the three heads are as follows: "Drinking habit once formed, transmits itself from parent to offspring, and the sins of the father are visited upon the children, not merely in fastening the appetite upon the child, but in subjecting him to pauperism, crime, or insanity, or all three." What chance in the world have such children?

ETIOLOGY.

Alcoholism on the part of the nurse is a competent cause of convulsions in a breast-fed child; such convulsions are preceded by nervous irritability, general hyperæsthesia; but without gastro-intestinal derangement, elevation of temperature, or pulmonary complication. They are apt to appear in extremely well-nourished children. As regards the fits, they show marked tendency to increase in number and severity. In some instances there may be anuria. Under such circumstances it is necessary to inquire carefully into the habits of the nurse, and to make a change as early as possible. — Meunier (*Jour. de Méd.*, April 25, 1898).

Sample of *Ecthol* was received, and at time of receiving had good case to use it. Miss ——— had misfortune to run hedge thorn one inch long in leg above ankle. It remained in one week, when she was brought to office to have it extracted. Was successful in removing thorn, but, it being a dead one, pieces of bark remained in wound. Disinfected wound with bichloride, bound it up, and sent patient home. Was summoned in two days and found limb inflamed to groin, swollen and very painful. Removed bandage, which was followed by small quantity of pus. Reapplied dressing. That night bottle of *Ecthol* was received; visited patient next day, and put her on *Ecthol*, teaspoonful six times a day, and injected medicine in the wound and applied cloth saturated with same. In four days pain, swelling, and inflammation gone, wound healing, and patient able to do her work.

A. L. Stiers, M.D.

Horsford's Acid Phosphate is a household remedy which can be used in many common cases of nervousness and dyspepsia; also in all cases of debility.

Bovinine is literally blood treatment, and no other medicine approaches this in accuracy of means to supply an end. Blood is supplied to the wasted system, and in many cases no other remedy come nearer to the true method of restoration.

"Be sure you're right, then go ahead."

How much trouble, worriment, and doubt would be removed from our minds did we conform literally to this homely adage.

We are all too prone to take things for granted, sometimes on the false assurances of dealers, that something else will answer the same purpose as *Pond's Extract*. It never does.

Maltzyme, with hypophosphates and plain, has been particularly valuable in the late prevailing influenza. It seemed to be not only a nutrient, but a heart tonic, and when used

the extreme muscular exhaustion and feebleness following this disease was prevented. In two cases this was so prominent as to suggest almost specific action. *Maltzyme* grows in favor wherever it is used, and in certain cases it is invaluable.

Listerine is a standard antiseptic, and has this advantage over all drugs of this class in uniformity of action and always reliable. *Lithiated Hydrangea* is another preparation of this firm, which is valuable as a renal alterative, and has become famous in many ways as a new remedy.

We call attention to a new preparation called *Fikulax*, for constipation and intestinal debility, prepared by the Charles Roome Parmele Co. of New York city. It is said to be a most valuable combination.

Rickine is a formula from the coal tar products, which has proved very serviceable, and in influenza is almost a specific. It is prepared by an old reliable firm of the G. F. Harvey Co., Saratoga Springs.

Celerina has been before the profession long enough to establish its reputation as a nervous sedative and most efficient anodyne in many cases. Many cases are on record of its substitution for opium and its value in the withdrawal of this drug.

Again we call attention to *Fellows' Hypophosphites*. They need no praise, only a clinical test to show their value to the general or special practitioner. As a nerve and tissue tonic it tells for itself in almost every case.

Wheeler's Tissue Phosphates continue to be sold most abundantly in the belt of the great white plague of New England.

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A Sanitarium for the care and treatment of cases of

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1012 WALNUT STREET, PHILADELPHIA.

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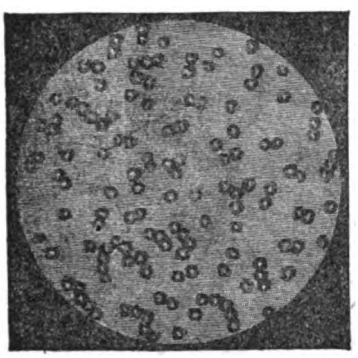

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THE
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Vol. XXI. APRIL, 1899. No. 2.

DIETETIC CAUSES OF INEBRIETY.

By T. D. Crothers, M.D.
Superintendent Walnut Lodge Hospital, Hartford, Conn.

Inebriety is one of the most complex neuroses and obscure border-land diseases known. To the average practitioner the inebriate is simply a weak, willful, vicious man, who has full power to do different but will not exercise it. When the inebriate is examined carefully, and all the facts of his inheritance and nutritional and also mental life and growth are grouped, a uniform progressive line of disease is found. The pathologic conditions which precede alcohol, and the conditions which follow from its use, are marked in different degrees. The former are not recognized and the latter have only recently come into prominence. The use of alcohol is followed by conditions which differ very widely, and are unexplainable except by a study of preceding conditions before spirits were used. One of these conditions is heredity, that is the transmission of defects and predispositions to degenerate in certain directions, with or without special exciting causes. Another is nutrition, a third is disease and traumatism and its

sequelæ, a fourth is culture and refinement, and so on through a long list of causes. In all cases it may be said that the nerve centers suffer from practical starvation, and the narcotism from alcohol is grateful in covering up the irritation and the pain which demand relief. In my studies the nutrition of childhood has been found to be an active cause in many cases. I have divided these into the *overfed* and the *underfed* cases. In the former the clinical history would follow these general outlines: The nursing child would be surfeited both at the breast and by infant foods. The central thought of the parents would be the danger of starvation and the need of constant ingestion of food. When indigestion followed, another nurse, and changed foods in equal quantities would be given. Later, when the child was able to occupy a place at the table with his parents, all discrimination was left to his own tastes, the parents reasoning that the appetite was the best guide and the child's food inclinations should be followed. Anything the child called for as foods or fluids were given freely. The disturbances of digestion which follow are usually treated as weaknesses and tendency to diseases. Consumption, rheumatism, disease of the liver, stomach, and kidneys, and other formidable diseases, are discerned in the horizon by the worldly-wise physician. Patent foods, climate cures, changes of school and culture, and many remedies are tried. Finally puberty is passed, and the digestion is permanently impaired. The appetite is lawless and without control. The body is ill-nourished. Already fatty deposits have begun. The demand for foods and fluids is mere impulse. The taste is disordered. Large quantities of certain classes of foods are taken, then abandoned. The same of fluids, teas, coffees, mineral waters, beers, wines, and anything used at the table.

Indigestion and obscure or well-defined nerve failures, nerve disturbances, irregularities of sleep, all follow. Then, finally, comes the subtle tonic bitters containing from twenty

to forty per cent. of alcohol, or wines or whisky, and inebriety has come. The relief which comes from spirits is so marked that it is continued, and then follows a rapid, sharp degeneration, and the inebriety is chronic, and complex mental and physical changes appear; opium and other narcotics follow, changing from one to another. This picture is not confined to children of wealthy persons, but occurs in all the various circles of society, in the family with moderate means, and among children who are obliged to begin the serious work of life at an early age. The dietetic delusions of parents are engrafted and engraven in the minds of children, and the end is inebriety. Some of these cases take on paroxysmal forms, after spirits are used. Thus, an attack of acute indigestion is followed by a drink craze, which after a certain time subsides, and breaks out again after a free interval. They become periodic drinkers, and when they die show in the post-mortem remarkable stomach degenerations. It is found that the sudden unreasoning outbreaks of what is called alcoholism, or the use of spirits to prolonged intoxication, occur in those delusional dyspeptics who, from infancy, have had no dietetic or food control. Such morbid eaters occur often among prominent men, and when they begin to use spirits have no power of control and are soon pronounced inebriates. In these cases, digestion is early strained and stimulated far beyond the needs of the body, and the food, non-assimilable or in excess of the demands of the organism, accumulates and becomes a source of degeneration. Overgrowths, retarded growths, defective growths, with functional derangements, both of physiologic and psychologic control, follow. Excessive nutrition in childhood is often a cause of inebriety in later life, both with and without special exposure, and often among persons who by environment would naturally not use spirits.

The second class of cases I have called the underfed. By that I mean persons who have been practically starved in

many ways the first twenty years of their lives. The starvation has come from exclusive diets used from necessity or from theory, or from carelessness and neglect. In very poor families the food from infancy would be potatoes, corn meal, or pork, or fruits in some tropic climates, or some form of liquid foods, no variety, and one article almost exclusively. In other families, from theory, children would be forced to use one class of food and no others, as, for instance, meats, or grains or fruits to the exclusion of every other class of foods.

In the larger proportion of cases, carelessness prevails. Children are supposed, after the nursing period, to eat the same foods as the rest of the family, and are given without discrimination anything which is prepared. No care is taken of their diet, no judgment is exercised as to quality, variety, or nature of foods. At one time fruit is used to excess, or vegetables, or meats, or grains, according to the supply. In the family of a country grocer, three boys, after a protracted period of indigestion, became inebriates. I found that the diet of the family was largely dependent on the surplus of perishable food which accumulated in the store. At one time it was eggs, then fruits, then grains, then meats. This diet was insufficient, and states of starvation and defective growth followed which led most naturally to the narcotic of alcohol. In another case two sons of a clergyman began to use alcohol to excess without any apparent reason. The theory of the parents that excess of quantity and variety of food was dangerous had been carried out from infancy. A limited and always insufficient quantity of potatoes and bread had constituted the daily food. When these children grew up, they ate to great excess away from home. This, with starvation at home, broke up the normal nutrition, and the relief from alcohol was so great as to be irresistible. In a case of unusual mental ability, where the user of spirits was of an exceptional character, and the effort to recover was of equal intensity to the craze for drink, it was found that regular, uniform diet of moderate

variety of foods was medicinal. As long as his diet was mathematically uniform and unchangeable he could keep from spirits, but the slightest deviation in time of using food and their quantity and quality would destroy his mental control. It was ascertained that his mother, during pregnancy and lactation, entertained some extreme opinions of foods and their value, and put them in practice in her own case. The result was a very sensitive nutrient organization in the child, with anaemic sick headache throughout childhood, great excesses at puberty in foods and drinks, and continued nutritive disturbances up to manhood. Then a period of drug-taking and periodic inebriety. Now he is able to be a total abstainer only by the most careful attention to diet. There appears to be a close relation between the excessive use of meat in childhood and inebriety in early middle life. While the facts are not sufficient from which to draw any general positive conclusions, there are many reasons for supposing that often they are as cause and effect. This appears clear in this case: The parents in a family entertained very strong confidence in the value of meat as an ideal food. It was used and urged upon the children in all forms. One boy began to drink in college and died after a short period of great excess. A sister was hysteric and became a drug-taker and died early. Later, the parents abandoned meat for grains and fruits, and three children brought up on this diet have continued well and healthy. The conditions and surroundings are the same, but the vigor of the children are varied widely. Beef-eating foreigners who bring up children on this diet are astonished that their children turn to beer and wine so early. The reason is the early deranged digestion which, calling for relief of some kind, finds it in alcohol. The question of the value or injury from meats and grains is yet to be studied and settled. After alcohol is taken to excess, the complications of nutrition are many and serious. One of the first essentials in treatment is the elimination of toxins with proper nutrition.

Foods of easy digestion with moderate variety and quantity, and taken at regular intervals, are required. Concentrated foods may be useful in some cases and injurious in others. Frequent use of food and in large quantities is to be avoided.

Two conditions exist, impaired and defective nutrition, and congestion from over-accumulation of toxins and waste, unassimilable foods and starvation. The treatment is not by routine or specifics, either foods or drugs, but by the use of many and complex measures to meet the special conditions called for. Inebriety is not confined nor traceable to any special cause, and its treatment cannot be successful by any one measure or form of drug. The unexpected outbreak of the drink craze in early life and the persistence of the use of spirits are unmistakable evidence of some central defect of nerve centers and neurons. These defects are most likely to come from nutrient degenerations, in what way no one can tell, yet the facts point out a distinct relation.

The drug poisoning from alcohol, opium, and other narcotics most clearly affects the nutrition, and in all cases is followed by veritable starvation and failure to assimilate the food required. Where causes are traceable to early life, the degeneration is greater and the symptoms are complex. The same nutritive problems appear in all cases. The use of tea, coffee, and wines at meals in early life is a starting point for both degeneration and inebriety later. Many of the most intractable cases of pronounced degeneration where the alcoholic symptom was maniacal have a history of early tea and coffee drinking. The facts fully sustain the assertion that a large number of cases of inebriety are traceable to defective nutrition in early life. This may be both starving and poisoning, and the extreme persistence of these states is remarkable. Thus the bad living of childhood, with its defects of nutrition, may appear in later life, as in the following: A child of healthy parents who were killed by accident was kept

six years in the family of a German wine drinker. He was overfed and given wine freely at the table, and was considered sickly. Then he was taken by another family and brought up very carefully and abstemiously. After a long temperate life he retired from business at sixty, and soon after began to over-eat and drink wine at meals, and finally became an inebriate. Many cases are traceable where inebriety began at or before puberty, or after, then subsided, and later in life broke out again without any special causes. The expression, "sowing wild oats," often describes a period of excessive use of spirits and nutritional disturbances, and then a full subsidence and a long period of temperate living. Far down in middle and later life a recurrence of this excess period appears again, and often death follows. Here there is a persistence of nutrient and poison effects, which break out like some masked fire which has been dormant for a long time. The appearance of inebriety is usually sudden and without any exciting causes, and the change in conduct and manner of living is unexplainable. The same methods of using spirits and the same food impulses and tastes, and the same surroundings as far as possible, appearing after a lapse of a lifetime, show that early defects are not affected by time. I conclude at this point with a summary of what I have intended to make clear in this study:

1. Inebriety is a most complex neurosis. The causes are equally complex, and include all the various states of degeneration which influence and disturb nutrition.

2. Obscure indigestion begins, and for this drugs and bitters containing alcohol are used. The narcotism which follows is so grateful that it is continued.

3. Dietetic delusions are fostered in the minds of parents and children, and from this many different forms of inebriety begin.

4. Often the most maniacal and chronic inebriates are from these delusional dyspeptics.

5. Starvation is present in many of these cases. The quality and variety of foods are deficient, and defective nourishment follows.

6. The uniformity of taking foods and the quality and variety are essential. This and nutritional rest and mental anxiety are important factors.

7. The inebriety following these conditions is successfully treated by elimination of the toxins and special correction of the nutrition.

8. Nutrition is a very active cause in the production of inebriety, and should receive a careful study in all cases.

Apomorphine merits a conspicuous place among the remedies for acute alcoholic delirium. Here there is muscular rigidity, convulsions, a full, bounding pulse, and usually a stomach with an irritant, just the condition to be counteracted by the physiological effects of apomorphine. It does the work in minutes, whereas it takes hours for the bromides, chloral, and such remedies to produce the same effect. It is far superior to morphine, which dries up secretions. A case in point: At midnight a physician was called to see a man said to be in convulsions. Upon entering the house he saw a man on the floor with five others holding him down. His face was flushed, pulse bounding, and he had violent tonic convulsions every few minutes. He was well known as an habitual drinker, and a strong odor of alcohol pervaded the room. One-tenth grain of the hydrochlorate of apomorphine was injected hypodermically. In four minutes free emesis followed, rigidity gave way to relaxation, excitement to somnolence, and without further medication the patient fell into a quiet sleep. While apomorphine acts well in these cases, its use is generally contraindicated in genuine cases of delirium tremens, in which there is usually a weak heart.

SOME CONCLUSIONS IN THE TREATMENT OF ALCOHOLIC AND DRUG INEBRIATES.

By J. M. French, M.D., Milford, Mass.

An experience of several years in the treatment of drug *habitués*, so called, has convinced me that in all cases of any considerable standing the disease to be treated includes much more than the habit of drug-taking, and the breaking up of the habit is not the cure of the disease. In order to be in any measure complete, this must include three stages:

1. The stopping of the drug-taking. This deals with the habit only. The removal of the morbid cause, in this as in most other diseases, is the first condition of cure. But though of prime importance, it is only a beginning. Even though the drug be stopped, there is great danger of a return to its use, unless the first step is followed by another, namely:

2. The overcoming of the drug-craving. The tendency of all drugs of the class now under consideration is to create a morbid appetite or desire for their continuance. Unless this is removed it will in the end almost certainly lead its victim to return to the use of the drug which he had abandoned. The history of temperance reform has shown how universal is this law. The man who practices total abstinence while fighting the desire may be a reformed man and entitled to all credit as such; but he certainly is not a cured man. But even when the drug is stopped, and the appetite removed, except in slight and recent cases, the work is done. There yet remains the most difficult portion of the task:

3. The removal of the drug effects. The morbid effects of the continued use of the drug must be gotten rid of and the

system restored, in some measure at least, to a normal condition before a cure can be claimed. A drunkard who is suffering from alcoholic neuritis is uncured, and one who has advanced cirrhosis of the liver is incurable, though in either case he may cease his drinking, and even lose his desire for drink. A narcotic *habitué* whose indulgence in opium has brought on loss of sexual power is uncured while this condition continues, though he may not have taken opium for months or even years. The restoration of the system to a normal condition is the essence of cure; all the rest is preliminary and partial. We must not, however, forget that in this as in other diseased conditions it is not always, or even often, that a perfect cure can be effected, but that we are frequently obliged to be satisfied with partial restoration to health.

No serious case of any drug disease can be treated to the best advantage except in a hospital, sanitarium, or retreat, specially fitted up for the purpose, where the patient can be under the care and control of physicians and nurses having a special knowledge of his disease and experience in its treatment. It is impossible to treat such a case properly at the patient's home, or where he is surrounded and cared for by his personal friends. This may be considered a strong statement, but I make it without hesitation. In the first place, no such patient can be trusted to carry out even the plainest directions in the absence of the physician; and this not because of any inherent depravity in the man, but because the effect of the drug has been to make him in greater or less degree irresponsible. If the case has not progressed far enough to produce this result, then it is not a serious case, in the sense in which I am considering it. It does not follow, however, that either the patient or his friends recognize this fact. Indeed, they will both probably deny it — the patient almost surely so. Nor can his friends be trusted, except in very rare instances, to carry out these directions, for they are likely to be influenced by his appeals, out of pure kindness of heart. But even if

they could be trusted implicitly, they have not the knowledge which is necessary. Drug diseases are unlike all others and require different treatment and care. Until recently they have received no attention in schools or text-books, and the family physician does not wish to assume their care, knowing it to be something entirely outside his experience.

Nevertheless, it would be going too far to say that no one can be cured who cannot command the resources of a sanitarium. With a faithful physician, judicious friends, and a patient who honestly desires to be cured, much may be done even at home, and under circumstances in some respects unfavorable. Quite recently I have had the oversight and directed the treatment of a very serious case of morphine addiction, at the home of the patient, under circumstances such as I have named, with results which were finally satisfactory, but much less speedily and easily secured than would have been the case in a well-equipped sanitarium.

The cases which I have designated as drug diseases may be broadly classified as alcoholics and narcotic *habitués*. Between the two classes there is a broad line of demarcation, both as to symptoms and in the manner of treatment. The alcoholic needs close watch and vigorous treatment for a few days. Then, if properly managed, the worst is over; the craving disappears, despair is succeeded by hope, and discouragement is followed by enthusiasm. But the way of the narcotic *habitué* under treatment is beset with difficulties from the beginning to the end. Snares and pitfalls are on every side. In addition to the strictly medical treatment, he requires constant companionship, sympathy, and encouragement. He must be handled with gloves, but there must be an iron hand beneath the glove. Months of abstinence and apparent health are often required before his mental balance is restored and his physical soundness assured. Not until at least a year has passed, under favorable circumstances, is it safe to look upon him as really cured, and to expect that his cure will be permanent.

Notably among all the professions, physicians are the most prone to the use of narcotics; or it may be that they are more anxious than others to be freed from their bondage, and so come more often for treatment. Certain it is that in the statistics of most institutions for the cure of narcotic *habitués*, physicians form a larger proportion than any other single class.

The remedies used in the treatment of drug *habitués* vary according to the conditions to be overcome and the objects to be attained. In alcoholics, for the purpose of toning up the system of the drunkard to such a pitch that it will no longer demand alcohol, for eradicating the cravings of the diseased appetite, and even of replacing it with a sense of disgust, strychnine stands *facile princeps*. To attain this end it is best given both hypodermically and internally, to the extent, all told, of one-fifth or one-fourth of a grain per day. When given internally it should be combined with other remedies to modify its action and play important but subordinate parts, such as acting upon the bowels, liver, and kidneys, and lessening the irritability of the nervous system. The advantages of hypodermic use are: (1) that a more immediate, direct, and positive effect is secured thereby; (2) that it brings the patient under the eye of the physician at frequent intervals; and (3) that it enables him to vary the dose and even the composition of the remedy used without the knowledge of the patient. The majority of patients, when treated in this way, lose all desire for drink within a few days. Only occasionally is there a hard case met with, who is resolved to drink as long as he can, and in which it becomes necessary to substitute one-tenth of a grain of apomorphine for the usual strychnine injection, at the time of taking a drink. The effect of this is only temporary, and has nothing to do with the real cure of the disease. Not so with the strychnine, however, whose effects are as positive and permanent as can be secured from any drug. Indeed, it comes very near to being a specific for

alcoholism. A good illustration of the positiveness of its effect was furnished by a patient whom I treated in the summer of 1877. He was a professional man, forty years of age, who had been drinking almost continuously for six months, during which time he had suffered from several attacks of delirium tremens, as he also did during the first seven days of his stay with me (see *American Therapist*, November, 1897). Two weeks after his recovery from this attack he expressed a strong desire to make a trip to Boston. Of course this was a most unusual and improper thing for a patient undergoing treatment for alcoholism. Nevertheless, as his stay with me was entirely voluntary, and, moreover, as I was confident he had lost his desire for liquor, I consented, and sent a trusted attendant with him to the city At night the attendant returned alone, the patient having at the last minute announced his intention of staying over night. Somewhat uneasily, I confess, but by no means discouraged, I awaited the result. The next afternoon he returned alone, clear-headed, sober, and satisfied. His night had been spent in the saloons where he had formerly drank, in company with his old companions, watching them drink, treating them indeed, but drinking nothing himself, for the best of reasons, that he had lost all desire for drink — a condition never before met with in his experience. He had been suspicious and dissatisfied before, not believing, as he said, the stories he had been told about the effect of the treatment in taking away his appetite. He had planned the trip for the express purpose of testing himself, to see whether he really could let liquor alone when it was before him. He came home satisfied, was discharged cured in due time, and has remained sober ever since.

I know of no drug which exercises anything like a specific effect upon the craving for opium and other narcotics. Nevertheless, in the patients whom I have treated by the method of rapid withdrawal, while the system is under the influence of large doses of the bromides, with other sedatives and hypnotics

during and closely following the period of withdrawal, succeeded by moderately large doses of strychnine, I have always found the craving to disappear, and with proper care not to return. Nevertheless, the ex-opium *habitué* is likely ever afterwards to find in pain and debility, fatigue and nerve strain, shrill-toned voices calling loudly for opium for their relief. In both alcoholic and narcotic *habitués* there is therefore an imperative necessity for a post-active stage of treatment, during which the patient, while relieved from the necessity of drug-taking, should be surrounded by favorable circumstances and hygienic conditions, in which undue nervous, muscular, and mental strain should be avoided, the body built up, the mind strengthened, and the whole system habituated to living without alcohol or narcotics. If practicable this stage of the treatment should be conducted by the physician, while the patient is yet under his eye and care. In many cases, however, the patient is unable or unwilling to remain long enough for this purpose, and the physician can only impress upon him the course which he ought to pursue, and leave with him the responsibility of following the course marked out.

I have spoken of the diseased appetite, the unnatural craving, as the cause of the continued use of alcohol and narcotics, and of the necessity for its removal. But there is a cause back of this, that which first led to indulgence in these drugs, when as yet there was no unnatural craving, or which in some cases was itself the cause of the craving. In those cases in which it is possible to find this cause, and remove it, the result is most satisfactory. For example, where opium or morphine has been taken for the relief of pain, as in neuralgia, if the underlying conditions which cause the neuralgia can be removed the outlook becomes thereby decidedly more hopeful for continued freedom from morphine using. In a case reported by me in the *Journal of Inebriety* for January, 1898, the cause of excessive drinking was believed to be irritation

of the cerebral cortex, caused by pressure from a depressed bone. The bone was removed, the pressure relieved, and the desire for drink ceased. In several other cases which have come under my care I have believed the underlying condition which called for the anesthetic action of alcohol for its relief to be a serious valvular disease of the heart, which it was impossible to remove. Some one has reported a case in which a bullet encysted in the lung tissue was believed to produce a similar result. In all these cases the prognosis is bad. Where liquor has been taken first as a medicine, it is necessary to impress upon the patient the fact that there is no disease or condition which is commonly treated with alcohol which cannot be treated as successfully without alcohol. Or if the physician himself has not yet reached this conclusion, he can at least assure him beyond all question that for one who has once been a drunkard the use of alcohol in any form, even as a medicine, is forever afterwards unsafe and must be avoided. When evil companions and fast living have been the exciting cause of inebriety, a change in the nature of the man, in his associates, and in his objects of pursuit, must be accomplished before there can be any reasonable prospect of continued sobriety. In short, there is a need of adding reform to cure, in order that either may prove permanent.

The results of the medicinal and hygienic treatment of drug diseases are eminently satisfactory, when compared with like results in other diseases. In a very large proportion of cases the disease can be cured, and entirely cured. Most cases of relapse, indeed, are due not to any lack of thoroughness in the cure, but to the continued operation of those causes which first led to the indulgence. If, however, we follow the popular idea, and consider as permanently cured only those cases which never return to the use of the drug, then, if we are to judge from the statistics of a large number of institutions, the proportion of permanent cures will vary from thirty-three and one-third to fifty per cent., and will be nearer the former than

the latter figures in most cases. This may seem to the reader like a very moderate percentage of permanent results; and so it is, indeed, when compared with Keeley's claim of ninety-five per cent. of cures and no relapses. It has, however, the advantage of at least approximating the truth — an advantage which it does not share with the claims of the so-called gold cures. Furthermore, it must be remembered that by no other method of dealing with the drunkard and the narcotic *habitué* is it possible — as shown by the history of temperance reform from the days of the Washingtonians down to the present time — to secure even continued sobriety in more than a very minute proportion of those who have once been confirmed drunkards or narcomaniacs.

It may be noted, further, that the proportion of relapses varies greatly according to the different classes of patients treated, and the degree of mental control and moral responsibility of which they are capable. If we grade men according to their occupation, education, social, financial, or moral standing, we are sure to find that the lower in the scale the patients treated, the larger will be the proportion of relapses, while the higher the standing of any individual patient, the greater is the probability of his persistency. No doubt the elements which underlie these varying proportions are in the main those differences in physical constitution, mental characteristics, and moral standing which lead in turn to their differences in occupation, education, and mode of life. The better a man's mental balance and force of will, the more apt is he to continue in a normal course of living, when once he has been restored to a normal condition.

In all drug diseases the moral nature is largely involved, and the question of reform is intimately connected with that of cure. The drug *habitué* lives entirely on the sense plane, and it is time wasted in treating him, unless he can be aroused to desire a higher order of life. Time wasted, not because it is impossible to cure him, but because he will be sure to re-

lapse. The man himself must have *the will to stop* before any permanently good results can be expected; and when he has once stopped, and been restored in so far as is possible to a normal condition, he must have *the will to abstain* totally and forever from the drug which he has abandoned, and all others of similar nature.

DELIRIUM TREMENS AND TYPHOID FEVER.

Delirium tremens may be confounded with typhoid fever, or both these conditions may exist in the same persons, as illustrated by a remarkable case reported by Dr. J. M. DaCosta of Philadelphia.

The patient, a bartender, when admitted into the hospital was in a condition of delirium suggesting delirium tremens. The man was so delirious during the night, as well as during the day, that he had to be strapped to the bed. Temperature, 101; tongue tremulous when protruded, and coated in center; pulse, 110, and of fair volume; constant action of lower jaw; abdomen swollen, and veins distended, but no dropsy; liver increased in size, particularly left lobe; spleen not much enlarged; Widal test reaction and is positive; hemorrhage from bowels, amounting to about a quart of blood.

There are two distinct possibilities in this case. First, delirium tremens with hypertrophic cirrhosis of liver. The hemorrhage may be the result of this. In favor of this view is the fact that patient is a bartender, and during a lucid interval admitted that he was on a three weeks' debauch; also character of delirium.

Second, typhoid fever, the hemorrhage coming from intestinal ulcers. The Widal test is in favor of this view; also continuance of fever, though not high. This is not characteristic of delirium tremens or cirrhosis of liver.

There is no doubt as to delirium tremens and cirrhosis of liver in this case, and Dr. DaCosta concludes that typhoid fever existed in addition. Probably the little water he drank during the debauch was not the purest, and in this way the patient received the typhoid bacilli.

TREATMENT OF INEBRIATES.

By A. M. Rosebrugh, M.D., Toronto, Canada.

In the June number of the *Canada Lancet* I am criticized for not favoring the Keeley method of treating inebriates, for not visiting Keeley Institutes in the United States, for recommending the utilization of local hospitals for the treatment of inebriates, and also for suggesting the appointment by the Government of an inspector of inebriate institutions.

From the character and tone of this communication it is very evident that it was neither written by a medical man nor by a Canadian, and that the writer is more concerned for the interests of the company controlling certain proprietary remedies than for the interests of the unfortunate inebriate.

Although a reply seems almost superfluous under the circumstances, it may possibly serve a useful purpose if I should state some of my reasons for not favoring the Keeley treatment.

A little over a year ago a lady called upon me to secure my interest in the Keeley treatment for inebriate prisoners. She was fortified with a number of documents and publications that placed the Keeley treatment in a most favorable light. I was so well impressed with her presentation of the case that I took some trouble to have her name placed on the programme for a paper to be read on the subject before the National Conference of Charities and Correction which met in Toronto in July last, notwithstanding that the programme had already been arranged for. I spoke favorably of the Keeley treatment to a member of the Ontario Government, to the Inspector of Prisons, as well as to the members of the Prisoners' Aid Association.

During this time I accepted the statistics furnished me as trustworthy. After a careful investigation, however, I was forced to the conclusion that if not absolutely inaccurate, they were at least misleading. For instance, it is claimed that by the introduction of the Keeley treatment in the branches of the United States Military Homes for Disabled Volunteer Soldiers, from eighty per cent. to ninety per cent. of those taking treatment for inebriety are permanently cured of their inebriety. I have letters from three of the surgeons of these branches. The first stated that the Keeley treatment was never used in the Home with which he was connected, as they found other treatment quite as effective. The other surgeons state that although the environment of the soldiers in these homes was most favorable to reformation while taking the Keeley treatment, special privileges being granted to Keeley "graduates," yet not more than from twenty per cent. to twenty-five per cent. appear to be permanently reformed. One of these surgeons puts the proportion of "cures" at twenty-five per cent., and the other at only twenty per cent.

Again, it is very strongly claimed and maintained by the Keeley Company that no deleterious drugs are used in the Keeley treatment, hence no possible harm can come from said treatment. Upon looking into this phase of the question, however, I found that this claim is as stoutly denied. Dr. B. D. Evans of the New Jersey State Hospital for the Insane published in the *Medical News* a report from thirty-seven physicians in the United States — physicians mostly connected with asylums for the insane, and in no way affected by the rise or fall of the Keeley stock — regarding the after-effect of the Keeley treatment. There were 156 cases of relapse, eighty-eight cases of insanity, two cases of suicide, and eleven deaths soon after taking the treatment. Allow me to quote Dr. Evans' own words: "We find in the table eighty-eight cases of insanity following the Keeley treatment, eighty-three of them reported by thirty-seven physicians. In about

seventy-five per cent., hereditary predisposition to insanity is denied, and in about ninety per cent. there was no manifestation of mental obliquity, except a morbid appetite for alcohol, previously to taking the Keeley treatment. A large number exhibited symptoms of insanity within a few days after being discharged from Keeley Institutes as cured, and a few went almost directly from the "Institutes" to institutions for the insane.

"There were 158 relapses which came under the care or observation of twenty-six physicians. A large proportion of these were in broken-down health, which they attribute and trace to the effects of drugs taken while in the 'Keeley Institutes.' Of these relapses, a goodly number suffered from nervous prostration and insomnia, which did not exist previously to their course of treatment.

"A group of eighty-eight insane men is not a glowing testimonial to any system of treatment, whether it be systematic 'Jabbing' or 'doping,' or what not. And when these disastrous results follow so closely on the drugging, and the testimony is so direct and pointed as to the cause, the duty of every physician who wishes to uphold the honor and dignity of his profession is plain.

"The 158 relapses were only learned incidentally, and were recorded with the more serious phases of the subject; yet when we consider the fact that this comes from only twenty-six observers, it is fair to presume as to the magnitude of the failure that really does follow this form of quackery, that is widely advertised as being endorsed by leading physicians, ministers of the Gospel, etc. It is also reasonable to presume that not one tithe of the cases of insanity, nervous disorders, and suicides which follow closely in the wake of the Keeley treatment ever sees the light of even a newspaper report."

I also found that at the Washington Home, Boston, during the last few years fully fifty per cent. of the patients have taken some form of "Gold Cure" treatment, and at the

Walnut Lodge Hospital, Hartford, these cases amounted to seventy per cent., while fifty per cent. have taken the Keeley Gold Cure; some of these have taken the "Keeley Cure" several times.

While on a visit to the Massachusetts Reformatory for Women last winter, I asked the lady superintendent if she had had any experience with, or knowledge of, the Keeley treatment. Her reply was to the effect that from what she had seen of the results of the treatment it was far from being satisfactory. I put the same question to the secretary of the Massachusetts Prison Association. He said: "I have known scores to take the 'Keeley Cure,' but I know of only one case where the cure was permanent." On the other hand, on asking the secretary of the New York Prison Association the same question he said, in effect: "The Keeley cure is all right, but the treatment of Dr. —— of ——, Ont., is quite as good. Don't bother about the Keeley treatment."

The Rev. Dr. Buckley, editor of the *Christian Advocate*, New York, through physicians and clergymen, obtained the results of treatment of 534 cases of inebriety in "Keeley Institutes." Of these, 251 relapsed within the comparatively short period of nine months, thirteen became insane, eleven died, and two committed suicide.

Your correspondent finds fault with me for not visiting "Keeley Institutes" in the United States. I went where I had reason to believe I could obtain reliable information, and I was not disappointed. I saw Dr. Lett of Guelph, Dr. Crothers of Hartford, Conn., Dr. L. D. Mason of Brooklyn, Dr. Hutchinson of Foxboro, Mass., and Dr. Ellsworth of Boston. These gentlemen have attained an eminent position in their specialty and they have made valuable contributions to the literature of the inebriety question, and, moreover, their practice is in accordance with the tenets of legitimate medicine. I did, indeed, visit the "Keeley Institute" in Toronto, as well as two other so called "Gold Cures," one in Canada

and one in the United States, and although I was most courteously treated by the gentlemen in charge of these institutions, the amount of scientific information vouchsafed could be put in a very small compass. As already intimated, I had correspondence with the Keeley Company at Dwight, Illinois, and I had the Keeley literature and their so-called statistics placed at my disposal.

Under these circumstances I fail to see any advantage in visiting the individual "Institutes." I intended visiting some of the United States Military Homes where the Keeley treatment had been in operation, but I ascertained that the Keeley treatment had been abandoned in all these soldiers' homes, and that representatives of the Keeley Company or Keeley Institutes had been prohibited giving treatment to the inmates of these military homes. I may say that I obtained this information from the "Report of the Board of Managers of the National Home for Disabled Volunteer Soldiers," 1897, page 194. The publication was kindly sent me by Gen. W. B. Franklin of Hartford, Conn., the President of the Board. This does not look like an endorsation of the "Keeley Cure" by the United States Government. I may add here that I also failed to find that the Keeley treatment is in use in any penal institution anywhere, although the Keeley Company claim that such is the case.

I am, on principle, opposed to the adoption of proprietary remedies. Had I found that the representations of the Keeley Company could be substantiated, that the remedies were harmless, that their statistics were reliable, and that eighty or ninety per cent. of their "graduates" abstained permanently from intoxicants, I would have felt it to be my duty, in the interests of humanity, to report favorably to the adoption of the Keeley treatment for the relief of pauper inebriates and inebriate prisoners. For seven or eight years the Prisoners' Aid Association has been urging the Ontario Government to establish one or more reformatories for ine-

briates, but the Government hesitates to do this on account of the very large expenditure necessary both for buildings and for maintenance. It can readily be seen that this expenditure would be avoided if eighty per cent. or ninety per cent. of prisoners and paupers can be permanently cured by a course of four or five weeks' treatment.

Unhappily, no treatment has as yet been devised that can effect such a desirable reformation. Had I found that the "Keeley Cure" could accomplish this, I would gladly hold up both hands for its immediate adoption, notwithstanding the fact that — as stated to the Prisoners' Aid Association by a representative of the Toronto "Keeley Institute" — the minimum charge would be $30 per patient.

Bills to establish asylums for inebriates have been introduced into the Legislature of Illinois every year for a long time. They are always killed in the committee. This year a new bill has appeared. It is called the saloon jag bill, and provides for the erection of two hospitals in the State for the proper care, custody, and treatment of inebriates. To pay for the running expenses of the institutions, a tax is imposed on all saloons to the extent of ten per cent. over and above all moneys collected as licenses for selling liquor. Justices of the peace and police magistrates are to judge whether a person is a fit subject for treatment, and they must furnish to proprietors of saloons, at least each six months, a list of those persons sent to the asylums. When a patient is adjudged cured of the drink habit he is to be let out on parole, and if he again indulges his appetite he is to be immediately sent back. If the saloon keeper sells liquor to a habitual drunkard he will be heavily fined. It is claimed by a number of liquor dealers that it would be cheaper to be taxed to support drunkards than to pay judgments obtained by relatives of men to whom they sell too much "fire water."

WHAT CLASS OF INJURIES TO THE HUMAN BODY DEPENDENT ON VIOLENCE ARE CAUSED BY ALCOHOLIC EXCESSES?

By Thomas H. Manley, M.D., New York.

Professor of Surgery at the New York School of Clinical Medicine, Consulting Surgeon to Columbus Hospital, etc.

Anyone who has had a surgical service in a general hospital well knows that among adults a considerable proportion of the cases coming under his care, of a grave traumatic character, are either immediately or remotely the result of that curse of mankind, the excessive indulgence in alcoholics.

In order that we may the better appreciate how the lethal effects of alcohol operates in these cases it becomes necessary that we should first understand what the pathological action of this chemical is.

Alcohol in large or repeated doses simultaneously acts on the brain and spinal cord, with varying intensity and manifestations in different individuals, and in the same individual, under various circumstances.

Its most constant and unvarying property is to weaken the will power and the faculty of reflection and judgment. Loss of control of impulse and perversion of the reasoning faculties are always among the more dominant features of alcoholic intoxication. Carried to an extreme degree the unbridled frenzy of passion is set loose, reason is dethroned, and the man or woman is an irresponsible maniac.

Alcoholic libation carried to the point of inebriation act with great energy on the nerves of special sense and the spinal.

Vision is dimmed, hearing is obtunded, anesthesia sets in,

the reflexes are palsied, and ataxia of the voluntary muscles is always present when full inebriation is reached. Finally, when very large quantities of intoxicants are imbibed, ataxia, or want of muscular control, is succeeded by the unconscious state and paralysis.

From the foregoing very brief and incomplete account of the toxic and paralyzing action of alcohol on those central ganglia which preside over all the mental actions of man and on the nerves which animate function and vitalize muscular action, it becomes at once evident that the category of accidents and of physical injuries, trivial, severe, or mortal, sustained or inflicted under alcoholic passion, paresis or paralysis, must indeed be of diverse and colossal proportions.

Sundays and holidays provide the hospitals with a large crop of surgical cases, the primary etiology or cause of which is alcoholic imbibition.

Murderous wounds, as stab, gunshot, and concussive, are inflicted under the frenzy of alcoholic excitement; fractured skulls, dislocated joints, broken bones, bruises, or lacerations of the soft parts occur from the same cause, or from loss of or imperfect control of the muscles. Probably if the full truth were known the immoderate use of alcohol is responsible for the greater number of serious collisions of the trolley car, the bicycle, or vehicle, especially on Sundays and holidays.

In my own experience, in an active surgical service in hospitals, I am satisfied that alcohol is responsible for the great preponderance of grave surgical cases on the non-working days of the year.

With a man's faculties blunted and his powers of locomotion but imperfectly under control he is oblivious of danger, and when it is impending is not always able to escape it, and therefore we marvel, not why there are so many accidents, but why there are so few.

Alcohol augments the mortuary list in extremes of climate or season. In the summer a large number of the most serious

cases of insolation ensue through over-indulgence in alcoholic beverages.

As the fierce rays of the sun beat down on the unfortunate victim he becomes conscious of a sense of oppression, when he resorts to a "bracer," probably in our time and country to cool lager, ale, or some of the fabricated "cocktails." A temporary sense of exhilaration follows, the libation is repeated again and again, until the lethal action of the stimulant and the intensifying effects of coloric overwhelm him. Perchance the victim may drag himself to his home or into some byway before he sinks into unconsciousness.

The resources of art can do but little for these cases, because the medical attendant is confronted by a mixed pathological state; the coloric fever may be readily reduced, but the system is surcharged with a poison which we may not be able to eliminate.

Many of the worst falls and frostbites in winter result from the alcoholic state. One drinks and drinks of pungent stimulants "to keep warm," as is said, or rather to benumb the sensory nerves; but the depressing influence of the freezing blast is in no manner mitigated, and alas! should the unfortunate in his stupid state step aside to some sheltered place the sleep of death may set in to close the scene. In less grave cases the anesthetic action of alcohol so obtrudes sensation that while the free drinker enjoys a most grateful sense of comfort, his hands or feet may be frozen stiff.

Excesses in alcoholics lead to the necessity of surgical intervention only through their influence on the nerve centers, deranging the mind and inhibiting or enfeebling nerve conduction; never by any specific or local action on an organ or structure.

This has long been noted, although everyone knows, that confirmed drinkers are bad subjects for surgical operations, as shock, collapse, or delirium follows with them, in a far greater ratio than in the temperate or total abstainer.

In forensic medicine the influence of alcoholic excesses is given extensive study. That phase of it which deals with traumatisms or injuries is of special concern to the surgeon or practitioner, because in so many instances his testimony is often mainly depended on, when the question of responsibility or irresponsibility is raised. A man is found on the sidewalk or roadside with a fractured skull, in an unconscious state; one has sustained a fatal stab wound, has been crushed by the street cars, or has committed a homicide, or attempted suicide. In these and many other similar cases the proof of the presence or absence of alcoholism is often of the greatest importance. Especially is this so, since the confirmed alcoholic habit has come to be regarded by many of our most eminent alienists as a disease which renders the afflicted as irresponsible agents. This view of late years is coming to be recognized and shared by the courts, who regard a homicide, acting under alcoholic influence, as temporarily *non compos mentis.*

The question arises, should we ever, while one is grossly intoxicated, take advantage of the anesthetic state to manipulate parts carefully, with a view of clarifying diagnosis, or even perform a surgical operation?

For the former, certainly, but the latter in some instances is doubtful.

While one is intoxicated, dislocations may be reduced or fractured bones set, but if a limb is so mangled that the question of amputation is raised, we have no right to proceed and sever the limb until reason is restored and consent is given.

The above aspect of the alcoholic question is one of important consideration in many medico-legal cases. Our late lamented confrere, the distinguished New Jersey surgeon, Dr. Isaac N. Quimby, came to his death through the severe strain and exposure incurred while defending himself against the extortionate claim of a tenant who sustained an injury on his premises, while, it was alleged, she was in an intoxicated state.

These civil actions in our time of popular government and a political judiciary for every conceivable sort of an injury, imaginary or real, are becoming so common and so oppressive that the owners of property are in constant peril of having their small inheritance, or perchance the earnings of a lifetime, swept away by a single suit for damages.

Was the plaintiff intoxicated at the time of injury, was it then through contributory negligence, and if so, death resulting, what role, if any, did the alcoholic state play as a factor in causing it, through its operations on the system?

These questions are often very difficult to answer, indeed, although under many circumstances we may gain much valuable knowledge by a proper investigation and a critical examination of the injured. Caution must be observed, however, that in our connection with the case an error may not be committed and an injustice imposed.

For example, it is a very general custom with the laity, when one suffers from syncope or shock, from any cause whatever, to at once administer alcoholics with an unstinted hand.

Hence, should one have lost much blood or be very young, a comparatively small quantity of liquor may produce marked intoxication.

It is my experience in hospitals that there were few patients admitted with fractures of the limbs who had not been given alcoholics before they were sent in. But in these it is not exceptional to observe positive symptoms of intoxication, unless there was evidence of free drinking before injury.

But in quite a few of them injured, when we see them early, they are boisterous, hilarious, or unmanageable, and present other indubitable evidence of pre-traumatic intoxication.

If we are in doubt, then, we should note the odor of the breath, the state of the pupils, the condition of the reflexes; besides, if the patient be in a conscious state, press for accurate information from himself if possible.

My own experience has been that when one has been injured in the sober state, if we interrogate, he will explain how it occurred without difficulty. The drunken man may tell us he has been drinking, but how he was injured is often a blank to him and he can throw no light on it.

Hard drinkers rally badly from deep shock. They are prone to delirium tremens after severe operations and injuries, and are very much more liable to septic infection after lesion of the soft parts through the deteriorated state of the blood and tendency to diabetes.

Complications with them, as pneumonia, nephritis, and diarrhea, are common. Their tissues are more vulnerable; congestion tends to run into inflammation; this spreads into heterogenous structures, often running a chronic course. These cases are characterized by a malnutrition or defective tissue metabolism, imperfect assimilation, and defective elimination, all of which makes an impression on the integrity of the machinery of man when subjected to any violent shock or disorganization.

A HOME FOR INEBRIATES.

At the meeting of the Gloucestershire County Council, held on January 9, it was reported that the committee of the Royal Victoria Home, Horfield, are erecting a public institution, under the provisions of the Inebriates' Act, at Westbury-on-Trym, and that they had applied to the council for a contribution. It was stated that the building will accommodate 880 patients, and that it stands on eighty acres of land, the cost of the undertaking being estimated at £20,000. After some discussion, the council resolved to contribute £1,000 towards the institution, conditionally that the county should be entitled to seven beds for twenty-five years at a cost of 6d. each per day. The chairman (Sir J. E. Dorrington, M.P.) added that the committee of the Royal Victoria Home were in negotiation with other counties and probably it would become the reformatory for the southern part of England.

COCAINE ADDICTION AND ITS DIAGNOSIS.

By Stephen Lett, M.D., M.C.P., and S. Ont.

Medical Superintendent of the Homewood Retreat, Guelph, Ont.

Since the introduction of cocaine, some fifteen years ago, and its stimulating action when taken into the human system has become known, its seductive qualities have produced a widespread evil, resulting in a malady known as cocaine addiction. The importance of an accurate diagnosis in this malady is second in importance only to that of opium addiction, and must be sought for in the physical and mental symptoms as well as by chemical analysis of the urine.

Most of those addicted to the use of the drug are neurotics, and like many such are always on the outlook for some medicine or stimulant to quiet their unstable nervous organization; these fall an easy prey to numerous proprietary medicines and medicinal wines, which owe their potency to the Erythoxylon Cocoa or its alkaloid Cocaine, and many an habitué can date the advent of his malady to these apparently innocent but subtle nostrums. The dentist, rhinologist, and general practitioner have, by their prescriptions and applications, contributed their quota to the number of habitual cocaine users. The alcoholic inebriate and opium habitué have also grasped at this once lauded panacea for the cure of their affliction, with the almost invariable result of failure to cure their disease, and usually resulting in a double and sometimes triple addiction.

The quantity of the drug consumed by those accustomed to its habitual use varies between wide limits. I have met with cases taking only a fraction of a grain, whilst in others it

mounted up to sixty grains in twenty-four hours, and in one instance the limit was marked by the enormous amount of ninety grains a day.

The mode by which the drug is taken is as variable as the quantity consumed. It is taken by the mouth, sprays, snuffing, washes, etc., but chiefly by means of the hypodermic syringe.

The early physical manifestations of the malady are somewhat obscure and difficult to detect. The patient has perhaps been toying with the drug for a considerable period before a daily dose becomes a necessity. The early symptoms may, however, be noted as follows: A condition of unnatural buoyancy of spirits and self-confidence, exalted mental action with an abnormal capacity for mental and physical exertion, wakefulness, loss of appetite, and apparently little or no necessity for food; bright and glistening eye with dilated pupil, which will not contract under the stimulus of light; the secretions are not dried up as in opium addiction, but the reverse usually obtains. As the disease becomes more established, most of these symptoms are accentuated; but, unless the stimulation is kept up by larger and more frequently repeated doses, intense physical and mental depression set in, leading to severe nervous agitation, fear of impending death frequently accompanied by lachrymosis; nutrition soon becomes impaired, accompanied by emaciation and anemia; sunken eyeballs with dark areola round the eyes, prominent cheek bones, and general pallor makes the subject a most ghastly spectacle. As the malady becomes more chronic, mental symptoms in the form of hallucinations and delusions supervene. Persons seen or heard at a distance are construed into bands of enemies plotting to rob, physically disable, or murder, and as a result the patient makes complaints and lays charges against innocent persons. All sorts of firearms and other deadly weapons are secreted within easy reach as a protection, and are apt to be used with serious results. Apartments are barricaded to

prevent imaginary enemies pouncing in to do bodily harm or carry him off to a prison or dungeon. The key-hole and other small apertures or crevices are chinked to prevent anyone from seeing into the room or forcing noxious gases at him. Aural and visual hallucinations are also present. Added to all this we have what has been termed the "cocaine microbe," not the material microbe met with in other diseases, which can be demonstrated under the microscope, but an imaginary body which the patient believes to be real, usually assuming the form of minute worms and insects situated under the skin, so that he will mutilate his body, especially his hands and fingers, trying to dig them out with the point of a penknife or other suitable sharp-pointed instrument.

When the hypodermic syringe is used as the means of taking the drug, the skin where the needle is inserted soon becomes indurated and its texture changed so that, in course of time, it becomes leathery — almost impossible to force the needle through — and with the constant dosage, the skin on the arms, fore-arms, legs, thighs, and hips becomes so thickened, hardened, discolored, and altered in its texture that it is almost impossible to find a suitable point to insert the needle, upon the withdrawal of which the skin, lacking contractile power, fails to close the puncture, and much of the fluid injected is apt to spurt out, causing considerable loss and the necessity for another injection. When a strong solution of cocaine is used, the skin becomes disorganized, ulcers form, varying in size from a small pea to large areas of integument. I have seen ulcers so caused measuring six inches in length by an average of two in diameter without a particle of skin being present. It is quite true that the habitual use of morphia, hypodermically administered, will produce a similar induration, but the action of morphia in this respect is mild as compared with that of cocaine. The cocaine habitué is totally unfit for his ordinary avocations; his work, if done at all, is performed in a most erratic and unsatisfactory way and much neglected.

When the above train of symptoms is present it is not difficult to make a correct diagnosis; but, in the early stages of the malady, many are absent, and those present are not always noted, if observed, not correctly interpreted, especially in the face of the most positive denial of fact by the patient. By means of urinary analysis, any doubts that may exist can be dispelled.

The method by which I have succeeded in extracting this alkaloid from the urine of those using the drug is as follows: To a suitable quantity of urine (ten to twenty ounces) add sodium, or potassium carbonate, until the mixture is very distinctly akaline; let it stand for half an hour and filter; to the filtrate add ʒij pure sulphuric ether, agitate quietly for two or three minutes, then allow it to settle for half an hour; draw off the ether and add to it ʒj, dilute hydrochloric acid (M. × to ʒj), thoroughly mix, place in an open dish and permit the ether to evaporate spontaneously; apply gentle heat to effect perfect solution of any alkaloid that may be floating on the surface or adherent to the sides of the vessel; let it then cool; the remaining liquid may now be tested for the hydrochlorate of cocaine by any of the reliable tests for this salt. The following are quite satisfactory:

TERCHLORIDE OF GOLD TEST.

To the solution thus obtained add a few drops solution terchloride of gold (gr. x to ʒi); if cocaine be present a yellow, chloride of gold (Gr. X to i); if cocaine be present a yellow, or yellowish-white, precipitate will at once be formed, which is dissolved by heat, especially in the presence of a little free acid; upon boiling, the vapor given off will have the pungent and somewhat acrid, though pleasant and characteristic, odor of benzoic acid. The mixture can now be divided into two parts. One part is left in a test tube to cool and reprecipitate. To the other add oxalate of ammonia, which will throw down the gold; filter and test the filtrate with neutral chloride of iron; a change of color to a deeper shade indicates benzoic

acid in small quantities; a flesh-colored precipitate indicates the presence of benzoic acid in larger proportions.

The mixture left in the test tube to cool will now have thrown down a yellow precipitate, which can be collected and submitted to sublimation when the distinctive odor of benzoic acid will be noted, and the sublimate examined under the microscope for the beautiful feathery crystals of this acid. These tests show the presence or absence of benzoic acid; if present it could only come from the presence of cocaine in the urine examined.

MYERS' REAGENT TEST.

To a portion of the residue left from the ether evaporation add a few drops of this test reagent, a white precipitate will at once be formed, if cocaine is present, which dissolves by heat, and upon cooling throws down yellow crystals, which under the microscope (⅙ objective) appear as depicted in Fig. 1. If there is an excess of the precipitate the undissolved portion will fuse into yellow gummy masses upon boiling. In following out the test with Myers' reagent, should the patient be taking quinine,* it will first be necessary to precipitate this alkaloid from the solution to be tested by picric acid in excess, filter and make the test with the filtrate thus obtained. The limit of Myers' reagent appears to be about one part of cocaine in 30,000 of water.

The following is an example of detection, both morphia and cocaine, in a case of double addiction. The patient at the time was taking gr. xv. morphia sulph and gr. iv. cocaine hydrochlorate every twenty-four hours. Eight ounces of the urine voided was used, acid reaction, this was concentrated over a water bath to ℥ ii., and allowed to stand twelve hours, then filtered, filtrate rendered alkaline by potassium carbonate, thoroughly agitated, and let stand for twenty hours, then

* A small portion of the liquid may be tested for quinine by the chlorine water and ammonia test. The absence of the Thalleochin reaction renders the use of picric acid unnecessary.

filtered. This filtrate was treated as above directed for the extraction of cocaine, and tested by Myers' reagent, giving very satisfactory results — forming crystals of the small round character depicted in Fig. 1. The large crystals seen in this figure were not obtained, as the solution was too weak. The precipitate left in the filter was treated for the extraction of morphia by the process described by myself a short time ago, and yielded unmistakable reactions by the following tests: Nitric acid; iodic acid and chloroform; ferricyanide of potassium and ferric chloride.

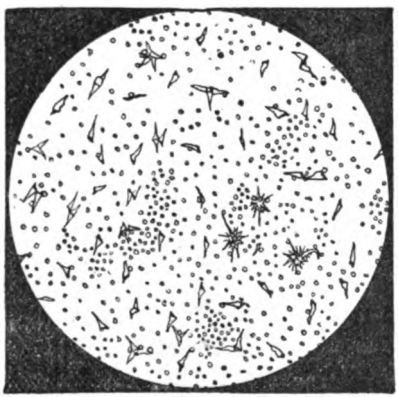

FIG. I.

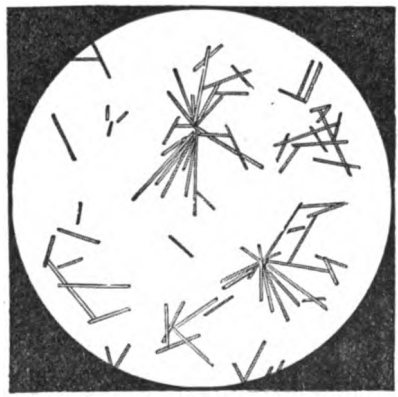

FIG. II.

Upon permitting a few drops of the residue left from the alcoholic extract in the presence of a small amount of dilute sulphuric acid to evaporate spontaneously on a glass slide the beautiful large crystals of morphia sulph seen in Fig. II were obtained.

NOTE. — That in precipitating the alkaloid cocaine by the alkaline carbonates this alkaloid is soluble in an excess of the precipitant, and must be looked for in the filtrate, and not in the precipitant — the reverse obtains with alkaloid morphia.

TREATMENT OF INEBRIETY.

By H. A. Rodebaugh, M.D., Marysville, Ohio.

The time we give to the treatment of any disease depends upon our idea of its pathology, etiology, and the results previously secured by any given treatment in similar cases. Within certain limits, this time varies with the age, sex, habits, and constitution of the patient.

Inebriety, or alcoholism, is a specific, neurotic disease, caused by the previous use of alcohol. Its pathology relates to changes in the nerve cells, whereby normal function is at first embarrassed and later abolished. In inebriety, as in many other diseases, important changes in theory have occurred from time to time in regard to its cause, effect, and cure. Many years elapsed before the profession recognized inebriety as a disease, then later as a form of nervous disease. Following its recognition came all kinds of theories in regard to its pathology. Previous to 1858 the uncontrollable craving for stimulants, which really constitutes this a distinct disease, was believed to be due to some pathological change in the stomach, and the treatment directed accordingly. Subsequently, it was taught that alcoholism consisted in the grosser lesions found in the various important organs of nutrition in those suffering from this disease; and that, to be successful, treatment must be continued for months or even years. We now know that these various lesions of the brain, stomach, kidneys, liver, etc., are products, not factors. Alcohol is a poison, and the phenomena of inebriety are due in the first place to the direct action of this agent upon the nervous system. If we surround a living nerve with alcohol, we find that it be-

comes paralyzed; that is, incapable of transmitting impressions through its submerged part. Similarly, if an animal absorb into its circulation a certain quantity of alcohol within a given time, the nerve centers and the peripheral nerves become paralyzed. This may be called the direct effect of alcohol. It has also been ascertained that the impregnation of the blood with alcohol interferes with its absorption of oxygen. It thus becomes unfitted to support healthy nervous function. Under these combined influences, the nervous tissues, especially those of the central organs, become more and more unfitted for the painless performance of their proper functions. These changes progress with a rapidity proportionate to the quantity of alcohol used and the susceptibility of the subject to its influence. These effects are counteracted in part by the elimination of portions of the alcohol from the system, which goes on by the medium of all the excreting glands, especially the kidneys, skin, and lungs. It is important to bear these facts in mind, in order to appreciate what is meant by cure.

Inebriety is more quickly developed by the moderate use of alcohol in neurasthenics, in social drinkers, who eat too much and exercise but little, in those who are much exposed to the depressing passions, those who undergo great fatigue of body or mind, especially if unsuccessful in their pursuits, those who inordinately indulge the passions of anger and lust, and, finally, those who habitually swallow patent medicines, whose chief ingredient is alcohol. There is in the mind of every drunkard an immutable association between stimulating liquors and the relief they afford to all the unpleasant sensations, physical and mental, which are inseparable from the every-day life of one who has learned to lean upon the alcoholic crutch. The accustomed drink, when taken, produces an instant change from pain to pleasure, from despair to hope, and transforms this thorny, rugged wilderness of a world into a paradise. To cure such an individual, we must break up this association, and convince him by actual sensations that his

remedy has lost its effect and that he no longer experiences the same pleasurable sensations.

In discussing the treatment of this disease, it is important to remember that the general principles of treatment applicable to any disease also apply here. Diseases are cured, when they can be cured, by their natural biological evolution. Our ordinary therapeutic methods consist in removing the cause, then putting the organism in such a condition that the *restitutio ad integrum* may take place. We suppress pain, we modify functions, we let diseased organs rest, we calm fever, we retard the pulse, we induce sleep, we increase secretion and excretion, and acting thus, we permit Nature, the healer, or, to speak in modern language, "we permit the activity of the forces and the properties inherent in the biological elements to accomplish their work."

In the treatment of inebriety, the best results are obtained if the individual be removed from his home and placed among strangers. No amount of contriving can offer the patient the same care at home that can be had at properly conducted institutions, while the moral effect of association with others of his class is not without benefit. The next step essential to a cure will be to discontinue the use of alcohol. This object may be attained either by physical, chemical, or psychical restraint. With our knowledge of modern methods, physical restraint is no longer necessary. Chemical restraint is secured by the administration of drugs, whose primary effect is to create an indifference to both the taste and effect of alcoholic stimulants, so that within a few days the inordinate craving for drink is abolished. This result is said to be secured also by those who practice suggestive therapy. Burnheim, Soltan, Rice, Burr, and many others have secured excellent results by this method. I have had no personal experience with suggestive therapy alone, but, combined with suitable medication, I know that excellent results are secured.

We must remember that a cure consists, first, "in break-

ing up the association in the mind of the drunkard between alcohol and the relief it affords to all his unpleasant sensations." There will then be complete absence of the drink-craving, restoration to normal function, including the will, rapidly followed by a complete change in the physical, mental, and moral condition of the patient, resulting in normal appetite for food, sound, refreshing sleep, and improved nutrition. Morally, the change is manifested in an aversion to the society of drinking companions, pride in personal appearance, a rekindling of love for home and family, with returning interest in business affairs. We know that these changes can be wrought in a comparatively short time, so that the patient may be discharged with the assurance that nature will complete the cure in time. Securing proper environment of the patient subsequent to treatment, upon which depends the permanency of the cure, does not come within the province of the physician.

One of the elements of success in the treatment of inebriety, either by drugs, suggestive therapy, or a combination of the two, is tact in the management of the patient at the beginning of treatment. Elimination is necessary in all cases. Cathartics, diuretics, diaphoretics, and baths must be used as required. The selection of remedies suited to each individual case must depend, not only on the condition of the patient, but the facility with which they can be administered and the certainty of absorption. This brings us to the consideration of hypodermic medication, without which the treatment of inebriety would indeed be difficult, if not impossible. Solutions for hypodermic use, if prepared antiseptically, may be kept several weeks by the addition of boracic acid. Remedies thus used are pilocarpine, theine, nitroglycerine, duboisia, spartein, picrotoxin, and atropin and cocaine combined, the latter possessing a peculiar hypnotic effect which cannot be secured from either drug when administered alone. Strychnia and apomorphia are never used. These remedies,

with the exception of spartein, are used only for brief periods to meet special indications. Thus, spartein and nitroglycerine combined are used in cardiac depression; picrotoxin in cases characterized by excessive tremor; and pilocarpine to assist elimination; sulphate of spartein, on account of its valuable tonic properties, is continued throughout the treatment. Remedies for internal use consist of alteratives and tonics. Recently the gold salts have been largely used, either alone or combined with other mineral alteratives of the class which increases waste. Abundant clinical experience has demonstrated the value of the gold salts in all forms of nervous diseases characterized by sclerosis. These drugs should be administered in small and frequently repeated doses, in solution with a definite quantity of tannin to form tannates, and thus prevent injurious local action, at the same time securing slow absorption and adequate elimination.

Diet, in the treatment of inebriety, is highly important. The administration of proper food at regular intervals, day and night, materially assists in abolishing the drink craving.

I believe that many physicians fail to secure the best possible result in many cases of inebriety because they forget that body and mind are so closely related that when the one suffers the other must share the suffering, and the injury to the physical health, the pathological side resulting from drink, must be accompanied by similar injury to the mental and moral powers. Degeneration of tissue and organic changes in nerve cells are more palpable than degeneracy of morals, a cirrhosed liver more startling than a breach of faith, but the deeper fact, of which the senses take no note, is the more important one, and should be recognized by every physician who assumes charge of this class of cases. The phenomena, to which we refer, often manifest themselves to the quickened perceptions of those who stand nearest the inebriate. Many a mother observes with a heart that grows heavier day by day the signs of moral decay in the character of her son. It is not the

flushed face and the heavy eye, the foul breath, and unsteady gait that trouble her most; it is the evidence that his mind is becoming duller and fouler, his sensibilities less acute, his sense of honor less commanding. Near the close of treatment, during a confidential talk, in which the patient will boast of his splendid physical condition, the physician would say to him: "Yes, you are cured. It is true that you are not now a drunkard; it depends upon yourself whether you ever will be or not: If you could know what was painfully evident to those who love you best, how your character, when you first began drinking, slowly lost the fineness of its texture, firmness of outline, and how your art deteriorated in the delicacy of your touch, how the very atmosphere of your life seemed to grow murky, you would never, for a moment, entertain the thought that a drink would do you good."

AMERICAN MEDICAL ASSOCIATION.

The section of Materia Medica, Pharmacy and Therapeutics of the A. M. A., urges those who desire to read papers in its department at the Columbus meeting, June 6 to 9, 1899, to send on their names and the title of their paper, at once, to the secretary, who is now making up the final programme.

(Signed) LEON L. SOLOMON,
Secretary,
323 W. Walnut Street, Louisville, Ky.

The man who believes that alcohol is a poison, and total abstinence the only safeguard for health, shows far more knowledge and better judgment than one who thinks alcohol is a food and moderate drinking compatible with health. But the man who denies the disease of inebriety and believes it a moral state which can be changed at will merely expresses his failure to observe and reason correctly by every day's observations.

THE TOXIC EFFECTS OF TOBACCO.

By Geo W. Crook, M.D., Vicksburg, Miss.

The effects produced by the use or administration of tobacco in any of its forms are almost entirely due to the action of its active principle, nicotine.

The alkaloid receives its name from nicotiana, the botanical name of tobacco, so called in honor of Jean Nicot, a French diplomatist, who, in 1560, sent the seeds to France from Portugal as those of a highly medicinal plant.

It has been considered that tobacco smoke owed very little of its potency to nicotine, and more to various combustion products; but as the effects of these vary only in degree from those produced by nicotine, being milder and less rapid in their toxic effects, the symptoms produced are usually considered as due to the nicotine present. As the result of a general acceptance of this idea it has been the effort of some tobacco growers to cultivate the aromatic properties and diminish the nicotine.

The percentage of nicotine present in tobacco varies so largely, according to the different localities in which it is grown, and the methods of curing and analysis differ so materially in the results of their investigation that it is impossible to give a definite statement of the percentage of nicotine found in the prepared leaf. It varies from two to eight per cent.

Adulterations. — Various adulterations are used in preparing tobacco in its different forms; but they, while not entirely inert by any means, play but a very small part in the toxic results of its use. Molasses, licorice, figs, and glycerine

are used to impart a sweet taste and to prevent rapid drying. Common salts and other salts are used for flavoring, and nitrate of potash or soda is sometimes added to increase the combustibility of tobacco used for the manufacture of cigars or for smoking tobacco. Anise and other aromatics are used for their flavor, and smoking tobaccos have their odor increased by the use of cascarilla bark and Tonqua bean, which is also used in scenting snuffs. These additions, except those for odor, are made in the form of a liquor in which the leaves are steeped. Lime is sometimes mixed with snuffs to increase their dryness, and these, of course, have an irritating effect on the mucous membrane of the nasal passages or gums, according to the method of its use.

Nicotine, $C_{10}\ H_{14}\ N_2$.— This alkaloid was first isolated by Posselt and Reimann in 1828, and is a colorless, transparent liquid having a strong tobacco odor, which is increased by the application of heat. It has a sharp burning taste, and is very soluble in water, alcohol, ether, turpentine, and fatty oils.

Toxic Effects. — The symptoms of poisoning by tobacco are, primarily, nausea, vomiting, and deathly pallor. The body becomes bathed in a clammy sweat, the surface is cold, respiration is quickened and occasionally followed by tetanus of the muscles of inspiration. The pupils are contracted, which is a curious fact in view of the well-known dilation produced by belladonna, stramonium, hyoscyamus, and others of the solanaceæ. The secretion of bile and saliva is increased, and there is a contraction of the entire intestinal tract. If the dose of nicotine be not sufficiently large to produce a fatal result, secondary symptoms may appear months or even years after beginning the habitual use of the weed. These may be any of the following: Granular inflammation of the fauces and pharynx; possibly from atrophy of the retina there will be loss or diminution of the power of sight, without any external appearance of the organ being affected; there may be various cardiac symptoms; the heart is dilated, and there is

frequent pallor or a livid countenance, aberrations of the sense of sight with appearances of imaginary objects, a dry cardiac cough; pains as of angina pectoris are frequently present, shooting from the heart up to the shoulder and down the left arm or up into the neck; cold extremities, palpitations, feeble and irregular pulse, insomnia and diarrhœa alternating with constipation; facial neuralgia may exist, and the tongue will have habitually a thick whitish coating, and there may be marked irritation of the entire intestinal tract; chronic dyspepsia is frequently seen in tobacco users, caused by the waste of saliva which should be used in digestion.

Action. — Nicotine is very readily absorbed by the mucous and cutaneous surfaces, particularly if the continuity of either be broken. Its ready absorption is easily understood when it is known that fatal symptoms have developed from the mere inhalation of tobacco smoke, a condition in which but a small percentage of nicotine comes in actual contact with the mucous surface.

The primary action of the drug on the spinal cord is exciting, and, in fatal cases, death is due to a rapid paralysis of the respiratory center, without previous excitement, and never due to heart paralysis. Although the heart is markedly affected, the drug does not act on the cardiac muscular structure directly.

Large doses of nicotine cause convulsions both tonic and clonic. The brain may be paralyzed, producing loss of consciousness or loss of voluntary movements after a more or less brief interval of excitement, followed by general paralysis, the spinal cord becoming insensible to irritation from affection of the gray matter of the anterior cornua.

Temperature. — The lowering of the superficial temperature is due to paralysis of the vaso-motor nerves.

Destruction. — It has not been definitely proven that nicotine is destroyed or diminished in any degree by the excretions, but it is supposed to be destroyed in part by the action of the kidneys and saliva.

Snuff. — Tobacco in this form is probably less productive of toxic effects than any other, whether inhaled into the nostrils or applied to the gums in "dipping," as small quantities are used in either case, and there is very little nicotine absorbed. Its use in this form causes redness and some swelling of the mucous membrane, and will, after continued use, result in a hypertrophy of the membrane, particularly if used in the nasal passages, and a constant loss of activity of the olfactory sense.

Cigars and Pipes. — It is in the use of cigars and plug tobacco, either for chewing or smoking, or the use of granulated tobacco in pipes, that produces the most toxic symptoms. In these cases the effect is produced by the absorption of the tobacco in solution, or the nicotine is absorbed from the smoke.

In cigars, the effect comes not only from the partial inhalation of the smoke, but also from tobacco in solution, as the tip of the cigar is moistened by the saliva, and lies in contact with the mucous membrane of the mouth during smoking.

Cigarettes. — The use of these has been condemned as not only the most injurious form in which tobacco can be used, but by some is considered a vice parallel to the use of opium or cocaine. Now, while this is certainly an extreme view, there is no doubt that their habitual use occasionally leads to disastrous results.

In the use if cigarettes the effects are produced by the complete inhalation of the smoke, and in their use the adulterants have more effect than in any of the other forms of tobacco.

In the cheaper grades of cigarettes the lack of natural quality in the tobacco is made up by the use of the various adulterants mentioned; and where the indulgence is excessive, particularly in the growing young, the effects are most marked.

Some effect is produced, too, from the inhalation of the burning paper, particularly if poisonous bleaching agents have been used in its manufacture.

Toxic Dose. — This varies from the small amount absorbed by the individual who smokes his first cigar or takes his first chew to the quantities that have been taken with suicidal intent or administered for therapeutic or criminal purposes. There are very few cases of poisoning by the pure alkaloid. One is interesting, as it is the first instance in which a pure alkaloid was used for criminal purposes. This was the poisoning of M. Fougines by Count Bocarmé and his wife. Another case is on record in which an individual took it for the purpose of suicide. The quantity used in either of these cases is unknown. The amount of nicotine necessary to produce the primary symptoms of poisoning in an individual using tobacco for the first time is, of course, small, and the degree of tolerance acquired by habitual users of the weed will vary according to the length of time they have been addicted to its use, the percentage of nicotine present in the particular brand of tobacco used, and the form in which they use it.

It is apparent that a chewer can acquire a greater degree of tolerance to nicotine than a smoker, as it is so much more readily absorbed when in solution with the saliva, and enters the system in greater quantities. In a smoker the effects are produced by the mere contact of the tobacco smoke with the mucous membrane by inhalation, which is partial when the smoke is only drawn into the mouth, and complete when drawn into the lungs, excepting in the case of the cigar smoker, where some of the tobacco is in solution from the contact of the cigar with the tongue and saliva. Nicotine is one of the most violent poisons known to chemistry, and in doses sufficiently large to act fatally its action is very similar to that of hydrocyanic acid. On the lower mammalia its action is just as rapid and as surely fatal as Prussic acid, and almost equally so in man.

The fatal results that have come from smoking tobacco are probably due to the inhalation of the smoke and its consequent direct contact with the moist mucous lining of the

lungs, by which the nicotine is readily absorbed. Death has followed the administration of a decoction of tobacco leaves in enema, either for therapeutic or criminal purposes, and also from its use as a local application to the skin, thus showing that its application in solution is favorable to very rapid absorption.

The effect of nicotine is practically the same as that of tobacco in solution, merely differing in degree.

Dose. — Tobacco infusion has been administered in enema in doses of from ʒ ss to ʒ ij, but toxic symptoms have resulted from much less than this maximum. In many instances a dose of ʒ j would be sufficient to produce marked toxic symptoms. By the mouth five or six grains of tobacco are emetic, and anything more will be likely to prove toxic. The alkaloid is so rarely used in therapeutics that it is impossible to tell just what a fatal dose would be, but one-tenth of a grain or over would probably produce very severe symptoms.

Post-mortem Appearances. — None are known which can be directly attributed to nicotine or tobacco alone.

The signs of death from the action of the poison on the lungs have usually been observed. If tobacco has been swallowed in sufficient quantities to act fatally, there will exist some redness of the stomach and intestine. An analysis of the contents of the stomach would detect the presence of the alkaloid where it had been swallowed.

Antidote. — Strychnia, one-twenty-fifth grain of the nitrate subcutaneously, or from ten to fifteen minims of tincture of nux vomica by the mouth.

The timidity of public sentiment concerning the sale and use of spirits is phenomenal. Men without sentiment, on reform questions, become silent and hesitate when the drink question is called up. Only when the injuries from rum become personal in their family and circle are they roused and able to recognize its dangers.

REPORT OF WALNUT LODGE HOSPITAL FOR 1898.

Experience proves beyond all possible question that inebriety can be more successfully treated in small private asylums than in any other way. Here all the conditions of living and the surroundings can be under control and made to assist in restoration; and all the external exciting causes removed, together with the exact application of every remedy and means found useful for the cure. In such asylums each patient is made a special personal study, and all the facts of his life, also the conditions and surroundings which have changed him, can be known, and from this, means and remedies can be given with much certainty.

Experience also points out clearly that the inebriate is largely curable, not by any one drug or specific medicine, but by a great variety of means and measures used with skill at the proper time and place, and adapted to the needs of the case.

The subsidence of the drink symptom and the increased mental and physical vigor enables the person to regain the control of his will power, and with this comes a keener recognition of the sources of his danger, and greater effort to avoid them in the future.

In nearly all cases there are special exciting causes, both known and unknown, the discovery and removal of which is followed by a practical cure. A special study of individual cases shows many causes active in both creating and continuing the drink disease; also as long as these causes continue, the desire for spirits remains, no matter what the treatment. No treatment can be successful except based on an accurate study and knowledge of all the conditions of the life and surroundings of the patient, and the influences which have come down from the past generations, simply because from this knowl-

edge only can be ascertained the means and methods for restoration and cure.

From such a study one can determine whether the inebriety is a symptom of brain and other disease, or some defect in the surroundings and methods of living, or inherited weakness, increased by the poison of spirits; or whether it is poisoning alone, and due to alcohol and its effects.

In private hospitals this special study is most practical, and the results in treatment can be more accurate and scientific.

The yearly history of such work cannot be expressed in a few tables of statistics. These only represent general facts. Behind these are tabulated many defects of body and mind; also injuries from many sources, both from alcohol and other poisons.

While these records are substantially the same as last year, the physical aspect of these cases appear more prominent; that is, the disease symptoms are more numerous and marked in each case. The following are the records of 1898:

During the past year ninety-one cases were under treatment, and eighty-two discharged. Of this number, forty-one were periodical inebriates, twenty-eight were continuous inebriates (or persons who drank every day), three were dipsomaniacs (persons who have delirious impulses and thirst for spirits overpowering every other impulse), twelve were opium and morphine-takers, two were cocaine users, five were chloral, ether, ginger, and other drug-takers.

In the history of these cases, twenty-eight had drinking or inebriate parents, nineteen had inebriate and drinking grandparents, eleven had a history of inebriety in collateral branches of the family, as, for instance, uncles and aunts and cousins in direct line. In twelve cases the inebriety dated from injury and disease, and was due to some physical change of the body and brain; in nine cases, inebriety began from exhaustion and debility and the contagion of bad surroundings;

in two cases no clear history of the origin of the disease could be found.

The ages of these cases were as follows: From fifteen to twenty, three; from twenty to thirty, thirty-six; from thirty to forty, twenty-three; from forty to fifty, sixteen; from fifty to sixty, ten; from sixty to sixty-five, three.

In the social condition, fifty-three were married and living with wives, nine were widowers, twenty-three were single, and six were married and separated.

In occupation, seven were physicians, five lawyers, two artists, one clergyman, five engineers, nine farmers, six clerks, six manufacturers, four druggists, seven spirit dealers, six mechanics, four bankers, six railroad men, three hotel keepers, two barbers, two authors, three speculators.

Of seven women, five were housewives, one a teacher, and one of no occupation.

Of education, twenty-seven had a collegiate training, sixteen a university education, thirty-one had an academic training, and seventeen finished in the common schools.

In the duration of the inebriety, thirty-two had been drinking from five to ten years, twenty-six had been drinking from fifteen to twenty years, and twelve had been using spirits over twenty years.

In former treatment, thirty-nine had taken treatment at "gold cure" asylums, twenty-one had been in hospitals and sanitariums, and thirty-one had never been treated before.

In result of treatment, forty were discharged as recovered, forty-three as temporarily improved and restored; in four, but little or no apparent improvement followed; one died from cerebral hemorrhage, and three were sent to insane asylums.

The limited time in which patients remain under treatment is always a serious obstacle in the permanancy of cure. While the legal powers of control are ample, the failures of patients, legal guardians, and friends to co-operate with the physician in continuing the treatment sadly cripples all efforts.

Where patients remain a long time, permanent restoration is the rule, to which there are few exceptions. Those who leave after a brief treatment often relapse and return.

The recognition of this fact by the patient and his friends is difficult, hence they often insist on trusting present appearances with assurances of health and promises of total abstinence for the future. The constant repetition of this mistake is unfortunate for both the patient and the institution.

The work of the past year has been followed along the same lines, in addition new studies of the influence of alcohol on the heart, with muscular measurements and measurements of the senses. The general results of treatment in the past year have exceeded expectations in many ways, and suggested a wider and more practical application of baths with sharp elimination and other methods of treatment. Many cases show a remarkable change from profuse sweating and sharp elimination of the poisons of alcohol and its products. Others improve rapidly from a regular diet and regular hours for sleep and rest. In many, the psychal change, of new thoughts, new surroundings, and new conditions of living, appear to make a profound impression on the organism. Each one of these indications is followed up carefully in the treatment.

As in other departments of science, new means and methods are constantly being tried, and some of them are found practical and useful. As heretofore, the work of this hospital is entirely confined to scientific and practical means and measures. So far, no specifics have been found, or special remedies of unusual application, or drug combinations, which can be called cures. Every possible means are used that can build up and restore the patient to health, and prevent relapse in the future. Each year brings more certainty and exactness, both in the application of appropriate means and the results which follow, and, while the general public may not realize it, the treatment of inebriety is fast becoming as exact

as that of any other remote disease. Its early recognition and treatment in an asylum for a sufficient length of time are the two considerations most essential for cure.

When public sentiment will require and demand this in every case, these drug neurotics will be diminished and a large part of the great alcoholic problem will be practically solved.

The majority of men are averse to the acceptance of new ideas. It is an effort and strain to adopt what is opposed to their previous opinions and experience. Long years of constant reiteration of the new facts must pass before they are accepted. Thus the small minority of those who accept every new truth are always in the ascendancy, and the majority who deny it are descending.

So long as the licensed saloons are permitted to sell spirits to anyone, so long will crime, disease, and pauperism exist. It is cause and effect as clearly as any operations of Nature. Saloons are veritable pest houses, whose presence is a menace to all progress and civilization.

Alcohol was first produced by Albacasis, an alchemist in the eleventh century. The term alcohol comes from an Arabian word, Alkahol, which was given to an unpalpable powder used on the face, and this substance was supposed to resemble it, hence it was called alcohol.

Abstracts and Reviews.

MICROSCOPICAL CHANGES IN TWO CASES OF MORPHINE POISONING.*

By Dr. James Ewing,

Fellow of Pathology in Columbia University.

Case I. Male forty-five years, had been addicted to the use of the drug for several years, finally using sixteen grains of morphine hypodermatically injected each day, and had suffered in extreme degree from the general symptoms referable to this habit; was said to have eaten nothing for one week before death. After a very large injection, quantity unknown, was brought to hospital in coma, dying within a few hours with typical symptoms of morphine poisoning.

Autopsy six hours after death. There was moderate fatty degeneration of heart muscle, liver, and kidney. The lungs were very oedematous, and the viscera showed marked venous congestion. The pancreas was very atrophic, being largely replaced by fat. There was considerable oedema of the brain.

Fixation, Lang's fluid, twenty-four hours.

The chief feature revealed by Nissl's stain was marked diminution in the quantity of chromatic substance in nearly all cells of the central nervous system. The chromatic bodies in the cells or the cord, medulla, cerebrum, and cerebellum were very deficient in number, or often entirely absent.

*From Archives of Neurology and Psychopathology.

Purkinje's cells were very faint, showing a few small narrow chromatic bodies very regularly arranged in concentric rings. Nuclear changes, as a rule, were not noted.

In the medullary nuclei there were some cells still retaining chromatic bodies of considerable size and markedly subdivided. In some of these cells the nuclei were shrunken and often eccentric.

The quantity of yellowish granular pigment was much more abundant than usual in most regions of the central nervous system.

Case II. Female, aged twenty-four years, had been addicted to the moderate use of the drug for a few months only, but was able to attend regularly to her work as dressmaker. In a fit of despondency she took a large quantity of morphine by the mouth and in spite of treament died twelve hours later with typcial symptoms of morphine poisoning.

Autopsy six hours after death. There was extreme oedema of the lungs and marked venous congestion of all viscera, but no other gross lesions of importance.

Microscopical examination. Van Gehuchten's fluid.

The stichochrome cells throughout the central nervous system showed changes which in many respects were peculiar. When examined with a low power these cells appeared to have lost their normal distinctly striated appearance, many appearing profusely and unevenly stained, while their outlines were extremely irregular. When examined with a high power the above peculiarity was found to exist in a marked subdivision of the chromatic bodies, which were enlarged and very irregularly and minutely subdivided. In the medulla the large cells were extensively altered further by the appearance of clefts in the cell bodies, similar to those described in other conditions by Nageotti and Etlinger. In this region, also, the loss of chromatic substance was very uneven, some areas of the cells appearing completely bleached, others showing the minute subdivisions, while in some spots the chromatic masses seemed fused together.

The majority of the cell nuclei were shrunken and markedly eccentric, while the loss of chromatic substance was, as a rule, greatest about the nucleus. About many of the nuclei irregular masses and rods of chromatic substance were heaped.

Throughout the cortex, changes of a similar character were noted. Purkinje's cells of the cerebellum were less affected than the cells of most other regions.

The irregularity in the effect of chromatolytic process, the ragged appearance of the cell borders, the appearance of the clefts, and the frequency of the central chromatolysis associated with eccentricities of the nuclei, are the features peculiar to this case. The last mentioned abnormality is of special interest in connection with the well-known effects of morphine upon the peripheral nerve filaments.

ALCOHOLOGENIC CARDIAC EPILEPSY.

A. Smith applies this term to an epileptoid condition accompanied or preceded by dilatation of the heart. As the state of the heart improves, the epilepsy disappears also. The dilatation of the heart is purely alcohologenic and subsides completely with abstinence from alcohol in some cases, or partially in others, with slight recurrences for a while. In the first group, a slight excess of alcohol above very moderate amounts will induce the attack. In the second group the intolerance to alcohol is not so pronounced. Complete abstinence is the only cure, combined with medication to strengthen the musculature of the heart. — *Munich Med. Worch.*, October 25th.

STUDIES OF THE ACTION OF ALCOHOL ON GANGLION CELLS.*

By James Ewing, M.D.,

College of Physicians and Surgeons, Columbia University, etc., etc.

The effects of alcoholic poisoning in the ganglionic cells have been investigated by several writers.

Vas first described the alterations induced in the ganglion cells by chronic alcoholic poisoning. After the daily injection of moderate amounts of alcohol, during a period of six to twelve weeks, a state of general malnutrition was produced in dogs and rabbits, and in this condition the spinal stichochromes and spinal and sympathetic ganglion cells, in areas of irregular distribution, showed central chromatolysis or the lesions described by Friedmann as "homogeneous swelling." These changes he regarded as the result of the general malnutrition of the animal and not of a specific action of alcohol.

Dehio describes the changes in Purkinje's cells after acute fatal poisoning by alcohol administered to rabbits through the stomach. In very acute cases no definite alterations were observed. When the animals lived eighteen to thirty-six hours, characteristic changes were noted, affecting the whole or a small portion of the body. The chromatic network of Purkinje's cells was replaced by many fine granules irregularly arranged, while the achromatic substance stained diffusely light blue. The dendrites were usually unaffected, and many normal cells were found. No definite lesions were found in other parts of the central nervous system.

Andriezen, investigating the lesions of alcoholic insanity by Golgi's and Nissl's methods combined, found by the latter,

* The following selection is from Archives of Neurology and Psychopathology, Vol. 1, 1898.

in the cortical cells, moderate chromatophilia of the cell body, swelling and indistinctness of the chromatic masses, thickening of the intranuclear network, and increased pigmentation.

Berkley investigated the lesions of alcoholic poisoning in the cortical nerve cells by Golgi's and Nissl's methods combined. Golgi's method revealed a distinct shrinkage of all cortical cells, varicose atrophy of the dendrites, disappearance of the gemmulae, and a roughening of the cell body. After Nissl's method the cell bodies stained more deeply than in normal specimens, the chromatic bodies were indistinct, the achromatic substance was moderately chromatophilic, and the nuclei contained numerous fine granules, and the nucleoli were much enlarged.

Stewart verified the results of Dehio, injecting alcohol into the peritoneal cavity of cats. Both in Purkinje's cells, and less evidently in the spinal stichochromes, chromatolysis, most marked peripherally, and diffuse staining of the achromatic portion of the cells were observed.

In two examples of fatal alcoholism in which very striking cellular lesions were found throughout the central nervous system.

These cases were males, aged twenty-five and twenty-nine years. They died after prolonged periods of intoxication, lasting from six to twelve weeks respectively, in the typical condition of delirium tremens. The temperature rose before death to 104 and 105. One case was complicated by acute degeneration of the kidneys, the other by terminal catarrhal pneumonia of slight extent. These cases represent the ordinary conditions found in fatal alcoholism in the human subject, and in spite of the complication, some of which are always present in such cases, are believed to represent in considerable purity the lesions produced by prolonged alcoholic poisoning of the human subject. No such lesions have been found by the writer after fatal nephritis, pneumonia, or as a result of a temperature of 106.

The autopsies were made six and twelve hours after death, and the preservation of the tissues (Lang's fluid, twenty-four hours) was satisfactory. In both cases the lesions demonstrable by Nissl's method were nearly identical.

In the spinal, medullary, and cortical stichochromes the usual type of lesion was that of extreme chromatolysis. No normal cells were seen anywhere, and in only a few were there any traces of the peripheral ring of chromatic bodies, often seen when the disintegrating process begins about the nucleus.

In many cells, especially in the cranial nuclei, the lesions had advanced far beyond simple chromatolysis, and the cell outlines were irregular and ragged, and considerable areas of the cells were almost transparent. The remains of the chromatic bodies appeared as a uniform deposit of fine granules, or in the form of a network of fine granules, or no traces of them could be found. In badly altered cells, the neuclei were almost invariably markedly eccentric or projected beyond the cell border. They were not found to stain diffusely. Yellowish granular pigment was rarely seen in these cells.

Many of the Purkinje cells contained a moderate number of large distinct chromatic bodies, but usually these bodies were thin, ragged, granular, or absent, the deficiency being most marked at the poles and not about the nuclei.

In the cortical archyochromes the chromatic network was markedly bleached, sometimes coarsely granular and indistinct.

All through the central nervous system the dilatation of capillaries was striking. In the first case (the patient was said not to have been sober for three months) the chromatolysis was usually more complete than in the second.

It appears, therefore, that acute alcoholism in the human subject is associated with lesions in the ganglion cells, comparable with but much more marked than those found after experimental alcoholic poisoning in animals, nor can one hesitate to attribute in large measure the violent nervous symptoms

observed in these cases, to the cellular lesions revealed by Nissl's stain, and only faintly indicated by other technical methods.

ERUPTIONS PRODUCED BY ALCOHOL.

Often peculiar eruptions appear in cases which come under treatment for inebriety, and they are not well known or recognized. In a late editorial in *The Therapeutic Gazette* this subject is presented as follows:

In addition to the nausea, vomiting, and purging produced by alcohol in some patients, through its irritative action upon the stomach, and in addition to the coryza which it occasionally produces, chloral is capable of causing other effects, aside from any depressant influence which it may exercise upon the circulatory and respiratory systems. Within the last two years we have called attention in these pages to the frequency with which drugs produce lesions in the skin, the cause of which is frequently not recognized, and these lesions are therefore very obstinate under ordinary treatment until by chance the use of the drug which is causing them is stopped. In this connection we may call attention to an interesting paper which has recently been published by Labadie-Lagrave, of Paris. In the first of his cases a girl of seventeen, without any antecedents of note, was seized with fever, sore throat, and an eruption upon the arms of a diffuse red character, with tiny punctated marks. The diagnosis was that the patient was suffering from scarlet fever, and the condition of the tongue was thought to be characteristic of this disease. The tonsils were covered by a gray, gangrenous-looking exudate. There was no albuminuria in the urine and the lungs were clear. The diagnosis was that of ordinary scarlet fever with gangrenous tonsilitis. The temperature curve was of ordinary scarlet fever. Two days after the patient was seen the eruption faded and the temperature fell by lysis. Frequent

applications of antiseptics were made to the buccal mucous membrane of a lotion of salol and camphor, and to the skin chloralized vaselin was applied. After this treatment had been continued for a considerable period of time, desquamation of the skin having been persistent, although it was limited by the use of the chloralized vaselin, the temperature suddenly rose several degrees, and at the same time a curious rose rash developed upon the upper and anterior portions of the thorax and in the dorsolumbar region. This eruption was accompanied by a disagreeable sensation in the skin, and finally was followed by little papules which were surrounded by a red areola. Labadie-Lagraves believes that this secondary eruption was due to the chloral applications. In a second case in which chloral was applied locally similar symptoms were developed, namely, an erythematous rash, characterized afterwards by a papular eruption.

It is true that in these instances the eruption occurred from the local application of the chloral rather than by its internal use, but that eruptions do occur when chloral is used either internally or externally is well known. They have been reported by Schüle, Fuller, Brown, Mayer, Martinette, and Curran, and in America by Dr. Morrow in his well known book on "Drug Eruptions." Chapon in a Paris thesis of 1894 described such a condition.

Mason recorded three cases of measley eruption which lasted three or four days, and Burham has noted scarlatiniform eruptions after the use of chloral. In Brown's cases, curious red patches appeared over the malar bones, and across the bridge of the nose. Mercier has seen an urticarial rash, and if a large amount of literature were to be searched it would be found that chloral has been shown to produce almost every variety of lesion of the skin which is not dependent upon an infection and a micro-organism.

Two theories have been advanced to explain these eruptions. One is that the drug produces an angioneurosis or vaso-

paralysis, probably by an action on the vasomotor centers. The other theory is that some of the chloral is eliminated by the glands of the skin, and in its elimination produces local irritation. According to Aviragnet these eruptions may be divided into two great classes. In the first they appear in the presence of conditions of the nervous system characterized by exaggerated excitability, as for example, chorea, insanity, tetanus, general paralysis, also in transverse myelitis and after operative shock. In the second class of cases they occur in instances in which there is retention of chloral in the system, as for example, in acute and chronic enteritis, eclampsia, hepatic disease, advanced tuberculosis, and abdominal tumors. Then, too, it is well known that the simultaneous administration of alcohol with chloral often causes dermal manifestations, and hot drinks given with chloral, particularly if they are copious, are apt to produce such effects. Of course, in the cases where chloral is applied externally it produces a direct local irritant influence.

THE SEVENTH ANNUAL REPORT OF THE MASSACHUSETTS HOSPITAL FOR DIPSOMANIACS AND INEBRIATES AT FOXBOROUGH, MASS.

This pioneer asylum shows most gratifying improvement in every way. It has had a larger number of cases this past year. The trustees report a decrease in the cost of supporting the patients for the year. It appears that this result was gained on the basis of an increase of only twenty-three commitments over the number of the previous year; and the increase in admissions was only six, including those who returned from leave of absence and elopements of previous years. "Leave of absence" is granted to persons who have completed a period of treatment in the hospital of six months. The number of these cases, and of elopers, who were permitted to return to the hospital, was much reduced. This is ac-

counted for as the effect of the new statute which was in operation from about the beginning of the year; it allows the keeping away of persons by final discharge who have been found unlikely to be benefited by treatment. An exceptionally large number of patients of this class was discharged early in the year, to clear the records of an accumulation of such cases; and the fact must be considered in any comparisons that may be made of the statistical tables of this year with those of former years. Without going into details, it is to be said that the use of the hospital by improper cases has been largely reduced through the authority gained by the trustees in the statute permitting the immediate final discharge of persons not susceptible of benefit. The collateral effects, also, of the new conditions thus brought about have been salutary. The hospital is becoming more distinctly a place for persons who show themselves worthy of its privileges by their cooperation with the efforts that are made for their good. It is such men who are worthy of the efforts made to save them, and who repay the commonwealth for what it does to restore them to usefulness and self-support.

It should be noted that, in these reports, patients "discharged from treatment" are not entered in the table as recovered at the time of their discharge. But a careful inquiry is made throughout the State, each year, to ascertain the later results of treatment. For example, of all the patients discharged from treatment during the year ending May 5, 1897, 36.73 per cent. were afterwards found to be "doing well or abstinent" at the time of the subsequent inquiry. Taking the next corresponding period of one year, ending May 5, 1898, it was subsequently found that 42.10 per cent. continued "abstinent." There was some increase also of those "improved," and the "unimproved or drinking as before" were reduced from ninety-four persons to sixty-six persons.

While such indications as those above mentioned are sufficiently tangible to be expressed in figures, and permit their

being cited as evidences of progress and improvement in the work of the hospital at Foxborough, the trustees recognize other signs of accomplished and promised advancement not easy to describe, but which they can appreciate, in the conditions and circumstances with which they have to deal. They wish, however, to reiterate and emphasize their former testimony as to the beneficial effects that have been derived from occupation and exercise medically employed by the systematic methods of physical training. The additions to the broom shop, through the modest appropriation asked for by the trustees, has afforded results that have more than justified the representations made by the governing board. The work of the shop is self-sustaining, and is invaluable for its remedial influences.

The report of the superintendent and the results shown in the records of the instructor in gymnastics are especially entitled to attention. Notwithstanding the meager and makeshift arrangements for conducting this important branch of medical treatment, its carefully developed methods have become effectively established, and contribute materially to the improvement shown in results reported this year. These, as they affected individual patients, were precisely measured, and are set forth in a tabular statement which leaves no doubt of the possibility of producing definite gains in strength and endurance. When it is considered that these exercises are calculated to reinforce not only physical but mental control, the strongest possible argument is presented for granting to the hospital proper means for carrying out this important part of its purpose.

The superintendent, Dr. Hutchinson, reports a daily average of patients during the year of 164, fifteen more than the past year. Forty-two per cent. of all cases treated are reported as doing well and abstinent. Three cases of delirium tremens are noted, and six deaths from all causes. Very interesting tables are given concerning the condition of these cases. The superintendent says:

The number of final discharges during the year has greatly increased, owing to the application of the statute authorizing the final discharge of such persons as are not amenable to treatment for alcoholism, because of pronounced moral, mental, or physical disease. As observed, nothing but good has followed the application of the new statute. Much that was deleterious and vicious has been removed, and the morale and surroundings of the inmates greatly improved. It is obvious that occasion will constantly arise for the use of the authority conferred by the statute.

In some instances, patients have voluntarily prolonged the period of their treatment, believing that they were not sufficiently recovered to enable them to withstand their old enemy. This was done with our approval, and in accordance with our observation and opinion that in very many cases the period of treatment should be longer even than six months. In the majority of cases, as seen in the hospital, the degeneration, whether mental, moral, or physical, is too great to allow of its being easily overcome by a few months of treatment and abstinence, with regularity of habits.

The paroled patients continue to find employment in the various departments of the hospital and in the broom shop, as hitherto. The addition to the broom shop, not quite completed at the time of the last annual report, has demonstrated its value to those of the patients who, while not sufficiently improved to allow the customary full freedom within the limits of the hospital grounds, are yet capable of busying themselves about something in the nature of work, occupation being so essential to our continued happiness and well being.

TASTE DEPRAVITY OF INEBRIATES.

The use as a beverage of "finish," a weak solution of shellac in spirit employed by French polishers, is an old story, but we believe that its use for that purpose has fallen into abeyance in consequence of new regulations made by the in-

land Revenue to prevent its sale for the purpose of drinking. Similarly the drinking of methylated spirit, a horribly nauseous concoction, increased, nevertheless, until it became necessary to add a stronger dose of methyl. A still more inconceivably repulsive form of tipple was the spirit drawn off museum preparations, and yet we believe that drinking of that beverage has been the death of many museum porters, and it is a long-time reminiscence that the Royal College of Surgeons, Ireland, on the appointment of a new museum curator, discovered that several hundred pounds worth of its specimens had been destroyed by the abstraction of the spirit from the bottles, the past curator having been a confirmed inebriate. The latest advance in the direction of a new intoxicant is the drinking of petroleum oil, a practice which is stated to be rapidly growing to the dimensions of a great national vice in France. The taste of the liquid is absolutely repulsive, but to the Britisher who has tasted the abominations which are drunk with avidity and craved for by the French working classes, it will be obvious that nauseousness is not, of itself, a bar to the use of any beverage once that the taste has been broken-in to tolerate the liquid. The worst of the new intoxicant, from a social point of view, is that petroleum, taken in any reasonable quantity, does not appear to be greatly detrimental to health. It is said that the drunkenness which it produces is of the morose and quarrelsome type, and not of the jolly character which arises from alcohol, but the fit is quickly slept off, and the victim awakes apparently not much the worse for his "outing." — *Med. Press and Circular.*

OPINIONS OF LEADING MEDICAL TEACHERS ON THE USE AND ABUSE OF ALCOHOL.

The following was published in *The Voice*, of New York, compiled by J. H. W. Stuckenberg of Cambridge, Mass.:

So rapid is the progress of scientific temperance in Ger-

many that it looks as if it would require a specialist to keep pace with its development. The medical profession are beginning to realize what awful devastations are made by the drinking customs, and are considering their responsibility for checking the evil. The literature on the subject is characterized by the usual thoroughness of German scholarship. It is the scientific investigation of stubborn facts and their causes which has led professors, physicians, directors of asylums and of penal institutions to oppose the traditional views and habits of the people and strenuously advocate total abstinence.

Before giving some of the latest utterances of the medical profession, a statement of Prof. Dr. L. Meyer, of the university of Goettingen, is here quoted. It is found in the *Deutsche Rundschau*. The professor shows by statistics that light alcoholic drinks do not diminish the consumption of stronger liquors.

His article discusses the increase of insanity. The fact that insanity is less frequent among barbarous nations he thinks in some measure due to the absence of alcoholic drinks as a common beverage. Then, turning to China, he says that it has comparatively few insane, and this he attributes partly to the fact that alcoholism is scarce. He quotes Dr. Lockhart, of Peking, who affirms that alcohol is almost unknown in China. "A physician in Peking saw only two cases of alcoholism during a residence of eight years; a large public hospital in seven years received only eight patients whose sickness was in any way connected with intemperance." Speaking of the evil effects of alcoholism, the professor says:

"The ethical factor in the alcohol problem is not discussed here. . . . If there could be any doubt that the drinking of alcohol has increased in extent and hurtfulness, it must vanish in view of the fact that the disease due to alcohol — chronic alcoholism — was not known to physicians before the second or third decade of this century. The striking phenomena of this disease could not have escaped physicians if many cases

had appeared before that time. On the intimate connection between insanity and chronic alcoholism we have the most trustworthy evidences. From fifteen to twenty per cent. of the inmates of insane asylums of Germany belong to this class, while the statistics of England and Switzerland show a still larger proportion.

"The consumption of alcohol has been decidedly increased in all civilized lands within a short period. In Holland the use of distilled liquors increased per person in seventeen years, from 1864-1881, about thirty per cent.; in Belgium the consumption in the last forty years was more than doubled; and, most surprising of all, in the wine country, France, the increase per person during the twenty years from 1860-1880 has risen from four to seven liters, or about seventy per cent. In Prussia the amount consumed increased in fifteen years, 1865-1880, from eight to ten liters a head, and at the same time the consumption of beer increased from thirty-seven liters a person to eighty-eight. 'Therefore the opinion that the lighter alcoholic drinks, especially beer, decrease the consumption of distilled liquors is proved to be a mistake — everywhere a marked increase in the consumption of both has taken place.'"

Naturally the lighter alcoholic drinks cultivate a taste for the stronger liquors. Those who make statements in conflict with the indubitable facts of statistics must either be ignorant of these facts or else they attempt to pervert them in order to apologize for their own drinking habits.

Continental physicians who speak German have formed an association for the promotion of total abstinence. Their first convention was recently held in Frankfort. The January number of the valuable monthly, *Internationale Monatsschrift zur Bekämpfung der Trinksitten*, published in Leipzig, gives significant utterances of some of the members. Dr. P. J. Moebius, of Leipzig, declared that the physician who is

a total abstainer ought to make no exception in demanding total abstinence.

"He ought not to censure the laborer who drinks distilled liquors, and excuse the wine and beer guzzlers. He should, rather, first of all oppose the drink customs and the social obligation to drink which are prevalent in the upper circles; for mere argument avails nothing so long as among officers, students, and others a certain obligation to drink continues in the most pernicious and most revolting form. Using constraint to make men drink should be condemned unconditionally by the physicians, and be called by its right name, an abomination.

"The physicians ought not to join in the songs of the poets of intemperance or glorify such poets.

"No physician who is an abstainer should ever make the slightest concession to the alcohol customs of society, not even for the sake of appearances. Never ought he, as an act of politeness, to put the glass to his lips, and he should refuse to raise his glass when the command to do so is given. As Christians could not take part in the sacrifices of the Romans, so the abstaining physician should everywhere and at all times oppose the social obligation to drink, never so much as seeming to yield assent. Not a drop should he sacrifice, for in doing so he would bow his knee. Never let him pay the slightest attention to the drinking customs, whether he be at a hotel or at a family festival, in the presence of a king or of officials. 'Never bow before the idol, but deny it before the mighty.' Under such circumstances every drop promotes the tyranny of social drinking and thus also drunkenness. If this abstinence attracts attention and causes offense, the result will be the more beneficial, and the slight martyrdom to which the total abstainer is subjected will accomplish more than his preaching. The hands of others are tied; but the physician is free, therefore, he should be the first to oppose the social drinking tyranny."

Dr. Wehberg, of Duesseldorf, said:

"The movement in favor of moderate drinking has not accomplished the desired result of overcoming drunkenness.

"Total abstinence only will accomplish that end.

"Owing to the newly awakened consciousness of solidarity among civilized men, physicians are under obligation to set a good example respecting total abstinence from the use of alcoholic drinks, in order to lead men to more ideal conceptions.

"We have a right to look for the final victory of our efforts, since a development is evident in the fact that the view of natural science is taking the place of a metaphysical conception of the world. In order to attain a higher standpoint it is necessary for the use of spirituous liquors to vanish, just as, on the other hand, fuller knowledge, a higher standpoint having been attained, will lead mankind to reject alcoholic drinks."

That is, total abstinence is required to attain a higher stage of civilization, and a higher civilization will of itself, with its better knowledge, banish alcoholic drinks. It does look as if, for some of the most radical and most effective temperance doctrines, we shall be obliged to go to Germany and Switzerland. This is what Dr. Landmann, in Boppard-on-the-Rhine, says:

"The members of the Association of Abstaining Physicians reject the use of spirituous liquors in every form, and particularly declare the use of alcohol at the sick-bed a scientific error of the saddest kind. In order to war against this abuse, they earnestly appeal to the officers having charge of funds for the sick, henceforth, under no circumstances, any longer to permit the prescription of wine, whiskey, and brandy for sick members; but to resist to the utmost, according to the right given them by the laws insuring the sick, the taking of spirituous liquors, under the false pretext that they have a curative and strengthening effect."

Now we go to Switzerland, among whose physicians and

professors this same association has members. Dr. Bleuler, Rheinau, says:

"The treatment of chronic diseases with alcohol is contrary to our knowledge of the physiological effects of alcohol. There is no probability that its use will be beneficial, certainly its benefits have not been established. Often an injurious result is proved.

"It is not implied that there may not be some benefit in the use of alcohol in cases of sudden weakness with or without fever. But even in such cases the benefit is not demonstrated. At any rate, other remedies can with advantage be substituted for alcohol.

"The essential thing in the treatment of all alcoholic diseases, delirium tremens included, is total abstinence.

"The physiological effect of alcohol is that of a poison, whose use is to be limited to the utmost. Even the moderate use as now practised is injurious.

"The customary beneficial results unquestionably depend chiefly on suggestion and by making the patient believe falsely that the momentary subjective better feeling means actual improvement.

"Physicians share the blame of the present flood of alcoholism. They are therefore morally bound to remedy the evil. Only by means of personal abstinence can this be done."

Dr. A. Frick, professor in Zurich, is a careful student and an influential writer on alcohol. His statements are weighty. This is his testimony:

"In larger doses, alcohol is absolutely injurious in the treatment of acute fevers, especially in case of pneumonia, typhus, and erysipelas. They first of all injure the general state of the patient, they cause delirium, or increase it if already existing, and, secondly, they injure most seriously the organs of digestion and interfere with proper nourishment; thus they have a weakening effect, instead of prevent-

ing weakness which they are usually supposed to do. In case no alcohol is used, the convalescence is much more rapid. In no case has the benefit of treatment with alcohol been established. According to the view of the most eminent pharmacologists, the stimulating effect of alcohol consists simply in a local irritation of the mucous membrane of the stomach, similar to that produced by a mustard plaster."

The last testimony is that of Prof. von Speyr, University of Berne:

"Leaving out of discussion the question whether small quantities of alcohol are injurious, it is unconditionally required that the drinker who is to be cured must be a total abstainer.

"But if total abstinence is to be required of the drinker, then others must practice the same.

"Even if this view is quite generally recognized in our day, still it is to be observed that this knowledge has been acquired with difficulty.

"If it can be proved that even small quantities of alcohol are injurious, then the use of alcoholic drinks is unquestionably to be rejected and opposed.

"But even if such a demonstration is out of the question, and if it were eventually proved that there is some benefit in small quantities of alcohol, that would by no means overthrow the demand for total abstinence.

"Is any significance to be attached to the value of a small or the smallest quantity of alcohol in view of the enormous abuse of spirituous liquors and of the extensive evils produced by what is called moderate drinking?

"Is there a more effective weapon against alcoholism than total abstinence? Are any notable or permanent effects produced by moderate drinking or by abstaining only from distilled liquors?

"Finally, what is the injury of total abstinence? Why is it opposed? On what ground does it deserve opposition?"

DIFFERENTIAL DIAGNOSIS IN CEREBRAL HEMORRHAGE.

When the physician is confronted by an unconscious patient, and the diagnosis of hemorrhagic apoplexy is fairly presented, in the first place it must be distinguished from insensibility due to a variety of causes, such as alcoholism, uræmia, diabetes, opium poisoning, saturnism, and other topic conditions, sunstroke or heat stroke, syncope, post epileptic stupor, hysterical coma, and pure simulation. Secondly, the different varieties of encephalic hemorrhage must be separated from each other. As intracerebral hemorrhage without ventricular effusion from ventricular hemorrhage, primary or secondary, intracerebral from meningeal, meningeal from cortical, and the different forms of cortical hemorrhage from each other and from large effusions. In the third place, encephalic hemorrhage must be differentiated from forms of apoplexy due to encephalic lesions, such as acute softening dependent on embolism or thrombosis, intracranial abscess, or new growths.

Toxaenias. — In a case of uræmic coma a patient may have swelling of the limbs, edema of the eyelids or face, the breath may have a urinous or beef-tea odor, the pupils are generally dilated, and, as a rule not without exceptions, one side of the body shows more paralysis than the other. Considerable evidence has been accumulated to show that affections of the nervous system strictly limited to one-half of the body occur during the course of some forms of Bright's disease. In this country Dercum has reported cases of hemi-chorea, hemiplegia, and unilateral convulsions. Raymond, Chantemesse, and Tennyson have reported a series of cases of unilateral affections, chiefly hemiplegia and epilepsy, apparently of uremic or at least of renal origin. In not one, according to the reporters, could a trace of a strictly focal lesion be discovered. Schauffard has reported a case under the title of uremic convulsions of the Jacksonian form. Such cases can be diagnosticated only by the history of the case and a full considera-

tion of the signs and symptoms which indicate renal disease. Diabetic coma may be suspected if sugar is present in the urine, and especially if the patient has a history of glycosuria. Opium, chloral, lead, and other narcotic drugs or substances give rise to conditions of insensibility. Deep insensibility with contraction of both pupils and the absence of indications of unilateral paralysis such as conjugate deviation, loss of muscular tone, and absence of the drooping of the face on one side, favor the diagnosis of opium poisoning; and yet Taylor has reported inequality of the pupils in one case of opium poisoning. Profound narcotism from opium and the coma of serious apoplexy present phenomena which are very similar. McEnroe, in speaking of the differential diagnosis between hemorrhage into the pons and opium poisoning, says that in pontile hemorrhage the coma is more profound. In narcotism it is possible to arouse the patient and to make him answer questions intelligently as far as he will answer them at all. The pulse is full and strong in the early stages of opium poisoning. While in hemorrhage it is wiry, sometimes slow, sometimes rapid, but not usually full, strong, and regular. In the former the whole body is bathed in perspiration and the respirations are less frequent than in hemorrhage. The discussion of the distinction of hemorrhagic apoplexy and the unconsciousness produced by chloral, cannabis indica, chloroform, hyoscyamus, or prussic acid, or nitro-benzole, belongs to works on toxicology.

A word might here be said about lead poisoning, as coma convulsions and other symptoms pointing to profound involvement of the brain are occasionally seen as the result of severe poisoning by lead; but here the presence of the lead line, the history of other forms of lead disease and the occupation of the patient are of great value if information with reference to these points can be obtained. Occasionally cases either of deep stupor or of excessive delirium are seen for which no cause can be assigned. These are sometimes due to toxæmia

of unknown origin. That they are not ordinary apoplexies can be recognized, but exactly what they are may be beyond the pale of diagnosis. In sunstroke, which by some is regarded as a toxæmia, the fact that the patient has been exposed to excessive heat, the great rise and steady increase of body temperature, the prostrated or collapsed condition of the patient, and the absence of unilateral phenomena serve as differential features.

ABUSE OF STRYCHNINE.

Dr. Hare, in the *Therapeutic Gazette*, makes a timely protest against the indiscriminate use of strychnia as a stimulant. He mentions the first improvement of the heart's action as encouraging its continuous use, until a condition of excessive nervous irritability appears.

"Particularly is this true where very large doses of strychnine are administered to patients suffering from severe asthenic maladies, as, for example, in typhoid fever, tuberculosis, or epidemic influenza. In each and every one of these diseases a few doses of nux vomica or strychnine will frequently produce a noticeable improvement in the pulse and in the apparent condition of the nervous system, because strychnine being a powerful stimulant whips up the flagging nervous centers and causes them for the time being to perform their functions with greater activity. If the strychnine is persisted in, and ascending doses are given for a considerable period of time, in addition to the nervous symptoms which we have mentioned, there is frequently developed an irritant fever, and particularly is this the case when strychnine is given in full doses during the later stages of typhoid fever or during convalescence from this disease, when, as is well known, anything which disturbs the nervous centers is very apt to result in a rise of temperature. Physicians are wont to watch the patient taking large doses of strychnine in order that this dose may be cut down as soon as twitching of muscles of the forearms or slight stiffness at the nape of the neck is developed, but in

our experience, in asthenic patients, long before these symptoms appear there develops mental disquietude and a condimentation of the larger cells, chiefly with degeneration of the cytoplasm; (2) a general cell atrophy of the body and nucleus; and (3) a good deal of change in the cell-body, with many neuralgia nuclei in the pericellular spaces. In the cases of alcoholism and alcoholic meningitis, it was not possible to make out a distinct type of cell degeneration, nor could this be expected, as these patients die not so much from the alcohol as from autotoxemias, and from the febrile process. — *Medical News.*

"UNDER THE GUNS; A WOMAN'S REMINISCENCES OF THE CIVIL WAR." By Mrs. Annie Wittenmyer. Boston: E. B. Stillings & Co., 55 Sudbury Street.

This is a very interesting volume by a strong-minded, clear, executive woman. It is composed of sketches and incidents of the hospital and battlefield, so graphically written and so literally true as to rouse most intense interest and admiration. All such works give new light to the history of the events in which they were associated, and bring out many new phases of the medical side that would be forgotten otherwise. This book will be a revelation of the possibilities of women's work on the field of battle and in the hospital, and will be a monument to the author's memory when this and many other generations have come and gone. The rare talent and personality of the author appears in every page, and in many ways the book is a psychological revelation to students of mental diseases.

The *Homiletic Review* merits the warmest praise and commendation for its most attractive contents and valuable papers from the ablest writers and thinkers of the age.

"Politics as a Form of Civil War," "Racial Relationships and Peculiarities of the People of the Balkan Peninsula," "Social Evolution of the Colony," "Increase in the Produc-

tion of Gold," are most graphic papers of great value in the March number of Appleton's *Popular Science Monthly.*

The *New Voice* grows in general excellence and attractiveness, and its value is more and more appreciated by its readers.

The *Scientific American* is a family paper for all who are interested in scientific growth and development.

"NERVOUS AND MENTAL DISEASES." By Archibald Church, M.D., Professor of Clinical Neurology, and of Mental Diseases in the Northwestern Medical School (Chicago Medical College); Professor of Neurology in the Chicago Polyclinic, Neurologist to St. Luke's Hospital, etc., and Frederick Peterson, M.D., Clinical Professor of Mental Diseases in the Woman's Medical College, New York; Chief of Clinic Nervous Department, College of Physicians and Surgeons, New York. 8vo, cloth, pp. 843, with 305 illustrations; price $5. W. B. Saunders, publisher, 925 Walnut Street, Philadelphia, Pa.

"THE DAWN OF REASON; OR MENTAL TRAITS IN THE LOWER ANIMALS." By James Weir, Jr., M.D., Owenboro, Ky., author of "The Psychical Correlation of Religious Emotion and Sexual Desire," etc. The Macmillan Company, New York, N. Y. 1899. Pp. 234. Price $1.25.

The author has in this work presented to the general reader, in a clear and concise form, evidence of the mind and mental action of the lower animals. In his discussions of Psychology he has carefully eliminated metaphysics and avoided all data that were without value, and only used such as he had absolute confidence in as to their accuracy. He does not claim infallibility, but gives the results of his twenty years' study and observation in this line. The book is well written, and the matter is well arranged, and we can heartily recommend it to those who want a readable, interesting, and semi-scientific work on the subject.

Editorial.

INEBRIETY AND INFLUENZA.

The present epidemic of influenza has proved to be very fatal in cases of moderate and excessive alcoholic drinkers.

Pneumonia is the most common sequel, breaking out suddenly and terminating fatally in a few days. Heart failure and profound exhaustion is another fatal termination. One case reported to me of an inebriate, who, after a full outbreak of all the usual symptoms, drank freely of whisky and became stupid and died. It was uncertain whether cerebral hemorrhage had taken place, or the narcotism of the alcohol had combined with the disease and caused death.

A physician appeared to have unusual fatality in the cases of this class under his care.

It was found that he gave some form of alcohol freely, on the old theory of stimulation. Another physician gave all drinking cases with this disease alcohol, on the same theory, and had equally fatal results. It has been asserted that alcohol as an antiseptic was useful in these bacterial epidemics, but its use has been followed by greater depression and many new and complex symptoms. The frequent half domestic and professional remedy, hot rum and whisky, has been followed by more serious symptoms and a protracted convalescence. Many facts have been reported showing the danger of alcohol as a remedy, also the fatality in cases of inebriates who were affected with this disease.

The first most common symptom seems to be heart exhaustion and feebleness, then from the catarrhal and bronchial irritation, pneumonia often follows.

The following curious case comes under my observation:

A periodic inebriate whose drink periods occurred every three months was taken with the grip, also aggravated catarrhal symptoms and muscular pains at about the time for the return of the drink craze.

He was kept in bed three weeks and treated by salines and baths, and kept alarmed at the prospect of death from pneumonia. Then permitted to go out under great restrictions. He recovered and for a year has had no return of the drink craze. The influence of the disease at this time was sufficient to break up the drink storm.

The experience of this epidemic confirms the facts noted before, that inebriates and drinking men generally have low vitality and resisting powers to disease. They are always the first to succumb to any violent strain or expenditure of force by the body. They have no reserve power, and the heart and lungs show this most quickly.

The treatment of epidemic disease by alcohol, especially inebriates, is simply intensifying the debility present and lowering all vitality.

These are clinical facts that can be confirmed by every careful observer.

INEBRIETY IN FAMILIES OF NOBILITY.

In one of the leading quarterlies there is a very significant paper on the decay of the leading families of Europe. While this is only a natural sequence of causes, both physiological and social, the prominence of inebriety in these cases gives it a special interest.

It appears that inebriety and gambling are the most prominent features of the final collapse of these families. One old house of Austria had two generations of opium inebriates. At the final breaking up the last member, a prince, had one hundred and thirty pairs of trousers, two hundred and twenty

coats, and eighty pairs of shoes, and other equally numerous articles of clothing.

He appears to have spent most on opium and clothing, and his special pastime was borrowing and swindling his friends and tradesmen.

The female members of the family gave great attention to dress, and followed the changing fashions, using opium in the meantime with spirits, and dying early. Another French family dissolved apparently by the inebriety and marrying propensities of the father and two sons. For many years they were hard drinkers and constantly engaged in intrigues and alliances with women. The estate dissolved and death left a second son a pauper, who disappeared. The collapse of the family extended over two generations, and was complete in embracing every member, who all drank and showed sexual delirium.

A prime minister of England, who was of an old titled family and of great wealth, died from gout due to wine excess thirty years ago. His son and grandson have wrecked the estates and the family has disappeared. Both the son and grandson were gamblers and drank to excess and died, and the name is now only known to history.

Two old noted Scotch estates, whose history and names have been prominent for three centuries, have been sold recently by the sheriff, and the descendants have all disappeared. The same inebriety appeared in all branches of the family associated with reckless living and gambling.

This is the history of nearly all the old families of the nobility. In some there is a persistence of race stock and a renewal of vigor by intermarriage outside and more healthy living.

It would seem that inebriety is the most fatal of all diseases which destroy these old families. Gambling and speculating may involve the estates and cripple them, and political changes may dissolve and separate the family, but the name

continues and the family often appears again on the former plane of eminence. But when the inebriety breaks out, the rule is extinction, to which there are but few exceptions.

These old families are governed by the same laws of dissolution seen in all circles, only they are supposed to be more stable and persistent, owing to more settled surroundings. When they begin to dissolve, they fall apart more quickly and have very little vitality to transmit to the next generation.

CAPITAL AND INEBRIETY.

It is evident in many ways that managers of large moneyed interests and capitalists are taking up the temperance question practically in demanding total abstinence of all responsible persons who handle property. Business managers, responsible clerks, partners, and persons occupying places of trust are regarded with increasing anxiety, particularly if they are club men and are known to be users of spirits. The first qualification of an aspirant for a good position is, What are his habits, is he a total abstainer? Often inferior men secure positions because they are abstainers, while men, brilliant, capable, talented, who are moderate drinkers, fail.

Mercantile agencies rate low all companies and businesses managed by moderate drinkers. Railroad and all transportation companies are rapidly throwing out all users of spirits and making total abstinence an imperative qualification for service. Several insurance corporations, and some of the largest banking companies in the country, employ only total abstainers. The stockholders of a leading company called for the resignation of two leading officers because they were moderate drinkers and club men.

In a list of twenty defalcations in New York and vicinity, sixteen of the defaulters were users of spirits, and ten were club men.

In business failures of twenty-six firms and corporations,

the responsible managers were drinking men in twenty-one instances. These facts were not made public, and yet the business sense of the community realized the danger in greater efforts to eliminate this source of peril to capital.

Some years ago a large manufacturing firm suspended, due to the bad management of a moderate drinking president. Since then they have started again and have become very prosperous. One of the rigid rules is, no drinking man shall be employed in any capacity.

Every year this fear of drinking men is increasing, and every year capital is demanding that total abstainers should only be employed.

In this there is no sentiment or theory, only cold, hard experience, which brings only one conclusion, repeated over and over again, namely, that moderate drinking men are dangerous, untrustworthy, and unreliable.

Science points out the reason in the anaesthetic action of alcohol and diminished sensory acuteness, lowered powers of judgment, and enfeebled moral perception. They are poisoned, disabled, and unfit for work which requires the best judgment and capacity of the brain. Capital has no knowledge of these reasons; it only judges from the facts of experience, and the more wisely it observes the perils which confront it, the more fear is manifest in reliance on moderate drinkers. In striking contrast to this is the action of a learned board who placed at the head of a great educational institution a brilliant moderate drinker. Other learned boards have put similar men in positions of great trust. Within a short time two of these brilliant moderate drinkers who were heads of great institutions of learning have resigned, leaving heavy burdens for their successors.

A professional and educational sentiment has not risen above theories and turns away from the teachings of science and the warnings of reformers as foolishness. Some day a great awakening will take place. Experience will sustain the

teachings of science, and the danger and folly of trusting the moderate drinker as sound and capable will be fully recognized and put into practical application in all the workings of life.

HALF TRUTHS.

Recently we have received a number of papers which are good illustrations of the partial recognition of the truth and the reluctance to admit facts that are opposed to previous theories.

It is the same psychological history in which every new truth is first denied and then admitted as partially true and finally is accepted as true.

A certain number of persons never change their conceptions of truth. The facts they once learned are the same yesterday, to-day, and forever. Another class admit that new evidence has changed former theories, but the old theories contain some truth, and that a mixture of old views and new ones embody the real facts.

A great many persons never admit a radical change of theories; they recognize that alcohol may be a poison and inebriety a disease, but persist in the belief that alcohol is a food and stimulant, and therefore valuable; also that inebriety is a moral disorder and under the control of the will, hence only a disease in part and in certain conditions.

They are in the second stage of awakening or evolution, and always manifest great eagerness and energy to support and defend their views.

In the papers received this fact is very apparent in the skillful setting forth of evidence favorable to their theories and under-rating of opposite facts.

Sneers, doubts, and denials of contrary truths are only evidence of weakness, and calling opponents cranks and extremists is usually descriptive of their own mental condition.

Often such men make a show of great candor and speak of their questions as settled by uncontrovertible evidence.

Statistics and experiments in the laboratories, which sustain their theories, are given a very high place, while opposite experiments and statistics from equally good sources are regarded with suspicion and doubt.

It is curious to observe the dogmatism of men who are not in a position to become experts. Thus an oculist, a teacher of obstetrics, an army surgeon, and a country practitioner have each written very authoritatively in defence of alcohol and condemnation of those who differ from them.

Another quite prominent man denounces alcohol in the young, but urges its use in old persons, and condemns all advocates of the theory of the disease.

These are the doubters who are mentally unable to keep up with the progress of research, and stand far back in the rear, shouting to those in the front line what is true and what is not.

Some persons assert that they are not total abstainers as evidence of impartiality and ability to judge. This same egotism extends to the most degenerate inebriate, who never doubts his ability to know what inebriety and alcohol is.

Here, as in other fields of research, the bitter critics are least qualified to judge. It is a hopeful sign to find men partially converted and willing to acknowledge some disease in inebriety and some evil in alcohol. But to stop at this point and conclude that no other facts are possible is deplorable weakness.

AN ALCOHOLIC PROBLEM.

A man forty-five years of age, married, with four children, a manufacturer, and wealthy, has distinct drink paroxysms which last eight or ten days.

They begin with beer and wine, then whisky, and stupor, associated with mental and muscular feebleness. Then insomnia and delirium comes on.

No special delusions, but intense activity and anxiety about the details of his business.

He drinks, at fixed intervals, small doses of whisky, and never seems stupid, but is violent in his actions. From the slightest suspicion he will attempt to punish and injure anyone. He goes about his factory and on any provocation will beat and strike, and would kill were he not restrained.

This violent homicidal period lasts three or more days, and terminates in sleep and restoration. An interval of total abstinence of from six to ten months follows, during which he is generous, kind, and very thoughtful of every one in his service and in his family.

He has been to two asylums for inebriates, and six months under treatment in an insane asylum, without results.

These homicidal drink attacks return the same, and are growing more serious. He has injured some members of his family and several servants in these attacks, and requires the most careful watching and restraint at times.

It was found by accident that a day or more of opium narcotism completely neutralized and broke up this paroxysm.

After three days of extreme exhaustion and feebleness he recovered. The next attack was aborted in the same way, but the third attack was followed by the use of opium in small doses.

This man had a dread of opium addiction, and a council of physicians was called. The opium was removed, another drink attack came on, and the same violent symptoms followed. It was finally checked by opium, and he then consented to continue its use.

He is now, four years after, an opium inebriate, conducting his business quietly, and is uniformly kind and rational. He has used no spirits, but regrets his opium-taking, and is anxious to stop it.

The question was this, Should he be treated for the opium addiction, and after its removal be subject to the return of the

drink craze, with its probable homicidal symptoms, or continue as he was, with the certainty of invalidism and increasing incapacity in the future.

This problem is yet unsettled, and this man and his family are asking counsel from all persons who are supposed to be able to advise.

SCHOOL BOOK CONTROVERSY.

In the rational, reasonable controversies which have centered about the school books which make the evils of alcohol prominent, some very interesting opinions are urged.

One class of objectors acknowledge the value of teaching the danger of alcohol in the public schools, but think that it is given too much prominence, that the attempt to give technical knowledge of the action of alcohol is impractical, and fails to have the effect intended.

Examples are cited of descriptions that are practically unintelligent to any except medical men. They also urge that other topics are more practical and can be taught easier. Also that the impressions given in many text-books exceed the facts and give a wrong view, which reacts and fails to convey the real truth.

The supporters of this teaching acknowledge that the books may err in clearness and expression and proper proportion of facts which can be easily taught, but urge that the magnitude of the subject fully sustains the prominence given to it.

At present they claim that no hygienic study can be more important than the danger of alcohol as a beverage. They point to the fact that ten per cent. of all the male population use alcohol, to their injury, and four per cent. of women are also addicted to its use.

The evils that grow out of this are more fatal and serious than all other sanitary losses combined.

They also urge that the theories of the past are so firmly believed in by the masses that scientific research to the contrary makes but little impression.

Only by strongly stated facts taught to children can the subject be brought into prominence before the parents, and investigations encouraged.

It is affirmed that no statements of the injuries following the use of alcohol can exceed the facts which scientific research and practical experience will not confirm.

In these discussions the personalities of the disputants are very prominent. The moderate user of spirits cannot accept the statements of the evils of spirits, because they conflict with his personal conceptions.

The abstainer who from experience and observation finds only evil in spirits is equally convinced and emphatic in his opinion.

Scientific research is fortunately fast clearing up this realm of confusion.

Clinical Notes and Comments.

THE TREATMENT OF CHRONIC COCAINE POISONING, OR COCAINO-MANIA.

The following complete review of this subject is to be found in Sajous' Annual and Cyclopedia of Practical Medicine: The F. A. Davis Co., Philadelphia and Chicago.

"The treatment of the cocaine habit, or chronic cocaine intoxication, is very much more difficult. It is more essential to have complete control of the cocainomaniac and his actions than even in chronic alcohol or morphine mania. There is less to work upon in the brain and nerve centers of the chronic cocainist than in those of the chronic alcoholist or chronic morphinist. There is less mental and moral elasticity, less desire to be freed from the narcotic bondage, less consciousness of the bondage itself, a more helpless and hopeless wreck being difficult to find. Cocoainomaniacs, however, are, in a few cases, cured without seclusion. In these hopeful cases there generally has been a greater stock of inhibition from the first. Again, the indulgence having been periodical and ordinarily provoked only by some recurrent pain or distress and leaving intervals of shorter or longer non-narcotic consumption between, inhibition has not been so paralyzed, and thus there has been more resisting power left. In the latter group of cases it is imperative to direct the treatment to the abolition or counteraction of the exciting influences.

In the mass of cases the main hope of cure rests in therapeutic seclusion. The patient must be treated as a diseased person. Diet, at first simple and readily assimilable, should be carefully attended to. Milk, with soda or lime-water and

effervescents if nausea and emesis are present; arrowroot or other farinacious or malted food, and other peptonized preparations are excellent. Gradually, broths and plain soups, oysters, fish, poultry, and, lastly, mutton and red meat, with an ample supply of fruit and vegetables, may be given. But there are cases in which a non-fish-and-flesh dietary agrees better with the patient. Each case must be carefully observed to determine the most suitable dietic instructions.

In the first week, exercise and fresh air may usually be insisted on, with massage to improve the wasted condition of the muscles. Meals should be regular, and exercise graduated.

Alcoholic beverages are best avoided; and, though in a few cases, tobacco in limited quantities may be allowed to aid in staying the morbid impulse or crave, yet most cocainomaniacs would be better without it in any form. Tobacco is apt, in many patients, to impair digestion and depress the heart's action, the healthy state of both vital processes being points of the highest importance in the treatment of this mania.

To combat the wearing insomnia of most cases I know of nothing better than the hot, wet pack. Of all the medicinal hypnotics, I have found phenacetin the most useful, in doses of five grains, repeated, if necessary, every hour; no more than three doses (fifteen grains) to be taken in one night. Other physicians have found chloral and sulphonal serviceable.

An important practical point is the method of complete withdrawal of the cocaine, which complete withdrawal is essential to cure. In most cases I have not felt justified in immediate withdrawal, though I have done this where practicable. I spread the reduction period over from seven to nine days, beginning, whatever the quantity which had been taken daily or how long, with a reduction of one-half. Dr. Welch Branthwaite informs me that in five cases he at once, after only one dose, stopped the cocaine, without trouble. These were cases in which morphine had also been freely used. In

the cases in which I gradually reduced the dose of cocaine, morphine had not been habitually taken in large doses. Where morphine is also freely and regularly taken, it is easier to withhold the cocaine without delay.

The best treatment of cocainism has been, in my hands, the administration of chloral in large doses. Opium was found to be feeble in its action, while some relief was obtained under the action of bromide of potassium by itself, or, better, in combination with the chloral. This latter alone is to be preferred, especially when there is weakness of the pulse. — Andrew Fullerton (*Lancet*, September 19, '91).

All complications must be attacked, but, in the main, besides hygienic measures, nervine tonics are indicated in the endeavor to restore the lost energy and will power which really constitute the disease. Of these tonics, nux vomica and strychnine are the most effectual. Arsenic also is useful. I have found this, as in other forms of narcomania, that an occasional replacement of the stronger nerve tonics by milder ones is advantageous; I mean such as quinine, calumba, and gentian. Galvanism has, in appropriate cases, its value.

Though it is often asserted that three to six months suffice to effect a cure, my observation has been that twelve months constitute the shortest time in which such a result can be hoped for. There are, at the same time, a few exceptional cases in which a good result has been secured in a shorter period.

Medico-Legal Relations. — As many cocainists will not apply for curative detention of their own accord, it ought to be the duty of the constitutional authorities to lay hold on these miserable and utterly helpless diseased persons, and insist on their reception and therapeutic seclusion for a given time, in a retreat, home, or hospital provided for the special treatment of such cases, with provision for persons with limited resources and for the very poorest. Such a provision would, in the long run, prove as economical as it would be invaluable to the welfare, physical and moral, of the whole community.

I am unaware of any trial for murder or for administering cocaine with intent to injure another person; but cocaine has been employed to commit suicide. It has been stated recently that forty cocainomaniacs appeared in the police courts of Chicago within the period of a few months in 1897. The habit was said to have been induced, in some cases, by the use of popular preparations as cures for colds, etc. In the charters of various special institutions in the United States power is given to the managers to receive and compulsorily detain habitual inebriates who are addicted to excess in any narcotic or inebriant, including cocaine; but in England only excess in alcoholic liquors renders applicants eligible for admission into retreats under the voluntary provisions of the Inebriates' Acts.

HYPNOTISM IN THE TREATMENT OF INEBRIETY.

Dr. Rybakow draws the following conclusions from cases under his own observation, as well as from the literature on the subject: (1) Alcoholics are very susceptible to hypnotism, and subject themselves to hypnotic influence much more readily than many other patients. (2) Hypnotism is a very good remedy in the treatment of alcoholism. (3) The favorable effect of the treatment shows itself in the improvement of the subjective symptoms, the disappearance of the depression, of the apathy, and finally, in the complete loss of the thirst for alcohol. Sometimes one sitting suffices not only to overcome the desire for the habitual portion, but also to break off acute attack. (4) By repeating the sittings, one may at times delay the patient's cravings; the intervals, however, vary, depending entirely upon the individual characteristics. (5) Complete cure by hypnotism, according to the experience of the author, is seldom obtained; relapses also are proportionately frequent. However, other authors report instances of complete cure by hypnotism. The duration of the treatment depends especially

upon the degree of degeneration; the milder the degeneration, the more positive and lasting the cure. (6) Relapses are most frequently noticed in patients under this treatment when the sittings are discontinued too early. (7) In the treatment of the craving for alcohol by hypnotism, the utmost care should be taken in reference to the promptness of the sittings. (8) The hypnotic treatment may be instituted at any time; it is, however, better that the sitting take place during the state of sobriety. At all events, it should be delayed until the agitation and hallucinations have subsided. — *Charlotte Medical Journal.*

AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY.

(*Organized November 29, 1870.*)

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

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

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

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

V. The object of the association is:

First, to promote the scientific study of alcoholic inebriety and kindred drug habits, and to encourage desirable and spe-

cial legislation with reference to the care and control of alcoholic and other drug inebriates.

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

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

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

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

There are many institutions in this country which wholly or in part treat the alcoholic and other forms of drug addiction. These institutions should be organized and follow some general principle and method of practical work. By this means public opinion could be more effectually influenced, and legislation secured, resulting in a great advance in the successful and scientific treatment of this class of cases. Every such asylum and institution in the United States is urged to join this association, and by their united effort lift the subject out of the realm of quackery and unscientific treatment into that of exact scientific work, and to place the status of the

treatment of alcoholic inebriety and kindred drug habits on the same level with that of other similar diseased conditions, and secure the same medico-legal and institutional advantages. A membership fee of two dollars is charged yearly, which includes the annual subscription to the *Journal of Inebriety*, the organ of the association.

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HARTFORD, CONN.

SOME CAUSES OF CONGENITAL DEFORMITIES.

Dr. Barnes read a paper on the above topic in the Section of Children's Diseases at the Philadelphia meeting of the American Medical Association. In the discussion of the paper, Dr. Bedford Brown, who has since died, made the following excellent remarks:

To arrive at any clear comprehension of the nature of the causes of congenital deformity, we must trace back those causes to the origin of man, to be found in the union of the male spermatozoon and the female ovule, and the processes of protoplastic formation and cell growth evolved by the vitalizing influence of this union. Practically, it may be accepted as a fact that the healthy evolution of the fetus requires the union of a perfect ovule and an equally perfect spermatozoon. And, on the contrary, that a defective ovule and spermatozoon, though capable of fructification and to a certain extent development of a living being, that living being will be defective in some of its parts.

Hence, in tracing the causes of congenital deformities, one must go back to prime causes as well as intermediate causes. What is here understood as prime causes are certain defects seated in either the spermatozoon or ovule, one or the other, or

both. What is meant by intermediate causes are such changes as may occur during gestation impairing the growth of certain parts of the fetus.

In regard to the real nature of the primary causes, no one with our present knowledge can determine with any degree of accuracy, as we are not informed of the physiologic process in operation after the union of the male and female products. All we can say is that after this union takes place, then fructification results, and this means the development of protoplasm and the beginning of cell growth, and whatever arrests or impairs protoplasmic formation and cell growth will cause fetal deformity.

This law, I think, holds good both in ovule and spermatozoa, and in the intermediate growth and development of the fetus *in utero*. Thus, whatever influence will impair the formation of protoplasm or cell growth, as alcohol, injury, infectious disease, or inability of the mother to perfect fetal development, will produce this result. Great mental or physical shock, excessive alarm or fright, or physical injury of the mother would, during the earlier months of gestation, seem to be capable of impairing the nutrition of the fetus in a degree to cause deformity. Thus the interruption of the fructification and growth of an artery in the process of fetal development will suspend the development of the organ intended to be supplied by that artery, and we have either a partial formation or absence of the organ, known as congenital deformity.

We come now to the consideration of some of those influences which impair the vital organization of the spermatozoa and the ovule, and which become primary causes of congenital deformity. This is a very intricate question, but one not incapable of solution.

Alcoholism, or habitual intemperance, rank first among the deleterious influences which effect the vital endowments of the original germs. You will find congenital deformity nowhere so common or existing in such hideous forms as among the

habitually intemperate and degraded of the world's population. The effects of the constant saturation of the system with alcohol must tend to impair the vital organization of the spermatozoa and ovule, as it does any other organ of the body. On the other hand, habitual intemperance on the part of the female when pregnant must tend to impair the development of the fetus *in utero* by impairing cell growth. Again, we see children born of perfectly temperate parents, with congenital deformities. In a family of five children, born of temperate parents, all were defective in a more or less degree. The maternal grandfather was an habitual drunkard. The father, an intelligent man, was an eight-month child and very delicate until nearly maturity. The mother was a feeble, delicate woman who was never capable of nourishing the fetus *in utero* in a proper manner. The causes of deformity in this case were probably both primary and intermediate in character, and were due to hereditary influences descending from the grandfather and inability on the part of the mother to sustain the nutrition of the fetus.

Heredity must unquestionably be classed among the chief causes of congenital deformity. We are capable of inheriting the abnormal as well as the normal traits of mind and body of our ancestry. Hereditary tendencies of this kind must be transmitted through impressions made either on the ovule or spermatozoa, and impressions made upon these by hereditary influences must be of a permanent character and affect, in a positive manner, the growth and evolution of the fetus. Hence, heredity becomes one of the most important factors known for the transmission and perpetuation of mental and physical types both normal and abnormal.

Where the starting point of these hereditary tendencies in families begins is a difficult matter to determine. The tendency may date its origin, in many generations, back to the sins of an ancestor. He may have been a drunkard and impressed upon his offspring tendencies which through genera-

tions became fixed hereditary traits to be transmitted to all posterity. In such families bearing the burden of hereditary defects we see congenital deformities of the brain cropping out in successive generations, the origin of the hereditary tendency to which extends so far back that no man knows the origin, and it may skip one generation and appear in another. In these same families there will appear physical deformities otherwise. In a family of my acquaintance there has been for generations, deformities of the internal ear and deafness. Then again, these hereditary tendencies disappear suddenly by intermarriage with healthy individuals.

In summing up the remote and direct causes of congenital deformity, their nature and action, I think that the immediate or direct cause of congenital deformity may be in every instance attributable to defects of nutrition of the fetus. The remote causes producing these defects of nutrition may be varied, often widely in character, and even of an entirely opposite character. Thus, as has been attempted to be shown in the course of this paper, the various causes primary and intermediate are due to such influences as alcohol, shock, infectious disease, injury, fright, consanguinous marriage, incestuous connection, all of a widely different character. The tendency of all these is to obstruct nutrition of the fetus by impairing the process of cell growth and formation of protoplasm somewhere in the process of gestation, either in the original germ or during the growth of the fetus.

DRINKING AND INSANITY.

From Dr. G. Fielding Blanford's lecture on "The Prophylaxis of Insanity," delivered to the Royal College of Physicians on the 4th inst., and reported in last week's *Lancet*, we take the following important extracts:

"After hereditary transmission there is probably no cause of insanity which exercises so potent an influence as alcoholic drink. To estimate the extent of this we must go to the med-

ical reports of the medical superintendents of our pauper asylums, many of whom mention it as bringing a large proportion of patients under their care. The proportion differs much according to the locality and the class of population from which the patients are drawn. As we go from south to north the numbers increase, Cornwall, Devon, and Dorset furnishing the least. These are for the most part agricultural counties, with few large towns. When we examine the reports of asylums in the midst of large manufacturing towns or mining districts the numbers increase, for wages are higher, habitations and life unhealthy, and drunkenness prevalent. And it has been observed that the admissions from this cause are more frequent when trade is good and wages high. When the reverse is the case, or when strikes diminish the spending power of the workman, the number of the admissions falls. So long as the drinking remains as it is it will be impossible, I think, to say that insanity is diminishing, at any rate among the lower classes. The spread of temperance principles, the advance of education, the improved sanitation of dwellings and workshops, and the influence of wholesome recreation for the mind as well as the body, will, we must hope, gradually check the drinking that at present prevails; but I must not take up your time by dilating on this subject. That drinking has greatly diminished among the educated classes is beyond a doubt. A certain amount of insanity is produced still by alcohol, together with alcoholic paralysis and dementia, but there is far less among the higher than among the lower classes. The proportion, however, of drinking women is, I fear, far greater among the former than among the latter. If we look at the statistics of our public asylums the number of males whose insanity is caused by drink largely predominates, but of the alcoholic cases brought under our notice in private practice a very large proportion are those of ladies. And this will be the case till legislation enacts that such shall be compulsorily detained in inebriate resorts. At present scarcely one will place

herself under care and treatment, and the Act is almost a dead letter so far as women are concerned.

"It would be a good thing if all boys and girls with an hereditary taint were brought up to abstain totally from alcohol. There is always a risk of these neurotic individuals taking to drinking. What is insanity in one generation often appears as inebriety in the next, and they are not likely to give up easily such a habit and craving if once established. Often inebriety is directly inherited. I lately saw a young man aged twenty-four who was emerging from an attack of delirium tremens, one of many he had already had. He began to drink hard at the age of fifteen. His father and mother both drank themselves to death, and the son was following their example, and we have at present no law to prevent him. Such young people should be taught to abstain. It will be no hardship if they have never known what wines and spirits are, and they should be made clearly to understand and recognize the reason why such abstinence is enjoined. It is far easier to abstain from childhood than to revert to abstinence in later life."

INCREASED RISKS OF DEALERS IN ALCOHOLIC BEVERAGES.

Dr. Law, before the British Medical Society, read a paper, of which the following is an extract:

A joint inquiry of this kind was undertaken by the Scottish Life Assurance to determine the extra risk of insuring persons engaged in the sale of intoxicating liquors. The results were published in *The Journal of the Institute of Actuaries*, and otherwise made known to those interested in the subject. But I may briefly refer to them as showing the lines on which a more comprehensive inquiry into the whole subject of extra risk might proceed. In this case, as the point to be investigated was the influence of occupation only and not any question of disease, personal or hereditary, the co-operation of medical experts was not considered necessary. The investigation

was made by a committee of actuaries, who were furnished with particulars of all the assurance effected with the companies in the class of lives in question. The cases having been grouped according to occupation—publican, innkeeper, hotelkeeper, etc.— and arranged according to age, the numbers "exposed to risk" at each age were brought into comparison with the number of deaths, and from those elements were deduced the corresponding rates of mortality. A comparison with the rates of mortality among ordinary assured lives showed the extra risk of insuring persons of those occupations. The following results are typical:

TABLE II —Showing Increased Mortality of Publicans.

Age.	Annual Mortality. Publicans.	Other persons.
30	1.48%	0.77%
40	2.59%	1.03%
50	3.08%	1 60%
60	4.59%	2.97%

Calculations were also made to show how the actual number of deaths compared with the "expected" number — that is, with the number of deaths that would have occurred among ordinary assured lives. In the case of the publicans it was found that the "actual" deaths exceeded the "expected" by no less than eighty-three per cent., the numbers being 430 and 235 respectively.

The causes of death compared with those of ordinary assured lives are shown in the following table. They are here given for the first time:

TABLE III. — Showing Cause of Death in Publicans.

	Actual deaths (Publicans).	Expected deaths (healthy males).	Percentage of actual to expected.
Diseases of the urinary organs,	26	9	289
" " digestive organs,	62	29	214
" " circulatory system,	46	24	192
" " respiratory organs,	64	30	213
" of brain and nervous system,	91	48	190
" of uncertain seat (cancer, etc.),	17	12	155
Zymotic diseases,	32	34	94
Sudden and violent deaths,	17	13	130
Tuberculous disease,	61	28	218
Causes not classified,	14	8	175
Totals,	430	235	183

The publican is exposed to late hours of business, to confinement in an atmosphere more or less heated and impure, especially toward night, and, above all, to the ever-present temptation to over-indulgence in intoxicating drink. These causes seem to entail upon him a largely-increased liability to consumption and to disease of every vital organ. — *Medical Examiner.*

THE TOBACCO HABIT AMONG THE YOUNG.

Whatever may be thought concerning the effect of tobacco smoking on the adult, the opinion that it is deleterious in the extreme on the young is unanimous and decided. Of late years juvenile smoking has been spreading like an epidemic in all countries of the world, and is attacking both the physical and moral health of nations. In France, in Germany, and in this country, efforts have been made to check its further inroads. In some parts of Germany, as also in portions of the United States, laws have been enacted prohibiting persons under the age of eighteen from smoking, and rendering it a punishable offense for anyone to give or sell tobacco to children. In France numerous societies have been formed for the suppression of the vice. In no country has this habit increased with the young to a greater extent than in England. The advent of the cheap cigarette is doubtless chiefly responsible for this state of affairs. To see boys of seven or eight years puffing their cigarettes is quite a common occurrence in London, and particularly is this the case in the East End. However, when a packet containing five cigarettes can be bought for two cents, the fact that smoking has become so general can scarcely be wondered at. Sir William Harcourt, in his last speech on the Budget, referred to the large increase of revenue received from tobacco, in these words: "I believe it is mainly due to the great increase in the consumption of cigarettes, which are especially attractive to our youthful population." He added: "I am told of one manufacturer who

makes two million cigarettes a day who hardly made any a few years ago." It has been proposed in Great Britain, as a remedy for the evil, that the members of the medical profession should make a move in the matter, and urge on the managers of schools the importance of special teaching exposing the harmfulness of juvenile smoking, and should also make such representation to Parliament and the Government as might lead to efficient legislation. It is difficult to see in what manner this vice can be checked among children unless by repressive measures. If the medical profession in this country were to exert themselves with a similar object in view the habit might be yet stopped. There is no question in the case of interference with a person's liberty, it is simply a matter of health and morals. In Paris, some months ago, at a meeting of the society against the abuse of tobacco, it was decided to submit a petition to the Chamber of Deputies praying that "all telegraph messengers and school boys should be prevented from smoking, and also that tobacconists should be forbidden to sell their wares to mere infants whose lips should know no other pleasure than the cheeks of their mother." Though the wording of this petition is rather curious, it is quite to the point. There is a humorous side to the question of children smoking. In a book on tobacco, lately published, is the following paragraph: "It was the custom in England about the middle of the seventeenth century for children going to school to carry in their satchel with their books a pipe of tobacco, which their mother took care to fill early in the morning, it serving them in place of breakfast. At the accustomed hour every one laid aside his book to light his pipe, the master smoking with them, and teaching them how to hold their pipes and draw in the tobacco." At the present day Dutch children smoke pipes, and little boys of five and seven years old calmly discuss these calumets of peace as they proceed to school. Still this does not alter the fact that smoking injures the health of the young. The excessive use of tobacco is harmful to many adults; it tends to deteriorate the moral

character in the same way as the inordinate use of chloral or bromide of potassium will deprave the mind, by lowering the tone of certain of the nerve centers. If this is so with grown men, how much more forcibly must the case apply to immature youths? — *Editorial in Pediatrics.*

BETTER STILL.

The influenza has been quite prevalent in a number of cities during the past month. Phenacetin, or better still, antikamnia, with salol or quinia, and a little powdered digitalis added, has proved a satisfactory plan of treatment, pre-supposing, of course, that the bowels are kept open, the secretions of internal organs are attended to, and that the patient is kept indoors, especially at night or in bad weather.— *The Virginia Medical Semi-Monthly.*

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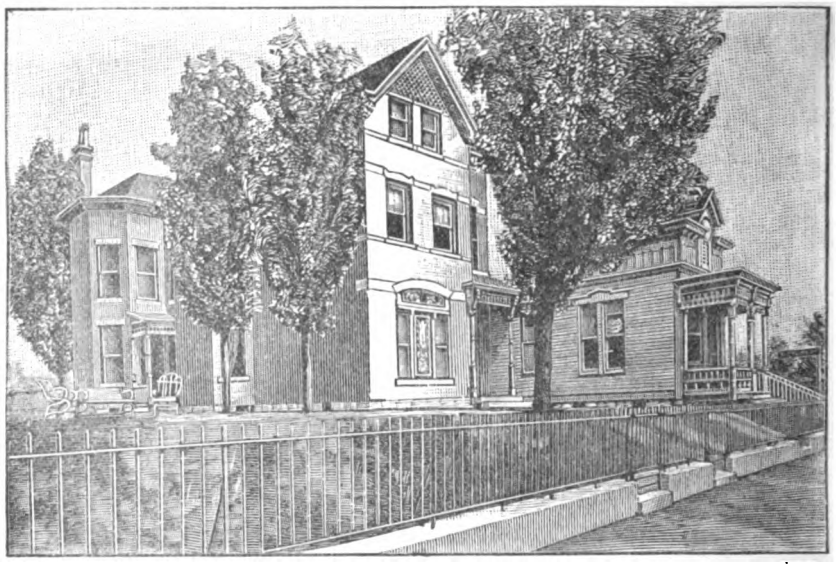

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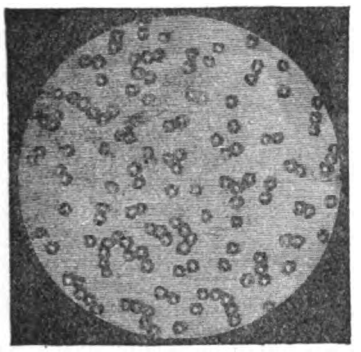

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Dr. Ira Russell is the founder and superintendent of the Home, and letters inquiry should be addressed to Dr. F. W. Russell, the superintendent. For information we are permitted to refer to the following gentlemen:

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

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THE
QUARTERLY JOURNAL OF INEBRIETY.
Subscription, $2.00 per year.

Vol. XXI. JULY, 1899. No. 3.

THE PAUPER INEBRIATE — HIS LEGAL STATUS — CARE AND CONTROL.*

By Dr. L. D. Mason, Brooklyn, N. Y.

President of the "American Association for the Study and Cure of Inebriety," etc., etc., etc.

A certain proportion of the population of towns and cities is composed of what are called the "criminal classes," those that require the constant care and espionage of the police and the adjudication of justice.

Intermingled with these in no small proportion is the pauper inebriate — friendless, homeless, appearing in various rôles on the public stage as drunkard, tramp, or vagrant, many times entered on the blotter of the police station as an "habitual drunkard" or "rounder," entering the various hospitals or dispensaries with disease or injury incident to his habits, and finally we find him in the wards of the charity hospital or among the chronic insane of the insane asylum — if perchance sudden death from natural causes or suicide does not intervene — and whether his career terminates in the street,

*Read before "The Seventh International Congress against the abuse of alcohol," held in Paris, France, April, 1899.

or in the alcoholic wards of the hospital, or in the insane asylum, or the cell of the police station, the trench in "Potter's Field" receives him, and thus the story ends.

During the year ending Sept. 30, 1898, the two principal boroughs of the city of New York, Manhattan and Brooklyn, with a population of 3,545,899, recorded the total number of arrests for all causes as 144,810, or nearly 150,000; of this number, 53,843, or over one-third, were arrested for intoxication, or as "drunk and disorderly." Many of those arrested were known to the police as habitual drunkards or periodical users of alcoholic stimulants, and that to excess.

While we may except a certain proportion of cases as occasional or accidental intoxication occurring in persons as a rule temperate, it would be no risk to assume that the larger proportion of those arrested were as stated, habitual or periodical inebriates. We must avoid the error too prevalent of confounding cases with individuals. Permit me to quote at length from the annual report for 1877 of the president of the Inebriates' Home for Kings County to the Legislature of the State of New York:

In the annual report for 1877 of the President of the Inebriates' Home for Kings County, to the Legislature of the State of New York, Dr. T. L. Mason thus writes, under the caption, "'Cases *vs.* Individuals':

"It will be observed that in the presentation of our annual reports we have invariably drawn a distinction between the aggregate number of 'cases' treated in the institution and that of the individuals who go to make up these 'cases.'

"This may be said to be a new departure, for it is the almost universal custom in the presentation of such reports by public and private corporations to speak of the number of 'cases' treated, leaving out of sight altogether the number of persons subjected to such treatment.

"In some respects this last-named plan of presenting an annual report may appear to be necessary. For example, if

ten individuals be the recipients of relief at the hands of some charitable institution on ten different occasions, those ten individuals swell up the record of 'cases' treated to one hundred. The very able and exhaustive report of the police and excise commissioners of the city of Brooklyn for the year 1876 fully illustrates the necessity for such a distinction, to a clear understanding of the valuable statistics presented.

"We do not quote from this admirably arranged exhibit of the work of the police and excise department, which, it may be remarked, in passing, bears evidence of careful compilation and abounds in comparative tables of criminal statistics of considerable interest to the thoughtful citizen and philanthropist, in any spirit of hostile criticism, but as merely illustrating the point we desire to make in the presentation of our yearly record to your honorable body.

"It appears that during the year 1876 there were 1,463 arrests for vagrancy in the city of Brooklyn, 9,680 arrests for drunkenness, and that in 4,851 of these cases the accused were registered as having no occupation.

"It would also appear that in the previous year, 1875, 55,567 lodgings were provided for homeless wanderers at the various station houses through the city.

"If we accept the cases of vagrancy, there is no record of the number of individuals which goes to make up this astounding number of arrests and of free lodgings provided in a single year.

"On referring to the tables of the occupations of those arrested, we find the actual number of individual vagrants taken into custody during the year to be 215; *but these 215 turned up in court on 1,463 different occasions*, occupied the time of the guardians of the peace to a considerable extent, in and out of court, necessitated 1,463 trials before a police magistrate, made the same number of trips to the jail in a public conveyance and at the public expense, entailed the payment of turnkey's fees from the county treasury in every case, and, finally,

boarded at the county's expense for terms ranging from ten to twenty-nine days each.

"These are the chronic vagrant drunkards of our community; and this perpetual record of arrests and re-arrests has been going on from ten to fourteen years, while some of these jailbirds could not, if questioned, compute with anything like accuracy the number of their re-arrests and recommitments during the long years in which the prison has taken for them the place of home. Thus we see at a glance how important it is to rid the community of even a modicum of those whom jail officials aptly, if inelegantly, term 'rounders' and 'repeaters,' even from an economical standpoint; not to speak of the moral aspect of the question or to dwell upon the value of reformation in a single case. This class largely helps to increase the burden of the taxpayers, and its decrease is a matter of grave importance.

"The number of individuals arrested for drunkenness probably bears a less proportion to the number of recorded arrests for this offense than does the number of individual vagrants taken into custody to the number of recorded vagrancy 'cases.' *If the exact number of drunkards arrested during the year could be sifted out, rejecting aliases and coming down to individuals, it would be probably found that the actual total would fall short of one thousand, though* 9,680 *arrests for drunkenness were reported during the year.*

"The same reasoning on the score of economy alone applies in the case of the chronic drunkard even more forcibly than it does in the case of the constitutional vagrant; for the latter, as a rule, has only himself to provide for, while our criminal statistics show that the large majority of drunkards have others depending on them who are more than likely to become a burthen on the community.

"The rescue of one such inebriate has a social significance, independent of morals altogether, which the casual observer is not apt to realize or take into account in estimating the value of the work of our purely reformatory institutions.

"One more point under this head. It is stated that 55,567 persons were accommodated with lodgings at the station-houses during the year 1875. We find that the population of the city, according to the census, was in that year 484,616. On the supposition that each of the 55,567 lodgers had a distinct individuality, it would follow that for every eight and three-quarters persons in the city of Brooklyn one slept in a station-house one night during the year.

"If we add to these 55,567 lodgers the 26,669 arrests by the police during the same year, and then proceed to figure up the tens of thousands of cases which have been cared for by our charity commissioners, by private charitable associations, at dispensaries, and in hospitals, orphan asylums, homes, and the whole family of charitable institutions, we find that, according to this mode of reasoning, Brooklyn was in that year one vast poorhouse and prison, and that we were all paupers and criminals living at the public expense.

"This *reductio ad absurdum* is the natural result of the prevailing tendency on the part of the commissioners and directors of public and private institutions in making their reports to place in the boldest relief the full extent of the work accomplished, and in the pursuit of this object to confound 'cases' with 'individuals.'

"Taxpayers and private benefactors have a right to the fullest and most definite information under this head; and we believe that the community can be helped to a clearer understanding of the work of all our public institutions by a plain statement of the number of persons treated, the duration of the different terms in them, and by giving a separate record of the number of re-admissions. And we prefer to do this, even at the risk of lacking in our report the amazing array of figures with which the community is frequently startled."

The superintendent of the Inebriates' Home for Kings County, Brooklyn, N. Y., in his report for 1881, thus writes in confirmation of the statements already made:—

"The annual arrests for drunkenness in the city of Brooklyn range from nine to ten thousand, but I dare venture to say that they never include one thousand distinct persons arrested during any given year. With few exceptions, they are the same unfortunate victims of rum who have been arrested and rearrested every few weeks, many of whom could not begin to compute the number of times they have been committed to prison. I have met with some of this unfortunate class who have kept count in some cases up to fifty, sixty, seventy, eighty, ninety, and one hundred times, and then given up the record.

"Ten thousand annual arrests represent ten thousand instances (or more, for in many cases the work cannot be performed single-handed), where the arresting policemen are called off their beats most frequently during the night; ten thousand registrations of charges at the police stations; ten thousand attendances of arresting officers at the police courts on the following day to give evidence, and, in addition, the enormous cost to the county for maintenance in jail of those who are convicted.

"On each succeeding recommitment of the vagrant drunkard to the jail, the daily charge for his subsistence goes to swell up the sheriff's board bill, the profits on which in some counties may be safely estimated at more than one hundred per cent. Thus the vagrant drunkard is practically reduced to a mere chattel, the legally recognized stock in trade of the police force and his jailors.

"On the other hand, by reducing these ten thousand arrests to the number of individuals actually arrested, and disposing of the vagrant drunkards for three years, we would not only benefit and probably reform at least from thirty to forty per cent. of their number, — which should be the first great object, — but we would at the same time relieve the police force, police stations, and police courts of four-fifths of their onerous duties in this direction."

The English testimony as to the relation which alcohol

bears to the so-called criminal classes is very conclusive. In the testimony of chief constables and superintendent of police taken before "the Committee on Intemperance for the Convocation of York," in 1874, in reply to the question —

"*What proportion of those who have come under your cognizance as criminals have been the victims of drinking habits and associates?*"

The testimony was that of a large number of chief constables, superintendents of police, governors of gaols, and chaplains, and all testified that in at least two-thirds of all the arrests made by the police the persons were addicted to the use of alcohol, and that a large proportion of these were intoxicated when arrested. If we were to consult the police and criminal records of our large cities in America we might not equal, but we should certainly approximate, such testimony as that given before the "Convocation" at York.

We cannot shut our eyes to the fact that in every city or town a certain proportion of the population are more or less continually under the influence of alcohol, and that to a degree often dangerous to the community at large. Intoxication with or without overt criminal acts continually occurs, rendering it necessary — indeed, imperative — that this class should be arrested and controlled. So much for the "social status" of the pauper inebriate. He is a conspicuous member of the floating population of all large cities, and a marked example of that specimen of the "*genus homo*" known as tramp. He has come to stay. He belongs to a class which society must recognize and control. To a certain extent the "legal status" of the so-called "habitual drunkard" has been dealt with from time immemorial, and legal statutes and enactments concerning him are almost as old as the history of alcohol itself. But we can only allude by reference to the law as it affects the inebriate in the United States of America and in England and her colonies. The limits of this paper will permit me only to refer to the more important

articles on this subject. As to the American law, we desire to call attention, because of their conciseness and complete consideration of the subject, to the writings of Clark Bell, Esq., president of "*The Medico-Legal Society*" of New York city, more especially those papers published under the auspices of "*The American Association for the Study and Cure of Inebriety*" in a volume entitled "*Disease of Inebriety.*" The captions to these articles are as follows: "*Medico-legal Questions — Law and Rulings of Judges,*" and an appendix to same volume; "*Drunkenness a Defense,*" also an article in same treatise by Dr. T. D. Crothers entitled "*Some Forms of Irresponsibility — Alcoholic Trance.*" We also desire to refer to the writings of Dr. Norman Kerr of London, England, in his work entitled "*Inebriety,*" especially that portion in which the legal status of the inebriate, as affected by the laws of England and her colonies, or elsewhere — laws which apply to the restraint, maintenance, and control of the inebriate. All legislation affecting the inebriate is based on the same principles as are those laws enacted for the care and safe-keeping of the insane. That is, the fact of their irresponsibility for their actions, and, therefore, the necessity of restraint for their own good and that of others. As to the irresponsibility of the inebriate, the observation of Dr. Crothers clearly demonstrates that absence of consciousness of the act was not uncommon in the mental state of the habitual drunkard. He was not aware that he performed the act, at the time of its commission, nor could he recall the fact that he had performed the act; that practically, as far as memory was concerned, his condition was that of complete amnesia, that such a deed was unpremeditated, and therefore motiveless — performed automatically without consciousness of its gravity or importance, and, of course, never recorded, and therefore never recalled — an act in which cerebration or actual thought took no part, the man in its performance being a mere automaton or machine. In an article published in 1892, entitled "*The Ab-*

sence of Reasonable Motive in the so-called Criminal Acts of the Confirmed Inebriate," we endeavored to demonstrate this irresponsible condition in which the chronic or periodical inebriate performed his so-called "criminal acts," and cited cases in proof, and wrote as follows:

"If we can show that in the majority of cases in the acts of the confirmed inebriate there is absence of proper motive, absence of intelligent purpose, absence even of consciousness of the act in some instances, ought he not to come under the benefits of that unwritten or recorded law which excludes from penalty the insane or those of an irresponsible age, and does not hold them responsible for their acts?

"It has been abundantly shown that amnesia, partial or complete, is the mental condition of the average confirmed inebriate. If the loss of memory is complete, he becomes a veritable automaton; his movements are mechanical, devoid of thought or reason, and he is therefore unconscious of his acts; under this condition what he does may be ridiculous or even dangerous. His actions are similar to those of a somnambulist who, walking in his sleep, performs deeds of which he is totally unconscious when awakened. The acts of the confirmed inebriate are thus often performed unconsciously, and when he comes out of this "trance state," so-called, or condition of cerebral automatism, he has not any knowledge of what he has done, and yet oftentimes there is a seemingly rational action on his part, and his condition may not be detected because not suspected by those with whom he is brought in contact; while in this condition the inebriate may commit acts that are criminal.

"*Mendacity* has been set down as one of the prominent characteristics of the inebriate, but I am convinced that the denial of the inebriate of the statements he has previously made or the acts he has done, when confronted with them, is often due to his utter unconsciousness of ever having made such statements or performed such acts.

"The '*testamentary capacity*' of a confirmed inebriate should be excluded on this ground, and no 'confirmed inebriate' should be *empaneled in any jury*, nor should his *testimony as a witness* be received in any court.

"The *validity of the signatures* of confirmed inebriates to wills, contracts, or affidavits should always be questioned if allowed, and 'marriage' contracted under these conditions should be annulled.

"Not only in the trance state, where consciousness seems to be annulled and the memory temporarily abolished, may the inebriate perform acts that he is totally unconscious of, as a somnambulist or automaton, and thus render himself liable to criminal procedure, or the subject of fraud on the part of others, but there is under this condition a tendency to repeat the crime or act he may have been previously guilty of, a *monomania*, so to speak, for a special act.

"Dr. Alex. Peddie of Edinburg reports the following cases:

"At the prison of Perth, one woman was committed 137 times for being drunk; *her invariable practice was to smash windows*. A man when drunk stole nothing but bibles. Another stole nothing but shawls; another shoes. Another was transported for stealing tubs on seven different occasions; with one exception he was always guilty of tub-stealing. Others have been repeatedly convicted of horse-stealing.

"In others the *destructive tendency* is marked by unusual prodigality and waste, such as scattering money in the street, or throwing it in the fire. Such persons are notorious for 'cleaning out' a saloon, smashing, breaking, and throwing out on the street articles of furniture, etc. There is not any 'reason in the madness' of these temporarily insane inebriates. Their actions are motiveless. The whole machinery of the will is out of order, the power of co-ordination of the faculties is lost, hence all acts are erratic.

"In addition to the 'trance state' and 'monomaniacal acts'

of the confirmed inebriate, there is another condition under which the inebriate may perpetrate higher grades of crime. We refer to that condition where the prominent characteristic of the insanity of the inebriate is the *monomania of suspicion* or *persecution*, a condition not uncommon in the confirmed inebriate. Under this condition the inebriate is morose, taciturn, secretive; if he communicates his suspicions to anyone, it is only occasionally and with great reservation. He imagines that enemies are trying to poison him; he hears voices in the air; he is followed, and in danger of being waylaid, or his wife is unfaithful to him; suspicion of 'marital infidelity' is very common in these cases. Robbery, mutilation, murder, and every possible misfortune that may happen to a person, are imagined by these insane inebriates as being applied to their case.

"Acting under erroneous suppositions, such persons prepare themselves for the imaginary danger, or assault those who they believe would injure them, or take vengeance on the innocent wife whom they judge guilty of marital infidelity. Oftentimes their mental condition is not suspected, and oftentimes only after they have wreaked their insane fury on those about them.

"And just here, in parenthesis, we would remark that though the acts of the *confirmed inebriate* may fill every grade of crime, from petty theft to homicide, yet those criminal acts which call for shrewdness, mechanical skill, involving as they do the maturing of long-continued plans, well laid and aptly executed, as professional burglary, systematic forgery, etc., the confirmed inebriate is incapable of.

"The burglar and the systematic forger may drink liquor, but they have the fullest exercise of their mental faculties, and the ability to use liquor moderately, so that their hand is steady, their nerves unflinching, and their reason unclouded. This is the universal testimony of the governors or wardens of penitentiaries and prisons in America and Great Britain,

and hence the great distinction between the so-called 'criminal inebriate' over the professional criminal. The confirmed inebriate acts without motive, without the deliberation, without that usual caution and concealment that characterize the criminal who is in a normal mental and physical condition.

. . . . . .

"The popular impression seems to be, testifies Mr. John C. Salter, the warden of the State penitentiary at Chester, Illinois, that a criminal is necessarily a drunkard.

"'The large proportion of criminals, such as burglars, forgers, and counterfeiters, need clear brains, steady nerves, quick perceptions, to carry out their plans, which would be impossible under the influence of intoxicating drink.'

"The assassin may drink to nerve himself for the deed, but only to that extent, and no more. The alcohol does not prompt the deed; it is deliberately taken to enable them to perform it — a condition quite the reverse of the insane inebriate or the person suffering from 'chronic alcoholic mania,' in which the 'mania of suspicion,' or an acute alcoholic mania is developed. Here the maniac, in his sudden fury, cyclonic in its violence and rapidity, kills those nearest to him without premeditation or motive.

"Hence the insane inebriate, the subject of the monomania of suspicion or persecution, is easily traced to the act committed by him, and his attempts at concealment, if made at all, are illy disguised. He is not an assassin striking from the shadow and then disappearing. His acts are often in the open day and the most conspicuous public places."

The opinions expressed by the authors referred to, and the laws quoted by them, as well as the views stated in the article quoted, may be taken as the "legal status" of the inebriate to-day in the English and United States courts.

But while a great advance has been made in the relation of the law to the inebriate, in regard to his irresponsibility, his testamentary capacity, and his inability to perform legally any

act based on sound judgment, mind, and memory, we might say, however, that "the law is more honored (or rather dishonored) in the breach than in the custom," that it is too often a dead letter, that it is not enforced or its spirit properly observed, that it is not applied as it should be, and not made compulsory. The necessary complaint that should put the law in operation is left largely to the choice of relatives or friends; or, if the inebriate has neither relatives nor friends, to a very inefficient and lax method of applying the law on the part of the authorities. The law should be so amended as to make it *compulsory* or *obligatory* on the part of friends or relatives, or, in case there are no kin, on the part of the local authorities, to place the inebriate under restraint. This compulsory act is not a feature of the modern law. The law should also more strictly exclude the confirmed inebriate from exercising certain legal rights, as to his testamentary capacity, his ability to sign legal documents, to manage his own affairs or those of others, or to perform any legal act or duty that belongs only to a person in reasonable possession of his faculties.

So much, then, for the consideration of "social" and "legal status" of the inebriate in general. Now let us dwell upon more particularly some special points in care and treatment of the pauper inebriate:—

First—The pauper inebriate should be recognized as a *ward of the state*, and his control, care, and maintenance should be provided for by the state.

Second—The inebriate should be isolated and treated as a *distinct and separate class*, in the same manner that the insane and criminals are so separated and classified. To place an inebriate in an insane asylum in his weak mental state, already frequently bordering upon insanity, and subject him to the sights and sounds of a lunatic asylum, would be to precipitate him into a state of insanity. To place the inebriate in the jail or penitentiary would be to fix upon him unjustly the indelible stain of criminal.

"The penitentiary or the jail are neither the proper place for the reformation of the habitual drunkard."

"Surrounded by demoralizing influences of a prison the work of reformation of the habitual drunkard becomes most difficult, be the superintendent of a purely penal institution ever so able or ever so well inclined."

The inebriate should not be included with the criminal class unless his inebriety is associated with criminal acts, and then only on the same basis that the criminal insane are so classified and incarcerated, for he has become then, in the large majority of cases, practically insane. At present about one-third of the inmates of the Kings County Penitentiary, Brooklyn, N. Y., are under commitment for "habitual drunkenness," independent of any crime. The state insane asylums also contain a certain class of inebriates or dipsomaniacs, those suffering from or convalescing from attacks of acute alcoholic delirium, or who are the subjects of alcoholic dementia; a certain proportion of these would be proper subjects for a "State Hospital for Dipsomaniacs and Inebriates."

In other words, the congested and overcrowded condition of our penal and charitable institutions would not only be greatly relieved, but the dipsomaniacs and inebriates would be placed under a system that offers a reasonable chance, at least, of recovery from their lamentable condition, which is exceptionable, if not impossible, under present conditions.

For a state to properly provide for the care of the pauper inebriate is the exception, not the rule. When a state does not so provide for the special care and treatment of the pauper inebriate as a class, these are then scattered at random through various charitable or penal municipal or county institutions. At present the only institution at all representative (at least, in the Eastern states) that cares for the pauper chronic inebriate as a ward of the state, is the "Massachusetts State Hospital for Dipsomaniacs and Inebriates," situated at Foxborough, near Boston, Mass.

While private or semi-public institutions for the care of inebriates, or those affected with kindred drug habits, are quite numerous, as far as we know an institution solely supported by state aid is limited to the above instance. This ought not to be so. Every state, every great center of population, ought to have its inebriate asylum, sustained by the state, on the same basis on which the state lunatic asylums are established and sustained.

At present the law, as administered by the municipality in dealing with the inebriate, is faulty and only partial in its effect upon him. "It practically does this: it arrests him, fines and imprisons him for a short period — too short for any benefit to be derived from it," and then lets him go. "The law as administered is like an incompetent physician: it first makes a wrong diagnosis and then prescribes an inert, and therefore inefficient, remedy." It reprimands the inebriate, — it does not treat his case at all, — it looks upon the inebriate as an individual who has the knowledge of right and wrong and full power of volition. It practically regards the act of inebriation as deliberate and voluntary, and therefore proceeds by fines and short periods of imprisonment to lash back into moral decency and rectitude the offender!

Recognizing that the imperative necessity of the state assuming the care of the pauper inebriate as a distinct class, isolating from all other classes which are the wards of the state, and providing a proper place for his distinctive care and treatment, we naturally would consider —

Third — The necessity for "*long term commitments.*"

And at this point let me again quote at length from the same annual report already referred to, in which the writer, deprecating the short term commitments for inebriates, asserts the necessity for long terms of commitments, as follows:

"NECESSITY FOR LONG TERMS.

"A great deal has recently been written and said concerning the expediency of utilizing the chronic drunkard by es-

tablishing workshops in connection with our prisons, in which he may be able to contribute something toward his own support while in custody, and even to lay up a little capital to start with when released at the expiration of his term.

"The experience of those thoroughly acquainted with the management of penal institutions is that it is utterly impossible to utilize the drunkard who is constantly being recommitted to the jail or the penitentiary unless, after repeated offenses, he be committed for a term of years. On this important subject we cannot do better than than to quote from an annual report of General Amos Pilsbury, the late warden of the Albany penitentiary, and father of the present superintendent of state prisons — a gentleman who is acknowledged to have been one of the best prison officials we have had in this country, and who has been ably succeeded by his son, Captain Louis D. Pilsbury. In speaking of this subject he says:

"'It is for the law-giver to determine whether imprisonment in the penitentiary is the best mode of punishment for intoxication in any case; but if it is designed to have any effect in curing the vice of intemperance, a term of six months should be imposed in all cases of second or further convictions.

"'The truth is that nothing short of a direct interposition of Divine power can perform the miracle of suddenly converting and turning men from the error of their ways. Human agencies can only hope to accomplish the work of reform by retaining the subject under their operation until the power of old evil habits shall have been weakened by disuse, and new and good habits of sobriety and industry shall have been firmly acquired.'

"In a recent report of the Board of State Prison Inspectors we find the following language on this subject:

"'For the large class of convicts having sixty or less days to serve, the superintendent can obtain little or no remunerative employment, so much time being required in these cases for the necessary instruction as to leave an employer small

prospect of a compensating gain. It follows, as your honorable body will readily perceive, that convicts of this class not only fail to indemnify the penitentiary against the cost of their own support, but become, for the most part, a constant drain upon the productive labor.

"'But it must be remembered, moreover, that many of those short-time men are committed to the penitentiary during the year over and over again, deriving themselves nothing whatever from the transient suspensions of their liberty, while inflicting upon the resources of the institution a steadily growing pecuniary loss.

"'Besides, this class of subjects makes heavy demands on the time and the attention of our physician, and converts our hospital in too many cases into a place of recovery from attacks of delirium tremens or other consequences of habitual intemperance and evil habits.'

"In a comparatively recent address of the English 'Howard Association,' on the treatment and prevention of crime, they say that the system of repeated short sentences 'is intolerable.' They continue:

"'Repeated sentences of fortnight upon fortnight, and month upon month, add to the difficulties of prison management, and greatly demoralize the delinquents and their companions as a class.

"'Where a single short sentence fails to deter, it it a proof that public morality and economy alike require the infliction of a longer reformatory discipline, protracted until criminal habits are effectually subdued.'

"An eminent authority has recently remarked that 'magistrates who repeatedly pass demoralizing short sentences are themselves promoters of crime'; that, to accomplish reformation effectually, long sentences must be inflicted after repeated convictions.

"A sentence for a long term, say *two or three years*, after repeated transgressions, to a proper institution, would, in all

probability, not only accomplish the complete reformation of the inebriate, but would enable the officials to make him contribute to his own support by the establishment of workshops; while a law investing the directors of the institution with power to exercise their discretion in the granting of leave of absence in certain cases would undoubtedly have a salutary effect."

These statements present the value of "long term commitments." There is not anything to add, except to emphasize the suggestion that "a law investing the directors of the institution with discretionary power to grant a 'ticket of leave' or a system of 'parole,'" advantageously adopted and now in operation in the management of the insane asylums of this country; also, we would add, that the value of "accumulative sentences" be recognized in repeated or "incorrigible" cases; also a system of rewards, and the milder forms of punishment, such as the deprivation of privileges, all of which might be instituted as part of the discipline of such state institutions for the care and treatment of dipsomaniacs and inebriates.

Fourth — As to the "*place of restraint*," its locality, surroundings, discipline, occupation of inmates, as well as the consideration of their prospective condition when finally discharged from the care of the institution, let me again quote from the superintendent's report already alluded to on this point:

"For these inebriate prison-birds I would purchase either a large farm or tract of waste land and erect inexpensive buildings thereon, and make the place a strictly remedial and reformatory institution. Let each commitment be for a term of not less than three years, modified by authorizing the managers to grant 'tickets of leave' for the purpose of practically testing the moral and physical condition of apparently hopeful patients — always making subject to rearrest if they return to their former drinking habits. When committed to the reformatory, the first requirement is repose and hospital treat-

ment, including an abundant supply of nourishing food, in each case to be regulated by the physician in charge. When built up those who are physically competent should be trained to field labor, and the weak and debilitated should be taught to work at some light trade, with a view to preparing them to earn a living when their time expires.

"Practically, it is very difficult, indeed, almost impossible, for bookkeepers, clerks, and others who have formerly held responsible situations, to regain the confidence of their late employers; on the other hand, when builders, cabinet-makers, tailors, etc., require the help of additional mechanics, good workmen are asked few, if any, questions, as all that is required is the performance of a day's work for a day's wages. I would compel this class of men to learn a suitable trade, and then aid them to find employment, so as to have work to go to when leaving the reformatory."

"This, in brief, is a description of what such an institution for the care and treatment of pauper dipsomaniacs and inebriates, under state or municipal control, would require. The plan embodies a farm colony, or a large farm of one hundred acres or more, inexpensive buildings (the barrack system of one-story elevation would be best), to each building assigning its particular purpose, as dormitory, dining-hall, recreation or reading-room, hospital, culinary department, bathhouse, etc., as well as buildings for the various industries that shall form the occupation of the inmates in part, and teach them a useful trade. The grounds should be of sufficient acreage to occupy those of the inmates physically able and train them in farm labor. This outdoor work would prove of great benefit physically, as well as mentally, to the inmates, and remunerative to the institution. It has been found that under this outdoor treatment the chronic insane make marked improvement, and sub-acute cases are cured or greatly benefited. The instruction of the inmates in a trade would do much to enable them eventually to secure positions and enable them to sup-

port themselves and prevent an unfortunate relapse, even in hopeful cases, if discouragement should follow their failure to obtain work or to earn their own livelihood.

In such an institution the inmates should be classified or graded and separated to a certain extent. All improper cases, those afflicted with incurable nervous disease, phthisis, or insanity, etc., should be sent to the county hospital or insane asylum. To a certain extent this class of patients should be "selective," the object being to eventually reform and restore the inmate to the social position he may have formerly held, at least to make him a sober and useful member of society. The object of the institution is not to house a certain number of incurable drunkards, afflicted with chronic and incurable disease, either associated with or directly resulting from their habit. Such a course would handicap and seriously interfere with the effectual administration of such an institution, as well as destroy the object for which it was intended — the physical as well as mental restoration of the inebriate. Not a home for "*incurable cases*," suitable only for the hospital or the asylum. Furthermore, we emphatically believe that the two sexes should not be under the same institutional control; or, if this is the case necessarily, the most complete isolation, as well as the strictest discipline, should be maintained, such as is carried out in all well-regulated county or state institutions where the two sexes are conjointly treated.

The whole tenor of this paper is fully in accord with advanced scientific thought on this subject, and the highest considerations from a humane standpoint. Legislation in harmony with the suggestions contained in this paper would relieve the police force and the police justices of much extra duty, and prevent the overcrowded condition of the station-houses, jails, and penitentiaries, by largely doing away with the 'vagrant drunkard,' or, in police language, the so-called 'rounder.' Moreover, prompt and direct committal to rem-

edial and reformatory institutions for *pauper* inebriates would prevent a large proportion of the insanity of which repeated alcoholic excesses are the direct factors. I do not hesitate to assert, that well-established state institutions for the care of such inebriates would *greatly reduce the number of insane* annually treated in the various state insane asylums.

As a matter of economy, and outside of any humanitarian view of the question, it will be found cheaper in the end to treat the pauper inebriate as a *distinct class*, and adopt special methods of treatment, restraint, and occupation for his relief, than to continue in the present methods, which are expensive and ineffectual, and, therefore, extremely unsatisfactory. To this end, the *short-term imprisonment and fines* in cases of habitual drunkards must be done away with, and he must be placed under restraint for a sufficiently lengthy period of time, and surrounded by proper influences, and placed under proper treatment. In every case where the inebriate has been treated as a *special class*, under special conditions adopted for his care and control, the result of such treatment has demonstrated that in every inebriate asylum, both in the United States and abroad, where such institutions have been founded and conducted on correct principles, that from thirty to forty per cent. of those whose history is carefully followed, are reported at sufficiently lengthy periods as 'doing well and abstinent.' Improved methods of dealing with the pauper inebriate will give improved results, and a larger and more gratifying percentage of cures will be effected. But, looking at the pauper inebriate in the worst possible light, and even granting that he is incurable in a certain proportion of cases, nevertheless he still comes under municipal, county, or state care, as much as the chronic or incurable insane, and, when we come down to facts and figures, the economy of his care under proper conditions is no less apparent.

It is estimated that in England one in every one thousand persons are arrested for drunkenness and fined and imprisoned.

THE PREVALENCE OF ALCOHOLISM AND ITS INFLUENCE ON MORTALITY.*

By George W. Webster, M.D., Chicago.

Professor of Physical Diagnosis, Northwestern University Medical School, etc., etc.

That the theme which has been assigned to me is not without interest to the medical man, and that it is recognized as one which in no small degree concerns the welfare of the human race, is shown by the fact that within a month the seventh of a series of continental meetings was held in Paris, France, at which the abuse of alcohol was the theme. The French minister presided, the meeting was of an international character, and over 1,600 members were registered.

The president announced that the American contributions and papers showed positive proof that they led all the world in this field, as they did in other things.

The Paris *Figaro*, not a temperance paper, was very pronounced in its editorials on the need of the congress and the danger of alcohol. It announced in headlines as follows: "Alcohol is death to the race. Alcohol will kill emperors as it has killed the native tribes of every country of the world. Alcohol means disease, tuberculosis, decay, sterility, impotence; it is another word for wickedness, cruelty, vice, and insanity; it means misery and the downfall of nations, and the best way to prove patriotism and to be useful to one's country is to fight against alcoholism."

When I received an invitation from the chairman of this section to read a paper before it, I was assigned the topic, "The prevalence and mortality of alcoholic inebriety." This

* Read at meeting of The Illinois State Medical Society, May 16, 17, 18, 1899.

I have modified to read, "The prevalence of alcoholism, and its influence on mortality," and I take it that we desire to discuss the influence of alcohol, rather than the peculiar craze, or crave, or disease which may impel one to drink it. By "inebriety" I understand what Kerr describes as "that overpowering morbid impulse, crave, or craze which tends to drive certain individuals to excess in intoxicants." The synonym is narcomania. The craving is not for alcohol, but for intoxication; the relief or satisfaction afforded by intoxication, no matter whether the intoxicant be alcohol, or opium, or any other narcotic; the latter itself, perhaps, being held in abhorrence. Alcoholic inebriety is, then, one of the forms of narcomania in which there is a mania for intoxication by alcoholic beverages. Alcoholism is defined as "the various pathological conditions, processes, and symptoms caused by the intemperate consumption of alcoholic intoxicants" (Kerr.)

On the other hand, I wish to state clearly at the outset that when I shall speak of the influences of heredity, and of both crime and disease, I shall include both "inebriety" and "alcoholism."

PREVALENCE.

This is a very difficult question. At first thought, it seems only necessary to consult the various tables of statistics and find the answer ready made. But here, as elsewhere, statistics may be misleading. The following[1] may shed some light on the subject.

The average annual consumption, in gallons, of alcoholic beverages is as follows:

	Beer.	Wine.	Spirits.
England,	30.31	0.39	1.02
France,	5.1	21.8	1.84
Germany,	25.5	1.34	1.84
United States,	12.3	0 44	0.84

Col. Carroll D. Wright, Commissioner of Labor of Washington, D. C., in a recent Congressional report,[2] shows that the

report of the Treasury Department reports the per capita consumption for the United States for the last year is as follows:

Malt liquors.	Wines.	Spirit.
15.16	6.26	1.00

Totals: Wines, 10,701,406 gallons; malt liquors, 1,080 620,165 gallons.

This shows an annual consumption for each man, woman, and child in England, France, Germany, and the United States of over twenty-five gallons.

If we deduct from the total population one-half for the teetotalers, moderate drinkers of both sexes, together with all children, then it means that *each of the others consumes a grand total of over fifty gallons per year.*

The English drink bill for 1898 was $772,404,670.00.

The drink bill of the United States for '96 was $934,813,-314.00.[3]

Debove[4] gives the following statistics for 1896,* showing the number of liters per head per annum of alcohol:

France,	14 liters	per capita	per annum
Belgium,	10 "	"	"
Germany,	10 "	"	"
Great Britain,	9 "	"	"
Switzerland,	8 "	"	"
Italy,	6 "	"	"
Holland,	6 "	"	"
United States,	6 "	"	"
Sweden,	4 "	"	"
Norway,	3 "	"	"
Canada,	2 "	"	"

To figure the prevalence of drunkenness it only remains to determine how much a man can drink and remain sober, and how long he may remain a drinker, or a hard drinker, or a drunkard before he becomes an inebriate.

Dr. T. D. Crothers, one of the most eminent authorities on this subject, in a recent personal letter to the author, says, that after a careful study of this question, he estimates that five per cent. to eight per cent. of the population are inebriates.

* These figures are confirmed by report at the recent Congress at Paris, April, 1899. Philadelphia *Medical Journal*, May 12, 1899.

Others place the percentage as high as ten per cent. This demonstrates that alcoholism and alcoholic inebriety are not only prevalent, but *one of the greatest national curses.*

INFLUENCE ON MORTALITY.

A correct estimation of the influence of alcoholism and inebriety upon the death rate is one of the most difficult problems in connection with the study of alcohol. Vital statistics afford us no help. According to the published report of the Department of Health of the city of Chicago, December, 1898, there were no deaths in the city from alcohol during the year.

Statistics of the world attribute only about three out of every one thousand deaths to alcohol.

In order to decide what influence alcohol has upon mortality it is necessary to determine:

(1) Whether inebriety is hereditary; establish a relationship between inebriety and insanity, and between inebriety and crime, and that both increase the rate of mortality. Increased liability to accidents while intoxicated.

(2) Determine whether there are any deaths due directly to alcohol, and those due indirectly to its use. Under the latter heading we must discuss hereditary influences predisposing to inebriety; and second, the inheritance of an increased vulnerability to adverse conditions of all kinds. Third, determine whether it has any influence in lessening normal vital resistance or immunity, thus favoring the occurrence of infection; also its influence on the course and virulence of the infection; and also the effect of alcohol upon the growth of pathogenic germs outside the body.

(3) Determine its influence upon the absolute power of muscle, as this has an important bearing upon both treatment and mortality.

In making this inquiry into this subject, I have appealed to the man of science who has but one object in view, the discovery of truth.

HEREDITY.

The transmissibility of an alcoholic inheritance has been generally admitted by such writers as Rush, Darwin, Morel, Grenier, Aristotle, Richardson, Thompson, Parker, Kerr, Davis, and others.

Dr. Willard Parker says: "We must not forget to speak of the offspring of the inebriate. His inheritance is a sad one; a tendency to the disease of the parents is, indeed, as strong, if not stronger, than is the case with that of consumption, cancer, or gout."

This tendency has its origin in the nervous system. The unfortunate children of the inebriate come into the world with a defective nervous organization.

Kerr says: "The law of inebriate inheritance is as true as the law of gravitation." Again, "In over 3,000 cases of chronic alcoholism I have found one-half with an inebriate ancestry."

Kraft-Ebling disposes of alcoholic inebriety as follows:

"First Generation. — Moral depravity, alcoholic excess.

Second Generation. — Drink mania, attacks of insanity, general insanity, paralysis.

Third Generation. — Hypochondria, melancholia, apathy, and tendency to murder.

Fourth Generation. — Imbecility, idiocy, and extinction of the race."

Morel gives the following:[5]

"First Generation. — Alcoholic male excess, depravity, and brutish disposition.

"Second Generation. — Alcoholism, maniacal attacks, and general paralysis.

"Third Generation. — Sobriety, hypochondriasis, persecution mania, and homicidal proclivity.

"Fourth Generation. — Feeble intelligence, mania at sixteen, stupidity, idiocy, impotence, with race extinction."

Demme[6] has compared the health history of ten families

of drunkards with that of ten temperate families, as follows: The direct progeny of drunken parentage amounted to fifty-seven, of whom twenty-five died of insufficient vitality in their first year, six were idiots, five dwarfed, five epileptics, one choreic and idiotic, five had hydrocephalons, hare lip, and club foot.

Of the non-drunken stock, there were sixty-one. Five died of insufficient vitality, four suffered from curable nervous affections, two had congenital defects, 81.9 per cent. were sound in mind and body during childhood and youth.

INEBRIATE HEREDITY IN CRIME.

Dr. Laurent, in his work on Inmates of Prisons in Paris, says: "The prisons of France are inhabited in a great part by descendants of inebriates and degenerates. A total abstainer among criminals is an exception to the rule. While every alcoholic is not a criminal, this is due to accident and care of friends, for alcohol paralyzes the cerebral functions and annihilates the will; then the field is open to anger, impulsiveness, and bad instincts."

Dr. Folk, in a work on Criminal France, says: "Alcoholism is one of the most patent causes of race degeneration. Crime, which is the most powerful factor of alcoholism, never leaves the family or individual their primitive integrity." Dr. Grenier, in a study of the Descendants of Alcoholics, says: "Alcohol is one of the most active agents in the degeneracy of the race."

Those tainted with hereditary alcoholism show a tendency to excess, and half of them become alcoholics. A large number of cases of neurosis have their principal cause in alcoholic antecedents. Epilepsy is almost characteristic of the alcoholism of their parents when it is not a reproduction in them, or when it is not an index of a nervous disposition of the whole family.

Dr. Baer, in his work on the Drink Evil, remarks: "In

the later stages of alcoholism there is a considerable number of cases of pronounced insanity."

"Besides all these, there are numbers of drinkers on the border line between health and disease, who, on account of their inherited mental weakness and consequent irritability through over-work, are given to alcoholic excesses. There is still a greater number of habitual drunkards, who are not insane, but who, through long abuse of alcohol, cannot resist drinking. They reach such a degree of volitional and intellectual weakness, of irritability, and stupidity, indifference to customs and positions, and mistrust, and carelessness in regard to their family, that it is a question whether they are not a common danger to society. Such persons are most dangerous because their condition is latent and their attacks appear suddenly."

ALCOHOL AND CRIME.

"In Sweden[7] the annual consumption of alcohol between the years of 1830 and '34 equaled twenty-three liters per head, and the number of murders committed fifty-nine; while during the three years from 1875 to 1878 the annual consumption was only five liters per head, and the number of murders only eighteen."

Arthur MacDonald tells us[8] that of "10,000 murders committed in France, 2,374 occurred in saloons."

"Out of 49,423 arrests in New York, 30,507 were drunkards." Again, "the haphazard life between plenty and poverty is one of the main causes of premature death."

Daily papers show increase of murders after *pay-day*, and on Sundays and holidays.

Enrico Ferri was the first to demonstrate[9] that in France there is a correspondence of increase and decrease between the number of homicides, assaults, and malicious woundings and the more or less abundant vintage. Also, that during the vintage months there is an increase of crime against the person.

These statements in regard to the influence of alcohol upon crime have been called in question by M. Tammes and M. Fournier de Flaix, the latter admitting, however, that "alcohol is a special scourge for the individual who indulges in it."

It has been proven over and over again that alcohol has a baneful influence on both mental and bodily health, and the nation is made up of individuals. If it increases disease and crime among those who use it, it must correspondingly increase it in the nation.

SUICIDES.

Suicides from drink.[10]

England, 12 per cent. of the suicides are from drink.
France, 12 " " " " " " " "
Prussia, 14 " " " " " " " "
Russia, 38 " " " " " " " "

E. Kaspar estimates[11] that 25 per cent. of the suicides of Germany are due to drink.

Norman Kerr says[12]: "In over 3,000 cases (of alcoholism) I have found fully one-half with an inebriate ancestry, in addition to six per cent. with a pedigree of mental disease."

"Hereditary craving for alcohol may proceed from parents, neither of whom possessed this craving, but were drinkers only by custom or sociability."[13]

Crothers traced a family history of inebriety in one-half of his cases.

Alcohol and evil disposition, with criminal tendencies, are ascribable to heredity, by Moreau.

Crothers says[14]: "Next to syphilis, alcohol is the most frequent cause of disease of the brain."

ETIOLOGY OF INSANITY.

Church says,[15] in speaking of the etiology of insanity: "Alcohol stands first (after heredity) as a single independent cause," ten to twenty per cent. in males.

Clauston says[16]: "From fifteen to twenty per cent. of all

cases of mental disease may be put down to alcohol as a cause, wholly or in part."

In 1884 the legislature of Massachusetts directed Hon. Horace G. Wadlin, chief of its Labor Bureau, to investigate and answer the question as to how much pauperism and crime is due to drink. He investigated 26,672 cases of crime. He reported[17] as follows:

In liquor at time of commission of offense, 21,863, or eighty-two per cent. In liquor when intent to commit crime was formed, 4,852; 4,295 other offenses caused by the habit in 16,115 cases; drink had influenced the crime and ninety-four per cent. were addicted to the drink habit (JOURNAL OF INEBRIETY, January, '99.)

Statistics[18] of the Belgium prison at Louvain show the following: Criminals received in twenty-one years, 2,826. Drunkenness at time crime was committed, 12.4 per cent. In those under a life sentence, 40.7 per cent., and in those condemned to death, 43.1 per cent. Habitual drunkenness was proved in 44.7 per cent. of total received, in 54.6 per cent. of those under life sentence, and in 60 per cent. of those condemned to death.

Dr. Muller[19] estimates the number of suicides in Europe as 50,000 a year, and by an elaborate series of statistics traces to alcohol the primary cause of its increase of late years.

M. Jules LeJeune, ex-minister of justice, says[20] of Belgium (QUARTERLY JOURNAL OF INEBRIETY, Jan. 1899, p. 100): "74 per cent. of all cases in the criminal courts come from the use of alcohol; 79 per cent. of all paupers are drunkards; 80 per cent. of all suicides have a similar origin; 45 per cent. of all lunatics come from the excessive use of alcohol."

These recent utterances are significant of a great change of opinion. The denial of any relationship between inebriety and crime, put forth so authoritatively in the face of such overwhelming proofs, can have no possible value.

IMMUNITY.

We must next inquire what the latest word is in regard to immunity. Hektoen says[21]: "Taking a broad view of immunity, the sensibility of living protoplasm is found to be a factor noticeable everywhere, in natural as well as in acquired immunity, against poisons as well as against microbes, and in the simplest unicellular and multicellular organism as well as in the higher animals, including man. An inherited insusceptibility to toxins, as well as to inherited diminution of susceptibility, must be regarded as a well-proved fact. An immunity to living bacteria, the essentially active cells are to be regarded as phagocytes which incorporate living and virulent microbes, prevent their pathogenic action, or destroy them so completely that they are rendered definitely harmless." This cellulo-humoral theory expresses the present knowledge of this subject.

We next proceed to inquire what influence alcohol has upon this "sensibility of the living cell," as well as upon the centers which control and the nerves which transmit impulse, whether of a trophic or other character.

Platinia succeeded[22] in producing anthrax in dogs, frogs, and pigeons naturally immune, by subjecting them to the influence of alcohol (Ernst, "Infection and Immunity.")

(Twentieth Century Practice, Vol. xiii, p. 208.)

INFLUENCE ON MUSCULAR WORK.

Nothing in physiological chemistry authorizes us to admit that alcohol has a favorable influence on muscular work. Again it teaches, that while a few grams of alcohol undergo combustion at the temperature and under the conditions existing in the body, the increased radiation of heat more than compensates for this. As for the food value, before a man would get a square meal he would be dead drunk.

This is the conclusion of Bunge, and he is at the head of the modern school of physiological chemistry.

One of the most important questions in relation to alcohol,

and one that has an important bearing on the question of mortality, is the influence of alcohol on the total work product of muscle. This question has been very carefully studied and the results reported by Dr. E. Destree.

He clearly demonstrates[28] that the *total work product of a muscle is greater without alcohol.* This serves to explain why alcoholic inebriates bear pneumonia so badly. The prognosis depends on the ability of the right heart to do its greatly increased work until resolution sets in. The right heart is the portal through which death enters, and its entrance is invited by a heart muscle weakened by alcohol.

It serves to explain also the increased mortality in pneumonia where large doses of alcohol are prescribed. This also harmonizes with the results shown in the Thirty-fourth Annual Report of the Commissioners of Public Charities and Correction of the city of New York for 1893, in which there is a startling relationship between the cost of liquors and the percentage of deaths.

ACTION ON SPECIAL SENSES.

Dr. J. W. Grosvenor has shown that[24] alcohol, even in small doses, has a paralyzing effect on the special senses, feeling, seeing, hearing, and weight.

Dr. J. H. Kellogg has ably demonstrated[25] that during an attack of any of the infectious diseases the urinary toxicity is greatly increased, and in some, as pulmonary tuberculosis, it is doubled. The activity in destroying these substances, and the kidney in eliminating them, are the physiological processes which stand between the patient and death. He has also demonstrated that the urotoxic co-efficient is enormously diminished by the administration of alcohol, reducing it to one-half after a single dose of eight ounces of brandy.

It seems evident that if in the infectious diseases the urinary toxicity is increased, and that alcohol retards the elimination of the toxic substances, it is not a good thing to use in

the acute infectious diseases, and that some of the mortality in these diseases is chargeable to its deleterious influence.

Fere says[26]: "Experimental dosing of hens' eggs with alcohol delays and modifies the development, monstrosities and anomalies resulting."

Furer says[27]: "The generative cells of drunkards are alcoholized and their children degenerate; their resisting force against alcohol is thus diminished. *Evolutionary adaptation of mankind to alcohol is impossible.*"

ALCOHOL ON HEALING OF WOUNDS.

Dr. Kiparsky, in a communication to the Russian Medical Society at St. Petersburg, contends, as the result of experiments of rabbits, that the healing of wounds is retarded by either the acute or chronic alcohol poisoning, as a consequence of the general diminution of the chromatic substances in the epithelial tissues, consequent upon lessened vital resistance and idioplastic energy of the tissues.

Alcohol causes athermatous, fatty, and cirrhotic changes in the vascular renal and hepatic glandular structures, and in fibrous and nervous tissue. As a result, we have arteriosclerosis, fatty and cirrhotic disease of the liver, hypertrophy and dilatation of the heart, gastritis, nephritis, as well as numerous and mental diseases, such as multiple neuritis, insanity, etc. Children procreated during drunkenness are often epileptic, imbecile, or deaf mutes.

One-ounce doses of alcohol depresses and lowers acuteness and activity. The rapidity of thought, the clearness of memory, the capacity to reason, the power to control the will, are all measureable by instruments, and all are lowered by alcohol. We can easily accurately measure the action of alcohol on the senses, and on these alcohol is a paralyzant at all times and in all doses.

ACTION OF ALCOHOL ON MORTALITY FROM SUNSTROKE.

Dr. W. F. R. Phillips, in a very suggestive paper on "Meteorological Conditions of Sunstroke," gives the following tables.[28] The first bears upon the event and the second on the mortality. Eight hundred and forty-one cases were examined:

Using to excess,	140 cases,	30 per cent.
" moderately,	230 "	50 per cent.
" not at all,	95 "	20 per cent.
Total,	465	100
History unknown,	376	
Total,	841	
Using to excess,	41 deaths,	60 per cent.
" moderately,	22 "	30 per cent.
" not at all,	7 "	10 per cent.
	70	100
History unknown,	70	
	140	

Alcohol lessens the absorption of oxygen by the blood corpuscles and the giving off of carbonic acid. Every function of the body is thereby affected, is the testimony of Prout, Edward Smith, Harley, Schmiedenberg, Vieronly, Norman Kerr, and others.

Norman Kerr says[30]: "The experiment of Dogiel, B. W. Richardson, and others indicate that alcohol, even in very small quantities, affects protoplasm, and therefore the entire system. It tends to cause cessation of ameboid movement of the white corpuscles, and, through this, increases liability to suppuration and the sluggish reparative action observed in drunkards. The general effect is to inhibit the vital phenomena inherent in protoplasm, hindering thereby the resistance of the body to infectious diseases, while the multiplication of the various bacilli in the presence of even minute quantities of alcohol would seem to indicate that life and growth of destructive elements are promoted. "The blood is improperly aerated and waste material is unduly retained in the body."

Ridge says[31]: "Even in minute quantities alcohol favors the growth of many pathogenic organisms, including those of pus and diphtheria."

ALCOHOL AND THE HEART.

Norman Kerr says[32]: "The heart failure of chronic inebriates has for the last quarter of a century been continually presenting itself in my experience, often preceded by, or contemporaneous with, dilatation of the muscle. Alcohol has a direct action on the involuntary muscular system, and the heart is more responsive to its dilating action than any other part of the body structure."

ALCOHOL AND TUBERCULOSIS.

"Chronic alcoholism, by lowering the condition of the system, renders more liable to both acute and chronic tuberculosis" (Kerr).

"One of the most efficient prophylactic measures against tuberculosis would be the repression of alcoholism."[33]

Lagneau says[34]: "The increase of tuberculosis is proportionate to that of alcoholism in France."

Dr. N. S. Davis summarizes the results of investigation of the influence of alcohol upon tuberculosis as follows:

"It will be observed from the foregoing collection of facts, that in one-third of the whole number of cases the tubercular disease commenced and progressed through all its stages, while the subjects of it were, at the time, and had been, from one to twelve years previously, habitually using either fermented or distilled spirits. In but little less than one quarter of the whole number the disease was developed in subjects who had for years abstained from all such drinks. It is thus clearly demonstrated that the use of alcoholic beverages, however uniform their administration, and however long continued, neither prevents the development of tubercular phthisis nor retards the rapidity of its progress."

Lanceraux of Paris[35] emphasizes the opinion which he has held for thirty years, that alcoholic excesses represent one of the principal causes of tuberculosis. Of course, he recognizes the bacillus of tuberculosis as the cause, but claims that the alcoholism favors infection, by diminishing resistance.

Langneau supports these views,[36] showing that the increase in tuberculosis in France corresponds to the increase in alcoholism.

I believe that as alcohol lessens the total work product of the heart, and that it affects the mortality of tuberculosis in two ways. First, by its action increasing the tendency or susceptibility by lowering vitality, and by favoring careless habits of life and dress; and second, that it renders the body more vulnerable to tuberculosis and stands in the way of success in any form of treatment.

Heredity leaves the individual with low defective vitality, enfeebled powers of resistance, a mind less capable of a firm grasp on the affairs of life, less able to adjust himself to his environment, and thus with diminished chances of life, a tendency to fecundity, the offspring dying early.

Indeed the neurotic origin of tuberculosis has for many years been urged by Dr. Mays of Philadelphia. That is, the neurotic, the inebriate inherits an increased vulnerability to adverse conditions of all kinds, and with this an increased tendency to tuberculosis.

Dr. Haycraft, in "Darwinism and Race Progress," declares that criminals, inebriates, lunatics, and consumptives are all born with neuropsychopathic constitutions, and in no other affections does heredity play so important a part.

Dr. Clouston of Edinburg, in a late report, says: "It is surprising how often insanity, consumption, and inebriety appear in the same family, and flow down to extinction among the descendants."

Dr. Sharkey of the London Pathological Society claims that disturbances and lesions of the vagus nerve, by lowering

the nutrition of the lung, predispose to and become the indus of the bacillus of tuberculosis. Hence, all inebriates are predisposed to tuberculosis and more are likely to contract this disease than are any others.

Crothers says[37]: "Twenty per cent. of all cases of inebriety die of tuberculosis."

ALCOHOL AND THE DEATH RATE.

The published report of the Bureau of Vital Statistics, Department of Health, Chicago, for the years 1896 and 1898, is as follows:

Chicago.	1896.	1898.
Population July 6, 1896,	1,619,226	1,619,226
Total deaths, all causes,	23,257	22,793
Alcoholism,	77	0
Erysipelas,	73	49
Septicemia (Puerperal),	92	114
Tuberculosis,	2,667	2,829
Bright's Disease (Nephritis),	656	1,048
Heart Disease,	1,231	1,237
Nervous Disease,	3,018	....
Pneumonia,	2,141	2,477
Diphtheria,	956	622
Small Pox (1895, 157; average for last 44 years, 145).		
Typhoid Fever,	751	636
Apoplexy (Cerebral),	471	503
Cirrhosis of Liver,	182	195
Uremia,	110	0
Acute Nephritis,	162	0
Killed by firearms,	51	....
Manslaughter,	69	77
Suicide,	331	347

ALCOHOL AND THE RUSSIAN DEATH RATE.

An official inquiry into the comparatively larger increase in the Tartar population of the city and government of Kazan has, according to the *Kamsko Volshkr Krai*, brought out some remarkable facts as to the effects of alcoholic indulgence on the death rate.

The Kazan Tartar, numbering about 640,000, have a rate

of mortality of only twenty-one per 1,000, while the mortality among the Russians is forty per 1,000.

The general conditions among the orthodox Russians and Mohammedan Tartars are practically the same, except in so far as personal habits are concerned. The medical investigation leaves no room for doubt that the lesser mortality of the Mohammedan Tartars is directly due to their abstinence from spirituous liquors, in which the Russians indulge freely.

At the Dublin meeting of the British Medical Association, a special committee appointed for the purpose reported "that the habitual indulgence in alcoholic liquors beyond the most moderate amounts has a distinct tendency to shorten life, the average shortening being proportionate to the degree of indulgence."

CONCLUSIONS.

(1) Alcohol acts by destroying congenital immunity, increasing susceptibility, favoring by its direct influence the development of pathogenic micro-organisms, lessening the absolute strength of muscles, obtunding the delicacy of the special senses, causing changes in the nervous system whereby insanity is produced, the latter being transmissible; inducing inebriety, which is a nervous disease and hereditary, and increasing the death rate both directly and also by its tendency to exterminate the race, and directly causing such diseases as cirrhosis of the liver and chronic nephritis.

(2) As a result of the foregoing, infection is favored, the healing of wounds retarded, the infection of them by erysipelas facilitated, and the mortality increased.

(3) The liability to infectious diseases, especially tuberculosis and pneumonia, is very greatly increased because of the increased susceptibility, diminished powers of resistance, greater readiness of germ development, less care in providing against exposure, or in providing proper clothing, and also because the portal through which death enters in a case of pneumonia is commonly the right heart, and, its absolute strength being impaired, the mortality is thus increased.

(4) Alcohol is one of the most potent factors in the etiology of cirrhosis of the liver, chronic nephritis, general arteriosclerosis, and the non-inflammatory diseases of the heart.

(5) Alcohol is the chief cause of most of the cases of murder, suicide, and many other deaths by violence and accident.

(6) Alcohol has caused more deaths in Chicago in the last three years than has smallpox in the last forty-three years.

(7) The mortality lists for Chicago are not introduced by way of criticism of the Department of Health, because it does not assign the causes of death, it simply records them; but rather to show that they are misleading and fallacious because members of our profession are not calling things by their right names. It is done out of respect for the feelings of the friends. Why not call smallpox an eruptive fever for the same reason, shut our eyes to its presence, put up no warning cards, and make no effort to stamp it out or prevent occurrence?

You may argue that smallpox is a contagious disease, but I maintain that alcohol kills not less surely.

(8) At least a part of the mortality is fairly chargeable to the medical profession because of a want of knowledge of the action of alcohol, and because of its improper use as an alleged stimulant.

(9) Drs. Kerr and Richardson of England estimate that ten per cent. of all cases of death in England and Wales are due to alcohol.

Dr. T. D. Crothers of Hartford, Conn., estimates that fifty to sixty per cent. of all inebriates die directly from that cause.

Dr. N. S. Davis of Chicago estimates that fifty per cent. of all cases of chronic nephritis, cirrhosis of the liver, non-inflammatory diseases of the heart, cerebral apoplexy, and deaths by violence are due to alcohol. Undoubtedly, we may safely charge more than ten per cent. of all mortality of all large cities to alcohol, thus making the death rate in Chicago alone over 2,300 per year.

(10) To be successful in the fight against alcohol medical men can, more than any others, contribute substantial aid by calling the attention of medical men to this disease of contemporary humanity; by calling things by their right names and classifying and designating alcohol as a *narcotic*, not a *stimulant*, in their writing and speaking about it; by taking the necessary steps in the investigation of its effects, and then a concurrence of opinion in teaching, both publicly and privately, especially as to what constitutes an inebriate, and then his relationship as a diseased person toward the church, the law, and the medical profession.

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INEBRIATE LEGISLATION.

At the opening of the session in Edinburgh University last week, Professor Sir T. Grainger Stewart spoke of the necessity for further legislation in regard to inebriates. He said "there was a class of this kind who could be as definitely recognized as unfit to manage their own affairs as the insane, and he urged that the Legislature should grant powers for their being dealt with in the same way as the insane." It has been often urged by the students of inebriety that the case of the insane supplies a precedent for compulsory legislation which cannot reasonably be set aside in the case of those whom drink has deprived of self-control. This view is now confirmed by Professor Grainger Stewart. But at the Church Congress Sir Willoughby Wade, M.D., suggested a difficulty which would arise when the inebriate, after a few weeks' enforced abstinence from alcohol, recovered his sanity, and, feeling himself in his right mind, demanded his liberty. Could legislation be justified that would still detain such a man in a curative home? The difficulty is one that has no doubt received the attention of experts on the subject, who concur in saying that in a lengthened detention lies the only hope of cure. It is not a difficulty that should stop legislation. It seems to us that not the feelings of the patient after a short period in the inebriate home, but the condition of the patient at the time of being placed in the home, must determine the period of detention.—*Temperance Record.*

INEBRIETY — ITS NATURE AND TREATMENT.

By T. N. Kelynack, M.D., M.R.C.P., of Manchester.

Pathologist, Manchester Royal Infirmary; Hon. Pathologist to the Manchester Clinical Hospital for Women and Children; Hon. Pathologist and Bacteriologist to the Manchester Ear Hospital; Demonstrator in Morbid Anatomy, Owens College, Victoria University, etc.

Dr. Kelynack said a reformer had been defined as "one who educates and agitates." Such admirably summarizes the duties of all engaged in the temperance reformation. If we educated more it might be that we could afford to agitate less. The country was in need of an "enlightened conscience" in regard to the matter, but the question was so many-sided and required such thorough and patient investigation that even temperance workers had to strive hard to maintain "an enlightened intelligence" as to its various phases. Not the least important aspect was the scientific and medical. The old order ever "changeth, yielding place to new," and modern ideas were compelling the view that the temperance question was essentially one of public and personal health. Alcoholism, at least in many of its forms, had to be studied and treated as a disease. In dealing with inebriates one is bound to consider the patient as a whole, and to seek for abnormal physical conditions, as well as recognize the more pronounced derangements of the mind.

Even limiting the consideration to inebriety, or that morbid state characterized by an uncontrollable craving for alcohol, the subject was one of appalling dimensions. According to reliable returns there are probably no less than 600,000 inebriates in the United Kingdom. In some the condition arises

*An Address delivered at Liverpool, Tuesday, January 31, 1899.

as a habit, deepening into a vice, and becoming a veritable disease. In others it appears as a distinct morbid condition from the first. In yet another class inebriety was to be considered the most manifest indication of deeper-seated mental derangement. For purposes of precision the medical mind readily accepted the legal definition of an inebriate as "a person who, not being amenable to any jurisdiction in lunacy, is, notwithstanding, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself or herself, or to others, incapable of managing himself or herself, and his or her affairs."

Inebriety was to be considered as essentially a mental disease, a morbid psychological state. But the cause was clear — a known, definite, physical agent, alcohol, which, in almost any of its forms, was capable of initiating the condition. And legislation must remember that other bodies besides alcohol are only too frequently used as inebriants. Although the exciting cause might be clear, the predisposing influences were many and powerful. They might all be grouped into two classes — one concerning the individual, the other influencing his environment. Physical conditions, perhaps, especially in women, lead to paroxysmal outbreaks of ungovernable drinking. The influence of heredity could not be neglected. Temperament also played an important part.

Inebriety manifested itself in various forms. These were briefly referred to.

But while the clinical aspects of the subject were of extreme interest and great scientific importance, the practical aspects of the question were paramount. There had been long delay in establishing treatment on rational and scientific lines. Alcohol was pre-eminently the great degenerator. It produced structural deterioration of tissue, impaired volitional power, and weakened powers of physical and moral resistance. The undermining of will and judgment made compulsory control a necessity. This was practically the unanimous

view of the medical profession. Penal measures were irrational. Restraint was essential, and of vital importance in holding out the greatest chance of permanent cure. Prohibition must start with the habitual drunkard. Much that is said with regard to the "liberty of the subject" when applied to an inebriate must be ruled "out of order." Inebriates are the weak-willed children of the state. A freedom which is abused must be withdrawn. A liberty which means license cannot be tolerated. An indulgence which leads to death must be suppressed. From the very nature of his condition the inebriate has, in many instances, no desire to be deprived of his liquor. He cannot appreciate the necessity for reform. His clouded judgment converts the suggestions and actions of friends into acts of persecution and cruelty. A dulled perception, of necessity, entails a loss of those finer distinctions between right and wrong which are among the glories of man.

The lecturer then reviewed at length the efforts that had been made to obtain legislation for the inebriate. It was contended that hitherto rational treatment of inebriety had not been given a fair trial. The difficulties of the "Inebriates' Act" for voluntary or non-criminal cases were indicated. In spite of all obstacles, however, much benefit had resulted.

The new Inebriates' Act of 1898, for criminal inebriates, was considered. Temperance workers might accept it with thankfulness, value it highly, and should use it wisely. It was the first fruits of a glorious harvest. It granted only a part of what was required, but it was epoch-making in that it showed that at last the law was willing to admit the need for remedial measures. The humanizing influence of the hospital was to replace the brutalizing conditions of the prison. For criminal inebriates the act, if rightly administered, meant little less than a revolution in methods of treatment. The lecturer indicated the general scope of the act, and urged temperance and Christian workers to consider their opportunity and responsibility in the matter. The act ought to prove of

the greatest educational value to the country, and will stamp the closing days of the nineteenth century as the period when the first real effort was made to adequately protect the victims of alcoholism by the compulsory application of remedial measures.

But the non-criminal class formed an immensely larger body. The pauper inebriate especially should be dealt with. But poor and rich alike were in need of protection. The relatives should have power of direct appeal, and the suffering partner in life should be able to be relieved from the curse. Neighbors should be allowed the right of ridding themselves from a source of danger and demoralization. The desirability of continuing "voluntary admissions" to retreats was also considered. Many reasons demanded the compulsory restriction of inebriates. It was a sin and folly to allow confirmed inebriates to become parents. Incurables should be retained in inebriate colonies.

Reference was made to the so-called "cures" and warning given against many of the "secret" and quackish methods so freely advertised. The lecturer also remarked on the immense force of moral and religious influences on guiding and controlling conditions essentially physical.

"Preventive" measures were strongly advocated. The scientific value of total abstinence should be impressed on the minds of parents and guardians. Family predisposition was to be early recognized, and prompt treatment adopted, before degenerative tissue changes had made cure difficult or impossible. The need for increased means of dealing with the preventive aspect of the question was urged.

Much remains to be done if progress is to be maintained. There is still immense mental and moral inertia to be overcome, profound ignorance to be dissipated, and higher and nobler ideals sought and found — but sooner or later the day must dawn when every one shall be able to say—

" It matters not how strait the gate,
How charged with punishments the scroll,
I am the Master of my fate,
I am the Captain of my soul."

THE EXPENSE, STUPIDITY, AND SIN OF EXCESSIVE ALCOHOLIC DRINKING.

According to the most recent statistics, we find that the average annual consumption (in gallons) of alcoholic beverages is per inhabitant as follows:

Country.	Beer.	Wine.	Spirit.
England,	30.31	0.39	1.02
France,	5.1	21.08	1.84
Germany,	25.5	1.34	1.84
United States,	12.3	0.44	0.84

Were it not that our minds have been so long obtunded by the figures, we would be struck dumb with the amazing fact that the English drink-bill for 1898 was $772,404,670, a net increase of over $10,000,000 on the bill of 1897. And the English Chancellor of the Exchequer is delighted at his $60,000,000 income from the tax on beer, and hopes it will grow larger. At the same time the Registrar-General reports that the deaths from alcoholism are rapidly increasing! Moreover, what stupidity it shows. If the number of children, and teetotalers, and moderate drinkers are deducted, what hogs must be several millions of people to bring the average of consumption to twenty-five or thirty gallons. What a thick-headed way to get food, if beer is food, or, if it be only a diluted alcohol, what a witless way to buy alcohol. Not only in the direct production of disease is drunkenness a great national curse, but in the indirect results, as Sir Henry Thompson has pointed out, the denutrition from poor food both of the workman and his family, because the money that should have gone for good food has been spent for drink. It is a sad spectacle of blundering and sin.—*Phila. Med. Jour.*

THE PATHOLOGY OF ALCOHOLISM.

By J. W. Grosvenor, M.D., Buffalo, N. Y.

Alcoholism is a disease which consists of abnormal conditions, caused by the internal use of alcohol. So far-reaching is the influence of alcohol that the pathology of alcoholism covers a very broad field. Hence, in a brief paper it will be impossible to explore every part of the territory included within its extensive boundaries.

Some authors, as Magnan, have divided cases of alcoholism into several classes according to their severity and the symptomatic conditions which they present. For the purpose of this paper it will be sufficient to classify them under two heads, viz.: acute alcoholism, ordinarily called by the laity drunkenness, and chronic alcoholism, frequently termed by the medical profession alcoholic inebriety.

A case of acute alcoholism is a case of acute poisoning. A case of chronic alcoholism is a case of chronic poisoning. No fact has been more clearly and firmly established by chemistry and physiology than that alcohol is an acrid narcotic poison. Its poisonous quality is one of its chief characteristics.

For convenience of investigation and discussion the pathology of alcoholism may be divided into three parts, according to its effect upon different portions of the human organism, viz.: moral pathology, mental pathology, and physical pathology.

Alcohol is a paralyzer, a depressant, and its general effect upon the moral, mental, and physical powers is paralysis, partial or complete, temporary or permanent.

MORAL PATHOLOGY.

The normal human being is endowed with self-control. Somewhere in his nervous system resides an inhibitory force which regulates his moral nature. This force maintains his desires and passions in an equilibrium. Whatever impedes the normal working of the will weakens it and permits immoral forces to bear sway in the conduct of life. Common observation teaches the influence of alcoholism over the moral nature of its victims. The changes in disposition and character undergone by the alcoholic are numerous and positive.

The quiet man when alcoholized becomes animated and energetic; the lively nature, dull and morose; the inoffensive spirit is made brutal; the loving and tender mother has grown hateful and harsh to her children; purity is transformed into licentiousness; fraud and deceit take the place of the soul of honor; the truthful man becomes a liar; he who has had a strict regard for the rights and property of his fellow-man is now a thief; crime in varied forms walks abroad in the shoes of the citizen who was upright and law-abiding; the former respecter of life as a sacred trust commits murder and suicide.

It may be stated incidentally that a case has been reported of an alcoholized man who had the habit of stealing horses. He stole nothing else. Legal punishment seemed to exert no deterrent effect upon this criminal characteristic. Many other cases might be cited to show that alcoholic kleptomania takes the form of monomania.

These exhibitions of the alcoholic are a few of the signs that make known a changed nature and habits. These are some of the results of alcoholization. The alcoholized man has become morally pathologic.

MENTAL PATHOLOGY.

In cases of alcoholism the intellect, the sensations, and the will become impaired; the memory is not infrequently com-

pletely abolished or greatly disordered. It is related that an army officer, a sufferer from alcoholism, after a drinking bout which lasted from twenty-four to thirty-six hours, stoutly asserted that during his alcoholic spree he had visited several places with which he was well acquainted, talked with personal friends, and transacted certain items of business, whereas none of the places had been visited, none of the friends had been seen by him, and he had attended to none of the matters of business which he mentioned.

It is a matter of common knowledge that the intoxicated murderer oftentimes states under oath that he has no knowledge of the crime recently committed. How many of these denials are due to an effort on the part of these alcoholics to shield themselves from guilt, and how many to an actual obliteration of memory for the time being, it is impossible to determine. Without doubt the memory center is positively affected by the paralytic property of alcohol. The faculties of conception, reason, and judgment undergo marked changes in the course of alcoholism. Conception becomes indistinct; reason is swerved from its logical basis; judgment is so warped that it draws false conclusions.

To show the effect of acute alcoholic poisoning upon mental processes, Kraepelin and Furer have made very elaborate tests. The amount of alcohol ingested varied with the different experiments from two drachms to two ounces. The special mental acts upon which trials were made were decision, association, learning by heart, and addition. The experiments were very extensive, embracing in one group 3,600 trials on a single kind of mental action. None of the subjects were at any time more than in a slight degree intoxicated. The conclusion which may be fairly drawn from these tests is that under the influence of small doses of alcohol intellectual processes are embarrassed and disordered in some form or other to a degree which may be accurately determined.

Hallucinations of sight and hearing are the result of alcoholism.

Common observation has noted that these mental disturbances are apt to take place in that phase of alcoholism termed delirium tremens. This delirium is the result of the inordinate ingestion of alcoholics. Its victim sees creatures of various sizes and shapes which cannot possibly be within his sphere of vision, a species of zoopsic hallucination; he hears voices which have no real existence. These sights and sounds are figments of his pathologic imagination.

I recall the case of an army colonel who, while suffering from an attack of acute alcoholism, was in the habit of mounting a table in his quarters and looking intently at the ceiling for some person whose voice he heard coming from that direction.

Alcoholic Dementia. Alcoholic dementia is the termination of the status of moderate alcoholic drinking. The condition of simple retardation of the mental processes begun under the influence of a small dose of alcohol has steadily progressed until mental activity has ceased and mind only exists as a shadow. This is the last act of a drama which has had as its moving spirit a periodic or continuous ingestion of alcohol.

PHYSICAL PATHOLOGY.

The Brain. The part of the human organism which is most vulnerable to the pathologic influence of alcoholism is the nervous system. From examination it has been demonstrated by MM. Lallemand, Perrin, and Duroy that a given weight of the brain of an alcoholized person contains a larger quantity of alcohol than the same weight of the tissue of any other organ of the body.

The general effect of alcoholism on the nervous system is poisonous and paralytic. Chemists and physiologists have pronounced alcohol an acrid, narcotic poison. The most rigid, careful, and extensive experiments have proved it to be a paralyzant.

When ingested it passes rapidly to the brain. Repeated ingestions are followed by a continuous hyperemia. Sometimes effusion follows the hyperemia, and probably is of frequent occurrence. Alcohol unchanged has been found in the brains of persons accidentally killed in a state of acute alcoholism. A physician of Troy, N. Y., relates that he was present at the autopsy of a man of that city who had been a drunkard for forty years. When the brain was exposed a distinct odor of alcohol was emitted from it, and a lighted match started a blue flame over the whole of its exposed surface.

Alcohol, by its power of absorbing water, hardens tissue.

Many competent observers and experimenters have ascertained the pathologic condition of the brains of animals and human beings who have died from alcoholism.

The experiments of Dehio, in 1895, demonstrated that during acute alcoholism important changes occurred in the ganglion cells of the cerebellum. Experiments lately made by Stewart have fully confirmed the results obtained by Dehio.

According to Kellogg, the nerve filaments of the brain are shrunken, blunted, and destroyed by alcoholism.

Phillips states that as a result of alcoholism the neuroglia becomes thickened and presses upon the nerve cells, changes their form and thus contributes to their destruction.

Forel believes that there is a shrinking of the alcoholized brain which is irrecoverable.

Jackimoff, after feeding dogs with alcohol, found on post-mortem examination the cells of the gray matter of the brain in a state of disintegration.

Gentles has found the convolutions of the alcoholized brain "narrow, shrunken, and flattened," dura mater thickened and adherent to the cranium, arachnoid opaque, pia mater thickened and adherent to the surface of brain, increase of ventricular and subarachnoid fluid, oozing of blood into substance of brain, vessels running from pia mater to cortex enlarged, tortuous, with marked fatty and atheromatous changes.

Atkins observed that some of the blood vessels of the alcoholized brain become contracted, while others are unnaturally distended; new cells are formed in the cortex, which are called scavenger cells, because they appear to destroy the remains of the normal cells.

Berkley experimented with alcohol upon rabbits. Upon examination of their brains after death he found the walls of the vessels damaged, leucocytes collected in masses, alteration of cellular protoplasm, thickening of arterial sheaths, nerve-cells diminished in size. He easily recognized a microscopic difference between the brain of a control rabbit and an alcoholized rabbit, and has remarked that similar lesions, though not so pronounced, have been found in alcoholized human brains.

In the examination of human brains subjected to alcoholization, Twitchell has found serum in the ventricles and between the membranes; the arachnoid, "water-logged"; vessels of pia mater, dilated; an appearance identical with the wet brain of nephritis; membranous deposits on the surface of the dura mater; coats of the capillary vessels and the nerve-cells degenerated. He states that as one-fifth of the blood flows through the brain, one-fifth of the alcohol absorbed into the blood comes in contact with the brain, and thus paralyzes the gray cells so that they cannot perform their motory and sensory functions; that if sufficient alcohol has been taken it paralyzes the centers of respiration and circulation.

Nothnagel believes that alcoholism is a predisposing cause of cerebral embolism through its degenerating effect upon arteries.

Direct proof of cerebral congestion by alcoholism has been furnished by experiments upon dogs by Neumann and Kremiansky. According to Huguenin, Lancereaux and Kremiansky regarded chronic alcoholism as "the most frequent and most important" cause of pachymeningitis.

Boehm states that pachymeningitis hemorrhagica "has been considered by many as pathognomonic of chronic alcoholism."

Wilks has shown that some of the products of alcoholism as seen in the brain are a wasted appearance of the cortex and a fatty degeneration of the ganglionic cells.

The principal factors in producing these pathologic conditions of the alcoholized brain are the paralyzing force of alcohol and its extraordinary power of absorbing water. The vaso-motor nerves become paralyzed in whole or in part; the blood-vessels lose their contractile character; the blood current is not moved forward with normal rapidity; the impurities of the blood remain an abnormally long time in contact with the cells and neuroglia. The cerebral tissues become poisoned, hardened, shrunken, and disintegrated. The delicate structures of the brain being under these baleful influences it is not surprising that the power of co-ordination is destroyed, mental processes retarded and confused, memory lost, and that oftentimes the outcome of alcoholism is insanity and dementia.

Spinal Cord. The pathologic changes in the spinal cord due to alcoholism are similar to those already noted as occurring in the brain. As observed by Clarke, there is softening, alterations indicative of inflammation, degeneration of ganglion cells, increase of connective tissue in lateral columns, and disease of small blood-vessels.

Erb states that "intoxication with alcohol" is an occasional cause of spinal irritation; that alcohol appears to exert some influence as an etiological factor of spinal pachymeningitis; that chronic alcoholism induces spinal myelitis of a chronic character; that spinal paralysis is produced by alcohol; that, according to Huss, spinal leptomeningitis has the misuse of alcohol as "a very active cause."

Nerves. The general effect of alcoholism upon the nerves is paralytic; it impairs and destroys both their sensory and motory functions. According to Barlow, the substance of the nerves in alcoholism becomes disintegrated and its fibrous supporting tissue is invaded by new materials.

Forel declares that alcohol poisons the nerves and diminishes their sensibility.

The experimental researches of Ringer, Dubois, Martin, Wood, Cerna, have shown that alcohol lessens "the sensibility of the nerve-cells both in the central and peripheral parts of the nerve structures."

Searcy calls attention to the collodial character of the axis-cylinders of nerves, and of the nerve-cells, and to the hardening effect upon them of alcohol, which inhibits the movements upon which they depend for their normal functions.

The nervous system is a prominent stone in the foundation upon which rest all the structures of the body. Upon its integrity depend the soundness and normal functions of all the physical organs. It is the source of all human activities. Any injury to its delicate cells and filaments is felt by all the tissues and fluids which they control.

Appreciating these facts, we can realize the disastrous effects upon the human organism of the poison, alcohol, and the disease alcoholism which it engenders.

Testimony is amply sufficient to prove that several diseases of the nervous system are the result of alcoholism.

Multiple Neuritis. It is stated by Wood and Fitz that alcoholism is the most common cause of this disease.

Early observers, among whom was Lancereaux, held the opinion that the pathologic changes of polyneuritis alcoholica were confined to the peripheral nerves and muscles; later observers, prominent among whom was Eichhorst, discovered pathologic conditions in the spinal cord, and even in the brain.

Drysdale lays stress upon atrophy of muscles of the extremities as a marked pathologic change in alcoholic neuritis.

Reunert has made observations on twenty-five cases of alcoholic neuritis, of which he states that thirteen were typical cases of polyneuritis.

Herter gives an account of a child three and one-half years of age who, after drinking twelve ounces of whisky one after-

noon, suffered from multiple neuritis which continued over two months.

So many physicians of large experience have observed that multiple neuritis is the result of alcoholism that little doubt exists as to their relation to each other of effect and cause.

Alcoholic Epilepsy. Stern expresses the opinion that "alcoholism, in its acute and chronic form, may become an important etiologic factor of epilepsy."

Nothnagel states that, aside from heredity, "the habitual drinking of considerable quantities of alcoholics assumes the first place" as an agent which is "capable of evoking the epileptic change."

It is my belief, founded on reliable data, that alcoholism is directly responsible for epilepsy in five per cent. of the cases, and that continually there exist in the United States between 4,000 and 8,000 alcoholic epileptics.

Insanity. That many-sided and variously-defined disease called insanity has alcoholism as one of its causal factors. No intelligent physician can study in detail the history of insanity as related to alcoholism without arriving at the conclusion that quite a large per cent. of all cases of the former are the outcome of the latter. Alienists differ materially as to the extent of the influence of alcoholism in the production of insanity. According to Baer, in the years 1878-9, twenty-seven per cent. of all the male lunatics in asylums in Germany had entered on account of alcoholic causation. Among these were 600 cases of delirium tremens.

In France, in Bicetre, in 1865, alcoholism was put down as a cause of male insanity in 25.24 per cent. of the cases. In Charentin, Marsaing put down alcohol as a cause of male insanity between 1865-70 in 27.87 per cent. of the cases. It is said that forty per cent. of the male lunatics in Austria are alcoholic insanity cases.

In the year 1897 the writer secured the last published reports of the state insane hospitals of forty states and territories

of the United States. These reports show that of all cases admitted to these institutions in which the cause of the insanity was ascertained, 9.35 per cent. were the direct result of alcoholism. These are very moderate figures, and probably are far from representing the full influence of alcoholism in the production of this disease.

Statistics of this description might be multiplied indefinitely, and doubtless would show that alcoholism is directly one of the pathologic factors of insanity in from ten to sixty per cent. of the cases. It is safe to assert that in all countries of the civilized world thirty-three per cent. of all cases of insanity is the average number due directly to alcoholism.

The indirect influence of alcoholism in the production of insanity it is impossible to compute with much exactitude.

It gives me pleasure to direct the attention of the medical profession to a very able and exhaustive article on "Alcohol Insanity in the Light of Modern Pathology," by Dr. W. Lloyd Andriezen, published in the January (1896) issue of THE QUARTERLY JOURNAL OF INEBRIETY.

Alcoholic Craving. The intense craving for alcohol termed dipsomania is not a condition of the normal, healthy human organism. It is pathologic. Alcoholism may not always be its primal cause, but it is surely intensified by that disease and is frequently one of its results. Concerning this craving for alcoholics Forel declares that "it is always the proof of a heavy hereditary burdening." Oftentimes this craving is paroxysmal, and its victim, feeling the foreshadowing of its onset, makes deliberate preparation for its gratification. In many instances so intense is it that only incarceration will prevent its indulgence.

Alcoholic Paralysis. Dr. James Jackson was the first writer to describe this disease. Since his day numerous writers, as Huss, Wilkes, Clarke, Thompson, Lancereaux, Moele, Buzzard, Broadbent, Hadden, Bristowe, Dreschfeld, Hun, have recognized it as a distinct disease. From a study of its

symptomatic and pathological appearances it seems to be closely allied to alcoholic neuritis, if not identical with it.

Further observation, both clinical and post-mortem, is necessary to determine whether these two diseases are one or are congeners whose cause is the same, — acting upon different materials and in different environments.

That alcohol is a paralyzant, even in the small quantities of one or two drachms, has been proved beyond question by the experiments of Ringer, Sainsbury, Martin, Wood, Cerna, Ridge, Kellogg.

Blood. Carpenter has made the assertion that pathologic changes occur in the corpuscles and fibrin of the blood when there is not used more than one part of alcohol to five hundred of blood.

There is microscopic evidence to the effect that the blood corpuscles of the alcoholic are altered in shape, become crenated and shrunken.

Hence they are incapable of conveying the normal quantity of oxygen and hemoglobin.

Griffith states that "spectroscopic examination of alcoholic blood reveals a change in one of its most important constituents, — hemoglobin."

Thus alcoholism contributes to the impurity of the blood.

As the physical system depends upon a properly oxygenated blood for its metabolism, its waste and repair, its growth and development, it is not difficult to determine that the alcoholized man is ill-nourished and that many of his organs suffer from degeneration.

Heart. It is well known that fatty degeneration of the heart is a characteristic effect of chronic alcoholism. This cardiac condition is due mainly to impaired nutrition or defective oxidation, for both of which alcoholism is responsible. Pearce and Maguire have expressed the belief that sometimes acute dilatation of the heart is caused directly by alcoholism, and have detailed cases to substantiate their belief.

Victor Horsley and Dujardin Beaumetz have given expression to a similar opinion.

Several authors refer to the development of cardiac hypertrophy in chronic alcoholism. The dilatation and hypertrophy are accounted for in part by the atheromatous degeneration of blood-vessels and the paralyzing effect of alcohol on vaso-motor nerves, both of which conditions impose additional work upon the heart.

Arterio-sclerosis is a generally recognized result of the ingestion of large quantities of alcohol.

Respiration. The functions of the respiratory apparatus is diminished and entirely suspended by the paralyzing influence of alcoholism. Lauder Brunton asserts that alcohol "diminishes the activity of the respiratory center of the brain," the respiratory act becomes slower and more shallow.

Respiration has its greatest utility in the removal of carbonic dioxide and the introduction of oxygen into the system. Any disease or influence which hinders these processes produces a pathologic condition which seriously affects the various functions of the body. Cerna, by experiments on dogs, has shown that alcohol "in large amounts produces a depression of both depth and rate of the respiration through a direct action on the centers in the medulla oblongata."

It is important to recognize the fact that a smaller quantity than normal of carbon-dioxide is removed by the respiratory act from a person who is suffering from alcoholism. In proof of this statement may be cited experiments on living human beings carried on from time to time since the year 1813 by Prout, Fyfe, Vierordt, Hervies, St. Layer, Böcker, Davis, Hammond, Edward Smith, Richardson, Lehmann. The red corpuscles of the blood under alcoholic influence take up less than their normal amount of oxygen; a diminished supply of oxygen is carried to the tissues; less oxidation takes place, and hence the diminished elimination of carbon-dioxide by the lungs. Thus alcoholism poisons the system not only directly, but indirectly, by preventing the excretion of waste products.

Alcoholic Phthisis. Several medical writers, as Richardson, Payne, Davis, Thorain, Bell, Kelynack, Mackenzie, express the opinion that alcoholism is the cause of phthisis pulmonalis. Certainly it can be only an indirect cause, by so enfeebling the system as to render it peculiarly prone to assume this disease. Without doubt the alcoholic is specially liable to it. Some authors state that alcoholic paralysis is quite liable to be followed by pulmonary tuberculosis.

Chronic Laryngitis. Wood and Fitz hold the opinion that the excessive use of alcohol is important as an etiological factor of this disease.

There is authority for stating that singers who wish to preserve the purity and power of their tones have learned to eschew alcohol.

Stomach. The stomach has been a battlefield upon which has been waged many a contest concerning the exact pathologic action of alcoholism.

However great may be the difference of opinions concerning the pathologic effect of acute alcoholism and moderation in alcoholic drinking upon the stomach there is a general uniformity of belief concerning the effect of chronic alcoholism upon this organ.

According to Gentles some of the post-mortem appearances of the stomach produced by chronic alcoholism are " erosion and ulceration " of the mucous membrane, thinning of the muscular coat, increase of sub-mucous connective tissue, " atrophy of the secreting glands," dilatation.

These changes have been noted by many competent observers. Gastric catarrh is a product of both acute and chronic alcoholism.

Gastric Digestion. No intelligent, unprejudiced person would hesitate to declare, reasoning a priori, that imperfect and retarded digestion would follow such pathologic conditions as mentioned above. The experiments of Beaumont upon the fistulous stomach of St. Martin substantiated such a belief.

Blumenau, by experiment upon the digestion of five young men under alcoholic influence determined that "gastric digestion is markedly diminished"; "the secretion of gastric juice becomes more profuse and lasts longer than under normal conditions"; digestive power of gastric juice is diminished; the stomach has less absorptive and motor power.

The experiments of Chittenden and Mendel upon proteid artificial digestion with alcohol showed that whenever the amount of alcohol exceeded two per cent. of the mixture acted upon there was a "decided decrease in digestive activity."

Kellogg, from experiments made upon the living, arrived at the conclusion that "alcohol prevents the formation of gastric juice in the stomach."

Roberts has shown that beer and wine destroy starch digestion in the stomach.

The results of the numerous experimental researches made concerning gastric digestion would seem to leave no alternative to the conclusion that alcoholism interferes largely with the anatomical integrity of the stomach and its legitimate functions.

Liver. Chronic alcoholism diminishes in the liver, as in other organs, vaso-motor influence and produces dilatation of the capillary vessels; the connective tissue is increased by exudation, and thus the organ becomes contracted; there occurs genuine cirrhosis, which has received the name of gin-drinker's liver and hob-nailed liver. Jacobi, in his clinical lectures, has stated that cirrhosis of the liver or interstitial hepatitis in children is sometimes due to alcoholism.

These extensive anatomical changes wrought in the liver by chronic alcoholism must necessarily interfere with its activity in producing bile and must impair its glycogenic function and its power to destroy ptomaines.

A vast quantity of blood passes through the liver, and it is one of the functions of this organ to purify this life-sustaining fluid. Bile is a powerful antiseptic and aids the digestion of

fat. Alcoholism, by interfering with the purifying function of the liver and its bile-producing function exerts a potent deleterious influence on the whole system.

Spleen. Alcoholism is mentioned by Master as one of the causal factors of amyloid degeneration of the spleen.

Pancreas. Friedreich is inclined to the belief that "general chronic interstitial pancreatitis may result from excessive alcoholism"; that its pathologic changes are similar to those of cirrhosis of the liver and kidneys, and hence we are justified in naming it cirrhosis of the pancreas.

Gout. There is evidence to the effect that alcoholism is influential in the production of gout. No doubt diligent and extensive inquiry would discover only a few total abstainers who suffer from this disease.

Kerr found only one total abstainer among 1,500 cases of this disease, the remainder being either moderate or immoderate drinkers.

Kidneys. Glazer, by extensive experiments, has found that alcohol produces irritation of the kidneys, exudation of leucocytes, cylindrical casts, "an unusual amount of uric acid crystals and oxalates."

Chittenden, by experimenting on dogs that had been kept under the influence of alcohol for eight or ten days, found the elimination of uric acid increased 100 per cent. above the normal quantity.

Professor Christison claims that "three-fourths, or even four-fifths, of Bright's disease in Scotland is produced by alcohol."

Pitt states that the kidneys of forty-three per cent. of hard drinkers are hypertrophied.

The amount of extra work by the kidneys necessitated by the consumption of large quantities of alcoholic drinks produces structural changes. A fatty and granular condition occurs; Bright's disease and albuminuria follow.

A partial loss of the eliminating function of the kidneys may be a causal factor in the formation of the calculi.

Twitchell, from post-mortem examinations, has concluded that the kidneys in delirium tremens "are probably always affected." In all his autopsies interstitial nephritis was present and parenchymatous changes were not infrequent.

In relation to the causation of Bright's disease, Flint states that "as a primary affection it occurs especially in persons addicted to intemperance."

Wood and Fitz mention alcohol among the causes of chronic interstitial nephritis.

Gentles represents the alcoholic kidney in a cirrhosed condition similar to that of the cirrhosed liver.

August Smith states that alcoholic kidneys are either swollen or contracted.

The above-mentioned pathologic conditions of the kidneys produced by alcoholism show conclusively that when they are thus affected a normal secretion of urine is impossible. Necessarily albumen and all those morbid products which result from various diseases of the kidneys will appear in the urine.

Urine. Kellogg has used Bouchard's biologic test in determining the urinary toxicity of persons under alcoholic influence. This test determines "the amount of rabbit which might be killed by the quantity of toxic substances produced in twenty-four hours by each kilogram of the patient."

By applying this test to the urine of an alcoholized person Kellogg found that the urinary toxicity was enormously diminished, showing that the toxic substances which should have been eliminated were retained in the system.

Sexual Organs. According to Forel, Demme has proved that degeneration of the sexual glands is a result of alcoholism.

Drysdale states that "venereal desire is frequently entirely destroyed by drunkenness. The testes and ovaries are prematurely damaged by alcoholic poisoning."

Lippich mentions that "drunkenness is a great cause of sterility and abortion."

According to August Smith, "the male sexual organs are affected, the testes atrophied, and drinkers become impotent early in life" through alcoholism.

Mairet and Combermal demonstrated by experiments in Paris that the procreative organs of both sexes suffered degenerative changes caused by alcoholism.

Boehm expresses the opinion that there is only a very little alteration of the sexual functions in the earlier stages of alcoholism; that in the later course of the disease sterility occurs in both sexes.

Flint asserts that under the influence of chronic alcoholism there is a decay of the function of generation.

Hodge's elaborate experiments upon dogs give evidence that alcoholism conduces to impairment of the generative functions and to sterility.

Further experimentation will be needful to determine the value of such testimony.

No author which the writer has been able to consult furnishes an exact and detailed description of tissue degenerations of the sexual organs which occur in cases of alcoholism.

Eye Diseases. Ophthalmoscopic examinations of persons suffering from delirium tremens have revealed congestion of the fundus oculi, enlargement of its arteries and veins, pulsation of veins of the optic disc, an unusually dark appearance of the blood in both arteries and veins.

The weakened and dulled vision of amblyopia is often due to alcoholism.

The oculist, Charles H. May, has given the following list of eye troubles as due to alcoholism: "Congestion of the iris, spasm of accommodation, contraction of the pupil, photophobia, nyctalopia, glimmering sensation in bright light, scotomata (color and white), amblyopia, partial (temporal) atrophy of the nerve."

Several observers have found in the alcoholic an interstitial neuritis, resulting in proliferation of connective tissue and degeneration leading to atrophy of the optic nerve.

These pathologic conditions are similar to those which are found in the alcoholized liver and brain.

Organs of Special Sense. Edward Smith has shown experimentally that alcohol lessens the functional activity of all the senses.

Ridge, by very accurate and delicate instruments, has demonstrated that the ingestion of two drachms of alcohol impairs vision, feeling, and sensibility to weight. Under the paralyzing influence of alcohol the touch becomes less sensitive, the vision less acute, and the sense of weight less discriminative.

Scougal has confirmed Ridge's experiments, and both he and Crothers have determined that there is a like impairment of the sense of hearing.

Richardson, by an electric balance, detected a diminution in the hearing capacity under small doses of alcohol.

Nicol and Mossop, by experimentation upon each other with the ophthalmoscope, found that the nerves controlling the retinal blood-vessels were paralyzed by the ingestion of a tablespoonful of brandy.

Kellogg found by experiment with instruments of extreme delicacy and accuracy, after two ounces of brandy, a diminution in the tactile sense, the temperature sense, and the accommodation power of the eye.

If these small quantities of alcohol will make upon the organs of special sense paralyzing impressions easily detected by instrumental test, it is not difficult to conclude that larger doses frequently and for a long time repeated will produce the profound sensory effects of a pathologic character observed in the confirmed alcoholic.

The effect of alcohol upon the transmitting power of nerves has been shown by Howie. He found that after two glasses of hock a message from the brain to the hand required for its transmission 0.2970 of a second, whereas the same message, before taking the hock, was transmitted in 0.1904 of a second.

By experimenting on the muscular system he learned that two hours after administering two ounces of brandy the degree of muscular force had been diminished one-third.

Skin Diseases. By its general effect upon the system, especially the liver, kidneys, blood, nerves, alcoholism may produce various diseases of the skin, though the direct evidence of such causation in many skin diseases is not very strong. So frequently is alcoholism accompanied by acne rosacea that we are warranted in believing that these diseases hold the relation to each other of cause and effect. Undoubtedly this skin disease is produced by the paralyzing influence of alcohol on the vaso-motor nerves. Thereby the contracting force of the blood-vessels is lessened. The blood-stream is not moved forward with normal rapidity; blood collects in the vessels and enlarges their caliber; acne rosacea is the result.

Micro-Organisms. The effect of alcoholism in lessening resistance to the attacks of micro-organisms has been shown by the experiments of Abbott upon rabbits. The normal vital resistance to infection by streptococcus pyogenes was markedly diminished. He noted that the resistance in some instances was lowered in alcoholized rabbits that were inoculated with staphylococcus aureus. Six rabbits that were alcoholized and then inoculated by the bacillus coli communis died, while three control rabbits that were not alcoholized lived.

As a general proposition, founded on the researches of Massart and Bardet, it may be stated that leucocytes are antagonistic to microbic toxins. May it not be that alcoholism partially or completely destroys this antagonistic property, and thus prevents the leucocytes from performing their legitimate work of ridding the tissues of these toxins?

Temperature. Binz, by experiments on healthy animals with thermometer in rectum, demonstrated that under a small dose of alcohol there was no rise in temperature; under from one to three ounces of alcohol there was a temperature fall

of five-tenths to one degree Fahr. Observations on a healthy man eighteen years of age noted similar results.

Davis and Richardson have also determined that alcohol taken internally lessens bodily temperature.

Reichert has demonstrated that "alcohol not only increases the loss of heat but also decreases its production."

Felton, after experiments upon cats by hypodermic injections of alcohol, concluded that "the tendency of alcohol is to first depress and then elevate the previously normal temperature, and to correct an abnormal temperature."

Although Bunge believes that "alcohol increases the supply of heat it increases also the expenditure of it." He states that "the net result is a diminution of temperature."

It is a matter of common knowledge that health depends largely upon the normal temperature of the body. If bodily heat rises above or drops below the normal point there is a departure from health. The large majority of investigators express the belief that alcoholism lowers the normal temperature, thus placing the physical organism in a pathologic condition.

Elimination and Excretion. Böcker has demonstrated experimentally that alcohol in the living body lessens elimination and excretion, and thus retards molecular changes. These results were verified by the experimental researches of Hammond.

Davis has made experiments along the same line and arrived at the same conclusions, which he has thus expressed: "I have fully satisfied myself that the presence of alcohol in the human system positively diminishes the important functions of respiration, capillary circulation, calorification, and metamorphosis of tissue, and, as a necessary consequence, leads to diminished excretion and to the accumulation of effete matter, both in the blood and the tissues." This view is substantiated by the fact that in the confirmed alcoholic there exists fatty degeneration in various organs.

Chittenden, by experiments on dogs, "found the elimina-

tion of uric acid in the urine to be increased 100 per cent. over the natural proportion," showing that in alcoholism an unusual amount of nitrogenous substances are imperfectly oxidized, and consequently are circulating in the blood and producing a deleterious effect upon the tissues.

This lack of proper metabolism in the alcoholized system is the result of the influence of alcohol upon the blood by lessening its capacity to convey the usual amount of oxygen, by preventing the elimination through the lungs of the normal quantity of carbon-dioxide, and by the paralyzing effect of alcohol on the vaso-motor nerves, thus causing an accumulation of unaerated blood in the capillaries.

Cells and Protoplasm. The microscope has revealed the pathologic changes in the cells of various organs suffering from alcoholism. One of the first changes noted in the cell is a "cloudy swelling"; it becomes granular; the nucleus is "somewhat obscured." These cellular changes have been found in the organs of animals that have died from acute alcoholism. If the alcoholized condition continues fatty degeneration follows and masses of fat are deposited in the cell and take the place of protoplasm. The significance of these pathologic changes is that they take place at the very beginning of physical growth and development.

In summing up the contents of this paper the following remarks may be worthy of attention:

Scarcely any disease, perhaps none, exerts so extensive a pathologic influence as alcoholism on the organs, tissues, and fluids of the body.

The paralyzing effects of alcoholism extend throughout the nervous system, from its center to its periphery. This paralytic effect is seen not only in the body but in the intellect and moral sense.

The principal degenerations in alcoholism are fatty, fibroid, and atrophic. Fat is substituted for normal tissues; alcohol withdraws water from the tissues, and thus they become dry

and hardened and at length assume a fibroid character; through lack of proper nutrition the cells become shrunken and atrophied. By these degenerations the anatomical integrity of organs is destroyed, partially or wholly, and their functional activity is impaired. Thus the whole system suffers and in time becomes a wreck. Alcohol has been aptly termed "the genius of degeneration."

So profound and widely disastrous are the pathologic results of alcoholism upon the individual and the race, and believing this disease may be placed properly in the list of preventible diseases, it is my firm conviction that it is the bounden duty of the medical profession, sanitarians, and boards of health to use their utmost efforts for its complete eradication.

Alcoholism is another predisposing factor. By examining the statistics of a large city, it was learned that in eighty-three families in which the parents were inebriates, there were 410 children, of whom 112 (or over one-fourth) were victims of idiopathic epilepsy. A physician of Munich recently noted an epileptoid condition which he aptly termed alcohologenic cardiac epilepsy. This was preceded or accompanied by dilatation of the heart, and was purely alcohologenic, subsiding completely with abstinence from liquor, in some cases and partially in others. As the heart improved the epileptoid condition disappeared.—*Dr. Mahone, Physician and Surgeon.*

THE LOUISIANA MORPHINE AND COCAINE LAW.

The legislature of Louisiana has passed a law making it unlawful to sell at retail any cocaine, morphine, or opium, or its preparations, except under the written prescription of a practicing physician, such prescriptions not to be refilled. Violation of the law is punished by a fine of not over $100, or imprisonment for not over thirty days, or both, at discretion of the court.—*Texas Courier-Record.*

THE WORK OF THE LONDON TEMPERANCE HOSPITAL.*

By Dr. J. J. Ridge, Senior Physician to the Hospital.

Notwithstanding that this hospital has been doing the work for twenty-five years — having been opened in 1873 — there are still many people, even total abstainers, who do not know of its existence, and many more who do not understand its principles and the motives of its establishment, nor the extent of its operations.

Thirty years ago medical practice might almost be summed up in the words "alcoholic stimulation." The doctrines of the late Dr. Todd had largely affected the medical mind. Alcoholic liquors were regarded as stimulants of vital force, and as supplying a most nourishing and easily assimilated food to the tissues. Scarcely any disease was treated without some form of alcoholic liquor, and often in large quantities. Not only was alcohol given during the progress of the disease, but its various mixtures (beer, wine, etc.) were regarded as most valuable aids to convalescence; to neglect them was regarded as dangerous to life itself.

So insistent and persistent were large numbers of medical men that a great many total abstainers were induced to abandon their habit during illness, and contracted such a craving for drink during convalescence that they never resumed it. The exaggerated idea of the very great value of alcohol as a medicine and as a preservative of health and strength which this practice led so many to entertain proved most disastrous. The numbers of excessive drinkers, or so-called dipsomaniacs,

* Read before the Seventh International Congress at Paris against the Abuse of Alcohol.

rapidly increased, and the friends of temperance felt that something must be done to show that alcoholic liquors were not so valuable as was supposed, and might safely be dispensed with altogether in disease as well as in health.

The London Temperance Hospital was, therefore, founded in 1873 in a private house in Gower street, London, with seventeen beds.

Such was the prejudice with regard to alcohol that it was expressly stated in the rules that any of the visiting medical staff might order alcohol in a pure form in any case in which he might consider it necessary, and that special notes should be kept of such cases and of the results of its administration. Up to the present time there have been thirty-one such cases, twenty-one surgical and ten medical, of which twenty-two have died, or seventy-one per cent.

The accompanying tables give the statistics presented at each annual meeting up to that just held (March, 1899), by which it will be seen how the work of the hospital has increased both in its "in" and "out" department. In 1881 a new building was opened in the Hampstead Road, by which the number of beds was increased to fifty, and in 1885 a second wing was added and the beds increased to eighty-six. In 1898 another bed was added in a specially constructed "aseptic ward." A sum of five hundred pounds ($2,500) has just been allotted to the hospital from the Prince of Wales' fund, on condition that twelve new beds were added, and this is now accomplished, as a liberal friend has given one thousand pounds ($5,000) for their maintenance for one year.

Cases of every description are admitted, of exactly similar character to those admitted into other general hospitals; nevertheless the death-rate has been under seven per cent. of the whole number of 15,274 in-patients, which, as far as it goes, is a strong testimony to the value of non-alcoholic treatment.

It may be added that in consequence of the success of this hospital other "temperance hospitals" have been established

in other parts of the world, while there has been concurrently a very large diminution in the amount of alcoholic liquors consumed in other general hospitals.

The thousands of persons cured in this hospital have undoubtedly received a practical demonstration of the possibility of recovery without alcohol, many of them from the severest diseases and operations, and in no case have habits of intemperance been contracted to their ultimate ruin, as is so frequently the case when intoxicating liquors are employed.

In the extensive out-patient department very many have been saved from following advice to drink alcoholic beverages, which they had been recommended to do by doctors and friends.

This hospital, then, proves to demonstration that the large quantities of alcoholic liquors still prescribed in sickness are quite unnecessary, and in all probability often actually injurious.

TEST FOR THE PRESENCE OF NICOTINE IN TOBACCO.

To demonstrate the presence of nicotine in tobacco smoke, Kissling uses a bottle half full of water rendered faintly acid with sulphuric acid; two tubes pass through the stopper, one dipping into the fluid and having a cigar inserted in the upper end; through the other much shorter tube the assistant draws the smoke in the ordinary way of smoking. When a portion of the cigar is consumed, a few drops of Mayer's reagent are added to the liquid, in which a copious precipitate is produced in the presence of nicotine. Further evidence of nicotine may be obtained by rendering the solution alkaline with soda and distilling. The idea that a picoline base, and not nicotine, causes the reaction described is not borne out by this experiment. Previous investigations by the author also show that tobacco smoke contains relatively a large proportion of nicotine and never more than a very small proportion of picoline base.—*Chem. Zeitung.*

REPORT OF THE SEVENTH INTERNATIONAL CONGRESS ON THE ABUSE OF ALCOHOL.*

By Chas. H. Shepard, M.D., Brooklyn, N. Y.

On the fifteenth day of last March two members of this society, Dr. T. D. Crothers and the writer, left New York to take part in the "Septieme Congres l'Abus des Boissons Alcooliques," held in Paris during Easter week, April 4th to 9th. Another member, Dr. J. H. Kellogg, of Battle Creek, Mich., joined us while there.

A pleasant voyage and a little sight-seeing, including a few days in Holland, prepared us to enjoy the meeting of strangers who were working on much the same lines as ourselves. Our credentials were well received, and to the honor of our country Dr. Crothers was made one of the vice-presidents.

This congress was the largest and most successful of the European gatherings held on this subject, and indicates that the people are waking up to a more serious study of alcoholism.

Monday evening, April 3d, there was given a tea, introducing the members to one another. The total registration was between eleven and twelve hundred, and many countries were represented. Among others outside of France and the United States, were Germany, Austria, Russia, Belgium, Norway, Finland, Italy, Greece, England, and Canada — in all, twenty-one countries and colonies. The Belgian, Russian, and Norwegian governments were officially represented by experts upon inebriety who had been appointed to report upon the congress, and Dr. de Hebra, professor in the Vienese Faculty of Medicine, who was given a knighthood by the Emperor, was sent by the Austrian government. Dr. Rudolph Pöch,

* Read before the American Medical Temperance Association, Columbus, Ohio, June 8, 1899.

who was decorated by Emperor Francis Joseph for bravery in nursing three plague patients, was also a part of the Austrian delegation.

The first general session was presided over by M. Jules Le June, Minister of Public Instruction from Belgium. The President of the Congress, Dr. Legrain of Paris, made the opening speech. Then came the secretary's report, by Dr. Boissier, occupying twenty minutes, after which followed a number of five-minute speeches. All were received with a great deal of enthusiasm. There was a statuette of our Frances Willard on the president's table, and some complimentary words were said of the American representatives, as well as of others.

The afternoon session was presided over by M. Henri Brisson, late prime minister of France, who welcomed the delegates in the name of the government, and delivered a powerful address upon alcoholism in France. Then followed Mons. Boyet, delegate from the minister of public instruction; M. Buisson, M. Barbey, M. Hercord of Lausanne, and Professor Graeter of Basle, who spoke principally on the question of temperance education in the primary and secondary schools and colleges.

Among the prominent scientists present with papers were Dr. Baer of Berlin, Dr. Forel of Zurich, Dr. Smythe of Vienna, and Dr. Emil Jordy of Switzerland, but the fact stood out very distinctly that the public sentiment of Europe was about fifty years behind that in America on the temperance question. The title of the congress was significant; it was "Against the Abuse of Alcohol," and yet it was remarkable that such a number of prominent Europeans should gather in the interest of this cause. A notable incident was when Dr. C. Thiron, official representative of the government of Roumania, in a ringing speech, moved that the name be changed to "Against the Use of Alcoholics." This was promptly carried when put to vote.

The opinion is very prevalent in our country that the drinking of wine and beer in France and on the Continent is commendable, and that intoxication is rare. This is shown to be a great mistake, from the fact that France is the most drunken country in the world. Already some of her wisest men have sounded the note of alarm, and the attention of the government has been called to the subject.

During the sessions of this congress a remarkable article was published by M. Carnely, the chief editor of the *Figaro*, the concluding paragraph of which was as follows:

"It would be well for every Frenchman to rise every morning with the thought that he belongs to the race that consumes the most alcohol." The following startling lines were prominently displayed: "Alcohol is death to the race. Alcohol will kill the Europeans as it killed the Indians of the Western Continent. Alcohol means disease, means tuberculosis, means decay, sterility, impotence. Alcohol is another word for wickedness, cruelty, vice, and insanity. Alcohol means misery, downfall of nations, and the best way to prove patriotism and to be useful to one's country is to fight against alcoholism."

In a discourse by Dr. Jacquert it was stated that "in the Department of Eure, where the most drinking is done, there was one drinking place to every three or four adults." In Normandy the women drink more than the men, and the mortality among the children is excessive in consequence.

Statistics show that in France and Belgium the consumption of alcohol increases, while in other countries it diminishes. France leads the list with a yearly consumption of 14.19 liters for each person, while Canada is placed at the bottom of the list with 2.50 liters to each person. If ever France is to be redeemed it must come through the abolition of King Alcohol, along with the deadly absinthe, and the destructive tobacco, and paying more attention to the laws of nature. One good symptom is that Paris is now supplied with good drinking

water part of the time. It seems almost incredible, but it has been publicly stated that when the supply of good water runs short the authorities permit the addition of the impure water of the Seine!

Germany, as well as other grape-growing countries, is becoming seriously affected by the excessive use of spirits. This was demonstrated by the large gathering of government officials and representatives of many sections for the amelioration of the condition of the people, as well as a large number of medical men and clergymen, to protest against the use of alcohol as a beverage. One hundred and fifty papers and addresses were offered during the four-days session, and a free discussion of the many phases of the alcohol question was permitted, particular attention being given to the danger of alcohol as a beverage, as well as the danger of moderate drinking. Both Catholic and Protestant clergymen vied with each other in calling attention to this danger, and emphasized it with much vehemence. A few eminent physicians followed with reasons and statistical facts sustaining the clergymen, and some lawyers and jurists were not behind in giving their evidence. These were received with great enthusiasm by the audience, composed as it was of reformers and representatives of different orders of temperance societies.

Among the delegates to the congress were a large number of women, who carried off the palm for earnestness and eloquence. All the delegates, and particularly the English-speaking ones, were very much indebted to the kind activities of Miss Charlotte A. Grey of London, who did much for the success of the congress. Mme. Selmar, the delegate from Denmark, electrified the audience by the most eloquent and finished address of the congress on the work of women and the church in temperance reform.

No special policy or line of work was adopted by the congress, but among the points insisted upon by the papers was that of teaching the truths to children, the improvement of homes, and the increase of personal vigor, health, and lon-

gevity, the diminution of sickness, crime, and pauperism, and the self-evident proposition that total abstinence is not dangerous, nor the withdrawal of spirits in any way hurtful. It was, indeed, a revelation to Continental Europe to see a thousand men and women of all grades of society gravely discussing a question which was supposed to be confined to a few radical reformers.

In the afternoon of the second day a reception was given to the delegates of the congress by the members of the Municipal Council of Paris, at the Hotel de Ville. A large number of the delegates were present when the thrilling notes of the Marsellaise announced the arrival of the president of the Council and other members of the municipalitie. The president, in a speech, offered a warm welcome to all. M. Dr. Legrain, president of the congress, responded with thanks, and introduced to the mayor several representatives of different countries. Honorable Conrad Dillon responded on behalf of the English-speaking members of the congress. The president then conducted the party on a tour of inspection through the beautiful rooms. Delicate refreshments were furnished, and the occasion was a pronounced success.

Thursday evening there was a banquet, at which about five hundred participated. The most successful after-dinner speaker was a German priest, and this showed that the French people are making some progress toward tolerating the German language, as well as the Germans themselves. A very complimentary address was given to the English-speaking banqueters by M. Dr. D'Aubigne, a son of the famous historian.

On Saturday a special excursion to the palace at Versailles, during which a luncheon was served, was another courtesy extended by the government to the delegates. The congress adjourned to meet again in two years at Vienna. In the evening a cheerful party assembled to take "The d'adieu." Dr. Legrain said he had spared the congress a final summing up of its proceedings, but he could not help feeling that the gen-

eral trend had been in favor of moral suasion, individual effort, and education, rather than of repressive legislation. He felt that the hope was in the individual and personal reform of the habits and customs of the rising generation, and in the name of the young people of all nations he raised his glass of water to the success of the cause.

During a short visit to London we were tendered a reception by the English Society for the Study and Cure of Inebriety, presided over by Dr. Norman Kerr, who, while an invalid, had come fifty miles to give us a greeting. The gathering was held at the London Medical Society's rooms. Dr. Kerr made some exceedingly complimentary remarks, referring to the fact that Dr. J. Edward Turner of America was the first to maintain that inebriety was a disease. Congratulations were in order, to which your representatives responded.

Since our return the papers have informed us that Dr. Kerr has passed into the great beyond. A noble man has fallen, but his bright example will encourage many others to follow in his footsteps of usefulness.

There was also a reception given us on the eve of our departure by the National Temperance Society of London, which was attended by a number of prominent physicians and workers in the temperance field, among others Dr. Sims Woodhead, Professor of Pathology at Cambridge, and Dr. J. J. Ridge of London, who has taken the place occupied by the late Sir Benjamin Ward Richardson, as president of the Temperance Hospital of London, and John T. Rae, the able son of Robert Rae, who has so long been a prominent worker in the temperance cause of Great Britain. We were made to feel thoroughly at home and enjoyed their many kindnesses.

In review, we can but express our satisfaction with the trip. We had an opportunity of visiting and enjoying the hospitality of three different nationalities, and were everywhere the recipients of much courtesy, and we feel satisfied that the results of the congress will be far-reaching and give a decidedly important impetus to the cause of total abstinence.

Abstracts and Reviews.

THE PSYCHOLOGY OF NARCOTISM.

By Xavier Sudduth, A.M., M.D., Chicago, Ill.

Nature intended that man should be a comfortable animal and enjoy to the full the fruits of his labor.

Man has ordered otherwise, and as a consequence in the receding days of the nineteenth century, when art and intellect have reached their highest development, we find man, born to be the favored creature of nature, laboring under self-imposed burdens of society, oftentimes heavier than he can bear. As a natural consequence of his pernicious environment he is frequently found seeking surcease from the pains of existence in self-immolation, temporary intoxication or suicide, the method adopted depending much upon his belief in a future state and his relation thereto.

What are some of the steps that have operated to bring about these deplorable conditions? They cannot be laid to natural causes, because there has never been a time in the history of civilization when the actual needs of man were to be satisfied with as little expenditure of vital force as at present. The cause of the stress of the age must therefore be looked for, not in the physical, but in the psychic domain of man's nature, and it is to this phase of the question that I desire to call your attention to-day.

In that degree that man is able to perform the necessary duties of life by force of habit so does he lessen the labor of existence. The hardest work man has to do in this world is to think. Every psychosis has its neurosis. New experiences or acts are successfully mastered only by the expenditure of thought. The greater part of the absolutely necessary acts

of existence are performed by rote rather than by thought. Thought labor requires nerve action, just as surely as locomotion incurs muscular activity; and while it is true that there is a marked physical difference between mental and muscular action, yet physiologically considered they both express a condition of catabolism that has to be met by metabolism. Ordinary cell wear is not necessarily painful. On the other hand, a certain degree of pleasurable exhilaration accompanies most necessary bodily functional activity. When, however, exercise is carried beyond a certain point, so as to become forced, it soon becomes painful. When weariness ensues as a consequence of functional activity, pleasure ceases and pain begins. Pain is the absence of pleasure according to our major premise laid down in the opening sentences of this paper, and if this be true, then its abolishment does not consist in self-immolation, but in a readjustment of our relations to our environment or its more or less complete reconstruction.

Pain and pleasure are not distinct physical conditions, no matter how intimately they may appear to be related, but mental states, and therefore require careful consideration to differentiate them. Pleasure and pain are often so closely connected that it is with difficulty that they can be separated. Not only this, but the terminology used to express the two conditions is inextricably confused. Many people are said to "cry for joy." In fact, so narrow is the division line between the two conditions that the scale turns upon the mental state of the individual at the time of experiencing any particular sensation, as to whether he suffer pain or feel pleasure. The close relationship between them is thus shown by a case in which the one merges into the other. Continuous stimulation, that at first gives pleasure, in time becomes painful. This leads to the conclusion that only a certain amount of pleasure is bearable by human nature, if furnished without intermission. The system may be surfeited by pleasure as well as borne down by pain. But what is it that suffers? Surely not the physical that alone experiences wear. No! Pleasure and pain are not

conditions *per se*, but mental perceptions of sensations experienced at the time or revived from some previous experience, through thought images brought before the mind by association of ideas. Then again, not only does pleasure easily merge into pain but the very absence of pain, to him who has suffered, is a pleasure. The fullest appreciation of the pleasures of existence are to be had by comparison with painful experiences happily passed. While many of our joys and sorrows are the result of purely physical sensations, yet a considerable proportion of our pleasures and pains are intimately associated with our emotions and are distinctly dependent upon the peculiar physical condition in which the experience finds us. Many of the acutest pains of existence are those of restriction. Man longs to be free, to cast off the burdens of care, for even a short space of time, to secure a respite from the pains of existence — to lose himself; hence his resort to the use of narcotics. Sad delusion! The greatest slave of all is he who seeks his freedom in these deceptive agents. Nine out of ten narcomaniacs will tell you the same story, when asked as to how the habit was formed. "I took it to relieve pain," "to drive dull care away," "to get a little rest," and thus the chains of habit were forged.

Dr. Carpenter says, "that our nervous system grows to the modes in which it has been exercised." That is only another way of putting the fact that we develop along the lines of least resistance, according to the bent of our special inclinations, limited and modified by our peculiar environment. Habits are more easily formed in youth than later in life, by reason of the fact that the organism is in the formative stage and the inhibitive feature of the will is less developed than it is later on. If a young man or woman reaches the age of twenty without having acquired any vicious habits of thought, action, or appetite, ten to one they will go through life free from contamination. Nevertheless, physical states of weakness later in life seem to unman the individual and re-establish, to a greater or less extent, the conditions prevailing in adoles-

cence. Drugs that may be given during the crisis of a disease with impunity, if continued during convalescence are apt to give rise to drug habits, hence the necessity of discontinuing the use of stimulants and narcotics during this stage of the disease and depending upon a nutritious diet and natural remedies to bridge over this critical period when the will is weakened and the moral faculties seem to be more or less clouded.

Narcomaniacs may, for convenience of study, be divided into three classes:

1. Those who have acquired the habit through hereditary tendencies, and who find in the use of narcotics a physical pleasure.

2. Those who, though physically strong, yet are led into the habit by social customs as the result of environment.

3. Those who turn to narcotics for relief of the pains of existence.

The psychologic bearing of the several classes is essentially different when laboring under the spell of the drug. Members of the first class have, in most instances, the warning example of degenerate ancestors; yet so great is the demand of the system for sedation that they brave the dangers and public opinion with a brazen effrontery that is many times astonishing. They have no desire to reform and their course is continuously, progressively downward. With them there is no shadow of turning. They are wholly given over to evil ways and the sooner they end their days the better for themselves and mankind at large.

The second class, considerably larger than the first, much larger in some countries than others, suffers mostly from the direct effect of the drug because removed from the moral stigma under which other classes labor. While its members are seriously handicapped in the battle of life, yet they manage to preserve a tolerable existence, unless the particular narcotic used happens to be hasheesh or opium, and even against the latter the natives of India seem to hold a more or less charmed existence.

It is to the third class, however, that I desire to call special attention, because they are those who dwell among us: Our fathers, mothers, brothers, sisters, and friends. Brought to their condition of enslavement, many times by circumstances over which they have no control, held accountable by an highly intellectual and moral civilization, they suffer, not only from the direct effect of the drug used, but from the goadings of an outraged moral nature. The members of this class, oftentimes forge their chains through years of petty indulgence in the use of the milder sedatives and narcotics. Their case then is one of slow growth and needs to be studied from that standpoint. A diseased condition of the will is established, in which the individual finds himself unable to stand out against what he knows to be sin against the physical body. It was not always so; there were times when, in the early history of the case, had he had the right kind of treatment, he could have broken the bonds of the growing habit with comparative ease. These diseased conditions of the will form most interesting psychologic studies and promise to throw much light upon the rationale of treatment. In the main, an entirely erroneous idea of the function of the will prevails. Most persons consider it as a direct motor force only, confusing it with volition, which is the act of the will, and thus overlook entirely its inhibitive aspect. In one sense the will may be said to be dual; but in any event it represents a state of the mind, and is, according to James, "a memory of past acts." Its parents are desire and feeling and its offspring are represented in such mental states as "I wish," "I will" and "I will not," which latter is many times synonymous with "I can not."

In order that feeling and desire may become motor impulses, they must be accompanied by a knowledge of the attainability of the object desired, otherwise a futile or even no effort is made to attain the object desired. We thus observe the difference between "I wish" and "I will" and note that faith is one of the principal attributes of a strong will. The inhibitive aspect of the will which enables its possessor to say

no is largely a matter of education. Uncivilized man knows no master, save want, and when opportunity for indulgence offers, gives full reign to his unhallowed passions. The tendency of civilization is to teach the control of the passions through the limitations of environment. Man thus learns to inhibit his desires and hold in check his feelings through the inhibitory action of his will. He is thereby enabled to contain himself within the bounds of decorum and decency. It is by will power that man is an abstemious animal and when given over to indulgence he is simply evidencing the atavistic principle which so often crops out during the evolutionary process. Civilization teaches man to "wish" and to "wait" for many things in this life, upheld by the hope of their fulfillment in some future existence, if not in this, and also that by restraining his passions and appetite he is serving his own best good.

Continued indulgence in the use of narcotics finally creates an appetite. Like a bad debtor, they promise much and pay little. The system continually cries out for relief that comes not. This irresistible craving is intensified by moral or physical restraint and the habitue is urged on by his vitiated appetite to greater and greater indulgence when opportunity offers. No feat is considered too dangerous to be attempted to secure the coveted dram; no human tie too sacred to prevent the fulfillment of his unhallowed desire; even hope of future salvation is freely given up for the cup that cheereth but to damn. The intensity of the passion for narcotics when once the habit has taken hold upon its victim, points only too plainly to something essentially different from a mere physical appetite. Hunger for food, even unto starvation, shows no comparison in its suffering to the agony of the alcoholic inebriate or the opium fiend when deprived of his wonted potion. Everything points to a diseased mental state beyond the power of any drug to reach it as an *antidote*. While drugs play an important role as alteratives and tonics in the treatment of inebriety yet there is not a "cure" in existence, that has any efficacy, that does not base its permanency upon the "sug-

gestive" methods employed in effecting the cure. While it is true that some depend almost entirely upon "drug suggestion" yet the cures that promise most in permanency of results have incorporated in them a system of psycho-physics, using the term medically, that is successful in proportion as it is scientific and comprehensive.

Inebriety, in all its forms, is beyond question a neurosis, and permanency of cure depends upon establishing an absolutely altered mental state, together with the maintenance of a healthy environment until such time as the individual has fully regained possession of his will, and developed sufficient moral stamina to withstand the temptations of the open saloon and social life.

SOME QUESTIONS.

In his address before the British Medical Association, Sir Wm. Broadbent says: "Morphia suspends the activity of the nerve centers. But how? What chemical or molecular change takes place in the tissues? How is it that the slightest change in the composition of the morphia molecule radically alters its effects? The physician cannot tell. The salts of potassium and of sodium are almost exactly similar. Yet a minute quantity of the former injected into a vein will paralyze the heart and destroy life, while the latter may be turned into the circulation wholesale with no bad result. Why is it? Why is so simple a substance as prussic acid so deadly a poison? A thousand of such questions may be asked. None of them can yet be answered. We know that these things do thus and so. How they do it we do not know; but until we do medicine will scarcely become an exact science. That we shall one day attain such knowledge is confidently to be expected. That must be the work of chemistry; and when we remember that the science of chemistry is scarcely more than a century old, and when we consider the bewildering scope and importance of its achievements in that century, it is surely not too much to hope great things from its future labors."

THE BIOLOGICAL STUDY OF INEBRIETY.

We noticed a pamphlet on the temperance question from a biological standpoint in the last number of the journal. The author, Dr. C. A. Reid, has evidently aroused some sharp criticism and attracted more than usual attention to his peculiar views. Briefly, he argues that excessive use of spirits is evolution, and only through great excess can sobriety and elimination be obtained. He thinks natural selection will from great excesses bring about sobriety, and that all measures to stop the use of spirits are useless, "that the world must be thoroughly drunk before it can be thoroughly sober." This argument is among the rare specimens of literary "ground and lofty tumbling," in which opinions, theories, and reasoning are served up in a spectacular, bewildering manner. In a criticism on Dr. Reid's paper before the English Society for the Study and Cure of Inebriety, by the well known Dr. Kerr of London, occur the following extracts:

"Dr. Reid appears to think that nations acquire an immunity against alcoholism because he assumes that nations that once deeply indulged are now temperate. He asserts that Greeks, Italians, South Frenchmen, Spaniards, and Portuguese, inhabiting the south of Europe, were in ancient times much more drunken than at the present day. What are the facts? Take Italy. Only last year Signor Giovanni Rochat, in a paper on L'Alcoolismo, lately published at Turin, set forth that the national reputation for sobriety was in danger, that there was in Italy a great increase in the number of places where the intoxicants were sold, a great increase in the quantity of wines and spirits consumed, and a great increase in the number of cerebral maladies due to alcoholism. Signor Rochat, after sorrowfully reviewing the malign influence of excessive drinking on the health, morals, and social state of the Italian population, suggests remedial measures to aid in staying the alarming progress of the alcoholic plague, in the shape of temperance teaching in the schools, the formation of temperance societies, and the spread of temperance literature.

Again, take southern France. It is true that the more southerly portion of la belle France has been generally more sober than the northern parts; but the modern ravages of alcohol have far surpassed any of which we have ever before heard, as having occurred in Marseilles, Toulon, and other towns. Turn we to Spain, we can trace no reliable history of ancient intemperance on a large scale, and, though there are ominous prodromata of deeper indulgence in the future, on the whole the Spaniards are upholding their traditional time-honored soberness. The attempt to fasten on ancient Greeks the character of general habits of intoxication, or the Spartan custom of exposing drunken helots to their gilded youth, is a fiasco, as their venerable practice was their mode of impressing on the youthful and impressionable the gross evils arising from excess, an object lesson of temperance in the training of the rising generation in sobriety and self-restraint.

If we turn our attention to Britain we read in the pages of Diodorus Siculus that the ancient Britons generally drank water, only on feast days indulging in the excessive drinking of comparatively mild fermented liquors made from honey, barley, and apples. Frequent intoxication was, speaking generally, practically unknown till after the more deeply indulging Anglo-Saxons, Danes, and Normans had settled in our country, they having brought their well-formed habits with them. For a long period thereafter the mass of the people drank only their comparatively weak mead and ale, the famous drinking bouts at feasts being usually confined to the clergy and aristocrats. Wine drinking was introduced from the continent of Europe, principally through our commercial and other intercourse with France and Spain till, still later, the practice of spirit drinking was introduced into Britain from Holland on the return of our soldiers who had gone to the assistance of the Dutch in the warlike struggles in the Netherlands. So far from our having been once drunken and being now sober, we have as a nation become drunken who were formerly temperate.

"If we carefully observe, where do we witness any national or racial immunity to alcohol? I see nothing in the whole range of historical records to prove the existence of such an immunity. On the contrary, I see the once sober country of France now, according to recent calculations, the largest consumer proportionate with its populousness of intoxicating beverages. There was a time when the Anglo-Saxon race occupied the unenviable pre-eminence of the mightiest alcoholic prowess. To-day we are declared by Professor Jules Denis to have only the third place in the consumption of alcohol per head of the population. To what cause or causes are we indebted for this lessened indulgence? Not, verily, to an acquired immunity to alcohol, but to the great and growing number among us who entirely abstain from the use of all alcoholic intoxicants. We are indeed more susceptible than ever before to the witchery and domination of all narcotics. Our brain pressure is heavier in the struggle for bare existence; the greater demands on our nervous energy from the greater rapidity of modern life arising from telegraphs and telephones have rendered our brain a more ready prey to the magic power of alcohol and its congeners. Not to biological immunity, but to the wider diffusion of knowledge that alcohol is a poison to brain and to body, and to those altruistic motives which have inspired so many of our fellows to the habitual practice of abstention from dangerous alcoholic liquors for the good of others do we owe our greater temperance as a people and as a race.

"That heredity is a predominant factor in predisposing to inebriety, few scientific medical observers of the disease of inebriety or narcomania (a mania for intoxication by any narcotic) will care to deny. A long tale of the previous history of inebriate cases attests the truth of narcomaniacal transmission. Whether this fateful inheritance descends through the alcoholic alteration of the original cell (or its nucleus), which Weisman holds to be transmitted without change from its predecessor, as a continuous germ plasm, retaining through

succeeding generations the same elements and constitution; or whether, after Lamarck and Herbert Spencer, acquired characters are transmitted, the fact of inebriate heredity stands revealed in a very large proportion of instances. A fierce controversy has been and is being waged on these theories, especially on Weisman's hypothesis. How can the original cell, after it is surrounded by and contained in a living human body, be unaffected by the condition of the animate envelope which embraces it within? How can it grow and develop prior to the birth of the child, during the nine months of intrauterine life, unmodified by the healthful or unhealthful condition of the mother? Yet what warrant have we for concluding that in all the successive stages of the developing growth of the pristine germ plasm, that living organism is absolutely independent of the blood condition, the good health or ill health of the womb and of the mother in which the growing living creature is housed and protected and cherished?

"On the peripheral nerve terminations of the grown man and woman, scientific medical post-mortem inspection and microscopical observation have shown us that alcohol has effected physical changes in very minute structures, as minute as those of the germ plasm. Why, then, should we not, as Dr. Henry Rayner thinks, hope one day, by the use of the microscope, with chemical reagents, to be able to detect the alterations, if any, which alcohol may produce on even the germ plasm?

"As has been very properly pointed out by Dr. Thomas Morton (Inebriety Society Proceedings, No. 42), the insane heredity in many inebriates, though it goes to prove that inebriety is a neurosis, does not prove the transmissibility of an acquired taste for alcohol. But though the disease of narcomania is a mental condition exhibiting a powerful tendency or strong impulse to intoxication on the application of an existing cause. I have seen a few cases of children, male and female, in which there had been noted a constant restlessness and uneasiness allayed for the moment only by sips of an

alcoholic intoxicant, accompanied by so great an inclination to drink more as to render the peremptory withdrawal of the beverage absolutely necessary to prevent drunkenness. The difficulty in such instances is to eliminate the possible alcoholic poisoning of the unborn babe by the drinking of the mother while bearing and nursing the child. An acquired taste for alcohol is one thing, but the abnormal pathological mental state which I have ventured to designate 'inebriety' and 'narcomania,' is another thing, the latter being the diseased mental state which we see so often descending from parent or parents to child.

"So much for the possibility and probability of alcohol affecting the germ plasm through the alcoholic disturbing, disordering, and poisoning of the blood, tissues, and functions of the fertilized mother. As A. K. Cherril remarks, Weismann himself concedes that appearances are in favor of the inheritance of acquired characters. We, as skilled observers, have ever before us in a prolonged experience of medical attendance on families for a generation or more, the appearance of parental diseases reproduced in some of the immediate offspring, even in the earlier stages of sons' and daughters' existence. As with certain prominent features, characterizing either mother or father, or a blend of the features of both father and mother clearly displayed on the face of most of the children, so we are called upon to treat in the latter maladies for which we have had to treat one or both parents. We have to combat medically in the daughter unmistakable symptoms of the phthisical or scrofulous diathesis which the girl has clearly inherited from the mother who succumbed to one of these fell diseases. Why, now, are we able, by the aid of modern medical research, to oftener successfully overcome the transmitted abnormal tendency? Simply because we have learnt the lesson of heredity more accurately and intelligently, and we apply to the threatened young life every therapeutic antidote to the disease, the seeds of which we feel sure have been implanted in the youthful constitution. We add to this

counteraction of the disease every proper means of strengthening the tender system, that it may throw off and resist the insidious approaches of the hitherto latent affection.

"Thus, as medical wagers of the battle against disease, we are ever confronted with what appeals to our scientific acumen and common sense, as clearly instances of the transmission of acquired characters. Neither of the deadly maladies could possibly, so far as we can see, have descended from the original germ plasm of the fertilized first woman, these diseases being of a lethal type.

"Disease is not normal, but a departure from the pristine normal healthful condition of our first parents in the 'long ago.' Neither can it be an evolution or effect of the process of natural selection; so that, in the first instance, it must have been acquired. Here, therefore, as we medical men have so often had to see the descendence of the various diseases, we have a proof of the transmission of acquired characters. We have an apt and all too prevalent an example of this in the history of inebriates. In some three thousand cases, I have traced a genealogy of either inebriety or insanity as a preceding mental defect, in just over one-half of these cases; and many other medical authorities (such as my friend, Dr. T. D. Crothers of Hartford, Connecticut, and the records of the Fort Hamilton, American, and the Dalrymple, English, hospitals for the treatment of the disease of inebriety) have had a similar experience. The greatest transmission of narcomania has been from inebriate parentage (single or double), but from atavistic and collateral relatives and progenitors there has also been a substantial proportion. So overwhelming have been these inebriate manifestations of inheritance, apart from the long and expensive family trees of inebriety of the Jukes family in America and the Phulltain family in Scotland, that I am not at liberty to doubt the reality of this transmission any more than I am at liberty to dispute my own existence. Yet no one will deny that the overwhelming morbid drink impulse, the intoxication mania, is an acquired character."

ALCOHOLISM IN CHILDREN.

At a meeting of the New York Neurological Society, held on April 4th, Dr. George W. Jacoby presented a little boy, four years and a half old, exhibiting symptoms which in the adult would at once lead to a diagnosis of alcoholic paralysis. In spite of the tender age of the patient this case was indeed one of alcoholic paralysis. When the child was first seen, on February 20th, it was stated that he had been well up to four weeks previously, at which time he had had severe colic without vomiting or constipation. Then the left knee joint had become swollen. Eight days previously he had been noticed to be unsteady in walking. It was found that the boy had received from a half to a full tumblerful of beer daily ever since the age of six months. Examination revealed extensor paralysis of the hands and legs, with a reaction of degeneration in all the muscles. The extensors of the thighs were unaffected, and there was no sensory disturbance. The speaker quoted some recent statistics regarding the habitual use of alcohol in a large German city. The municipal authorities had undertaken an investigation among the school children, and had found that, of a hundred children, sixteen drank no milk. Twenty-five per cent. of the children had never tasted brandy, but had habitually drank beer or wine. Eight per cent. had received their daily portion of brandy, "to make them strong." He thought there was an almost equally large percentage of children among the German and Irish population here who were habitually given alcoholic drinks. This case, he said, emphasized the cumulative effect of small doses of a poison long continued.

Dr. William M. Leszynsky said that eight or nine years ago he had reported a typical case of multiple neuritis occurring in a child, about six years of age, who had been given beer and whisky by its parents, in order to make it strong. He agreed thoroughly with Dr. Jacoby regarding the prevalence of this vicious habit in this country.

Dr. Joseph Collins said that he had had two such cases under observation within the last two years. One of the patients, a child of seven years, was now passing through the second attack. This child had been in the habit of drinking beer. He had not completely recovered his muscular power when the second attack came on. The speaker had been impressed with a phenomenon presented by all the cases that he had seen, and it was present in the case just exhibited, namely the remarkable pallor of the cutaneous surface as compared with the redness of the mucous membranes. In this connection, he remarked, it was interesting to note that Hughlings Jackson had recently recorded himself again in favor of treating chorea entirely by the use of port wine.

The president, Dr. Frederick Peterson, remarked that it was very unusual for an alcoholic neuritis to exist without sensory symptoms.

Dr. Jacoby said that there was intense tenderness over the nerve trunks in his case, but no general hyperæsthesia of the skin. — *N. Y. Medical Journal.*

CLIMATE ON DELETERIOUS EFFECTS OF ALCOHOL.

Professor J. A. Sikorsky publishes some surprising statistics in regard to the differences observed between the southern and northern provinces of Russia in the number of fatal accidents due to abuse of alcohol. Averaging fifteen to twenty-two per thousand inhabitants in the south, they range from seventy to one hundred and ten in the north, although the consumption is almost a liter less per capita. These statistics are particularly valuable for comparison, as the alcohol is universally taken in the same form, brandy. He draws the conclusion that external cold increases the toxic effects of alcohol by tripling the chances of intoxication.—*Semaine Méd.*

Appleton's *Scientific Monthly* is a veritable library of most important scientific papers and discussions of the day. It is one of the really great journals that should not be missed by the scholars and thinkers of the times.

The "*New Voice*" has become a most attractive family paper which is fast winning a place in homes and firesides of the best people in the country.

We always feel grateful for the weekly visits of the *Scientific American*. So many new facts are coming out which are recorded here, giving a rare interest to each issue. Munn & Co., of New York, are the publishers.

The *Homiletic Review* of Funk & Wagnalls is a most excellent magazine. The papers are very stimulating and helpful to all readers.

THE HISTORY OF THE FIRST INEBRIATE ASYLUM IN THE WORLD, at Binghamton, N. Y. By Dr. J. E. Turner, the founder. Also a sketch of the projection of the Woman's National Hospital.

This large bound volume of five hundred pages is a graphic story of the projection and organization of the first asylum in the world, and its trials and difficulties. This work is of most absorbing interest to all students of inebriety, and should be in the library of every home and asylum in the land. We have recently bought from the publisher the last of the edition, and as the book is out of print these few volumes will be very rare in the near future. It is a large, cloth-bound volume, well illustrated. Copies will be sent from this office for sixty cents, postpaid.

NERVOUS AND MENTAL DISEASES. By Archibald Church, M.D., Professor of Clinical Neurology and of Mental Diseases and Medical Jurisprudence in the Northwestern University Medical School, etc., and Frederick Peterson, M.D., Clinical Professor of Mental Diseases in the Woman's

Medical College, etc., New York. 305 illustrations. Price, cloth (net), $5.00. W. B. Saunders, Philadelphia.

In many respects this is one of the best works on this subject which has appeared for a long time. Some of the chapters are almost models of clear, condensed presentations of the best known facts on the subject. The arrangements of topics are very clear and practical. Chapter I deals with The Anamnesis, followed by the General Physical Diagnosis. Then the Muscular System, Trophic Conditions, Electrical and Sensory Conditions are followed by the Special Senses. Part II takes up the Cerebral Meninges and Cranial Nerves. Part III considers the Brain Proper, while Part IV treats of the Spinal Meninges and Spinal Nerves, and Part V of the diseases of the cord proper. Part VI embraces Diseases of the General Nervous System with Known Anatomical Basis, and Part VII the same without known anatomical basis. Part VIII considers Symptomatic Disorders. This portion of the book ends with short article on Hypnotism, which closes thus: "Suggestion, however, is a mighty aid to the physician, and without producing hypnosis, positive and intelligent assertions can accomplish all that is likely to be done by hypnotism short of the somnambulistic stage. A fair realization of the part suggestion plays in therapeutics is one of the recent achievements of the most progressive medical minds."

Mental diseases is treated by Dr. Peterson. The etiology and symtomatology of insanity are given a very clear setting, and much stress is laid on diagnosis and exact methods of examination and treatment.

To the general practitioner this is the best volume which he could have in his library on these topics. To a student, it is a very satisfactory work. We commend it most heartily.

WHAT SHALL WE DRINK? A physician's study of the alcoholic question. By Dr. John Madden, Professor

of Physiology in the Wisconsin College of Physicians and Surgeons.

"The more concentrated the alcoholic liquor ingested, the more intense the inflammation of tissue. At the same time an equal quantity of the potable alcohols will sooner exhibit their characteristic symptoms if largely diluted with water."—*Dujardin-Beaumetz and Audige.*

"Nothing from a physician's standpoint is falser than to think that the evil influence of alcohol is lessened through the increased substitution of beer for the stronger alcoholic drinks."—*Dr. von Strumpell,* Milwaukee Press of Owen & Weihbrecht Co., 1899.

This book of two hundred and twenty-five pages is written for the purpose of grouping the general facts (now well authenticated) concerning alcohol and inebriety for the physician and intelligent laymen so as to form an accurate basis for farther and more extensive studies. The following titles of the table of contents give one a good idea of the book:

Historical; the constituents of alcoholic beverages; the food value of alcoholic beverages; alcohol as a stimulant; the effects of alcohol upon digestion and assimilation; the general pathology of alcoholism; alcoholic heart diseases; alcoholic irritation of other organs; effects of alcohol upon nerve tissue; the influence of alcohol upon embryonic tissue and heredity; alcohol as a factor in the production of insanity; the attitude of the medical profession toward alcohol; who become drunkards, and why; what is inebriety; intermittent or periodic inebriety; constant or habitual inebriety; popular fallacies regarding alcoholic beverages; shall the physician cease to prescribe alcohol; effects of alcohol on civilization; what is the best means of combating the alcohol evil.

Many of these chapters are very clear and well written. The historical grouping of the use of alcohol in the past is very full and interesting, and many of the statements are new to the literature of the subject.

Altogether this work is a very excellent contribution to the literature of inebriety, and will be welcomed by all, both specialist and layman. The spread of such works are of inestimable value for the promotion of correct views on inebriety. Copies of this work can be had of the author.

THE VITAL RESOURCES CONTRIBUTING TO CAPACITY, HEALTH, AND LONGEVITY; INCLUDING ALSO THE GREAT LAW OF THE EVOLUTION AND PROGRESSION OF THE HUMAN SPECIES. By Jerome Kidder, M.D., New York. Published by the author, 820 Broadway, 1878.

This work contains a great variety of most suggestive illustrations on double personality, heredity, maternal impressions, mind over body, psychology, and latent qualities of the brain and body. The conclusions which the author draws from these facts are suggestive, if not always conclusive. One central fact is made very clear, that all these phenomena of mind and body are only the operations of fixed laws, which, although unknown, move on with absolute certainty. As a contribution to this great truth this work is most valuable. To all students of these psychological topics this work is very useful and helpful and will fill a place not occupied by any other book at present. Copies can be had of the author, New York city.

MEXICO, OLD AND NEW; A WONDER LAND. By Rev. Dr. S. H. McCollester, Marlboro, N. H. Universalist Publishing House, Boston, 1897.

This is a most charming volume of travel in Mexico. The author is a most genial, entertaining observer with a rare, fascinating, descriptive style, combining narrative, moralizing, history, philanthropy, and bright humor. This is one of the few books which must be read without stopping. It is a rare treat to travel with such a guide in his work, and one feels better for the experience. Dr. McCollester is an author of sev-

eral works of travel of equal interest, which are very highly prized, and he is undoubtedly one of the finest writers of travels in this country.

JUVENILE OFFENDERS. By Wm. Douglas Morrison, Editor of Crime and Its Causes, The Jews in Rome, etc. New York: D. Appleton & Co. 1897. 320. Price, cloth $1.50.

The study of the born criminal cannot be very well pursued without a thorough reading of this present volume. Perhaps nothing has been written upon the subject of crime in youth which has attracted so much attention as this little book of Dr. Morrison's, and certainly nothing has been said relative to the treatment of juvenile offenders and the employments of methods looking to the transformation of the young criminal into a useful citizen as valuable as the present volume. If anything is to be done for the criminal class the work must be done while the child is young, for if criminal habits can be abstained from in youth, as stated by the author, the individual is not likely to take up crime as a trade later in life. We commend the work for careful reading.

In a very able address on state medicine before the American Medical Association at Columbus, by Dr. D. R. Brower of Chicago, occurs the following passages:

"*An important factor* in the cause of crime is *intemperance.* Fully fifty per cent. of the criminals arrested in Chicago are inebriates, and the police reports of New York show about the same proportion. Ferri has shown beyond question that in France crimes increase and decrease with the more or less abundant vintage, and we may safely attribute at least some of the increase of criminality and pauperism in the United States to the increase of intemperance; and it may be estimated that alcoholics are the direct or indirect cause of probably seventy-five per cent. of all crime committed.

Editorial.

OBSESSIONS AND MORBID IMPULSES IN INEBRIETY.

The uncertainty and extreme variableness of the alcoholic impulse has been a mystery to many persons. Why do persons previously temperate drink to intoxication on the eve of most important events, such as death or marriage, success or failure, or at times when the best judgment and brain power are required? Why is the drink obsession so dominant at these critical periods, and dormant or unnoticed at other times? Why should it appear at the most inopportune moments, and when least expected? Why should it occur suddenly without the slightest apparent exciting causes?

These questions have been puzzling, and are usually explained as moral lapses or the dominance of an evil spirit. Usually they occur in persons of neurotic, unstable, nervous organizations; persons who have previously used spirits, and are abstainers, and neurasthenics, and those of enfeebled organization and mental control.

Commonly they are seen in abstaining inebriates or moderate drinkers, and in those who are emphatic in their assertions to never use spirits again. In these cases the sudden or gradual possession of an idea to use spirits crowds out every other thought and question of reason and judgment. This is not always a dipsomaniac impulse, but the presence of an idea which grows slowly or quickly on a background of reason and facts to justify its presence.

The former is a delirious impulse which grows more imperative and dominating with opposition, the latter is a reasoning, imperative idea which is not always present, but intrudes

unexpectedly and remains persistently, and is under the control of the reason in a large degree. These occur often in abstainers, who have previously drank but are now temperate. The idea of the need or great temporary advantage from the use of spirits will come into the mind and grow from opposition and specious reasoning. It may be overcome by the judgment for a time, but will come back on every occasion and gather reasons to sustain its materialization. The mind divides into two opposing parties, one calling for the use of spirits, the other objecting, and this controversy goes on, sometimes very intense and painful, then subsiding. After a time one or the other triumphs, and the drink impulse is restrained or gratified. The higher reason is intensely depressed, if the reason wins a degree of exultation with trepidation is apparent. These internal conflicts with the drink obsessions and impulses are largely dependent on some physical state which can often be known and broken up. A cathartic, emetic, or shower bath, or sharp exercise, or anything to produce a revulsion, seems to overcome this idea for a time. This is the explanation of many of the remarkable cases of cure, which seem to come from some powerful medicines. But unfortunately they are only the temporary cessation of an impulse which will return sooner or later. This obsession to use spirits is built up and encouraged by the arts of the retailer, who arranges fluids and bottles to stimulate the sight, taste, and smell. All unconsciously they use psychological means to stimulate the drink impulse. In many cases the contagion of company and surroundings are most powerful favoring causes and evils for the growth of this obsession. In some cases the pronounced anaesthetic action of spirits is so grateful and leaves so permanent an impression that the desire to repeat it is always present.

Dr. Legrain says the symptoms of depression are often almost absent, especially in patients of weak intellect. In these individuals the prodromic stage often lasts a long time, far beyond the limits indicated, and the syndrome has its real origin

in a series of mental conditions, which lead on to the impulse, and the suddenness of the latter is therefore only apparent. The preparatory conditions are these: (1) The nerve-endings in the mucous-membrane of the digestive apparatus have on one occasion been impressed by contact with some stimulant. (2) These impressions are retained by the mind in the form of well-defined images. (3) The properties of the liquor absorbed have produced psychical satisfaction or some special sensation. (4) The sensation is recalled and sudden appetite awakened without any real need. (5) The desire to reproduce the sensation becomes imperious and returns under the form of obsession. (6) The obsession becomes impulse, thus completing the syndrome.

In certain neuropathic persons this imperative idea seems to be active in fostering opposite thoughts and desires. A vivid and strong statement of the evils of using spirits creates an impulse to procure them. The more vivid the evils are described the stronger the desire is to test them. Often the most solemn promises to abstain give new force to the obsession to try them. In a temperance experience meeting this battle with the drink impulse is painfully conscious in the delirious statements and emotionalism of the speaker. Of course, some form of mental enfeeblement furnishes the soil, and in many cases an anaesthetic or half imbecile state prevents its recognition only in a general longing for some condition of relief. When the inebriety is recurrent these imperative ideas appear either openly or masked, and may be manifest in a great variety of emotional irritable states that are only appeased when spirits are used. These imperative ideas and obsessions are very common, and not recognized even by the persons themselves, only as cravings and longings which are partially under control. In some cases they are painful struggles because concealed, and in others possess the man so completely as to destroy all consciousness of their import.

INEBRIATE ASYLUMS.

America has the largest number of homes and asylums for the treatment of inebriates in the world. England has the next largest number, and Switzerland is third in the list. In England all inebriate homes and asylums are under government inspection by an official called inspector of inebriate asylums. He visits and reports yearly to the government. In Switzerland all such homes are under local laws of the town or canton, and receive government inspection.

In this country there is no restriction, inspection, or control of any kind, except in a few cases where the state or county has organized such asylums. Here any one can open an asylum at any place and at any time, and for any kind of treatment. Doctors of every degree, clergymen, reformers, hotel and saloon-keepers, and men with and without reputation, charlatans, and inebriates of every degree, and even criminals, have a free sway to open homes and asylums for the care and treatment of inebriates. It is literally a great "free race" for the cure of inebriates, without any responsibility or acountability to law, to public sentiment, or even to inebriates themselves. Inebriates who claim to be restored boldly assume superior knowledge and expertness in the treatment. They assert that the subsidence of the drink impulse is a cure, and remedies given which are followed by a distaste for spirits are specific. It is also asserted and believed by many that any one can successfully treat inebriety in any place, if they only have the proper drugs. At one time there were over a hundred homes in this country for the cure of inebriates by secret remedies and so-called specifics. Now there are less than half that number, and these are steadily declining. The number of legitimate asylums in this country is not far from thirty, many of which relieve cases of mild insanity and nervous disease. All are under careful management by men of character, and most of them have a legal standing and government inspection. In all other asylums the practical principle is chemical re-

straint, applied to all alike, concealed with pretentious deception, and expectations which can never be realized. The results of chemical restraint applied indiscriminately on the assumption that all cases are the same, are disastrous. In the same way the indiscriminate opening of asylums by anyone on any theory, and by any drugs, for the personal treatment of the inebriates, is equally dangerous. The inebriate and his friends deserve at least some consideration, and should be protected from becoming worse in their efforts to recover. On the Continent no one can open a home for the treatment of any disease by secret remedies. All secret remedies must secure a government license to use them, and the formula be put on file at the government office. In England no one can open an asylum without license, and come under some legal inspection. It is a curious fact that in America, where the first scientific treatment for inebriety in asylums began, and has for years been continually on the most advanced lines, there should be such a confusion of theory and practice. Public sentiment has been strangely indifferent, and welcomed the quack and charlatan, and permitted anyone to engage in this treatment without the slightest restriction or measure of responsibility to any one. For years the Society for the Study of Inebriety and its journal have been working to secure a full legal recognition of the disease of inebriety and its proper treatment in legitimate homes and asylums. While fully recognizing the wide diversity of opinions and therapeutic measures used, they have constantly urged that inebriety and its treatment in asylums should be free from secrecy and deception. Also that homes for its treatment should be under some restrictions and responsibility, and conducted by reputable men, open and free to public scrutiny. The present want of recognition or control of the efforts to cure inebriates is at least lamentable, especially where inebriety is studied on the most advanced lines, and is so well known. The treatment of inebriety should be raised to the same level of that of any

other disease, and all homes and physicians who attempt this work should be above deception, pretense, or suspicion.

THE INTERNATIONAL CONGRESS AGAINST THE ABUSE OF ALCOHOL.

The meeting of this Congress in Paris from the 4th to the 9th of April was in many respects the most remarkable gathering of the closing years of the century. In numbers over twelve hundred were registered, and four or five hundred more attended as interested spectators. Over half of this number were professional men, of which one hundred were physicians, the remainder were lawyers, teachers, and clergymen. The others were government officials, reformers, philanthropists, and interested laymen. The topics discussed were very general, ranging all the way from the most passionate appeals and terrifying descriptions of the evils of alcohol to the most critical analysis of their physiological action and the most exhaustive balancing of figures and reports of influence of spirits on the social, economic, and hygienic welfare of the race.

A number of very eminent men presided in the general and sectional meetings, and the city of Paris and French government recognized the Congress in a public reception and excursion, and other favors.

The lay press were mildly sympathetic and reported the proceedings briefly. The medical press made brief references, and altogether the congress and its work seemed to have awakened a wondering interest in the public mind. It was the impression that little new scientifically was brought out in this congress, but many old facts received a new confirmation and setting, and the anaesthetic action of alcohol was reasserted with more emphasis than ever. The spirit and enthusiasm of the congress was intense and revolutionary, and in this respect it was remarkable as an unmistakable indication of a change

in the current beliefs of the value of alcohol, both as a beverage and medicine. The disease of inebriety and asylums for the treatment and cure was the subject of several papers of considerable interest. The influence of climate on the poisonous action of alcohol was the theme of one paper. The influence of food in the causation and the relation of tuberculosis to inebriety was discussed in several papers. Most of the addresses and papers seemed to concentrate on the value of total abstinence and the dangerous action of alcohol on the organism. Very little was offered in the matter of treatment, even by the physicians. But the various anti-alcoholic societies' delegates urged the value of their work with great enthusiasm. The devotion and contagious earnestness manifest in all the sections of this congress, with eagerness to learn everything new, was a most significant sign of a new spirit of inquiry which will change the theories of the past concerning alcohol and its use, and demand the evidence on which they are based. This was the seventh biennial meeting of leading men and women of Europe to discuss the evils from alcohol. From a small gathering at first, up to this monster international congress with delegates from nearly every country in the world, the growth has been distinct and rapid. The scientific spirit of inquiry has begun in Europe, and alcohol and inebriety, with all its attending evils, can not be concealed longer by theory, prestige, and custom. Another meeting was announced to take place at Berlin in June, 1901, and already preparations have begun for this gathering.

The awakening of the beer and wine drinking countries of Europe to the dangers of these drinks as beverages and to the poisonous action of alcohol on the body is a most startling sign of revolution and evolution. This great gathering of the middle and upper classes to discuss this subject is the unmistakable evidence. The few pioneers in America and England rejoice, and the new century will open with a rapidly accumulating army of research along the frontiers of this great impending evil of alcohol, and its influence on the race.

Dr. Shepard's report of the congress in this issue will be read with much interest.

DR. NORMAN KERR.

The death of Dr. Kerr at Hastings, Eng., May 30th, will be most keenly regretted by every student of inebriety in the world. Dr. Kerr, through his writings and most persistent efforts, had became known as the pioneer and leading authority on inebriety in the world of science. His books and numerous pamphlets have literally opened up a new field of science and made it possible to understand and correct evils that were unknown before. To those of us who knew him personally his death will be a sad bereavement, and his memory will remain vivid always. A biographical sketch of his life will appear in this Journal at a later date.

The following resolutions were prepared by a special committee of the "American Association for the Study and Cure of Inebriety, June 5, 1899:

WHEREAS, Almighty God, in his inscrutable providence, has seen fit to remove from this sphere of earthly activity our friend and associate, Dr. Norman Kerr;

Therefore, be it Resolved, That while we bow with humble submission to the divine will, we recognize the fact that a really great man has been removed from our midst in the height of his usefulness and influence.

Resolved, That on the death of our associate and friend both science and medicine have lost a pioneer leader, the study of inebriety a close and observant student, and the great drink problem one of the leading original workers of the age.

Resolved, That in his character and steadfast continuance and fidelity to the principles he advocated Dr. Kerr has left a lasting impression on the age in which he lived, correcting error and giving enlarged scientific and humanitarian views to the cause to which he devoted his personal influence, his professional talent, and his life.

Resolved, That to his family and friends, and "The Society for the Study of Inebriety" of London, of which he was for so many years the active and honored president, we extend our sincere sympathy in the irreparable loss which we have all sustained.

Resolved, That these resolutions be printed in the next issue of THE JOURNAL OF INEBRIETY, the organ of this association, and that a copy of said resolutions, properly engrossed, be sent to the family of the deceased.

The appointment of Dr. R. Welsh Branthwaite to the office of government inspector of inebriate asylums is a very pleasant recognition of one who has become a leader and scientific student of inebriety. Dr. Branthwaite has been the well-known superintendent of the Dalrymple Home from its organization many years ago, and is particularly fitted for this appointment.

Error dies hard and slowly, and a frantic crowd of mourners stand round watching for some signs of returning life.

Professor Atwater's reported discovery, that small doses of alcohol are not injurious, thrills with joy the hearts of the mourners, who eagerly give it the widest publicity possible.

Years ago, Dr. Richardson, of London, announced as the result of a long series of exact experiments, that alcohol in both large and small doses, was a depressant and anaesthetic. This was received in silence, and from that time to the present a large number of scientific investigators have confirmed and added to these statements a great variety of facts, from laboratory researches and clinical experiences, gathered from all over the world. Yet there is rarely any mention made of it in the public press. A belated physician has recently discovered that there is no such disease as inebriety, that it is only a habit always under the control of the will. The press gives the

widest publicity to this statement, which is echoed with joy and satisfaction by many persons. The experiments and studies of a quarter of a century are put aside as unworthy compared with this statement.

Thus error dies hard, and the mourners go about the streets in tearful expectation that their favorite theories will yet live, and not die and be forgotten.

Alcoholism is a very important and difficult etiological factor to dispose of. The saloon is such a powerful factor in our political system that it seems to be impossible to have legislators enact laws that will regulate properly this great traffic. The way to accomplish positive results is for physicians to spread information among the people as to the baneful influence of intemperance, and so educate the old and young as to the powerful influence of this great factor in politics, so that it may be neutralized. *Legislation is needed for inebriates* — authority to place them in prolonged confinement, during which they may undergo such treatment as may be necessary for their cure.

The South seems to be in greater danger from the cocaine habit than the North, and the public's attention has been directed to the danger from the fact that druggists were selling large quantities of cocaine to the negroes done up in five and ten cent packages, and as a result crime was very much on the increase. This has caused two states, Louisiana and Texas, to enact laws regulating the sale of cocaine, which would be a wise example to follow in every state; then, with the co-operation of the physicians, it would be a comparatively easy thing to check this growing evil.—*Charlotte Medical Journal.*

Clinical Notes and Comments.

ALCOHOL NEUROSIS.

By J. Strachan, M.D.

It must be borne in upon the mind of everyone who has any lengthened experience in medical practice that there is a disease of alcoholic intemperance — that there are men and women who have no more power to resist "drinking to excess" if they "drink" at all, than they have to prevent the symptoms and the course of any other disease, the poison of which has entered and is working in the blood.

This neurotic intemperance possesses several features which serve to distinguish it from the common vice of occasional and deliberate drunkenness, and it is of great importance that the distinction should be fully recognized.

1. Whereas the *vice*, once so prevalent and even fashionable among the men of all classes, is now all but confined to what are called the lower orders, and is being driven ever lower in the social scale, the *disease* is confined to no class and to neither sex, and instead of diminishing seems decidedly on the increase, as is shown not only by the number of cases to be seen in every community, but also by the increasing number of "retreats" and homes for inebriates, and the more and more pressing calls for legislative restraint for those so afflicted.

2. While the vice of drunkenness is very much a matter of occasion and opportunity, and is perfectly under control when a sufficiently strong motive is operative, the disease is to a great extent periodic in its onset, and quite unaccountable in its course. The occasional drunkard is, as a rule, a habitual drinker, and indulges to excess only on occasions of conviv-

iality; the neuro-inebriate may have long intervals when he has no desire for and does not take stimulants, but has periods of resistless craving which run a more or less definite course. As the disease progresses, however, such intervals tend to become shorter, and the intoxication more or less continuous, culminating at times in delirium tremens or convulsions.

3. The occasional drunkard seeks companionship in his cups, and is generally more or less noisy and uproarious in his intoxication, but the victim of this disease inclines rather to shrink from observation, and is generally quiet and morose under the influence of alcohol.

The craving is for relief from suffering. Persons presenting the alcohol neurosis are very susceptible to the alcoholic stimulus; a comparatively small amount produces exhilaration. This is followed by reaction amounting to an extreme degree of nervous depression. A repetition of the stimulus gives immediate relief, but at the expense of further reaction and still greater depression and more urgent craving for relief. More and more is required to keep off, as it has been expressed by a sufferer, "the horror of getting sober." Here it is, the first glass of whisky, which does not carry with it any moral delinquency, and according to the usual drinking customs of the country, is very difficult to avoid, which does the mischief. The attack usually culminates in severe gastric irritation and complete nervous prostration, perhaps delirium tremens, on recovery from which the craving is found to have passed off, and the patient is full of good resolutions. For a longer or shorter time all goes well, and there is not even any desire for stimulants. Then the patient — he still is a patient, although he does not know it — feeling himself stronger, or feeling dull and low-spirited, for such neurotics are subject to fits of depression quite apart from the use of stimulants and are easily upset by business worries, etc., thinks that a glass will set him up and let him get on with his work. An attack follows and runs its course as certainly as an attack of fever when the poison enters the system. — *British Medical Journal.*

SIGHT-SEER'S HEADACHE.

There are, no doubt, very many important uses for antikamnia, of which physicians as a rule may be uninformed. A five-grain antikamnia tablet prescribed for patients before starting on an outing, and this includes tourists, picnickers, bicyclers, and, in fact, anybody who is out in the sun and air all day, will entirely prevent that demoralizing headache which frequently mars the pleasure of such an occasion. This applies equally to women on shopping tours, and especially to those who invariably come home cross and out of sorts, with a wretched "sight-seer's headache." The nervous headache and irritable condition of the busy business man is prevented by the timely use of a ten-grain dose. Every bicycle rider, after a hard run, should take two five-grain tablets on going to bed. In the morning he will awake minus the usual muscular pains, aches, and soreness. As a cure and preventive of the pains peculiar to women at time of period, antikamnia is unequalled and unaccompanied by habit or unpleasant after-effect. If the pain is over the lower border of the liver or lower part of the stomach, or, in short, be it headache, sideache, backache, or pain of any other description caused by suppressed or irregular menstruation, it will yield to two five-grain tablets. This dose may be repeated in an hour or two, if needed.

W. A. Baker, M.D., Clark's Mills, Pa., says: "I have had occasion to try *Celerina*, and am highly pleased with the results. I have used it with marked success in nervous prostration. A lady, 64 years of age, of nervous temperament, was stricken down with congestion of the right lung. After the congestion disappeared, her nervous system failed to recover, resulting in prostration. After trying several remedies, I commenced using *Celerina* and gave teaspoonful doses every six hours, with steady improvement, until restored to normal condition."

The drug house of G. F. Harvey Co., of Saratoga Springs, has a most enviable reputation for placing on the market some of the most excellent preparations of standard drugs. The *Rickine* is a preparation which has attracted much attention lately.

The strong probability is that the *Fellows' Syrup of Hypophosphites* is one of the most valuable proprietary and legitimate drug prescriptions on the market. Its enormous use is a certain indication of its popularity.

We have always given *Horsford's Acid Phosphate* a very high place in our list of nerve remedies, and found it reliable and of great value in many cases.

Listerine is a household remedy, and is used very generally in the West and South. Its value is well attested in innumerable cases.

Wheeler's Tissue Phosphates has a great popularity in the New England States, and is a very useful remedy.

We have always found *Maltzyme* with *Hypophosphates* an excellent remedy for the poison cases of alcohol and opium. It is in many respects equal to the so-called "Gold cures" so highly praised. It is a far more safe and rational therapeutic combination than other more pretentious drugs. We urge our friends to try it as a home remedy. It will be found useful.

In inebriety it is often a question of good blood, and how to restore the faulty states of the blood cells. *Bovinine* answers this most satisfactorily. In two days its effects are apparent, and in a week it has worked marvels in every respect. *Bovinine* is a rare tonic in many of the toxic cases from alcohol, and should be used freely.

Pond's Extract is a standard remedy which has won a place in the homes of half the nation. Rivals and imitations have tried to divide the patronage but failed. The same remedy of our childhood days appears as usual, and, like the brook, "goes on forever."

The *Hudson Lithia Water* of Buffalo, N. Y., is one of the exact combinations that are a pleasure to give. It is a distilled water, so many grains of lithia and other salts to each gallon. No waters on the market are more perfect and pure. They make others and various mineral waters of exact and definite qualities that can be ordered with precision and certainty. We commend them most heartily.

Boston, Mass., Jan. 28, 1899.

Malt-Diastase Company,
1 Madison Ave., New York.

Gentlemen:

I have recently made tests upon some *Malt-extracts Plain* to determine the number of parts, by weight, of reducing sugars, that one part of the extract will produce from the starch within a given time, thus showing their comparative diastasic activity.

I purchased the samples in the open market, and the following result may be of interest to you.

The figures represent the number of grammes of reducing sugars (calculated in terms of *Maltose*) that one gramme of the extract forms, when in contact for 30 minutes with an excess of arrowroot starch paste, and are the average of two determinations.

0.3608, . . . A diastasic malt, plain.
4.4531, . . . A diastasic malt, plain.
6.2314, . . . *Maltzyme*, Plain.

Respectfully,
J. W. Baird, S.M., Ph.D., M.D.,
Professor of Analytical and Organic Chemistry.

Battle & Co., the famous chemists of St. Louis, have introduced a new chemical compound called *Ecthol.* Its nature seems to be that of a special corrector of degenerate states of the fluids and tissues of the body. In carbuncles it has made a most profound impression. Dr. Creel of Central City, Ky., has reported a number of cases which have been most successfully treated by this drug. Other states of breaking down of tissue have been checked by this new drug. It is safe to predict that a most valuable preparation has been put on the market, especially coming from this firm.

THE

QUARTERLY JOURNAL OF INEBRIETY.

Subscription, $2.00 per year.

Vol. XXI. OCTOBER, 1899. No. 4.

A NOTE ON THE INFLUENCE OF MATERNAL INEBRIETY ON THE OFFSPRING.

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The object of the following paper is to present the result of a number of observations touching certain aspects of the question of habitual inebriety, notably the *rôle* of maternal alcoholism as an agent in race degeneracy.

It has been observed by most authorities who have studied the various classes of individuals characterized by their incapacity to adapt themselves to normal social conditions, that these classes are largely recruited from the offspring of the alcoholic. This holds true whether that incapacity depends on the most glaring states of organic degeneracy, such as idiocy, or on those slighter forms of mental inferiority which appear to exist in at least a considerable proportion of habitual criminals and prostitutes.

Thus, to quote a few of the more recent observations on this point, alcoholic parentage was noted by Bourneville in 62

per cent. of a series of 1,000 idiots examined by him; by Marro in 46 per cent. of criminals; by Penta in 30 per cent. of criminals; in the Swiss prisons for juvenile offenders in over 45 per cent. of the inmates; by Mme. Tarowsky in 82 per cent. of Russian prostitutes.

To observations of this kind it has been objected, and with some justice, that, as parental drunkenness is one of the most easily traced antecedents, it tends to figure disproportionately among the causes assigned in such inquiries; and in many cases it may get the credit of determining in the stock a degenerative tendency which really existed prior to it, and of which, in fact, it was merely a symptom.

To avoid this source of fallacy and to estimate more truly the importance of parental alcoholism among the factors which make for the deterioration of the stock, it is desirable to adopt an opposite standpoint, and to take as the end of investigation, not alcoholism in the ancestry of the degenerate, but degeneracy in the descendants of the alcoholic.

It has seemed to me that an inquiry from this point of view into the history of the offspring of the female criminal alcoholic might not only be of interest as a contribution to the study of that particular social category, but might also furnish results applicable, with certain reservations, to the general question of the influence of parental alcoholism.

For this purpose I have selected from the female population of Liverpool Prison, among whom habitual inebriety is very prevalent, a series of cases of chronic drunkards who have borne children; and from the history of these children, and more particularly from the indications given by the infant mortality, I have sought to illustrate the mode in which the maternal intoxication appears to have reacted on the development of the offspring.

In the selection I have endeavored, as far as possible, to choose cases in which alcoholism occurred uncomplicated by other degenerative factors. Thus I have excluded from the

series all cases in which there was a history suggestive of constitutional liability to tubercular diseases, and all cases where there was a suspicion of syphilis. I have further eliminated the subjects of markedly neurotic type, who, by their specially early and violent cerebral reaction to alcohol, by their heredity, and by the presence of other psychic anomalies, were clearly to be attached to the degenerate *sensu stricto.*

This process of selection avoids the more obvious sources of fallacy in such inquiries; but, of course, the general validity of the results still remains necessarily qualified by limitations due to the special characteristics and conditions of the class from which our cases are drawn.

Without discussing these characteristics in detail, it will be desirable to recall the fact that several of them are of a nature to aggravate the transmitted influence of the intoxication. Thus, prison drunkards belong, for the most part, to the lowest social grade, where even moderate alcoholic indulgence implies diminution of other food supply; further, their excesses are, as a rule, persistent and intense. Another peculiarity met with in individuals of this class, and one which probably favors the transmission to the offspring of the influence of the intoxication, is the special susceptibility of their nervous system to the effects of alcohol.

In the absence of statistics establishing the relative frequency in normal subjects of the different localizations of alcoholic lesions in the economy, it is impossible to offer a definite estimate of this susceptibility, but it is unquestionable that in the criminal, as in the insane alcoholic, the nervous manifestations of the intoxication occur with notable frequency, while non-nervous disorders are relatively rare and secondary.

This fact is, no doubt, an expression of that peculiarity of organization in virtue of which these individuals' intoxication tends to issue in obtrusive disorders of conduct.

In the cases comprised in our series the special nervous localization of the poison was very marked; thirty-one of the

women had suffered from one or more attacks of alcoholic delirium, while twenty-four others, without actual delirium, had occasional visual hallucinations. Suicidal impulses, disorders of cutaneous sensibility, cramp in the extremities, were noted in a considerable number of cases.

The same determination of the poison to the nervous system with comparative immunity of the other tissues, was equally notable in the case of alcoholic relatives of our patients.

Of course, with a view to the special object of our inquiry, cases were chosen in which the inception of the drink habit was either prior to or coincident with the commencement of the procreative career, at least not later than the first confinement.

The intoxicants consumed were in the form of beer, whisky, and rum; as a rule the patients drank any sort of liquor they could get.

(*a*) Mortality of Infants of Female Inebriates.—Among the 100 women of our series, twenty were able to give details of female relatives also of drunken habits, who had had children. Of these 120 female inebriates were born 600 children, of whom 265 (44.2 per cent.) lived over two years; 335 (55.8 per cent.) died under two years, or were dead-born.

(*b*) Infant Mortality in Sober and Drunken Branches of the same Family. — With a view to testing how far the high infant death-rate was in any way related to the maternal drunkenness, we may adduce for comparison the infant mortality in a number of sober families. Twenty-one of the women observed were able to give details regarding female relatives, sisters or daughters, of sober habits, who had contracted marriages with sober males, and had borne children. The drunken and sober families contrast as follows:

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

Sober mothers (28 cases) 128 children, of whom 33 (23.9 per cent.) died under two years.

Thus the death-rate among the children of the inebriate mothers was nearly two and a half times that among the infants of sober women of the same stock.

Of course, it has to be borne in mind in considering these figures that the high mortality shown, in so far as it is attributable to alcoholism, is not solely the result of the direct influence of the intoxication on the organisms of mother and child, but is also in part a consequence of the malign modifications of the environment due to the parental vice.

This latter unessential mode of influence varies in its gravity according to the normal milieu of the individuals concerned, and in the class from which our cases come is at its maximum.

We cannot, accordingly, assign a general validity to our statistics on this point without making full allowance for the social factor.

(*c*) Progressive Death-rate in the Alcoholic Family. — On the other hand, within the limits of a given class, the infant death-rate may be taken as a fairly accurate index of the transmitted influence of the parental intoxication. In this way we may use it to test the force of that influence at different stages of the parental alcoholism. For that purpose we shall class the children according to the order of their birth, and we shall compare the death-rates in the different groups so obtained.

In eighty cases in our series, omitting instances of mixed paternity, the number of children reached or exceeded three.

Grouping these, as we have indicated, we get this result:

	Cases.	Dead or dead-born.
1st born	80	27
2d "	..	40
3d "	..	42
4th "	64	43
5th "	47	30
6th "	33	20
7th "	22	15
8th "	17	13
9th "	13	13
10th "	8	6

The significance of this table will be better seen if we state the results in percentages. For this purpose, to secure a sufficiency of numbers, it is necessary to combine the figures of the smaller groups:

	Cases.	Dead and dead-born, per cent.	Dead-born, per cent.
1st born,	80	33.7	6.2
2d "	80	50 0	11.2
3d "	80	52.6	7.6
4th and 5th born,	111	65.7	10.8
6th to 10th "	93	72.0	17.2

These figures illustrate very clearly the progressively augmenting character of the influence of the mother's alcoholism. From that point of view it is especially noteworthy that the rate of still-births shows almost as marked a tendency to regular increase as does the death-rate among children born alive.

The type of alcoholic family suggested by these results — a type characterized by decrease of vitality in the successive children — is fully realized in many of our observations. For example, in one instance (Obs. 5 at end of paper) the three firstborn children are healthy, the fourth is of defective intelligence, the fifth is an epileptic idiot, the sixth is dead-born, and, finally, the reproductive career ends with an abortion. In another case (Obs. 10), after a firstborn child surviving to adult life and a second which dies of an infectious disease in childhood, we have two infants dying of convulsions in the first few months of existence, and after these a still-birth.

(*d*) Influence of Early Development of Drink Habit. — In confirmation of the results just cited, we find a sensibly higher infant death-rate in cases where maternal inebriety has developed at an early period. In thirty-one of the women drinking habits were well established at least two years before the first pregnancy. Of the 118 children born of these women, seventy-four died in infancy or were dead-born, a

death-rate of 62.7 per cent., as compared with a death-rate of 54.1 per cent. for the rest of the series.

(*e*) Influence of Sober Paternity. — In only ten cases of our series (omitting instances of mixed paternity) were the fathers of the children of sober habits. This is, of course, too small a figure on which to base any conclusions. In these ten cases (fifty-seven infants) the death-rate (57.8 per cent.) was practically the same as that of the whole series. If this result were confirmed by adequate figures it would suggest that, as regards the vitality of the offspring, the influence of maternal drunkenness is so predominant a force that the paternal factor is almost negligible. Such a conclusion would harmonize with the known facts regarding the gravity of inherited syphilis.

(*f*) Influence of Inebriety of Preceding Generations. — In thirty-nine of our hundred cases the parents of the women were, as far as ascertainable, of sober habits. Of these thirty-nine women were born 210 children, of whom 57.1 per cent. died in infancy or were still-born. The death-rate among the children born of the remaining sixty-one women — who gave a history of paternal alcoholism on one or both sides — was 56.2 per cent., that is to say, practically the same as in the infants of inebriate ancestry.

Of course, our method of selection excluded distinct manifestations of neurotic taint, and hence eliminated those cases in which parental alcoholism had exercised a serious influence. Accordingly, the women of inebriate ancestry who figure in our statistics would be those only who had suffered very slightly, if at all, from the action of the parental intoxication. The inference from our figures, therefore, is that, unless the fact of the drink habit were to be regarded as an evidence of hereditary influence, a purely gratuitous assumption, then their degenerative taint, if existent at all, was too feeble to exercise an appreciable effect on the death-rate of their offspring, being lost in the overwhelming importance of the

direct intoxication of the maternal organism and of the embryo.

(*g*) Influence of Intervening Circumstances. — For obvious reasons it is possible to detect only a very small number of even the grosser and more obtrusive conditions which exercise a special intervening influence on the normal course of maternal inebriety, and tend to exaggerate or to moderate its detrimental effect. In a number of our cases, however, it was possible to trace the operation of at least two such conditions of opposite tendency, viz., on the one hand the existence of a state of drunkenness at the time of conception, on the other hand enforced sobriety owing to imprisonment during a part of pregnancy.

With regard to conception in a state of drunkenness, it is a condition concerning which, of course, positive information can only be obtained in a limited number of cases. There can be but little doubt that it is an event of frequent occurrence in the class with which we are dealing, and the small number of our instances is no index to the actual importance of this factor. So far as they go, however, our observations as to this point are suggestive. In seven cases the condition was noted, and in six of these cases the children died in convulsions in the first months of life; in the seventh case the child was still-born. In four instances the child conceived in drunkenness was the firstborn, and in two of these cases subsequently born children survived to adult life. As we have seen that in the alcoholic family the earlier born child has a relatively good chance of life, these cases seem to indicate the decided influence of the factor in question. It is further to be noted that in three of the four cases this first pregnancy occurred before marriage. Possibly we should not be in error in attributing to conception in drunkenness a certain influence in the causation of the high death-rate of illegitimate children.

As to the second circumstance which I have mentioned — imprisonment during pregnancy — it is obvious that it can ex-

ercise a perceptible influence only in cases in which the incarceration extends over a considerable period of pregnancy, and occurs at a stage of the maternal career when the organic changes of alcoholism are not too far advanced. These conditions are, however, rarely united; as a rule, the graver offenses which entail long imprisonment are related to a chronic alcoholism; while very rapid relapses involving frequent short imprisonments, occur also at a late stage of the drunkard's life, and are not, moreover, in their favorable effect, at all to be compared with a single long term of seclusion.

Owing to these limitations, the determining of the reality of this influence hardly lends itself to a statistical inquiry; it is rather to be established by the details of individual cases. In the clinical notes appended to this paper will be found a number of such cases. In one (Obs. 5), where drinking habits had lasted about ten years, after four children dead-born or dying in infancy, a fifth child survives, the mother having spent all but the first fortnight of the pregnancy and having given birth to the child in the prison; a difference of paternity, however, qualifies, perhaps, the value of this instance. In another (Obs. 4), where the drinking habit dated from the first confinement, the first child lived, the second and third died in infancy; the mother spent at least two months of her next pregnancy in jail, and the fourth infant survived.

Similarly in Obs. 6, after the death in infancy of the first child, the mother serves eight short sentences in the early part of her second pregnancy, and then a longer sentence embracing the two last months of gestation; she is confined before release, and the child survives and develops healthily. In Obs. 2, on the other hand, though the woman was in prison during the last five months of her second pregnancy, and was confined before the end of her sentence, the infant died of convulsions at the age of a few months; in this case, however, the mother's drinking habits had commenced at the age of eleven years, fourteen years previously.

(*h*) Frequency of Epilepsy in Surviving Children. — In the conditions of our inquiry it was, of course, impossible to ascertain with any approach to accuracy what proportion of the surviving children were nervously defective. We may, therefore, limit our attention in this respect to the determination of the frequency of major epilepsy in our heredo-alcoholics, as the symptoms of that neurosis render its recognition practicable.

Of the children comprised in our series, 219 lived beyond infancy, and of these nine, or 4.1 per cent., became epileptic. This proportion is extremely high as compared with authoritative estimates of the frequency of epilepsy in the general mass of the population. Thus Bruce Thompson puts the ratio of epileptics to the population of England at less than 1 per 1,000; while the very liberal calculation of Rayer gives the proportion of 6 per 1,000.

On the other hand, our ratio is lower than that given in other published statistics of epilepsy in the children of the alcoholic. Thus, Legrain in his observations noted 12.5 per cent. of the epileptics among such children surviving infancy; and Demme in thirty-two surviving children of ten drunken families found five (15.8 per cent.) cases of epilepsy.

Both these observers, however, included in their series cases in which alcoholism was associated with neuropathic heredity and with other degenerative taints. It is further to be noted that a number of the children counted in our statistics as non-epileptic had not yet reached the age at which epilepsy most frequently appears; some of these children may quite probably have developed the neurosis later.

Finally, the infant death-rate noted by Legrain and Demme (who do not specially distinguish cases of maternal alcoholism) is very much below that in our series; it is possible that their lower death-rate was in part compensated by a higher ratio of degeneracy, including epilepsy, in the surviving children. From this aspect the enormous infant mortality in the

class we have examined may be to some extent a matter of advantage to the community.

(*i*) Mode of Death. — Of the 231 cases in our series, in which the children died under two years of age, the mode of death in 140 cases (60.6 per cent.) was stated to be by "convulsions," convulsive symptoms being also present in a number of the others who died of the common diseases of childhood.

The term "convulsions" is, of course, used in such a very vague and expansive fashion in assigning the cause of death in infancy that it is not easy to attach a definite value to these figures. It is probable, however, that in a fair proportion of the cases the occurrence of this symptom is to be attributed to disorders of the nervous system directly due to the parental intoxication. The known influence of alcoholic parentage in the aetiology of epilepsy — to which we have referred above — would testify in this sense.

It is noteworthy that in no less than ten out of the hundred women in our series lost one of their children by violent deaths—through overlying in drunkenness, scalding, burning, injuries in drunken brawls, etc. As an illustration of the character of the milieu created by alcoholic parentage this is sufficiently vivid.

Conclusions. — The observations which we have thus briefly analyzed enable us to form a fairly clear idea of the mode in which inebriety reacts upon the offspring.

We are familiar with the fact, clearly established by Morel, that the chronic alcoholism of one or both the parents frequently appears as the first moment in the degenerative career of a family; that it represents a state of artificial degradation of the organism, capable of transmission in augmented force to the descendants, and culminating in some four generations in the extinction of the stock.

In the case of maternal inebriety we have the same mode of action to consider, but with it, and very much more potent, we have the continued toxic influence exercised on the developing

embryo throughout pregnancy. The brilliant researches of Féré in the field of experimental teratology have sufficiently demonstrated the gravity of this influence.

We have, further, to bear in mind the possible effect of alcoholic excesses during lactation.

Lastly, reinforcing all these modes of influence, we have the detrimental effects, positive and negative, of the deterioration of the milieu as an indirect consequence of the mother's drunkenness.

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

(1) Maternal inebriety is a condition peculiarly unfavorable to the vitality and to the normal development of the offspring. Its gravity in this respect is considerably greater than that of paternal alcoholism.

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

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

(4) The first of these modes of primary influence is, by its nature, permanent, with a tendency to increase. The second mode, while tending also to a constant and constantly increasing operation, is susceptible of temporary augmentation or diminution.

(5) Under these combined modes of influence the normal tendency of the family with alcoholic maternity is towards a type the inverse of the syphilitic family; that is to say, the

first-born children are normal, then come more or less defective children who live beyond infancy, then children dying in infancy, then still-births, and, finally, abortions.

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

It is hardly necessary to point out in conclusion the evidence which these observations furnish as to the social gravity of female inebriety, and the social profit in its removal. In suppressing the female drunkard the community not only eliminates an element always individually useless and constantly liable to become individually noxious; it also prevents the procreation of children under conditions most apt to render them subsequently, if they survive, a burden or a danger to society.

Notes of Illustrative Cases. — To illustrate the points referred to in the preceding paper, I append a short *résumé* of the notes of a number of our cases.

Obs. 1. M., aet. 42; drunkard since first confinement, twenty-four years ago; beer chiefly; suffers from cramps, cutaneous anaesthesia of extremities; night terrors; no D. T. Mother died of effects of fall while drunk, that being her usual condition; father relatively sober; sister drunkard; husband drunkard, son of a drunken mother. Ten children: first burned to death at eight years of age during mother's drunkenness; second, third, and fourth living, aged twenty-one, eighteen, and sixteen years, stated to be healthy; fourth conceived in drunkenness, died of convulsions in the first year of life; sixth, seventh, and eighth died of convulsions in infancy; ninth and tenth dead-born, the latter five years ago.

Obs. 2. D., aet. 50; previous imprisonments, sixteen.

Drinking since age of eleven; beer and spirits; has intercostal and ovarian pain, muscular cramps, dyspepsia; hallucinations of sight recently. Parents drank, but did not suffer from delirium; surviving brother and sister drunkards; sister has had five children, of whom four died in infancy; D's husband a drunkard, but not easily "alcoholizable." Four children: first born thirty years ago, scalded fatally during mother's drunkenness, three years old; second born five years later, died of convulsions at seven months (born in prison, where mother spent last five months of pregnancy); third and fourth died of convulsions at six months, the last twenty-one years ago.

Obs. 3. D., aet 36; previous imprisonments, forty-four. Drunkard before marriage, chiefly whisky; suffers from muscular cramps, intercostal and ovarian pain, etc.; visual hallucinations latterly; has made two attempts to commit suicide, and has recently suffered from convulsions while drunk; parents drunken. Five children, the first four by a drunkard who suffered from D. T.; the fifth by another male, also drunken; first and third children dead-born; second and fourth died of convulsions under three months; fifth living and healthy, aged ten years (child born in prison, where mother spent entire pregnancy except first fortnight).

Obs. 4. S., aet. 36; previous imprisonments, thirty-seven. Drunkard since first confinement, twenty years ago; drinks anything, usual symptoms; has had two attacks of D. T.; father relatively sober; mother a chronic drunkard; husband drunkard, suffers from hallucinations after drink, his parents sober. Four children: first living and healthy; second and third died in infancy; fourth living and healthy, aged sixteen (mother in prison for at least second and third months of this pregnancy).

Obs. 5. S., aet. 34; previous imprisonments, forty-one. Drunkard since first confinement; beer and spirits; suffers from cramps, gastric catarrh, ovarian pain; one attack of D. T.; attempted suicide twice; convulsive hysteria for past year;

parents sober; father died of bronchitis, mother of apoplexy; husband drunkard, never delirious; his parents sober. Six children: first, second, and third living and healthy; fourth, aged six, of low intelligence, suffers from incontinence of urine; fifth, aged four, epileptic idiot; sixth, dead-born; has recently had an abortion.

Obs. 6. W., aet. 30; previous imprisonments, 109. Drunkard before marriage; chiefly spirits; very violent after drink; no D. T.; one attempt at suicide; father relatively sober; mother notorious prison drunkard; husband drunkard, has had D. T. Three children: first born nine years ago, died when a few days old; second living and healthy, aged three (born in prison, where mother spent last two months of pregnancy, and also eight short sentences in early part of same pregnancy); third, dead-born.

Obs. 7. B., aet. 37; previous imprisonments, forty-four. Drinking before first pregnancy; beer and spirits; suffers from cramps in legs and hands; ovarian and intercostal pains; gastric catarrh; no D. T. Father drank, died of heart disease; mother sober, died in childbed; two sisters, of whom one, sober and married to sober husband, has had eight children, all living and healthy; the other, drunken, has had five children, three of which survived infancy; also one brother, an epileptic idiot. Husband chronic alcoholic, drowned while drunk; no D. T.; his father also drank. Six children: first conceived in drunkenness before marriage, dead-born; second living, aged eighteen; third died of convulsions at six weeks; fourth living, aged sixteen; fifth died of convulsions at six weeks; sixth dead-born.

Obs. 8. R., aet. 30. Previous imprisonments, thirty-four. Drinking since age of fifteen; chiefly spirits; suffers from cramps, anæsthesia of extremities, ovarian pain; D. T. a year ago; four years ago severe head injury, since which R. suffers from attacks of petit mal. Parents living, drunken. Three children: first born thirteen years ago, conceived prob-

ably in drunkenness, of a drunken male, died in convulsions at thirteen months; second living, stated to be healthy, aged eight; third living, aged six, is epileptic (father of these two children less alcoholic than father of first).

Obs. 9. M'M., aet. 60; previous imprisonments, 167. Drunkard since first confinement; chiefly beer; suffers from cramps, tremor, intercostal neuralgia, gastric catarrh; no D. T. Father drunkard; knows nothing of mother; husband drunkard. Seven children: first and second living and healthy; third scalded to death at three years; fourth, fifth, sixth, and seventh died of convulsions under one year.

Obs. 10. S., aet. 42; previous imprisonments, twenty-three. Drunkard since first confinement; beer and whisky. Suffers from gastric disorder, ovarian and intercostal pain; no D. T.; has made recently grave attempt (unconscious) to commit suicide. Parents sober; sober sister has eight children, of whom six are living and healthy; S's husband is sober. Five children: first living and healthy, aged twenty-two; second died of measles at three years; third died of convulsions at seven months; fourth died of convulsions at six months; fifth dead-born.

Obs. 11. C., aet. 35; previous imprisonments, eighteen. Drank before marriage; beer and rum; usual symptoms; two attacks of D. T. Parents sober, other relatives sober; husband drunkard, has had D. T.; his parents alcoholic. Four children, first living and healthy, aged eleven; second, third, and fourth died of convulsions in infancy; since birth of fourth has had two abortions.

Obs. 12. G., aet. 45; previous imprisonments, twenty-three. Drank before marriage; beer and spirits; usual symptoms; one attack of D. T. Father drunken, mother sober, brothers and sisters sober; husband a chronic alcoholic, no D. T.; his father also drunkard, hanged for murder. Five children: first living and healthy, aged twelve; second died of bronchitis at three years; third and fourth, twins, died at fourteen months; fifth died of convulsions at eighteen months.

NEW PHASE OF CRIMINAL MORPHIMANIA.

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The physiological action of the opium and its alkaloids, with symptomologies, are becoming more familiar with the increasing frequency of cases and studies of many persons. As in other fields of research there are vast stretches of unknown lands, awaiting discovery, and many new facts in the etiology, progress, and treatment to be seen and described. My purpose is to point out a new phase in the symptomology, and describe a condition which has been noticed, but not defined or studied before. I shall use the term "Palsy of the higher psychical centers" to describe in part this condition. The former personality of the person is lost in part, the person acts from a different point of view; his conduct and thoughts vary widely from former conditions, and seem to have new purposes and changing motives, foreign to any previous life. These strange inconsistencies of conduct and thought come into legal notice, in the question of responsibility in crime. The apparent cunning, honesty, and reasoning is so unusual and foreign to all theories of mental failures, that the expert is unable to detect any defined insanity, and yet, he cannot doubt that some condition of brain disturbance is present.

One of these cases was a woman who, after using morphine, went about the house secreting things of value and locking doors and windows, putting away matches, and covering up the fire, fearing robbers and fire. This was a clear, defined period of several hours, during which she appeared most

rational, and talked clearly of other matters, as well as the danger from these sources. Then she relapsed into her former indifference.

A still more prominent case was that of a noted banker retired from business, who became a morphine taker, following the constant use of spirits. He never appeared to be other than sane and clear on all matters. Occasionally he was stupid at night, at home, but always appeared well in public. Finally, he was detected setting fire to a building. He was found to have been the author of numerous fires in the villages about. He would go to a distant town, and rise in the middle of the night, start a fire in some old building, return to his bed, and so secretly as to disarm all suspicion. He was caught in the act and stoutly denied it, and explained his presence in the most plausible way. The result of investigation showed that after using four or five grains of morphine, he would become very secretive and go about in a stealthy manner, but never at a loss to explain his conduct, or appear other than natural to others. He would show unusual cunning and frankness if found in some suspicious place, and yet, without doubt, set fire to old buildings, such as barns and outhouses, with every opportunity. A number of experts could not find signs of insanity, and yet when the morphine was withdrawn there were many symptoms of dementia and mental instability. The morphine roused up another personality, and gave clearness and power to his brain, and broke up all sense of right and wrong. He acted when under these pyromaniacal impulses with unusual cunning and judgment, and seemed to reason that it was clearly his duty to do so. When away from the morphia he had a confused notion of his conduct, and was filled with remorse at the changed conditions of his life. When under the influence of morphia a new personality came in, one of expansive character. He seemed to have a desire to clear up and burn down old unsightly buildings.

A patient under my care for excesses in spirits, suddenly

became a speculator, buying stocks on a margin. Fortunately his resources were limited, but the mania continued in lottery tickets and bucket-shop ventures. This was so foreign to his past conduct and character, and was unexplainable until his secret morphia addiction was discovered. He left, and two years after began a career of cunning, sharp, dishonest speculations, and was arrested. On trial the resumption of the morphia addiction was shown, but the mental power and skill displayed indicated unusual ability, and he was convicted. I saw him in jail later when the morphine was taken away, and the evident unsoundness of his mind could not be mistaken. A third case came under my notice as an expert.

A graduate and prize-man of a college, who married wealth, and spent two years traveling, suddenly left his home and began a career as a confidence-man and forger. He traveled around under assumed names, passed bogus notes, raised checks, and when caught gave such clear explanations as to disarm all suspicion. Finally he was arrested and held for trial. As long as he could procure morphia he was calm, clear, adroit, and possessed of unusual brain power, but after his sentence and removal to prison, he became a partial dement, and was very feeble mentally. In this case the morphia developed a new personality. He acted and talked as if he believed most firmly the honesty of his career, and never doubted his ability to deceive and falsify, acting as if he was thoroughly in earnest. When confronted with his deception did not recognize it, but showed the greatest skill to justify and explain it, never displaying any visible consciousness of the dual life, but always appearing as if he was honest and frank to an extreme degree. He passed a forged note, went out on a back street, changed his dress, put on false whiskers, and came back on the street, walking about with extreme coolness. He went into a store, bought some morphia, and then purchased a pair of shoes, giving a forged note as before. A detective who had followed him closely arrested him, and after a

short examination before the chief of police he was discharged. His earnest, frank manner convinced them that he was not the man. The next week in a neighboring city he did the same thing, was arrested and discharged as innocent. Finally, a detective followed him and found that he was constantly changing his dress, and assuming different disguises, buying clothes and other things, which were finally pawned, giving checks, some good, others bad, making deposits at banks and drawing them out. During this time he bought morphia freely, but never seemed other than calm. He was finally arrested, and after serving a short sentence disappeared. While using morphia he appeared very frank and honest in his manner and conduct, especially in public and in conversation with others. He carried cards and bill-heads of different well-known firms far away, and represented different members of the firms or traveling men connected with them. He always carried an overcoat and had several means for suddenly changing his dress and appearance. When under the influence of morphia he appeared to be possessed of unusual clearness and cunning with a most contagious frankness and honesty. There seemed to be no consciousness of the duplicity in his talk or conduct. When the morphia was taken away the very opposite appeared. He was remorseful and depressed, timid and shrinking, displaying his motives and thoughts in a most marked way.

Another case reported to me was of equal interest. A series of very remarkable swindling operations was carried on, on the Hudson River and night boats on the Sound. The detectives were unable to fasten the crime on any one, until finally, a young man of refined, delicate appearance, was arrested for passing a forged check. It was ascertained that he was the probable author of all the swindling for the past two years. He was a morphinist, and had an income from an annuity. He spent his time traveling around, appearing to be a clergyman and actor and business man, and talked

freely with every one, inquiring very minutely into the personal history of persons and offices. He would secure advances on brass watches, bogus diamonds, and pass worthless checks and railroad tickets; solicit loans and give as security worthless bonds and stocks; buy goods, giving bogus checks, and receiving money in return; show bank deposit books of large sums, and leave them as security; make the acquaintance of some rich man, and after swindling him disappear. He changed his appearance frequently, wearing spectacles and false whiskers and wigs, appearing as a large, fleshy man, then wearing half military suits. His wardrobe was composed of a great variety of theatrical suits, and he claimed to be an actor. In jail he was identified by many persons as assuming different disguises and defrauding them in various ways. As long as he could procure morphia, he was genial, self-reliant, open, honest, and very frank. He never appeared to be deceitful, and always acted and talked as if he firmly believed everything he said and did. The most careful questioning and efforts to have him explain his conduct left a strong impression of his honesty, although it did not explain his life and conduct. The detectives called him an honest rogue while using morphia. His manner on the witness stand was so frank and clear that the mystery of his conduct deepened, and the jury was half-inclined to think that some mistake had been made. He was sent to prison, and the morphia removed, and all his manner changed. His frank, honest, clear thought and talk disappeared, and the fawning, lying hypocrite appeared with all the criminal instincts. He is still in prison, and is regarded with much suspicion by the keepers.

While these may be considered extreme cases, they are types of an unknown state, following the use of morphia. I find from inquiry that morphia criminals are regarded as the most dangerous by police authorities. They have full control of their nerves, and can act a double part so clearly as to disarm suspicion. Such cases are bold, defiant, and adroit, and

possess a rare power of deception entirely foreign to other criminals. This is sustained in the ordinary medical treatment of such cases. The cunning deception and the unconscious reasoning and concealment of their plans and motives, seemed to point to some local palsies of certain brain functions. Where a patient is suffering from withdrawal symptoms, and suddenly becomes cheerful and quiet, and is loud in his protests against the suspicion of having used any morphia, some condition of psychical palsy exists. Innumerable instances of the most cunning intrigue, and seductive falsehoods, are common in such cases. They act and talk with the certainty of truthfulness, and seem unconscious of the deceptions they practice. One such case was detected by examination of the urine, finding morphine reaction. For a long time it was impossible to detect the source and the way in which she secured the drug. Her earnest, emphatic denials were clearly impossible to a normal mind, and showed some obscure palsy of the high centers. Yet, during this period she went about in her usual way. She was a most earnest, praying christian, whose high ideals of truth and honesty were beyond question or suspicion. This case aroused some bitterness among her friends. Her husband and family could not believe that it was deception, and when the morphine reaction was shown, thought it a fraud. She finally went to a secluded place in the country, and after a time the morphia reaction symptoms appeared. Then all her former self-possession and boldness disappeared. She became very penitent and was a different person in every way. The mystery of this deception was called by the clergyman "A possession of the Devil." It was a trance state literally, in which reasoning and consciousness of her relation to others was suspended. Her mind was concentrated on procuring morphia and concealing it from others. This dominated every other consideration, and was probably considered a sacred duty to be carried out above every other thing.

In such cases the morphia seemed to rouse a mania for

deception and double life. The gains procured were of minor consideration, but the greatest pleasure came from taking advantage of the credulity of others. In one case the confusion and mystery which followed the deception seemed to be the most enjoyable part. He would stand around and talk about the act and show sympathy with the sufferers. I cannot find any cases where capital crime was committed in these morphine states. Thefts, swindling, and general falsehoods, with concealment of motives and conduct, seemed to be the most common. I have met with two cases where a will mania followed. Both, men of some property, made from seven to eight wills a year for several years. These were concealed, and at their death one was brought to light. The other recovered and ordered them all destroyed.

The fact of complete absorption of the idea, without regard to other conditions, is most interesting. The cunning, skill, and ability displayed in the deception, must apparently be based on the dominance of the idea as true and real. No shadow of the real condition or the danger of exposure was apparent. Each case acted only as persons do who are fully possessed with the honesty and reality of their notions. A noted physician under my care displayed extraordinary deception to conceal his real condition, and was fully unconscious of his acts or the consequences. Even when he was convicted of his deception, seemed roused to greater efforts for concealment. No reasoning or counsel could displace the mania for deception. On other matters he was in no wise disturbed mentally; reasoning and acting with excellent sense and judgment. He could discern motives and deceptions in others, but was unable to realize his own condition. When the morphia was removed this changed, and he realized and acted differently.

In another case, a man of noted honesty and strong character denied all use of morphia, and when a quantity was found on him, persisted in explaining in the most adroit way.

He seemed actually to believe his own statements and could not be convinced otherwise. The foolish deceptions of alcoholists are quite different. They display a consciousness of their real condition and the concealment they are practicing. All morphinists do not exhibit this special phase, like the alcoholists. They are weak and childish in deception, and show by their conduct a consciousness of their real condition and the efforts to cover it up. But these cases differ in thought and act, appearing to be thoroughly impressed with the idea of the correctness of the act and unconsciousness of the deception and danger of exposure, at the same time using wise precautions to make the act appear real. Two of these cases seemed to realize the danger of exposure in the unusual precaution to make their conduct appear honest. With this was a perfect self-possession and command of themselves. It was noticed that they took morphia frequently in small doses. When the amount taken was followed by the symptoms of narcotism they disappeared, and remained in bed until the effects wore away. This state has been noted in long intervals in others. Thus, a physician displayed great harshness to his patients and family at times, then he would recognize it and be very penitent for his conduct. On one occasion he drove his wife away from the house, and two hours later went after her, showing great tenderness. This was not a so-called mania seen in alcoholics, but a calm, reasoning, morbid impulse, carried out deliberately and with every appearance of sanity.

In a case to which I was called in consultation, a delusion of sudden death occurred at stated intervals. The patient demanded most unusual preparations for a death-bed scene. Clergymen were called, and a large family gathered to witness his exit. Finally, a slight interval of sleep would bring a change and a desire to live again. This was not hysteric, and emotional, but a calm, reasoning, hopeful interval of several hours. He gave no signs of mental disturbance or seemed unreasonable in his thoughts or conduct. He was known as

a moderate user of morphine, and was never seen stupefied by its results. He was under treatment for its removal by the family physician, and was secretly using it when these trance periods arrived. He had only a faint recollection of these events afterward, and attempted foolish explanations, showing he did not realize his condition.

In another case after using a certain amount of morphia a quiet, unassuming dentist became a strong religionist. He would march with the Salvation Army and make eloquent prayers and exhortations. This would last for several days, then he would relapse to his former quiet life again. In this religious period no signs of mental failure or weakness appeared. He seemed every way clear, sensible, and earnest, and explained his change of conduct in the most plausible way. These cases illustrate the mental state I wish to make prominent, and, I believe, occurs not infrequently among neurotics of the higher classes, and persons with culture, and more than usual mental development. They are called by the detectives "Dangerous first-class criminals" when detection only follows the limitation or withdrawal of morphia. The confinement of such a case for a few days with removal of all sources for procuring drugs, reveals the real condition. This condition resembles reasoning mania, only the usual signs of mental defects are wanting. There is mental calmness and self-possession; the brain operations seem clear and rational. The strange acts and conduct are explained with a conscious honesty and difference that is convincing. It would seem that a new personality is involved, and that some ideas or motives take full possession of the mind, and all other conditions and surroundings are ignored. Yet with this appears the unusual cunning to make act a success.

In a recent murder trial, a morphinist who had evidently been associated with crime in some indirect way, displayed masterly ability in the explanation of his conduct. He shed tears and created a strong feeling that he was the victim of

deception by others. After the trial the facts of his complicity came out, but he continued indifferent. He, no doubt, actually believed his own statements, and used cunning measures to make them appear true. A man under observation has on several occasions sent startling telephone news, which was false. He has defended his acts with unusual plausibility, and his associates believe him. He is an editor of ability, and user of morphia. The same apparent notion of enjoyment in the emotion produced by such news was possible. He talked of this false news, and seemed as startled as others at the time. He is under medical care, though working at home daily. There are no theories to explain this condition other than some obscure palsy of certain brain-centers, which breaks up consciousness of right and wrong, or suspends reasoning on the nature and consequences of acts. It may be a state of local poisoning which centers in some psychical function, giving prominence to some idea and defending and explaining it with all the force of a normal brain. The usual efforts to explain and defend acts committed when under the influence of alcohol and opium are so crude as to carry their own refutation. The morphinist in this state, as long as he can secure a sufficient amount of the drug, makes few mistakes and shows no weakness in making his position and conduct clear and sensible.

There may be many inconsistencies and acts not common to the average man, but he has no difficulty in explaining them to his apparent satisfaction.

The clinical fact I wish to make prominent is, that in certain conditions of morphine addiction, a new personality appears; some psychical trance state, in which great mental clearness, self-possession and cunning, with unusual frankness and candor, are the prominent symptoms.

Criminal acts and purposeless deceptions are common. Forgery, swindling, and manias for certain acts, and adroit concealment of them, have appeared so far. In the court cases no study has been made, the only recognition is that they are most dangerous criminals in their superior capacity to lie, steal,

and cheat. Dangerous because they appear to be honest and have no conception of the nature of their acts. In the medical cases no one has studied this symptom of deception. It is even doubted by some persons whose experience should have taught them differently. It is a distinct pathological condition which may be understood, and is the most significant of the brain defects and degeneration.

Morphine may be said to cultivate the crime instinct. At all events, it prepares the way to certain criminal acts, which often have some previous predisposition. The perversion and damage to the higher centers which govern the ethical relations of life are always associated with morphinists. The criminal side of these cases is the psychical wreckage and relations of the higher operations of the brain. The criminal who is a morphine taker is such a wreck. No exhibition of mental power and acuteness in such cases is evidence of clear sanity.

Again, I wish to emphasize the need of exact study of these cases; of the delusions, of the manias, of the strange symptoms of strength, cunning, and weakness, that indicate the possibility of medical means for relief. The criminal side of morphine cases is practically a sealed book, awaiting psychological research and study, and promising a new field of the most practical facts.

According to *Health* the treatment of habitual drunkards in Germany is provided for in the sixth paragraph of the new code which will come into operation in 1900. Among the persons liable to be interdicted — the interdiction involving being placed under a guardian who will be empowered to place the individual anywhere for treatment until discharged from guardianship by the court — inebriates are specifically mentioned. The exact description is, "He who, in consequence of inebriety, cannot provide for his affairs, or brings himself or his family into the danger of need, or endangers the safety of others."

IS THERE ANY CAUSATIVE OR ETIOLOGICAL RELATION BETWEEN THE EXTENSIVE USE OF ALCOHOLIC DRINKS AND THE CONTINUED INCREASE OF EPILEPSY, IMBECILITY, AND INSANITY, BOTH MENTAL AND MORAL, IN ALL THE COUNTRIES OF EUROPE AND AMERICA?*

By N. S. Davis, M.D., Chicago, Ill.

While the great and continued progress in the various departments of science, and their rapid application to improvements in every branch of human industry and art have characterized the last two or three centuries, especially in the leading countries of Europe and America, there is much evidence that in the same countries mental disorders, usually grouped under the heads of epilepsy, imbecility, insanity, and moral perversion or criminality, have been increasing in a ratio greater than the increase of population. It is true that the records concerning mental defects and disorders and the statistics of crime in the various countries of Christendom, are too imperfect to constitute a basis for accurate comparison through long periods of time. Yet careful examination of the decennial census returns of the United States of America, the vital statistics and health records of some individual states and cities, and similar statistical records to be found in Great Britain, France, Germany, and other countries of Europe, will show conclusively that during the present century, at least, the ratio of mental disorders, degeneracy, and crime has increased to such an extent as to attract the attention of statesmen, socio-

* This paper was read in the Seventh International Congress against the Abuse of Alcoholic Liquors, Paris, April, 1899, except the two last paragraphs.

logists, and philanthropists in many countries. Why this should be so, during a century characterized by greater progress in the general diffusion of knowledge, in the greater productiveness of human industry in providing for all the necessities and comforts of life and the facilities for their distribution, and by a greater decrease in the ratio of mortality with the lengthening of the average duration of human life than in any preceding century of human history, is a question demanding serious investigation. Indeed, if the mental and moral perversions enumerated had maintained only a ratio equal to that of the population instead of a marked increase during such a century as the present, it would still constitute a problem of great importance. The extent to which human knowledge has been increased and applied in advancing all lines of human industry, including the wider diffusion of the principles of Christianity and the adoption of such hygienic and sanitary improvements as greatly lessened the prevalence and destructiveness of epidemic diseases, especially in Europe and North America, would legitimately lead us to expect not only the rapid increase and concentration of wealth and the moderate prolongation of human life which has resulted; but these same influences should have had the additional effect of banishing poverty, diminishing mental anxieties, and, above all, of promoting the intellectual and moral health of all classes of the people.

Instead of these results, however, we see in every country only concentrations of wealth alongside of poverty, degradation, and discontent; and all varieties of mental disorder and moral perversions increasing faster than asylums, reformatories, and prisons can be constructed for their proper care. To say that these evil results are only the natural outcome of man's selfishness and love of wealth and power is only a confession of existing mental and moral perversion. It leaves the question, why is man's unbridled ambition and selfishness still filling all Christendom with poverty, disease, and crime after nineteen centuries of the proclamation of the Gospel of " Peace

on earth and good will to man " without answer or explanation. The evils in question cannot be attributed to any form of government or to defects of social organization or climatic conditions, for they exist and increase alike under governments the most despotic and the most liberal; among people of different races and in all varieties of climate. We must, therefore, look for their real etiology among such articles of food or drink as are in general use by large proportions of the people in all the countries to which allusion has been made.

Turning our attention in that direction, we are directly confronted by two articles, namely, alcohol as it exists in all the various fermented and distilled liquors, and tobacco, the uses of which are indulged in extensively by the people of every country in Christendom and more or less by all classes of society. Opium, cocaine, chloral, and other narcotics are allies in the work of nervous and mental perversion, but are far less in general use. Ethyl alcohol, the only active ingredient in the fermented and distilled drinks, and nicotine, the active agent in tobacco, in their pure state, are described by all chemists, pharmacists, and toxicologists as most virulent poisons, speedily destructive to both animal and vegetable life even in moderate doses. When, however, they are largely diluted and taken in small doses they produce that diminution of nerve sensibility and relief from mental anxiety, that by repetition soon establishes a feeling so fascinating that resistance becomes so difficult that all other interests of the individual are made subordinate to its gratification.

Having been introduced into general use long before the modern facilities for chemical, biological, and physiological research were known, the influence of the alcohol as an anaesthetic diminishing the sensibility of the nerve cells of the cerebral hemispheres, the material seat of man's consciousness, created the universal belief that its internal use was warming, strengthening, and nourishing to the living human body.

Yet, simple observation alone had clearly proved that the more alcohol the man consumed, the more quickly he suc-

cumbed to cold; the less work, whether of mental or physical, could be accomplished; and the more readily he yielded to attacks of disease of every kind. All this apparent contradiction was fully explained when in the progress of chemical, physiological, and therapeutic researches of the last half of the present century it was demonstrated that alcohol possessed a strong affinity for water and albuminoid substances, and when taken into the living stomach was rapidly transferred, by absorption, to the blood with which it was carried to every organized structure of the body, exerting a deteriorating influence on the organized protoplasm or cells of both blood and tissues. By its influence on the hemaglobin and protoplasm of the blood, it lessened the capacity of that fluid to receive oxygen from the air cells of the lungs and to distribute it to the various tissues, and thereby it diminished the processes of oxidation and metabolism. By its contact with the nerve structures it lessened their functions, both of sensibility and transmission, and thereby impaired nerve sensibility, muscular strength, and mental activity, according to the quantity of alcohol taken. It was this impairment of sensibility in the cerebral convolutions that rendered the individual less conscious of cold or heat, of weariness or pain, and thereby destroyed his ability to judge correctly concerning his own condition or that of his surroundings. The same dulling, paralyzing influence extends to the moral faculties, impairing the sense of propriety and self-control, and encouraging inconsiderate and often reckless or immoral conduct. When but a single dose of the alcoholic liquor is taken, it, like other toxic agents, is generally eliminated or destroyed by the various oxidizing and eliminating organs within twenty-four or thirty-six hours, and no appreciable permanent changes, either mental or physical, ensue. If, however, the dose be repeated from day to day, thereby keeping the alcohol constantly in contact with the protoplasmic cells of the blood, the brain, and the various secreting structures, slowly but inevitably the hemaglobin and corpuscular elements of the blood diminish, the leucocytes are

less active, the products of tissue waste are less oxidized and excreted, and the new material for tissue repair elaborated in the processes of digestion and assimilation is less perfect, and consequently a degenerating influence is traceable more or less in every structure and function of the body, and the individual's vital resistance to all toxic or morbid influences is diminished. Thus, it is shown by the vital statistics of every country where such records have been kept, that those who habitually use alcoholic drinks are more liable to be attacked by all infectious diseases, and furnish annually a higher ratio of mortality than the total abstainers living otherwise in the same environment. The same statistics also show that a much greater ratio of the children born of drinking parents die under five years; and of those who pass the period of infancy, a larger ratio become affected with tuberculosis, epilepsy, feeble-mindedness, and all grades of mental and moral perversion. This is in exact harmony with the effects of alcohol upon the structures and functions of the individual who takes sufficient alcohol in either fermented or distilled drinks to keep it in daily contact with his primary protoplasmic cells for any considerable length of time. In such, the microscope reveals in the parenchyma of all the important organs a deficiency of nucleated cells and relative increase of fibrous and adipose structure, that is, a degeneration from the higher and more vitalized to the lower grade of organized matter. This is everywhere acknowledged as the result of chronic alcoholism or the *abuse* of alcohol, but chronic alcoholism is only the gross development of the long-continued use of a protoplasmic poison that commenced with the impression of the first glass. Consequently, the first drink was as truly an *abuse* as the last.

That the alcohol in half a pint of beer or a single glass of whisky lessens the rapidity of nerve transmission, mental perception, acuteness of the special senses, and muscular strength, has been abundantly demonstrated by the application of instruments of precision. That the same amount of alcohol perceptibly diminishes man's mental inhibition or sense of pro-

priety and deludes him with the impression that he is stronger and more active when he is actually doing less, is a fact familiar to all who have given attention to the subject.

The only rational conclusion, then, is, that the degenerating influence of alcohol upon man, physical and mental, commences with the beginning of its use, and increases in proportion to the quantity used and the length of time it is continued.

As the primary deteriorating effects of alcohol are displayed on the cell protoplasm of both blood and tissues, it would necessarily affect the germinal cells of the ovum and the spermatazoa of the semen, and thereby extend hereditary imperfections to the offspring. Proof of this, as shown in the vital and health statistics of different countries, has already been alluded to, and further proof has been furnished by experiments on animals. Thus, eggs incubated in an atmosphere containing the vapor of alcohol, have developed a very large proportion of imperfect or unhealthy chickens, and breeding dogs given daily a moderate amount have uniformly brought forth pups many of which died during the first few days after birth, many others became affected with epileptic or convulsive paroxysms, and very few arrived at maturity in a healthy condition. Many cases are on record affording equally direct evidence of the deteriorating influence of alcohol on the health and viability of the children begotten by fathers habitually using alcoholic drinks, or born of intemperate mothers. Thus, Dr. Anthony in Centralblatt für Synakologie, Oct. 16, 1897, says a healthy woman, and temperate, married a man of excessive drinking habits by whom she had five children. Four of them died within the first ten days after birth, and only one lived nearly five years. The husband died and the woman was married again, this time to a healthy non-drinking man, by whom she has had two children, one now four years old, and the other fourteen days, both healthy.

An eminent specialist in diseases of children has noted the progress of twelve families with parents who were habitual

drinkers of alcoholic drinks, and of twelve families with total abstaining parents. During the twelve years these families were under his observation the twelve first named gave birth to 57 children, of whom 25 died in the first week after birth; 5 were idiots, 5 were dwarfs, 5 later became epileptics, and later one had chorea ending in idiocy, and 5 others were more or less deformed and unhealthy, leaving only 11 of the 57 children to arrive at maturity in a healthy condition of body and mind. The twelve families with temperate parents during the same period of time were blessed with 61 children, of whom only 6 died during the first week after birth, later 2 only showed inherited defects of the nervous system, leaving 53 of the 61 healthy in body and mind. My own observations during a continued period of sixty-two years of medical practice, fully corroborated the inferences to be drawn from the foregoing statements.

But the more direct object of this paper is to invite attention to the effects of alcohol, not only directly on the nerve cells of the brain connected with the manifestation of the higher and more distinctive mental and moral faculties of man, but also to the perpetuation of these perverting and degenerating effects by hereditary descent from generation to generation. Communities and nations are all composed of individuals. Consequently, whatever is clearly traceable from parent to child in the family, is equally applicable to the aggregation of families composing the nation.

The history of the notoriously intemperate woman and her descendants, given by one of the professors of the University of Bonn, is only one of many that might be cited to illustrate this subject. It is stated that the woman was born in 1740 and died in 1800. Her descendants during the past century have numbered 834, of whom 709 have been traced from their youth. Of these, 7 were convicted of murder, 76 of other crimes; 142 were professional beggars, and 64 lived on charity, and 180 of the women led disreputable lives. In 1894 the legislature of the State of Massachusetts directed Horace G.

Wadlin, Chief of the Labor Bureau, to ascertain "how much crime and pauperism is due to alcoholic drinks." He consequently made a careful examination of the inmates of all the public charitable institutions, prisons, and asylums for the insane in that state in 1895, and made his report in 1896. The number of paupers examined was 3,620, sixty-five per cent. of whom had been addicted to the use of alcoholic drinks; forty-eight per cent. had one or both parents likewise addicted to the same drinks. The whole number confined under conviction of crime during the same year was 26,672, of whom eighty-two per cent. were more or less under the influence of liquor at the time of committing crime; 4,852 others were under the influence of liquor when the intent to commit crime was formed, making ninety-four per cent. of the whole users of alcohol. And of these, fifty-eight per cent. had drinking fathers, and twenty-one per cent. drinking mothers. Of the insane, 1,836 cases were examined, of whom fifty-two per cent. had been addicted to the use of alcoholic drink. Of these, sixty-eight per cent. had one or both parents addicted to the same drink, and fifty-one per cent. had grandparents with like habits.

Mr. Wadlin's conclusions were that the use of "Alcohol tends directly to create a permanently pauperized population," and "to create criminal instincts." The same direct and thorough examination would show the same or worse results in every state or country in Europe and America. How could this be otherwise, if, as shown by Dr. Debove from the most authentic sources, the amount of absolute alcohol consumed annually in France is 14 liters for every man, woman, and child; in Belgium and Germany each 10.5 liters; in the British Isles 9.25 liters; Switzerland 8.75 liters; Italy 6.60 liters; Holland, 6.25 liters; United States of America, 6.10 liters; Sweden, 4.50 liters; Norway, 3 liters; and Canada, 2 liters. When it is remembered that in all these countries there are many men and a much larger number of women and children who drink no alcohol, the total amount drank is such as

could not fail to produce the most important degenerating influence on both the mental and physical condition of those who do drink it. Indeed, the facts to which we have already alluded are sufficient to show that if those who do drink any kind of alcoholic liquors were compelled to intermarry only among themselves, their part of the population would become extinct in one or two centuries. The free intermarriage with total abstainers is all that has prevented their extinction long ere this; and yet, it is this that has enabled them to diffuse or propagate their moral and physical degenerations through all ranks of society, and to fill more almshouses, asylums, reformatories, and prisons than there are schoolhouses and churches; and to fill important space in almost every daily newspaper with accounts of vicious revelry, burglaries, highway robberies, murder, and suicides occurring in even the very centers of population and wealth, at the end of the nineteenth century of our boasted Christian civilization. The earth brings forth annually enough food and clothing to supply the necessities of the whole human family, and there are abundant facilities for their distribution if properly used. But so long as enough such food material is destroyed to make millions of barrels of alcoholic drinks, and billions of dollars are paid by those who consume it annually, so long will poverty, imbecility, insanity, and crime increase. Nothing but the direct and indirect, or hereditary, deceptive, and perverting influence of the alcohol contained in beer, wine, whisky, brandy, rum, and gin drank by so large a part of the people could have so dulled the public conscience or perverted the sense of right and justice as to permit and even to license for a pecuniary fee, the manufacture and sale of such liquors and at the same time multiplying poor-houses, asylums, and prisons to accommodate the victims. When we add to the foregoing effects of alcohol the soothing, dulling *don't-care-ative* effects of more than $800,000,000 worth of tobacco annually by the people of our own country, and an equal or higher ratio in other countries, we have a rational explanation

of the startling and otherwise inexplicable fact, that throughout Christendom, at the end of the nineteenth century of the Christian era, aided by the most liberal systems of education that could be devised, mental degeneracy, poverty, vice, and crime are increasing faster than the populations.

If it be thus true, that the constantly increasing consumption of alcohol and tobacco has been running parallel with the increase of poverty, imbecility, insanity, and crime, in opposition to all the civilizing, educational, and Christianizing influences of the nineteenth century, the only effectual remedies are too obvious to need discussion here.

ALCOHOL VERSUS ACETIC ACID.

At a recent meeting of the New York State Medical Association, Dr. E. R. Squibb said that it might be of interest to learn of the work being done in the way of retiring alcohol as a menstruum for exhausting drugs. A good deal has been accomplished in this direction in the last two or three years. Of the other menstrua experimented with up to the present time, that which had given the best results was acetic acid in various strengths. It had been discovered that a ten per cent. solution of acetic acid was almost universal in its exhausting powers. There were now in use in veterinary practice and in some hospitals extracts made with acetic acid. They were made according to the requirements of Pharmacopea except that acetic acid was substituted for alcohol. Acetic acid when used with alkaloids gave the physicians certain advantages in prescribing, owing to their being fewer incompatibles. In small doses the percentage of acetic acid in the extract was so small as to be hardly appreciable, and when larger doses were required the acetic acid could be neutralized by the addition of potash or soda.—*Medical World.*

LEGISLATION FOR THE WELL-TO-DO INEBRIATE.*

By J. F. Sutherland, M.D.,

Deputy Commissioner in Lunacy for Scotland.

The closing year of the 19th century has witnessed a great and important step taken by the legislators of this country to deal rationally with habitual drunkards from the lower stratum of society. The act of last year, hailed with satisfaction by every thoughtful citizen, was passed in the interest of the inebriates themselves, of their families and dependents, and of society. Is it too much to hope that the opening year of the 20th century will witness the conferring of a like legislative boon upon the well-to-do inebriate, in which the element of compulsion will, for the first time, most righteously and properly find a place? His case and condition from every point of view is as claimant. Were the urgency of the case and the absolute reasonableness and justice of the proposals which I shall submit for your judgment the guiding principles in securing legislative interference, then, assuredly, the answer of your lawmakers would be in the affirmative.

The act of last year was not obtained without the expenditure of many, too many, years of labor, not made easier by many experiences of hope deferred, on the part of zealous advocates, of the besotted and submerged thousandth in our midst. Society has looked on with a strange apathy, *laissez-faire* has prevailed, and the alcoholic derelict has drifted like tangle in the tide. Among the band of true psychologists and social reformers who were in the front rank throughout

* Read before the British Medical Association at Portsmouth, England.

many campaigns was the late Norman Kerr. In spite of failing health he rendered yeoman service to the cause. Than he, it will readily be acknowledged, there seldom rode forth to wrong's redressing a worthier paladin.

Compulsion, as you are aware, will now be applied for the first time to the drunkards who fall frequently into the hands of the police, followed by a detention in reformatories for a maximum period of three years. Occasionally, very rarely I should say, a well-to-do inebriate will get caught in the meshes of this act. But it is not intended for them. The mesh is too wide.

I cannot too strongly impress upon you the fact that falling into the hands of the police is a mere accident or incident of the alcoholic habit. Among the poorer classes, the house accommodation and the means of the wage-earner do not admit of that safeguarding and sheltering which are the lot of the more fortunate and better circumstanced classes of society, who, in consequence, escape the solicitous attentions of the guardians of public order and of the new legislation. . . .

One thing, however, is pretty certain, legislation cannot rest where it is in a free country, just as it has not rested in other free countries. Sanitary, lunacy, and criminal laws do not stop at one class, but apply to all. The obvious corollary and necessary complement of the act of last year is an act dealing with the well-to-do inebriate, which can be so constructed as to be free from every possible and real objection.

It is safe to say that the vast number of the well-to-do inebriates will never voluntarily submit either to the deprivation of the control of their affairs, or to lengthened confinement in retreats. In a word, compulsion might mean, as a first step in the process of intervention, the appointment by the court of something in the nature of a *conseil de famille*, and, failing in the success of that after trial, a committee of the estate, or its equivalent, and if neither of these are going to succeed, the seclusion of the inebriate himself would become

a necessity. Nothing but much hurt to all concerned (the individual and society), so far as I can see, is to be gained by delay in bringing this class within the pale of legislation. Perhaps on the whole it might have been better if compulsory legislation for the well-to-do inebriate had come first, because in that case there would not, so far as this country is concerned, in the experimental stage now entered upon, be the difficulty and reluctance of local authorities to provide retreats. It is safe to say, once the element of compulsion for the well-to-do inebriate is part of our law, retreats will soon spring up to meet the demand.

From long and close observation of this problem I should be inclined to say that of chronic inebriates whose case and condition call for urgent interference, there are approximately in England 10,000, in Scotland 2,000. They are in the proportion of one to nine insane. There is no possible mistaking this lot. Specimens are to be met with in every town and parish in the ratio of something like 1 to 2,000. They are marked men and women. Their habits of inebriety are notorious, leading to all disregard of personal honor, of family and social obligations, and to the wasting of their substance and the wreckage of their homes.

To talk of doing an injustice to such individuals, or to suggest that seclusion obtained in open court and before a jury is an interference with the liberty of the subject, is to burlesque the sacred name of justice, and to drag the high ideal of the liberty of the subject — the palladium of every Britton — through the mire of unrestrained license. The kind of men and women to be scheduled for a fair and thorough inquisition will recur to every one of you. Doubtful cases I would not be inclined to meddle with. But, then, we are asked about the incipient cases, and those whom some might think bad enough for interference? Are they to be allowed to go on unchecked until they pass into the class ripe — and more than ripe — for compulsion.

With Sir W. T. Gairdner and Sir Dyce Duckworth, I would be inclined in their cases to make drunkenness *per se* as an offense or vice deserving of punishment, to be met by, first, exposure in a court of justice, and sureties and recognizances; secondly, by fines; and, perhaps after trial of these, thirdly, by remission to a higher court. Society would thus adequately and justly mark its sense of displeasure of the overt act of drunkenness, whether accompanied by incapacity or disorderly conduct and violence, or not. If punishment is going to be effectual in preventing such from falling into the ranks of the notorious inebriate, for whom seclusion for long periods has become a necessity, the kind and extent I have indicated should suffice.

It is said difficulties would at once present themselves in any attempt to define drunkenness. I admit the force of that, and, therefore, would leave it to the definer — the magistrate — with the aid of witnesses. The view of the toper in the Greek epic recurs to one:

> **The rule I think is right,**
> **Not absolutely drunk, nor sober quite.**

No doubt there are degrees of drunkenness, just as there are degrees of insanity. Yet it is not maintained that all certifiable insanity must come up to a pattern.

Like insanity and most things, drunkenness is relative. But it must be held that a state of drunkenness, like a stage of insanity, implies certain well-defined manifestations, some or all of which are present.

I will content myself with alluding to speech which is indistinct, to unrestrained garrulity, to incoherence, to locomotion (inco-ordination more or less), to eccentric, foolish, and it may be criminal, conduct (conduct quite unlike the usual or normal), to a diminished regard for the proprieties and decencies of life.

The drunkard may be noisy short of the degree required

to constitute a charge of riotous conduct, and not be incapable to that extent which would render the charge of incapacity a relevant one. All of these and other evidences betoken a loss of the controlling or inhibitory power which is in evidence in sobriety. Uulike insanity, sobriety has a standard to go by.

But in the penal or therapeutic treatment of drunkenness, the vice — I am not speaking of it now as the disease, which it unquestionably is, the lash must have no place. We are two centuries beyond that, whatever philosophic and well-meaning persons may think of the stimulating and salutary effect of the lash on the gray matter of the brain of the sot, it is certain beyond the shadow of a doubt no parliament in this country will sanction such a corrective. And if that be so, *a fortiori*, it is an outrage upon ethics and humanity to propose flogging for the chronic inebriate, upon whose mind and body years of indulgence has left indelible impressions, even if as yet in this, the era of pathological psychology, the microscope and the specialist have not in every case detected lesions indicative of structural and functional change. To suggest the lash for the inebriate requiring compulsion and seclusion is to betray a superficial acquaintance with his psychology.

Let me invite your attention for a moment to the indifference between the chronic inebriate who falls into the hands of the police, and for whom the legislature has made provision, and those who do not. It is one of circumstances rather than degree. The proximate results of ethylic alcohol upon the nervous system and viscera, and through these upon conduct, like the indirect results indicative of pathological changes, are much the same in all grades of society. There is this marked difference, however. In the case of the well-to-do inebriate, his incapacity is hidden from the public gaze, and his violence is either restrained by timely intervention or concealed if it has been used against members of his household

or others. Thus it is he escapes the solicitous attentions of the authorities, and does not, except in very few instances, become offensive or dangerous to society.

It is far from my intention to enter upon the fruitless task of attempting to determine whether the chronic inebriety, which I am anxious to see restrained, is a disease or vice, or both, further than to say that in those cases where the evidences of vice are strong, the vice if long indulged leads in all cases to disease, even if to ordinary as well as to extraordinary observers, the nervous and other systems do not present distinct evidence of degeneration, and in a large number of cases to mental and bodily change. You will see I have said nothing about the part biology, heredity, and diseases present before the habit has been acquired, play in the role of inebriety. In all these aspects there is not only room for differences of opinion, but considerable doubt. My case is strong enough without their aid, and the views I have just put forward will, I think, meet with the acceptance of all reasonable men, whether lay or medical. The individuals for whom I bespeak your aid to secure speedy legislation are, by long indulgence of the habit, diseased both physically and mentally, and are fit subjects for the care, protection, and treatment I now advocate, and which would be secured with safety to every interest, including the highest of all — the liberty of the subject — by the methods which time will only permit the outlining.

Just a word about the "liberty of the subject," which in this country is an axiom, and like many axioms, apparently simple, transcends ordinary intelligence. Of the antithetical truths — the rights of the individual and the rights of society — some people have no difficulty in appreciating the one, but find it all but impossible to grasp the other. The rights of the individual must be subordinated to the rights of society. That is the object of government. But our laws do present striking incongruities, and none more difficult to justify than the refusal to accept intoxication as an excuse

for crime, and the treatment of intoxication itself as beyond the jurisdiction of the law, although with many the certain avenue to crime. No less incongruous is the law which makes attempted *felo de se* a punishable offense. And yet for this slow *felo de se* of getting habitually inebriated the law has no penalty. Of habitual drunkards there are two classes (when temperament and disposition are made the dividing line) — those who get drunk and remain peaceable and guiltless *quod ultra*, and those who get drunk and commit a statutory offense or crime. Those in the second category alone are dealt with, and then only for the resultant offense or crime, which is largely, as I have explained, an accident or incident of the bout. The law pounces upon the habitual drunkard who is reported as guilty or beating his wife and children. But if he, to the knowledge of the authorities, breaks their hearts and harries their home by years of dissipation, the law is not only too magnanimous to punish him in the mild manner I have suggested as a first installment, but it hesitates to pronounce him a diseased subject, and schedule him for compulsory seclusion.

Very briefly let me put before you an outline of the legislation which would meet the case and safeguard every interest. (1) Definition of habitual inebriate (Acts of 1879 and 1888). (2) Inquisition at instance of public prosecutor, based upon the precognitions of witnesses, with the approval of revising crown counsel. (3) Constitution of the court — a county court judge or sheriff, chairman of quarter sessions, or stipendiary, each sitting with a jury *in camera*, or otherwise, as the alleged inebriate may elect. (4) Witnesses, ordinary and medical, to be examined upon oath. (5) Chronic inebriety having been established to the satisfaction of the court, the judge would be empowered first of all to appoint a committee of the estate or judicial factor, or something in the nature of what the French law provides, namely, a *conseil de famille*, and, should trial of these methods fail, compulsory seclusion of the well-to-do inebriate under proper safeguards.

(6) The right of appeal to a higher court. Of course, if relatives do not come forward, and from mistaken notions shelter the drunkard, then the law which might save him and them will, unless he commits an offense or crime, remain a dead letter. — *British Medical Journal.*

EXPERIMENTS WITH AND WITHOUT ALCOHOL.

By order of Field-Marshal, Lord Wolseley, British commander-in-chief, careful and exhaustive experiments were made with a view to ascertaining the relative effects of alcohol and of total abstinence upon the physical endurance and staying qualities of the troops. One regiment was deprived of every form of alcoholic drink, while another belonging to the same brigade was allowed to purchase, as usual, malt liquor at the canteen, and another would receive a daily ration of whisky. In each instance the experiment showed that, whereas, at first the regiment which had received an allowance of grog surpassed the other in dash and in impetuosity of attack, yet, after the third or fourth day, its members began to show notable signs of lassitude and a lack of spirit and endurance. The same manifestations, though in a minor and slower degree, were apparent in the regiment restricted to malt liquors; whereas, the men who had been kept from every form of alcoholic drink increased in staying power, alertness, and vigor every day. The results of these experiments led the British War Department to decide, not on the ground of principle, but solely for the sake of maintaining the power of endurance of the troops now engaged in the Soudan campaign, not to permit a single drop of alcohol in camp save for hospital use.

"Spirits, wine, and malt liquors have been declared from the officers' mess table, as well as from the regimental canteen; and from generals in command down to the drummer boys and camp followers, liquid refreshments have been restricted to tea and oatmeal water."

PROFESSIONAL DOUBTS CONCERNING THE EXISTENCE OF HYDROPHOBIA.*

By H. D. Didama, M.D., Syracuse, N. Y.

I have been reading of late a very interesting pamphlet entitled "Hydrophobia as a Simulated Disease." The name of the author is modestly concealed. Evidently the brochure was prepared to convince sensitive people that the so-called disease is a frightful story with no real foundation, and that "what the newspapers describe as hydrophobia is a mere hysterical excitement, a dread of the disease acting upon the imaginations of persons scratched or bitten by animals suspected of rabies." Several physicians of established eminence, including such as Hiram Corson, Traill Green, Matthew Woods, Spitzka, Charles Dulles, Parvin, Morton, Mills, Hearn, Solis-Cohen, and Thomas Mays, men of keen powers of observation and extensive hospital and private practice, testify that during periods varying from 20 to 70 years, with opportunities to examine hundreds and thousands of suspected cases, they have never found a single genuine case of hydrophobia in man or rabies in a dog.

One of these distinguished witnesses inclines to the view that there is no such malady, and another asserts that "the bite of a dog is no more dangerous than the scratch of a pin."

To this list of competent observers, a thousand names of equally trustworthy physicians and surgeons and ministers of the gospel might be added.

The testimony seems to be overwhelming. In Constantinople, where the dogs, almost as abundant as the fleas, lie

* Read at the Columbus meeting of the A. M. T. Association.

curled up and sleeping on the sidewalks by day, and wander around howling and fighting all night long, no dog or man was ever suspected of having hydrophobia. And yet, in spite of the premeditated and fixed opinions of the multitudinous doubters, fortified by centuries of Turkish experience, there are a few credulous people who really believe in Pasteur and his statement that annually hundreds of dogs and wolves and a large number of human beings do die of this dreadful disease. These disciples of Pasteur earnestly argue that, although the bite of an angry dog may not be a serious affair to a canine or a human being, the bite of a rabid dog has certainly caused hydrophobia resulting in the death of many very young children who have very little imagination, and of dogs and other animals which have no imagination at all. It must be confessed, however humiliating to us, that the weight of testimony is not always determined by the number of witnesses. The opinion of a hundred agnostics may not be as valuable as that of one man who knows. The story told by a truthful traveler of the existence in Africa of a whole tribe of dwarfs was discredited by millions of bright and worthy people who had never crossed an ocean. But the dwarfs were, and are now, actually there all the same. The prisoner who had been indicted for stealing a pig insisted that his attorney should secure an acquittal. "It cannot be done," said the lawyer, "for the district attorney has an unimpeachable witness who will swear that he saw you steal the pig." "I know that," replied the culprit, "but what of it? I have ten awfully good and respectable witnesses who will swear that they didn't see me steal the pig; and ten ought to overbalance one." In some roundabout way this reminds me of the testimony regarding the use of alcohol in the treatment of disease. A few hundred men, of fair judgment and considerable experience,— "may their tribes increase," and their tribes are increasing every day — assert that, whereas, they formerly followed the universal practice of giving alcohol in every possible disorder

attended with cardiac weakness, now — thoroughly convinced that tradition, however antiquated, may be erroneous, and that alcohol is not the best and safest stimulant, if indeed it be a stimulant at all — they never administer it; and they further assert that the results of this non-use are satisfactory and successful. . . . On the other hand, thousands of wise and famous men — including professors and writers in medical journals — although they have never once practically tested the claim that the non-alcoholic treatment is the better— declare with much earnestness of speech if not with unnecessary vehemence, that they have unbounded veneration for the most inerrant, if not inspired, opinion of the fathers, and that, avoiding the narrow path of cranks and reformers, they shall continue to walk in the good, old, broad road of the broad-minded multitude.

CONVULSIONS IN A CHILD DUE TO INTEMPERANCE IN THE NURSE.

Dr. Meunier (*Jour. de Med. et de Chir.*), reports the case of an infant five weeks old which developed obstinate convulsions which resisted all kinds of treatment. Acute hydrocephalus was thought of, and lumbar puncture was suggested. The nurse was removed and the convulsions ceased. It was proved afterward that the convulsions were unmistakably due to the nurse's indulgence in intoxicating liquors. The author analyzes three similar cases from the literature, and concludes: 1. Convulsions due to drunkenness in the nurse are usually accompanied with gastro-intestinal disorders or fever; the nutrition is satisfactory and the increase in weight is greater than the average. 2. If kept up long, the child may pass into a condition of constant tremor, interrupted occasionally by severe eclamptic seizures. 3. In the presence of hereditary neurotic predisposition, the child may get convulsions even if the nurse drinks but moderately.— *Mass. Medical Journal.*

THE TOXICITY OF TOBACCO AND A METHOD OF ERADICATING IT.*

By Heinrich Stern, Ph.D., M.D., New York.

The Spanish monk who found, in the year 1496, a solanee in the province of tobacco, in San Domingo, which he afterwards brought to Europe as a remedy for ulcers, certainly did not dream of the importance his discovery would gain in the years to come, and when in 1559 the ambassador of the king of France to the Court of Lisbon, Jean Nicot, in whose honor the isolated alkaloid of this solanee nearly three centuries afterwards was named, presented to Catherine di Medici the first living tobacco plant ever brought to the shores of Europe, he could not have had the remotest idea what far-reaching consequences his unique gift would have; for tobacco has become the unmerciful despot of many a man and many a people, and while it is true that employment is given to thousands by the raising of the plant and the manufacture of its products, the sales of which also materially contribute to the finances of governments, it is equally true that much misery and many ills and the spiritual and moral lethargy of nineteenth century mankind, in part at least, can be traced to the influence of tobacco.

Nicotia, or nicotina, $C_{10}H_{14}N_2$, is the substance upon which the greater part of the physiologic properties of tobacco seem to depend, though the latter contains a number of other organic constituents, as nicotianine, $C_{22}H_{32}N_2O_5$, volatile oils, protein, acids, starch, sugar, pictin, and wood fiber.

*Read before the St. Louis Academy of Medicine, March 21, 1899.

Nicotina is of an alkaloidal character, isomeric with the two hexa-hydro-dipyridyles, and occurs in the green tobacco leaves in from 0.5 to 8 per centum. Tobacco from Virginia contains 6.87 per cent. of nicotia; that from Kentucky, 6.09 per cent.; that from France, 4.94 to 7 per cent.; that from Maryland, 2.29 per cent.; and that from Havana, not even 2 per cent. Turkish tobacco contains hardly any nicotine at all, and is very mild, and I. Nessler did not find a trace of it in tobacco grown in Syria, although the latter produced stupor on being smoked. Hence the cheaper grades of tobacco contain nicotina in greater abundance than those of Havana or of Turkey.

In dry snuff nicotia is present to the amount of 2 per cent., and in moist snuff to that of 1.3 per cent. In tobacco smoke this alkaloid has been erroneously supposed to be the only toxic element.

Nicotina resembles hydrocyanic acid in two respects, viz.: it contains only carbon, hydrogen, and nitrogen, and no oxygen, and its poisonous qualities act in the same rapidity; still, cattle can consume large amounts of green tobacco-leaves without experiencing serious after-effects.

The green tobacco-leaves do not possess the flavor of nicotine, and the characteristic bouquet of tobacco is only developed during the process of fermentation which is undergone by the dried leaf. It is probable that the nicotine of the unfermented tobacco is united to another constituent of the leaf, possibly to one or the other of its organic acids. In such a combination nicotina seems to possess little or no toxicity.

Pure nicotina is transparent and nearly colorless, but turns brownish red when exposed to the air. It possesses a peculiar volatile character, is liquid and has the consistency of a light oil. Paper is stained by it as with a greasy substance; the stain, however, disappears soon on account of its volatile nature. The alkaloid is readily soluble in water, which it absorbs from the atmosphere. It is also soluble in alcohol and ether; the latter may be employed for its removal from the

watery solution. Its specific gravity at 15° C. is 1,011, and it boils at 241° C. Nicotia possesses a pronounced tobacco-like flavor, and the odor is still perceptible in an aqueous solution very much diluted. It is dextrarotatory, and its salts do not readily crystalize.

The physiologic action of nicotina is identical with that of tobacco, as the latter's physiologic properties seem to be derived almost exclusively from its energetic alkaloid. Nessler's observations, however, do not stand unconfirmed; many other investigators side with him, concluding that the lauded effects of tobacco are not due to its nicotina, but to its volatile oil, of which it contains the insignificant amount of 0.03 per centum.

A fatal dose of nicotia for a dog varies from 0.03 to 0.1 gram, and for rabbits from 0.006 to 0.015 gram. Smaller birds perish if a grass tube dipped in nicotine is brought near their beaks. The smallest lethal dose for man has not been conclusively determined as yet, very pronounced symptoms of toxicosis having been observed after the administration of 0.003 gram; analogous symptoms of poisoning are called forth by tobacco itself.

The action of tobacco upon individuals not accustomed to its use is that of a powerful depressant, producing sudden faintness, nausea, vomiting, and vertigo.

Large quantities cause an aggravation of these symptoms, and, in addition thereto, mydriasis, with loss of ocular reflexes and impairment of sight, a very rapid and often scarcely perceptible pulse, dyspnœa, muscular relaxation, abdominal pain, and purging, involuntary micturition, loss of power, and muscular contractions in the limbs, coldness of the surface, which latter becomes moistened with a clammy perspiration, tremor, delirium, convulsions, paralysis, and finally complete collapse.

Taylor (op. cit., p. 766) and others think that tobacco may act as an irritant poison. This may be so in some instances, but I have never seen a case of complete tobacco toxicosis which I could definitely ascribe to tobacco as an irritant. Long before its irritative properties make themselves felt, tobacco

has acted as a systemic toxicant, affecting principally heart, brain, and the nervous system in general. It seems doubtful that tobacco, if employed in the usual manner, acts as an irritant poison. It is true, tobacco and its smoke are irritating enough especially to the mucous membranes, but this does not justify us in classifying it among the irritant poisons. Only if large draughts of a rather strong infusion or decoction of it are taken, do I think its action as an irritant poison possible. Even the cases of toxicosis on record following tobacco enemata I consider as the result of a general narcotic poisoning. The local application of a tobacco preparation upon an integument whose continuity is impaired does not infrequently give rise to severe systemic disturbances.

The favorite unguentum tabaci of our elders has undoubtedly done a great deal of harm, not so much as a local irritant but as a systemic poison, and I verily believe that death or disease which was attributed to other causes was in many instances the consequence of the local employment of tobacco as a remedial agent.

The vapor of tobacco is undoubtedly poisonous. It affects the novice in the tobacco warehouse or factory in a greater measure than the older employees, though I know of instances where cigar-makers or tobacco house-laborers who, having been in the business for many years, had to quit on account of continued bad health. Some recuperated almost spontaneously when they stopped working for a number of days, or when they took active exercise in the open air.

Tobacco vapor and its toxic effects are more noticeable and powerful during the heated season than in winter, as heat increases the volatility of nicotina. The vapor calls forth about the same distressing symptoms as does the use of tobacco itself, viz., hæmicrania, nausea, lassitude, anorexia, etc.; a decline of the systemic vigor very often follows this train of symptoms. In this condition the organism is susceptible to a great number of nutritive and nervous disorders, and offers little resistance

to the entrance of the gonorrhœal poison. The saturation of the system with nicotina, which latter is lauded as one of the most powerful antiseptics known, not only does not prevent the gonococci from entering into the organism, but actually favors their introduction into the latter. I have had occasion to repeatedly observe this fact.

Another result of the perniciousness of tobacco vapor is the decline of visual acuity and the production of other ocular disturbances in those who are continually exposed to tobacco inhalation. The affections are very often ascribed by ophthalmologists to other causes but the real one. I am, however, convinced that tobacco vapor is injurious to the eyes, as these become normal again in most instances when the patient is no longer exposed to the inhalation.

The fact of the toxicity of tobacco vapor has led to the subject of chronic tobacco poisoning. Besides, from the causes just mentioned, this originates mostly from the habitual and excessive smoking, and from the chewing of tobacco.

If the organism is accustomed to the consumption of large quantities of the fermented weed, it will tolerate the poison to a greater degree, and for a longer period. The same is the case with animals which become gradually accustomed to the poison. It is believed by some that the tolerance of nicotina is possible on account of the production of a systemic antidote. Lewin,* deeming this assumption absolutely untenable, points out that such a tolerance means an adaptation of the affected organ to the poison. My views upon this question concur with those of the last-named author; the system adapts itself in a measure to the obnoxious influences, which *a priori* is indicative of the production of a more or less pronounced pathologic state.

Chronic nicotine poisoning originating from smoking will hardly ever occur when the smoker uses a water-pipe; it occurs but rarely when the common pipe, especially in the long one, is

* *Lehrbuch der Toxicologie, Zweite Auflage*, 1897, p. 352.

employed; it is more frequent after the excessive use of cigarettes, but in the great majority of instances it is the consequence of the consumption of cigars. The fumes of the burning tobacco leaf, according to Zeise, contains very little, if any, nicotina, as this is readily decomposed by the heat. They do contain a series of volatile picolin bases, among which pyridin, collidin, picolin, and lutidin are the most important ones; the fumes further contain compounds of carbon and sulphur, minute quantities of acetic, oxalic, and hydrocyanic acids, and a number of gases.

Pyridin C_5H_5N is produced by the dry distillation of certain nitrogenous substances, and is said to be the result of the decomposition of a number of alkaloids, principally of nicotina. Without going any further into the production, physiologic action and therapeutic indication of this volatile liquid, I wish to draw the attention to the fact that it has been recommended of late as an anti-gonorrhœic to be used in a three per cent. solution as an urethral injection. I have no reason to doubt the efficiency of pyridin as an anti-gonorrhœic when so employed; still, I repeat my former statement, that nicotism favors the production of gonorrhœa.

Some of the volatile products of distillation are deposited on the opposite side of the burning leaf, among them that quantity of nicotina which had not become decomposed by the heat, and while thus nicotina itself may not be contained in the smoke, its decomposition products will be. Besides, the effect of nicotia may become the more pronounced, especially when cigars are smoked, as it may thus come in direct contact with the organism. Tobacco smoke also contains carbon monoxide, and to this constituent many of the poisonous qualities of the former may be attributed.

Among the symptoms of chronic nicotism I enumerate: Catarrhal conditions of the upper parts of the respiratory apparatus, dyspepsia, asthma, smoker's heart, muscular tremor, decline in body and weight, decrease of sexual excitability, and

paralytiform atony of the sphinxter muscles. Disturbances of vision occur still more frequently from the smoke than from the vapor of tobacco. In severe cases we may meet with certain neuroses and psychoses. It is the general consensus of opinion that the latter occur mostly in those individuals who excessively chew or snuff tobacco.

It is not my intention to dwell on the treatment of the different conditions which are the result of chronic nicotism; however, that functional disorder known sometimes as "smoker's heart," where the heart-beat suddenly grows much stronger, indicating augmented heart activity as the consequence of a toxicosis, is such an interesting and often perplexing phenomenon that a prescription for its amelioration may be here in order:

℞.	**Adonidini**	**0.005**
	Ammonii carbonici	**0.1**
	Camphoræ	**0.03**

M. Ft. pulv. d. tules. triginta.
Sig. One powder three times daily.

A vast number of interested ones, both scientists and laymen, felt called upon to devise means how to eliminate, if possible, the toxic principle or principles of tobacco. Some succeeded better than the others — nobody, however, to such an extent that his process has found more than ephemerous approval. To my knowledge, almost every attempt made to overcome the poisonous qualities of tobacco consisted merely in the more or less complete obliteration or elimination of nicotina. To this alkaloid, however, is due, as we have seen before, the greater part of the physiologic characteristics of tobacco. To eliminate the nicotina, or to neutralize it completely, means, therefore, to deprive the tobacco of its most peculiar and precious element, of the element without which the tobacco leaf possesses little relish. It is true that some tobaccos do not contain any nicotia at all, and still they are largely used by the natives in whose countries they grow.

Moreover, as we have seen, nicotia is not the only toxic ele-

ment of tobacco; the empyreumatic, acrid substances liberated on burning or heating the leaves possess poisonous qualities. This fact, when intending to effect a *conditio non-perniciosa* of tobacco, has to be taken in due consideration. The production of certain toxic compounds, occurring in the smoke, especially as, for instance, carbon monoxide, can never be completely prevented, for the reason that it is a direct result of imperfect combustion. A process for the treatment of tobacco-leaves, preventing in a way the injurious action of nicotina and of the acrid empyreumatic products was devised some years ago by Professor Gerold of Halle. As I have seen no account of it in any of the journals, and as I deem this method superior to any heretofore employed, I shall give a short description of the same in the following:

The originator employs for eight kilograms of tobacco leaves, containing the average percentage of nicotina, a decoction which is prepared thus: Fifteen grams of tannic acid are boiled with one and one-half kilograms of water until the weight is reduced to one kilogram; then thirty grams of the essential oil of origanum vulgare are added, after which the concoction is immediately removed from the fire. Having stood for some minutes, the mixture is filtered and allowed to cool to about 16° C., when the preparation is ready to be spread over the previously weighed tobacco.

When the absorption of this mixture by the tobacco leaves is completed, they are subjected to slight pressure and moderate heat, after which they are ready for the manufacture of the diverse tobacco products.

I have repeatedly treated tobacco leaves in aforesaid manner in a small way in my own laboratory, and on a larger scale in one of the New York cigar factories. Some of the tobacco thus prepared I have had made into cigars, by the assistance of which I studied its physiologic effect. The cigars were given to a number of patients of mine, who are markedly idiosyncratic against tobacco. While the cigars were smoked I made

frequent observations as to the heart-beat, pulse rate, frequency of respiration, and the body temperature. Each patient had to smoke three cigars in succession, and I failed to notice any functional alteration, which ordinarily would occur in these individuals after taking a few puffs only from a cigar; the nervous system appeared not to be affected at all, and hæmicrania, of which every one of these patients invariably complained when he used tobacco not prepared in this manner, was not present in a single instance.

Tannic acid, we know, is an antidote for nicotine poisoning, and the use of the acid for preventing the injurious action of the energetic tobacco alkaloid is by no means original with Gerold. What he has pointed out is the proportion necessary to effectually avert nicotine distillation in a given quantity, as too small amounts of tannic acid exert no influence whatsoever upon nicotina, while excessive quantities deteriorate the tobacco. The undistilled nicotina is neutralized in its toxic quantities only by the tannic acid, which does not influence at all its peculiar odor nor most of its other characteristics. In this respect it is aided by the essential oil of origanum, the employment of which for this purpose is also original with Gerold. The oil, which is a valued stimulant, counter-irritant, and an active diaphoretic, does not produce a spicy flavor, nor does it call forth the formation of crystals when subjected to heat, as is generally the case with the other essential oils. The oleum origanum seems also to combine with the empyreumatic substances rendering the same either totally or at least relatively innocuous. In concluding this fragmentary sketch, let me once more draw attention to a melancholy fact: Tobacco is the relish for most of us; many of us are its victims, soul and body; and while we are happy in the belief that we have conquered the American aborigines with our fire-water, *they* are the real victors, for they have enslaved us with their " weed of the gods.'

ALCOHOL ON THE MIND.

By Dr. A. Forel,

Professor of Psychiatry, University of Zurich.

The following abstract from a lecture by Prof. Forel of Switzerland is of great interest in showing the views of one of the foremost teachers of physiology and psychology. Dr. Forel has written very clearly and emphatically against the use of alcohol, and has made many experiments showing its injurious influence on the organism.

"Destruction of the mind is much worse than impairment of the organs of the body. Alcohol affects the mind more than any organ. All the alcoholic beverages cause more or less disturbance of the mind and of the nervous system much the same as the blood permeates every organ of the body. That the manifestations of the mind become impaired can be proven by the symptoms of intoxication, and by the effect upon the ethical, the aesthetic ideas of the good and beautiful. This injury is not necessarily limited to a regular drunkard, but is common in moderate drinkers; and is seen in this way. He becomes not as truthful as he used to be. His interest in the family becomes lukewarm, careless about the future of the family and the children, and already at a comparatively young age shows symptoms of senility. He becomes more irritable. He may be often jealous, always thinks he is right, fights for his right, and exhibits many other signs of failure.

This alcoholic intoxication of the human nervous system is soon noticed from the use of small doses. The action of the nerves becomes impaired. The injury is first noticed in that which is finest and most complicated, that is, the aesthetical

ideas, the conscience, and the reason. The human will is always influenced by a different complexus of particularly the conscious or unconscious feeling of ideas. Such persons believe that all action of the mind is by molecular action of the brain. Bunges claims that even very small doses of alcohol manifest their effect on the brain and its action is deranged and increased. They get talkative and quarrelsome. The stage of talking he calls also the motor activity, that is, a motion of the tongue. Greater motion becomes degrees of paralysis. The first alcoholic poisoning of the brain is the beginning of grave disease. More crimes are committed from the effects of alcohol, particularly crimes against other people, than from any other cause. From sixty to seventy-five per cent. of the criminals are more or less inebriates. Among counterfeiters and swindlers there is only twenty-four per cent. It is found that acute inebriety is followed by more crimes than from old, confirmed drunkards. In Europe the mass of crimes are committed on Sunday, Saturday evening, and Monday. If you enter a hall full of drunken people it will remind you of the violent wards of an insane asylum. The highest degree of drunkenness resembles the coma which precedes death; and often ends in real death.

The German language has introduced into psychiatry the expression "the pathological drunk." Particularly in men who generally can bear but very little alcohol but begin to drink when the mind gets affected. The name "berserker" means one who destroys everything in his way, being frantic and frenzied. In this condition he may commit murder. This is not descriptive of "a normal drunk." Such intoxication is caused in two ways: by frequent, repeated intoxications; and by daily drinking a moderate quantity of alcohol, both of which will end in inebriety. These latter are not called drunken, but are under the effect of spirits all the time. In these chronic alcohol intoxications there are two classes: those which can be repaired, and those which cannot be repaired.

To the first belong those who seem insensible to larger doses of alcohol, and who are insanely addicted to the desire for alcohol.

Second, those who are incurable. They are the ones who have contracted dementia alcoholica senilis before forty years of age as manifested by impairment of the brain, and characterized by mental bluntness. They have been hard drinkers, and show signs of contraction of the brain, such as shrinking, with impairment of the memory. These conditions have great similarity to that of softening of the brain. Appear in old people, but may do so in quite young people. It is incurable.

Another paralysis of the brain which the author calls alcoholic pseudo-paralysis, with thick speech, and insanity of greatness, exists. Also, those with individual predisposition and hereditary transfer.

The more one studies the poisoning of alcohol the more will one be convinced of the different predispositions of the individual, in other words, that the reaction of alcohol varies exceedingly in the different cases. One becomes drunk by small quantities, and the public considers him very weak in resisting the deleterious effects of alcohol, but this is not so noticeable in those who have a good foundation of inherited vigor and ethical makeup, and possesses a strong will power and small taste for drink. Persons who apparently can bear large quantities become stupid after a short time. This develops very early an irresistible desire for more and more alcohol. They are called "sots" who have such desire. This intense and early development of alcoholic craze is always a proof of strong hereditary vice. It sometimes appears periodically. Some of these are "quarter drunkards" — those who drink every three months. These are the ones most likely to become incurable.

The first class are not easy to get drunk, do not become particularly stupid. From birth they are defective ethically, weak in character, careless, unfit for intellectual work, and

always in great danger from frequenting saloons and following the courtesies of drinking in high society. Such men very easily become regular drunkards. But in the majority of others, they are really the victims of human imitation of seeing others drinking, whether in society or not.

The public believes that to use alcoholics will give bodily strength, it acts on this belief.

Another danger is for those who can stand comparatively great quantities without becoming drunk. In the end they, too, become inebriates. They become chronic alcoholics insensibly. They seduce others who try to drink the same quantity without getting drunk.

Their progeny always become affected by this alcoholization of their own tissues.

They also show a marked degree of brain atrophy.

Poverty and misery often accelerate drunkenness, particularly in people who have been in better circumstances. As a rule drunkenness is the cause of the poverty and misery.

Chronic alcohol intoxication causes degeneration of the semen of the man, and of the ovary in the woman.

Many other diseases follow, as impairment or faulty development of the body. This is seen in the descendants, idiots, and insane children born of alcoholic parents. The father and the mother of such children need not be regular sots yet, but simple ordinary drinking people without any drunkenness. The child may become abnormal and diseased, with very poor resistance to alcohol.

Chronic alcohol poisoning develops delirium tremens. The psychopath — one is " nervous "— and partially insane, as a rule, stands alcohol very poorly. Such persons have many disorders not caused by alcohol, and often become steady drinkers without being sots. Small doses are sufficient to bring out symptoms of acute poisoning. I have seen attacks of severe delirium tremens in a psychopath after taking only an extremely small quantity of fruit wine. The most prominent symptom of alcoholism in psychopaths is the prominence of

mental disturbances and nervous perturbations generally. These are so characteristic that they become manifested before the tissues of the body are soaked with alcohol. You can even claim that there are two forms, that is between alcoholic and non-alcoholic, that the abuse of alcohol in a very small degree very often is the last straw to break the camel's back, which wakes up a slumbering epilepsy or other psychosis. The effect of alcohol often has a hereditary disposition to epilepsy or perverse sexual desires. I have often seen alcohol cause the outbreak of latent disease which disappeared on the total cessation of the alcohol. This proves what the cause was.

Mental disturbances are always increased by alcohol. The insane and those weak in mind can never use alcohol moderately, but will become excessive users of it.

The alcoholically poisoned becomes a psychopathist and propagates psychopathists, who should early receive care and have their liberty diminished.

At the Medical Society of the Hospitals at Paris, France, Dr. Jacquet said that he had investigated the antecedent history of seventeen phthisical patients, and found that in sixteen instances they had at some time been users of large quantities of alcohol. They all drank brandy or rum, and the most of them absinthe as well. In most of these patients the period of ulceration and cavity formation came on rapidly, one or two years after the beginning of the disease, thus showing that it is not true that phthisis has a fibroid tendency in alcoholic drinkers. In many of these patients there was a hereditary tendency toward tuberculosis or alcoholism, but, making due allowance for this as well as for the fact that alcoholism is common among the population from which these patients came, it nevertheless remains true that phthisis is frequently contracted "over the bar." — *Medical News.*

HEREDITY AS A CAUSATIVE FACTOR OF INEBRIETY.

By F. C. Myers, M.D.

That heredity is a comon cause of alcoholism, and that alcoholism is a disease, is becoming apparent to many medical men of the present day.

In that good old book, the Bible, we are told that "The sins of the parents are visited upon the children to the third and fourth generations." That has been proven to be a fact, in the evil effects produced upon the system by the use of alcohol; the person whose brain and nervous system have been injured, and whose moral and will powers have been weakened, and whose stomach, liver, and other organs have become deranged by the use of alcohol, will transmit some of these derangements to his offspring.

The modern study of the therapeutics of alcohol has proven, without a doubt, that it is not a stimulant or tonic, but an anesthetic and a narcotic, and that it should be classed, in our works on therapeutics, as one or the other of these; and it has also been proven that it is a remedy of but little therapeutic value and one that could be dispensed with, even for medicinal purposes, with universal benefit to mankind. It is not my purpose in this paper to discuss the therapeutics of alcohol, but to prove, if possible, that the influences produced by alcohol are handed down from generation to generation.

The principles of heredity must have been known in ancient times, and undoubtedly gave rise to family names among the Romans, and in the present age the Bourbon nose and the Hapsburg upper lip are well-known family character-

istics; while some families are characterized for such virtues as business integrity, truthfulness, temperance, and frugality, others are as equally marked for dishonesty, mendacity, and drunkenness. A marked physiognomy and proneness for commercial pursuits have been Hebrew characteristics from time immemorial. The transmissibility of an alcoholic inheritance has been very generally admitted by many writers, among whom are Aristotle, Darwin, Rush, Morel, Grenier, Carpenter, Richardson, Thompson, and Forel. The number of cases in which an ancestral history of alcoholism has been traced is probably much below the actual amount, as it is difficult to get relatives to admit the existence of an alcoholic taint. It has been found by studying the subject, that the proportion of hereditary cases has increased five per cent. over the acquired during the past twelve or fifteen years. Norman Kerr says: "In over 3,000 cases of chronic alcoholism I have found fully one-half with an inebriate ancestry," and about the same proportion has been the experience of others who have studied the subject in America and Europe. Kerr again says: "I have observed children born more than a year after the father had been attacked by a brain disease or inebriety, exhibit from their earliest years propensity for intoxication, and in more than one family the children could, only by constant supervision, be kept from strong drink as soon as they began to crawl." And he says also: "Nearly two-thirds of the cases of inherited alcoholism are due to the alcoholism of one or both parents." I believe it has been fully proven that the child of an inebriate, born after the lesion has been established, inherits some nervous diathesis, and that the only security is by life-long abstinence on the part of the child. Beran Lewis attributed 64 per cent. of cases of chronic alcoholism to parental inebriety, some form of transmittal neurosis, or insanity. Piper puts the proportion of hereditary to acquired cases as two to one.

In the examination of two groups of ten families each,

in a children's hospital of London, one group of 57 was affected more or less by alcohol, the other of 61 was unaffected, or slightly so. Of the first group 20 had inebriate fathers, the mothers and grandparents being moderate drinkers; only 45 per cent. of these had healthy constitutions; 31 had inebriate fathers and grandfathers, but temperate mothers and grandmothers; only two of these, or a little over six per cent., were healthy. Of the 61 children belonging to the temperate families 82 per cent. were in good health.

The customary drinking of light wines and champagne at banquets and public dinners has been thought by many worthy people in the past to be perfectly harmless, but as more light is thrown upon the subject of heredity and the therapeutic action of alcohol, that custom will gradually be abandoned; in fact, it is becoming less customary at the present time. There has never been a time in America when every indication pointed so strongly to a decrease in intemperance as at present. There has never been so little drinking as at present, and never such a strong tendency toward moderation in quarters where alcoholic indulgence is general. The most careful figures bear out this statement. That hereditary craving for strong drink can be transmitted by parents who have not that craving, but who drink very moderately, has been proven. Forel says: "Hereditary craving for alcohol may proceed from parents neither of whom possessed this craving, but were drinkers only by custom or sociability."

A typic case came under my observation a few years ago. A man, born and educated in Edinborough, Scotland, whose parents were wealthy people, but who had been in the habit of using light alcoholic drinks in the form of wines — as many Scotch families do — came to this country, entered business, and was a very bright business man and honest in all his ways, but from every month to three months — never going over three months — he would leave everything and enter upon a drunken spree. It made no difference how much was involved

in business interests. As he was under my observation for two or three years, I know that it was against his will and purpose, and that he made every effort to overcome the hereditary power that was controlling him. It was usually from two to three weeks before he was ready for business again. He was a person of much moral purpose and great business integrity when himself, and has told me many times that he always had a periodic craving for alcohol ever since he could remember; he had one daughter born to him who is a nervous, uncontrollable child.

Another case of a bright young lady was under my observation for a year, who, every few weeks, from her earliest memory, had such a craving for alcohol that it seemed impossible to resist it. After taking a few swallows of diluted whisky she was satisfied, the craving for it ceased and her nerves became quiet. As she was a person who had never been in the habit of drinking, only in this way, the craving was undoubtedly from a hereditary source. Many other cases might be referred to, but as there are those here who have made that subject a special study and who would naturally see many more cases of the kind than a general practitioner, that part of the subject will be left for their consideration.

In conclusion I would ask: If one of the principal causes of inebriety is heredity, how is this form of inebriety to be cured and our future generations saved? I know of but one way, and that is to stop the drinking habit at once. As it has been proven that: 1, alcohol is not a food; 2, it does not promote digestion; 3, it does cause gastric disturbances; 4, it does not increase muscular strength; 5, it is not a tonic or stimulant, therefore, I believe medical men ought to do all in their power to educate the rising generation in regard to these facts, and that alcohol should be classed in its proper place — with anesthetics or narcotics — and everything possible done to prevent its universal use as a common beverage in social and political life. By so doing, inebriety may be practically wiped out of

existence in one generation, and a blot removed from this fair earth of ours, which would be an untold blesssing to thousands of families.

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

Dr. Bienfait, according to the British *Medical Journal*, offers the following objections to the use of alcohol:

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

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

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

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

5. Is alcohol a stimulant? No; in no case, either physical or mental.

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

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

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

9. Does alcohol increase longevity? According to reliable statistics alcohol diminishes longevity.

LEGISLATION FOR INEBRIATES IN GREAT BRITAIN.*

By Norman Kerr, M.D.,

President of Society for the Study of Inebriety.

Only some thirty years ago the great majority of the people of England looked upon habitual drunkards as badly disposed persons, who, from pure wickedness of heart, delighted and ardently looked forward to get drunk as often as they ever possibly could.

Gradually, and chiefly by the efforts of the medical profession, a revolution has taken place in medical and public opinion, till, at the present day, the overwhelming majority of professional and philanthropic persons, as well as social and political reformers and the governing classes, has demanded and has received certain new laws, which are based on the opinion that many of the most confirmed drunkards are drunken, not of choice, but of an imperious impulse arising from mental and sometimes bodily disease.

The Inebriates' Act, 1879, legalized a new principle in England, the surrender by a man or a woman of his or her personal liberty for a period not exceeding twelve months, in the hope of cure of the disease of habitual drunkenness.

The Inebriates' Act, 1888, made the former temporary Act permanent, and enacted some amendments which improved the practical working of the first Act.

The experience of the Dalrymple Home at Rickmansworth, which was established by the Homes for Inebriate Association

* Read before the International Congress at Paris, 1899. The last paper written by Dr. Kerr before his death, May, 1899.

(a philanthropic association which desired to try the experiment of treating habitual drunkenness as a disease under the Inebriates' Act of 1879), has been most encouraging.

Four hundred and seventy-five patients (all males, no females having been eligible for admission) had been discharged up till January, 1898. Of these, 225 entered under the Inebriates' Act, and 250 were received simply as private patients. Of those under the Inebriates' Act, 82 remained twelve months, 11 nine months, 4 eight months, 63 six months, and 65 three months. Of the private patients, 44 remained twelve months, 15 nine months, 67 six months, 9 four months, and 115 three months.

The average age of all the patients was 35 and one-half years at entry.

Three hundred and thirty-five had a good education, 111 had gone through college, while 29 had only an elementary education.

There was a heredity of insanity in 33 cases, and of inebriety in 235 cases. In 207 cases no family history of insanity or inebriety was obtainable.

Four hundred had used tobacco, 6 chloral and tobacco, 6 morphine, 5 morphine and cocaine, 7 opium or chlorodyne and tobacco, 2 sulphonal, and 49 had no other apparent narcotic habit.

Three hundred and thirty-four were regular or constant inebriates, and 137 periodical drunkards. There were also 4 cases of morphinism without alcoholism.

The average period of addiction prior to admission had been seven and one-half years.

The indulgence was social in 441 cases and solitary in 34.

Thirty-one were wine drunkards, and seven beer inebriates, one drank absinthe.

The habitual drunkenness of 17 followed on injuries, and of 39 on ill-health.

The average term of residence in the Home was six and one-half months.

The after history shows a substantial record of good results, 187 being well or having improved.

The treatment has been hygienic, absolute abstinence from all intoxicating beverages has been enforced, and there has been no resort to quack secret remedies, so-called "cures" or hypnotism.

The English government, after the report of several commissions and committees, introduced into parliament and carried the Inebriates' Act, 1898.

By this Act, which came into operation on January 1, 1899, a new principle has been embodied in English criminal jurisprudence. Judges have the option of sending habitually drunken criminals to an inebriate reformatory for not more than three years, instead of to a prison, thus admitting the value of the curative detention of offenders against the law.

Also, after three convictions within twelve months, on a fourth conviction on a minor offense complicated with drunkenness, the offender can be sent to a reformatory for a similar term.

I do not hesitate to predict that this latest English Act will not only affect a revolution in the jurisprudence of inebriety, but, in addition, will so intensify and extend the rapidly growing public opinion in favor of compulsory dealing with all cases of habitual drunkards, as to, ere long, secure the enactment of legislation for the involuntary seclusion of non-criminal habitual inebriates.

THE WORKING OF ENGLAND'S INEBRIATE ACT.

An attempt has been made recently to get a woman of North London committed to an inebriate hospital, under the provisions of the inebriate act, which went into effect at the beginning of this year. It was shown that the woman had been convicted of drunkenness five times this year, but the magistrate refused to grant the request on the grounds that the act referred to respectable women who had fallen victims to the craving for drink, while the prisoner did not seem to him to be of that class. The case will be appealed.

CAN THE DANGERS AND EVILS FROM ALCOHOL BE TAUGHT SUCCESSFULLY IN COMMON SCHOOLS?

By Edward C. Mann, M.D., F.S.S., New York City.

Member of American Association for the Study and Cure of Inebriety; Member Brooklyn Pathological Society, etc., etc.

In approaching this question, we must not fail to consider the very positive effects on a child's character that are produced insensibly by the circumstances of the particular circle of society in which he lives. The child is not aware of the modification which he undergoes. But if he enters a new environment or returns to an old one, it is revealed to him as he grows older, by the instant pleasures or aversions that he feels, how gradually and silently his character has been modified. And it is the same with temperance principles. The difficulty with teaching the nature and effects of alcohol in common schools has never been the enunciation of the lofty, general principle of temperance, but the application of the principle to the particular case, when the boy becomes the young man, tempted by the miserable American habit of "treating," when his action will depend upon whether there is something within, to vibrate in sympathy with that without, a pre-natal influence. John B. Gough used to say that all drunkards are made before thirty years of age. I hold that, owing to the scientific forces of psychic atavism and pre-natal influences, that most drunkards are made before birth: *i. e.*, that children are born either with good, sound, healthy nervous systems, fitted to carry them through the world successfully and over the crises that will assail them from alcohol, with its potential capacities and its active, imperative, irresis-

tible demands; or, on the other hand, owing to having mothers, who, while never intoxicated in their lives, have, during their pregnancy, always used the poison alcohol in what is conventionally termed moderation, have been born degenerates, with neither judgment nor will to meet the craving for alcohol, or with moral will and fiber to enable him to say "no," when asked to partake of the drug alcohol, which creates a new physiological want, a systemic demand, which becomes peremptory and irresistible, overbearing the person's will and judgment, until he ends up, a typical inebriate.

The dangers and evils from alcohol can be taught successfully in common schools, if only such facts are presented as are of practical value, and, secondly, if these facts are presented in a natural and logical order. No important scientific fact relating to the abuse of alcohol must be omitted. Don't tell children that to drink is wicked. You will never stem the tide of intemperance in that way. Give them facts, scientific facts and experiments performed before their eyes. Tell them that alcohol is a poison like chloral or prussic acid, and illustrate this fact by wetting earth worms with alcohol, when they will die, or put some flies into a bottle with alcohol, when they will be killed by its vapor; or give a dog two or three ounces of alcohol, when the animal will give a cry and fall lifeless. Can any one suppose that after seeing such experiments that any child will doubt that alcohol is a poison or that you can make them believe that alcohol has no dangers and evils? Put two plants in the schoolroom where the children can see them. Place the roots of one in water, and it will remain fresh for some time; now add to the water in which the roots of the other plant are placed even a small quantity of alcohol, and the plant will soon die, and the children will have received a lesson about alcohol they will never forget, and they will not doubt when told of the dangers and evils of alcohol to man and his offspring. Thus, and thus only, can we successfully teach the dangers and evils of alcohol in common schools.

BRITISH MEDICAL LETTER.

By T. N. Kelynack, M.D., M.R.C.P.
Manchester, England.

Interest in the scientific and practical aspects of intemperance is growing, and all sections of society are beginning to realize that it is a question for the most thorough investigation, and must be entered upon in a truly scientific spirit. Among recent literature in this country special reference must be made to the admirable and calmly judicial work of Messrs. Rowntree and Shevwell (The Temperance Problem and Social Reform, 1899). It will be likely to prove of considerable interest to our trans-Atlantic cousins, since American methods of restricting drunkenness are subjected to a lengthy criticism.

British Medical Temperance Association.

This body of medical men and students of medicine has recently issued its 23d annual report. Its objects are to advance the practice of total abstinence in and through the medical profession, and to promote investigation as to the action of alcohol in health and disease. There are 484 members, and 495 student associates. It is doing much good work, as was fully evidenced by the testimony given at the recent annual breakfast held during the meeting of the British Medical Association at Portsmouth.

Heredity and the Drink Habit.

The interesting articles of Dr. Archdall Reid (" The Temperance Fallacy," the Medical Magazine, Jan., March, 1899), have centered attention on the question of the transmissibility

of the drink habit. At present there seems to be a considerable divergence of opinion. Dr. Reid and his followers oppose the Scriptural and supposedly orthodox views of heredity. At the recent annual meeting of the British Medical Association (Lancet, 1899, Aug. 12, p. 451), Dr. Reid expressed the opinion that it was most unlikely that the acquired effects of alcoholism, in the forms manifested to us in drunkards, were transmitted to the offspring. Dr. Andriezen contested these views, holding that "The inebriate as a result of his habits transmitted to the offspring a damaged or diseased germ (ovum or spermatozoon), and even the most healthy married couple could from temporary intoxication do the same and beget a child which might exhibit abnormalities." Dr. Fletcher Beach, as the result of his experiences at Darenth Asylum, had no doubt but that imbecility and even idiocy resulted in the children from parental intemperance.

Professor Sims Woodhead has also recently expressed his opinion on this matter ("The Influence of Heredity upon the Drink Habit," Lancet, 1899, July 29). He believed that "The disease was not transmitted, but only the weakly and unbalanced condition of the tissues; as a result of this, however, the patient was more susceptible to the more exciting cause of the disease; in a word, the predisposing cause might be transmitted, but the exciting cause never."

The whole question of the transmissibility of drunkenness is to be submitted to a committee for investigation.

The subject is one of such deep theoretical interest and grave practical importance that it is to be hoped that a thorough research into all aspects of the question will throw much light on what is admittedly a perplexing and obscure field of morbid psychology.

Scientific Basis of Total Abstinence.

Professor Carter of Liverpool has recently published an exceedingly able brochure ("The Scientific Evidence for

Total Abstinence from Alcohol," Liverpool, 1899), in which he brings forward with all the freshness of modern thought the medical arguments for abstinence. He conclusively shows that there is a constantly increasing proportion of people dying both directly and indirectly from the effects of alcohol, and that the general increase of mortality is advancing at a far more rapid ratio among females than among males.

Pathology of Alcoholism.

Dr. George Wilson, the physician-superintendent of Mavisbank Asylum, Midlothian, has contributed a valuable essay on the psychical and physical aspects of alcoholism, considered as "a disease of the nervous system" (Encyclopædia Medica, edited by Chalmers Watson, Edinburgh, 1899, Vol. I, p. 131). He expresses the opinion that "essentially the lesion of alcoholism is an *affection of the nerve elements* in the cortex." Vavular changes are of course most intimately related to the changes in the nerve cell and its processes. The view is expressed that it is "the function of physicians to bring about a state of society in which the risk of incurring alcoholic diseases is minimized." The author very rightly says that "this is a subject which only a few can approach in a scientific spirit. Apathy on the one hand, and fanaticism on the other, characterize much of the literature upon the question." The whole article will well repay careful perusal.

DETERIORATION BY ALCOHOL.

M. Jules LeJeune, ex-Minister of Justice, gives the following statistics of the conditions of Belgium: Seventy-five per cent. of all convictions in the criminal courts come from the use of alcohol. Seventy-nine per cent. of all paupers are drunkards. Eighty per cent. of all suicides have a similar origin. Forty-five per cent. of all lunatics come from the excessive use of alcohol. He concludes that the drink problem is a very serious question in the deterioration of the country. Yet, governments, national, state, and municipal, make no attempt to abate the evil, because its only method of dealing with it — high license — yields revenue! And yet this revenue is not sufficient to meet the costs of its own evil work. How long yet? When politicians no longer infest the land, we may look for the extirpation of the evil's nests.

Abstracts and Reviews.

ALCOHOL ONE OF THE CAUSES OF TUBERCULOSIS.

Dr. Thiron, of the Faculty of Medicine in Paris, has presented a very interesting paper on this subject to the recent congress against alcohol. The following are some of the facts discussed at some length:

The fact that alcohol predisposes to the contagion of tuberculosis has not been contested by any one. It has been pretended that rum, brandy, wine, and beer are useful in the amelioration and cure of diseases of the chest and tuberculosis. He considers that nearly all these cases simply add alcoholism to an already possessed disease, and thereby hasten a fatal termination.

Dr. Legendre says alcohol very often causes phthisis by weakening the lungs. Every year we see some patients who at first enter the hospital for alcoholism, who return some months later affected with phthisis.

In 1897 Dr. Destree, professor of the Faculty of Medicine of Brussels, by experiments conducted with great exactitude, has contended against the claimed salutary influence of alcohol upon muscular work, and has fully demonstrated its uselessness, and its harmfulness to the organism.

Professors Charcot and Bouchard (Traite de Medicine, Vol. II, "Alcoholism") write that alcohol favors pulmonary tuberculosis, making a fitting soil for receiving and fructifying the bacillus of Koch. (Idem., Vol. IV.) The cause predisposing to pulmonary consumption is the influence of certain pathological states, particularly of alcoholism, for it plays a major role in the genesis of consumption.

Let us seek what is the bearing of the bacillus of Koch in relation to alcohol and if the latter can kill it, let us verify

the conclusion that alcoholic drinks are contra-indicated in the tuberculous. I cite in this connection (Triate de Medicine, Vol. I, Charcot and Bouchard): "Biology of the microbe of tuberculosis; it thrives in nutritive media containing starchy and sugary matter which it partially transforms into alcohol. This microbe not only does not die in this medium nor in the matters formed by it, but if, moreover, they filter an old culture and sow it again it develops as well as in a new medium. This is a result differing from that which obtains with the most part of microbes. It follows from this clearly that the microbe of tuberculosis is very resisting, that it is made of alcohol, *in vitro*, and with the strongest reason that it remains active *in anima vili* of the alcoholized individual, and that it thrives there."

Prof. Duclaux, director of the Pasteur Institute, says: (Traite de Microbiologie) that "the adult Aspergillus consumes ordinary alcohol as easily as sugar and even its growth seems to receive a beneficial effect; moreover, it stands very well a nutritive liquid containing six to eight per cent. of ordinary alcohol."

He also says (in Traite de Bacteriologie by Prof. Macé): "The bacteria can assimilate ethyl alcohol from its nutritive medium."

So the bacilli are not intimidated by alcohol.

Dr. Prevost, of the Faculty of Medicine of Geneva, sets forth (Traite de Therapeutique Experimentale, 1897) that in administering alcohol for several days consecutively to rabbits during gestation, and then killing them, that they have found alcohol in the amniotic fluid, the placenta, and the fetus."

Even the alkalinity of the blood is diminished in alcoholism, and the ingestion of the salts so necessary to the organism being decreased, it results in organic disturbances.

Conclusions.

Alcohol does not give force, it is not force producing, the seeming exciting impulse which it produces is but a fleeting

exaltation of the organism; after which comes the period of fatigue, weakness, and paralysis. The consumption of alcohol neither augments the physiological energy nor the muscular work.

Alcohol does not warm the organism, it is not a calorific or a thermogenic food.

Alcohol does not favor digestion. (Prof. Bunge.)

The alcoholic not only does not resist tuberculosis, but he acquires it with the greatest ease.

Alcoholic drinks are not nutritive, they are not transformed in our body, on the contrary they retard assimilation and nutrition. (Prof. Dr. Forel, Zurich.)

REPORT OF THE CANADIAN MEDICAL ASSOCIATION ON THE TREATMENT OF PAUPER INEBRIATES.

At the annual meeting of the Canadian Medical Association, held in Toronto on August 30th, 31st, and September 1st, last, Dr. James Thorburn, the Chairman of the Committee on the Treatment of Inebriates, submitted the report, which reads as follows:

At the Quebec meeting of this association a paper by Dr. A. M. Roseburgh was read by the secretary on this subject. This gentleman has for years taken a deep interest in the reformation of inebriates, and about eighteen months ago was commissioned by the Prisoners' Aid Association of Canada to visit institutions and interview specialists, with a view of enabling him to formulate a plan for the economic treatment of pauper inebriates. After visiting eight special institutions and conferring with the best known specialists in Canada and the United States, he found that about thirty-four per cent. of those subjected to scientific treatment appear to be permanently relieved from their infirmity. This percentage, he is convinced, may be very materially increased by the adoption of a modification of the Massachusetts Probation System — changing the environment of the patients and exercising judicious supervision subsequent to treatment. While he has for

many years recommended reformatory treatment with prolonged detention for the more hopeless class of inebriates, he is convinved that, for the incipient drunkard and the more hopeful class, a few weeks' hospital treatment will be effective in a large percentage of cases, more especially if the case be followed up by judicious management subsequent to treatment.

Since the paper referred to was read at Quebec, the matter has been considered by the Ontario Medical Association, and the plan therein outlined was fully endorsed and also recommended to the Ontario government for adoption. We learn that influential members of the Ontario government, to whom the scheme was submitted at an audience given by them to a committee of the Ontario Medical Association, expressed themselves as being very favorably impressed therewith, and that they were disposed to favor its adoption in Ontario.

The scheme endorsed by the Ontario Medical Association and recommended to the Ontario government, briefly stated, is as follows:

(*a*) The appointment by the provincial government of an inspector of inebriate institutions. This inspector should be a qualified medical practitioner, who has made the medical treatment of inebriety a special study.

(*b*) The inspector should organize in the city of Toronto a hospital for the medical treatment of pauper inebriates of the more hopeful class, and in other cities of the province an inebriate department in the existing general hospitals.

(*c*) The inspector should also arrange in connection with each institution, where inebriates are received and treated, an organization or agency for the adoption of the probation system, and giving a helping hand to the patients subsequent to treatment for inebriety.

(*d*) The inspector should provide for the adoption of a rational course of medical treatment for inebriates in accordance with the tenets of legitimate medicine only, to the exclusion of the use of any proprietary remedy.

Under the circumstance here cited, we beg leave to make the following recommendations:

1. While we are of the opinion that for the successful treatment of confirmed drunkards, prolonged removal from temptation in a properly equipped reformatory is very desirable, is not absolutely necessary, we would nevertheless be disposed to endorse the plan herein outlined for the economic

treatment of pauper inebriates of the more hopeful class, either in cottage hospitals or in a special department of general hospitals.

2. In case the plan of treatment of inebriates here referred to should be undertaken either by the Ontario government or by any of the other provincial governments, we bespeak for it the cordial co-operation of every member of the medical profession who is in a position to favor this important undertaking.

CARE, CONTROL, AND TREATMENT OF INEBRIATES.

It seems that new communities must take the lead in many important social needs. Old communities have crystalized around old ideals, while young communities are free to lead out with new plans and original ideas. They are untrameled by the customs and traditions of the old communities. In many ways the laws of the younger Western States are much more progressive than the laws of the Eastern States. New Zealand and parts of Australia are already putting into practical operation, in a moderate way, Henry George's land-value tax theory. We are indebted to the antipodes for the introduction and practical testing of many new social ideas; also for new and higher social *ideals*.

I have before me a bill which has passed the Legislative Council of New South Wales, Australia. We have said much about the duty of the state in the direction of the care, control, and treatment of inebriates, but for actual law on this subject we now have to go to the progressive antipodes. The following is an outline of the bill:

A Judge or Magistrate, on application, and after evidence of medical practitioner, and on inspection, may make an order as to control of inebriate.

Court of Petty Sessions may make an order in case of an inebriate frequently convicted of drunkenness.

Judge or Magistrate may make order as to property and treatment of inebriate.

Court in Lunacy jurisdiction may make orders as to property of inebriate who is incapable.

Directions may be given, and orders varied, renewed, or rescinded.

Order shall authorize attendant to prevent supply of intoxicant to inebriate.

Inebriate not to leave the Colony.

Inebriate escaping from custody may be arrested.

Inspector-general of Insane and other officers to inspect places where inebriates are under control.

Person supplying inebriate with intoxicant liable to penalty.

Proceedings not to be published without permission.

Judges may make rules.

Governor may license institutions for inebriates and may make regulations.

For the purposes of this Act —

"Inebriate" means a person who habitually uses alcoholic liquors or intoxicating or narcotic drugs to excess.

"Institution" means a place licensed under this Act or established by the Government for the reception, control, and treatment of inebriates.

Notice the definition of "inebriate" in this Act; it means the victim, not only of alcohol, but of "intoxicating or narcotic drugs."

The question, "Are we our brother's keeper?" is an old one. In civilized countries it has for many years been decided that we are our insane brother's keeper, as many public institutions for the treatment and care of the insane testify. Is it not time that we were taking another step, and include the irresponsible inebriate? "The holy ones" will say: "They should not drink; it is their own fault if they do." "If they have formed intemperate habits, they should not have done so." "Such care would only encourage drunkenness." "If drunkards prefer to wallow in the gutter, let them do so; I do not want to be taxed to take them out of the gutter — let them help themselves," etc.

We doctors know that inebriety is a disease, sometimes inherited, sometimes acquired. We know that the average confirmed inebriate is just as unable to care for himself as the average insane man. Excesses in business, religion, sexual indulgence, etc., lead to insanity. We do not refuse care to these insane because "they should not have done so." We recognize that the thing has been done, and that the condition exists. So with the inebriate. When will we rise to that ethical height that will lead us to see the true condition of the inebriate and respond to it properly. When we do so, many valuable, but unfortunate, members will be restored to society. — Editorial in *Medical World.*

THE DRINK QUESTION IN BELGIUM.

For some time past the drink question has been exciting among thoughtful persons in Belgium serious reflections, and the figures collected by M. Jules Le Jeune, Minister of Justice, certainly justify them. The population of Belgium is still less than seven millions, although it will soon pass that total, but it can boast of 198,000 wine and beer shops, or one for every thirty-five persons, women and children included. The total drink bill of the country is valued per annum at twenty million pounds sterling. One-third of that sum is represented by gin in its several marketable forms alone, and from sources that cannot be impeached, the authority has no difficulty in showing that this expenditure does not represent all the loss to the country. To it have to be added the loss of time, the deterioration in the quality of the work, and the absolute incapacity for work that follow in the train of excessive drinking. But Mr. Le Jeune seeks to rivet public attention to the subject by producing further statistics to show that in seventy-four per cent. of the cases of convictions in criminal courts the cause of the crime is drink; that seventy-nine per cent. of the paupers living in the States were drunkards; that eighty per cent. of the suicides have a similar

origin; and, finally, that forty-five per cent. of the lunatics were victims to what is called the alcohol habit. If the drink question reveals a serious flaw in the prosperity of Belgium, it must also be allowed that many of her public men are fully alive to the peril, and seeking to combat it. — *Forward.*

EXIT "HUSA."

That little fairy tale which we all read a couple of years ago about a doctor traveling in Florida and discovering by the aid of a native a plant whose juices were antidotal to snake poisoning, and would also cure the opium habit, has at last come to an end. You remember how ingeniously it was worked up, how the native, when made drunk, said, "I calls it viellies an husar, and I gits it from de Semmes in de Dales." Well, that doctor was just coining money selling "Husa" to the afflicted over the United States, when Prof. John Uri Lloyd of Cincinnati investigated it, and found it to be a liquid consisting of a solution of sulphate of morphine and salicylic acid in alcohol and glycerine, with suitable coloring matter. The thanks of the profession are due to Prof. Lloyd for his excellent services. — *Medical World.*

THE HIPPOCRATIC OATH.

The Arlington Chemical Co. of Yonkers, N. Y., has just issued a most artistic reproduction of "The Oath," which every physician should possess. It is a very handsome picture for any office. If you have not yet received a copy, the publishers will gladly send you one upon request.

Dr. Ricketts, in an article on "Snake Bites" says "Overstimulation from alcohol and other agencies is oftener the cause of death than virus-inoculation."

The *Scientific American* is more valuable every week in its records and illustrations of the new advances of science. No more acceptable present can be made than that of a year's subscription to this journal.

Appleton's Scientific Monthly is more cosmopolitan every year in science. Its papers are broader and clearer and on wider lines. It is clearly an evolution in literature to read monthly such excellent papers.

The *Homiletic Review* should go into the library of every thinker who would keep up with the great lines of thought. Send to Funk & Wagnalls of New York city.

A YEAR'S SURGICAL WORK (400 SURGICAL OPERATIONS) UNDER NON-ALCOHOLIC MEDICATION, WITH A MORTALITY OF ONE PER CENT. (Evan O'Neill Kane, M.D., the railway Surgeon, June 27, 1899.)

From June 1, 1898, to June 1, 1899, the author performed a few more than four hundred operations. Forty-nine abdominal sections, fifty odd more operations of a graver sort, one hundred miscellaneous of less gravity than above, over one hundred operations upon female perineum and uterus. Of the four hundred, more than three hundred demanded anaesthesia. There were but three deaths, making the mortality a little less than one per cent.

The author does not claim a phenomenally low mortality, nor does he claim specially brilliant results. He has to contend with unreasoning fear on the part of the patients for hospital surgeons, and also most of his cases had been in the hands of quacks and had subjected themselves to remedies prescribed by old women. Many cases came after the family physician had exhausted his resources. He thinks his results are considerably better than the average in hospitals and in country districts.

He calls attention specially to the fact that alcoholic medi-

cation was dispensed with entirely after the patients came under his care, and to this he attributes much of his success. He does not believe, that it is a stimulant or a tonic. On the contrary he believes that it retards digestion, arrests secretion, and hinders excretion. The courage and fortitude of his patients were lessened instead of increased by the use of alcoholic medication.

Pain is better borne, endured longer and more patiently when alcohol is not used.

He urges the practical surgeon to carefully weigh the subject of alcohol and verify for himself the expediency of its use. — Rogers, *St. Paul Medical Journal*, Sept., '99.

EXPERIMENTAL STUDY OF CHILDREN. Including Anthropometrical and Psycho-Physical Measurement of Washington School Children, and a Bibliography. By Arthur MacDonald, Specialist in Bureau of Education, Washington. Government Printing Office. 1899.

The work done by the Government Bureau of Education, while entirely unobtrusive, is most timely, thorough, and practical. This work upon experimental study of children is most important, and it is a far-seeing government which makes such work possible.

"Anthropometry is the measurement of the human body in general, a branch of anthropology, but independent in its purpose and methods." Its application to the child at its various stages of growth and development is most important, and while apparently many facts are recorded, seemingly without import, they are of decided benefit. The standard by which physical development and growth are measured must be had, and this only by countless measurements of children at all school ages. Kindergarten work has done much to stimulate child-study, and the time has now come when the pedagogue and the physician must work hand in hand. Physiological psychology is the natural outgrowth of such

work as is recorded in this book. It has formerly been education at any cost; now it is the physical child which must be first considered. "What is the maximum work suitable to a child in the different periods of development, in its school life? Can this maximum be injurious at certain times, when all the vital force may be required for growth?"

These questions can only be answered after the normal growth is ascertained, this by the individual and collective methods of examination; tabulation of results and careful study of statistics from this. This work has been most painstakingly done, and should be placed in the hands of every educator for thoughtful and careful perusal. — *Louisville Monthly Journal.*

A TEXT-BOOK OF ANATOMY BY AMERICAN AUTHORS. Edited by F. H. Gerrish, M.D., Professor of Anatomy in the Medical School of Maine, Bowdoin College. Lea Brothers & Co., 1899, Philadelphia, Pa.

This work holds one's attention. Its first sentence, "Anatomy is the science of organization," stimulates thought. The impression made by the manner of presentation developed in a few opening pages is deepened as the mind is led on through the orderly sequence of the chapters. The arrangement is not new, but the terseness of description is when the amount of ground covered is considered. One is convinced of its fitness as a text-book after a brief study of the plan of teaching as described in its suggestions of "Methods of Study." It seeks to record the facts which are essential, and to avoid those which are exceptional in order that the seeker may readily find what he needs first. Perhaps the most striking feature is in the use made of diagrams, in which colors are freely used to bring out the idea meant to be conveyed. These occur in profusion, and are near the text which they illustrate. The one picturing the formation of the osseous structure is not soon forgotten. The cavities of the ventricles of the brain are brought out very clearly by engravings of casts of the

same. The artificial distension of the synovial sacs offers an excellent idea of their traumatic possibilities. The origin and insertion of the muscles are shown in color, the mass of the muscle appearing as a dotted line which also gives the relative size. There is no important change in the nomenclature. Whatever alteration has been made shows the preference of the Association of American Anatomists. The names "Sustentacular Tissues" and the "Blood-Vascular System" sufficiently display the careful expressiveness of the authors.

The chapter on the "Lymphatic System" is particularly good. A chapter on "Normal Skiagraphs" is the contribution of Science during the last three years. All Latin and Greek names of parts have their English equivalent given.

The authors and publishers are suitably praised by their work in the production of this text-book.

PRINCIPLES OF BACTERIOLOGY, by Dr. Ferdinand Hueppe, Prof. of Hygiene in the University of Prague. Open Court Publishing Co., Chicago, Ill. Price, $1.75.

This little work of four hundred and sixty-five pages is very valuable to the physician and specialist, and is really one of the most important books which has come from the scientific press during the year. The bacterial causes of disease, and the immunity from disease, vaccination, inoculation, and the history of both the harmless and dangerous forms of germs, are new studies to most physicians. This book is a handy text-book for every physician, but not the most rigorous, scientific treatise on this subject. The translator, Dr. Jordan, Professor of Bacteriology in the University of Chicago, has made a very graphic, readable work. Send to the publisher for a copy.

THE EVOLUTION OF GENERAL IDEAS, by Th. Ribot, Professor in the College of France. Authorized translation by Francis A. Welby. Open Court Publishing Co., Chicago.

This work is a *résumé* of a course of lectures at the College of France, and takes up the different forms of abstraction con-

cerning speech in animals, children, and deaf mutes; and gestures. Other chapters refer to intermediate and higher forms of abstraction and their nature, and to evolution of the principal concepts of space, time, law, cause, and species.

The discussion of these topics is very interesting, especially to psychologists, and takes up several abstruse subjects, making them very clear. The author has a very clear, graphic way of presenting these facts, and the general reader will find much of great interest. Such works are always welcomed by an increasingly large class of students. The publisher has brought out an attractive volume.

The story of "Luke, the Beloved Physician," is a revelation even to Bible readers. The facts about this far-away medical man who is known more as a saint and apostle, are really very remarkable. They give us a picture of the practice of medicine, surrounded with a charming mysticism. The author of this little book, Dr. Culbertson, is well known in the literary and scientific world as the editor of the Cincinnati Lancet-Clinic. He has given in an unique way a graphic history of this old-time physician, who was not only a scientist in his day, but a preacher of the higher gospel of life and living. The author has culled from Biblical and Rabbinical lore a charming history which will repay perusal. This little work is a contribution which will be welcomed by all lovers of literature and bibliography. Price, 25 cents. Send to the author for a copy.

Few persons going through to the Pacific coast can realize the scenic beauty and richness of the country along the line of the Great Northern Railroad. Starting from St. Paul, and skirting the Canada border through the Red River district and the upper Rocky Mountain region to the Columbia River, it

is a continuous stretch of rich plains, and mountain and river valleys. The road is excellent, and the equipment is of the most modern, luxurious character. No other road across the continent has so many attractions for travelers. Write to the general passenger agent at St. Paul for circulars descriptive of the road.

ALCOHOLISM IN FRANCE.

In the opening lecture of his course Dr. Debove sounded a note of alarm. He declared that alcoholism was present everywhere in France — in the towns, in country villages, and among all classes. The resources and strength of the country were impoverished by this vice. It was no longer a condition of acute and sporadic alcoholism; alcoholism was now chronic in France. That country, according to Dr. Debove, has the unfortunate supremacy of being at the head of all the "ethylic nations." The proportion of alcohol at 100° drunk amounts in Paris to 14½ liters per head, in Belgium and Germany, 10 liters, England 9 liters, Switzerland 8, Italy 6, Sweden 4, Norway 3, Canada 2. This unenviable supremacy is on the increase, as it is in Belgium, the proportion in other countries being a descending scale. There are in France 500,000 wine shops; in the North of France one for every twenty-five adults; in the Seine Inférieure Department one for every twenty-two adults, in Paris one for every three houses, not counting the railway station bars. Dr. Debove told his hearers that no one escapes this epidemic; children, young girls, men, women, all suffer from it. In some parts of France nurslings are brought up by bottle *a l'alcool.* Dr. Debove calls upon the medical world by example and by carrying on a crusade against this invading tide of alcoholism to try to stem it. — *British Medical Journal.*

Editorial.

INEBRIETY IN NEWSPAPERS.

The conceptions of alcohol, opium, and cocaine inebriety which appear in the articles of the daily press are curious mixtures of half fact and delirious imagination. One author who writes of his own experience gives an excessively minute account of the impressions and reasoning of his own mind when under the influence of alcohol. Another tries to imitate De Quincey in a fascinating word description of his thoughts. Recently a reporter described cocainism and its effects, giving every detail of sensation and impression which fills the mind of the victim. These accounts are taken as true, and in some cases students of psychology have made them the bases of studies. One account relating to the delusions of cocainism has been printed extensively, and has appeared in several medical journals and in part in medical papers, and, no doubt, will later go into some text-book. This description was largely exaggerated, like all the others, although written with more art and skill. No one intoxicated with these drugs can write minutely of his thoughts and impressions except in some particulars. The brain is anaesthetized and is unable to analyze its own workings or to remember the mixed impressions of the senses. Even trained writers have failed, and could only write of themselves in a confused mixture of imagination and vague theory. The delusions and morbid impulse which fill the mind are rarely well defined and so fixed in the memory as to be repeated. There are rarely any fixed delusions common in all cases, even in alcoholics. But most persons read all that is written, and when they become intoxicated act out the delusions which they have read about. A newspaper article described a delusion of hail falling on the body. Soon after

this was mentioned by two cases under my care. The wild, lurid descriptions of the mind during drug intoxications are often fictitious at the beginning, but are accepted as real, and made so by others when intoxicated. The unconscious mimicry of drug-takers is sustained by these sensational accounts. De Quincey's story is unreal, and never seen in actual experience, and yet many cases who have read it will incorporate some of his descriptions. No newspaper account of the symptoms of inebriety can be trusted, and public opinion based on such literature is full of delusions and misconceptions.

THE INEBRIATE IN FICTION.

The inebriate in fiction always represents the author's convictions, experience, and observation of such characters. The theories of what inebriety is, gives prominence to certain phases of conduct in the character drawn. If the author is an inebriate or moderate drinker or one who has reformed, he will write his own personal history so accurately that it cannot be mistaken in his writings about drink victims. He will also show how far his knowledge is from reading and observation. In all cases, the character of the inebriate will be distorted, and while accurate in some particulars, will be unreal. In temperance and religious literature, the inebriate is made an object lesson to show the criminal, vicious, and degraded phases of his life. The opinion is that the more prominent this is made the more valuable the lesson.

Among the many authors, the late T. S. Arthur gave the most exact descriptions of inebriates in his stories. Some of his late works contained very striking psychological analyses of the conditions and progress of such cases. "The Demoniac" by Besant, gives an accurate picture of one phase of inebriety.

Other writers have drawn inebriate characters unknown in

actual life: some minor lines may have been correctly drawn, but the portrait was a confused mass of coloring. The inebriate characters in some of the popular works of the day are vague, disconnected recollections of the author's personal experience. Unconsciously he has written some part of his own life or the dominance of some theory of inebriety which he holds to be correct. It is not true that personal experience brings clearer insight and ability to describe such conditions except on certain lines.

The inebriate's description of an inebriate may be accurate in parts, but will fail in breadth and proportion. The point of view is narrow and unreal. Both on the stage and in fiction, the inebriate is a grotesque compound of maudlin stupidity and treacherous selfishness or generosity mixed with sanity and capacity to do differently. This comes from delusions concerning the nature and causes of inebriety, and the exclusive study of such cases from the theological and criminological side. The psychological side of the inebriate, with all its alternating phases of sanity and insanity, opens up a most fascinating field for fiction. An accurate picture of these phenomena would be far more startling than any work of fiction. The present coarse, distorted word descriptions of inebriety in stories and other literature are rapidly passing away. Already the inebriate is coming into clearer light, and the very realism of his condition will bring a new attraction to literature. A rich field awaits the coming writer who shall become acquainted with the facts and laws governing the origin, growth, and progress of inebriety.

COLD AND ALCOHOL.

It is generally admitted that the consumption of alcohol induces much less disagreeable consequences in the regions of the north than in southern countries. But from a statistical and besides a most interesting study belonging to a country

comprising the most varied climates, N. J. A. Sikorsky, of Kiev, demonstrates that this manner of presenting things is far from corresponding with the reality. La Semaine Medicale gives the following analysis of his labor:

"The number of deaths due to acute alcoholism in the southern provinces of Russia varies on the average from 15 to 22 per year for a million inhabitants; in the central provinces it fluctuates around 40, in those of the north 70 to 100. This difference is not at all connected, as one would suppose, to a greater or less considerable consumption of spirits, for, according to the statistics of the minister of finance, relative to the decennial period, 1881-1891, the average of consumption is lighter in the provinces of the north (except those of St. Petersburg and Moscow) than in those of the south where it equals 3.57 liters to 4.80 liters of absolute alcohol per capita, while for the first it varies from 2.46 liters to 3.07 liters.

So, in spite of this smaller consumption of alcohol, the cases of death from excessive drinking are more numerous in the northern countries where it is not known obviously to seek for a reason in thermic influences. In fact, the researches to this end undertaken by M. Sikorsky show that the number of the deceased of this class is far greater as the average temperature of the country is lower. This average temperature which for Southern Russia is 7.9 degrees, falls to 4.8 degrees in the central provinces, and almost to 3.08 degrees in the north. One sees that the general showing of these figures bears a striking resemblance to that which belongs to the number of deaths due to intoxication. Elevated temperatures then seem to hinder, in some manner, the pernicious action of alcohol.

Certain abrupt variations in the series of figures returned year by year equally confirm this view. Thus, for the provinces of the northwest the mortality from the abuse of drinks was in 1886 ten times less than the year following. But the meteorological reckonings returned by the St. Petersburg academy of science indicate that during the year 1886 the

temperature was particularly mild, while that of the year 1887 was very cold.

These facts are worthy of special attention, as they are in accordance with figures perfectly comparable since in Russia everywhere they drink chiefly brandy and so the variations which belong to the different toxicity of spirits are next to nothing.

Such will not be the case in France, for example, where the last element has, on the contrary, a very great importance, certain departments consuming alcohol chiefly, and certain others wine.

In summing up, M. Sikorsky thinks himself authorized to admit that external cold increases in a considerable manner the toxic effects of alcohol, and triples the chances of poisoning. Contrary to the opinion generally admitted, the use of strong liquors seems, moreover, so much the less indicated in cold countries since alcohol, far from contributing to the conservation of the heat of the body, exercises rather an anithermic action in paralyzing the vessels of the periphery, and in slowing the manner of the blood flow in the same way as organic changes. — *L'Alcool.*

PALSY FROM ALCOHOL.

A physician was invited to dine at the club with the dispatcher of a railroad. After dinner the dispatcher remarked that he must go to his room and lie down. The physician inquired the reason. He answered, "The wine I have used, although in small quantity, has bewildered my brain for accurate work, and I must rest. I would not dare to go on duty now. I should make mistakes and not know it at the time, and the mortification of having them corrected by my associates would confuse me still more." The physician thought, "I am going to make some very important calls in the homes of friends who trust me implicitly, and at the hospital where my

best judgment and skill is required. Is it possible that the wine I have used has made me unfit for this work?" Later, he met the dispatcher, and said, "You were right, and I have been taught a lesson I never will forget. That afternoon's work after the dinner cost me the loss of one of my best families by my indiscretion and anger. I realize now that I cannot use wine and have full possession of myself." This is a phase of the revolution of public sentiment which is coming into prominence among active brain-workers. At banquet tables this is apparent in the abstemiousness of the practical men. This is not from sentiment or theory, but from experience. They know the anaesthetic effects of alcohol literally, and have felt its depressing action on the brain and nervous system.

An old-time clergyman during pastoral visitation called on his drinking members early in the week so that the disability from the spirits used on these occasions would pass away before the time for preparation for the Sunday service.

A noted public man refused to attend public dinners because of the wines used. He gave as a reason that he could not use wines without injuring himself.

Science is receiving a strong confirmation of its conclusions from the experience of practical brain-workers and thinkers.

HEREDITY IN INEBRIETY.

To deny that the taste for alcohol is ever inherited is to oppose the facts of the history of many cases. It is true that the disposition and tendency to find relief in alcohol is common, and that children of inebriate parents are more susceptible to its influence. It is also true that a physiological immunity and antagonism to alcohol appears in children of inebriates. This revulsion often reacts in the next generation in extreme susceptibility to alcohol, showing that the heredity was latent in one generation, only to break out in the next.

The following example of the transmission of the taste for alcohol is not unusual. An infant six months old showed great pleasure and stopped crying when bay rum or cologne was used in the toilet. Later, when Florida water or some form of spirits was used the child would be quiet. The odor of spirits was so soothing that finally it was given on sugar, and found to be a most efficient narcotic remedy. At two years of age the child became intoxicated by bay rum left within its reach. From this time an irresistible craze for spirits appeared whenever the odor of alcohol was noticed. The slightest whiff of spirits seemed to awaken a latent frenzy to possess it. The child would cry and sob until the nurse would bring some alcohol or some confectionery that had been soaked in spirits. At four years, beer was given regularly at meals, and the child was uncontrollable without it. Finally, it died of scarlatina at six years of age. Both the parents of this child were inebriates, and died early.

Example 2. A girl four years old began to drink beer and wine, and to secrete cologne and every substance which contained spirits, using it stealthily. When she could not procure spirits she was irritable, sullen, and would use strong condiments. For five years she was persistent and determined to procure spirits. Both the odor and taste seemed to create a desire to procure it by any means. Wine and beer was given in limited quantities daily, and the demand grew more and more imperative. At twelve she was intoxicated. At eighteen she married, and died later in childbirth.

Examples of a strong predisposition to use stimulants, with feebleness of resisting power when tempted are common.

Examples of immunity and physiological antagonism to alcohol are also noted.

A son of inebriate parents, brought up in a saloon, had an intense disgust for spirits, and would frequently vomit when the odor was strong or when it was given as medicine. As he grew up this disgust increased, and with this a vindictive

hatred of alcohol and its users. Of four children, two drank to excess in early life, and died, and one was a moderate drinker.

In one instance, a race of inebriates was followed by two generations of rigid abstainers and impulsive temperance men; then reversion followed. The children of the third generation from these inebriate ancestors suddenly developed a number of impulsive inebriates under the most adverse conditions.

An instance under my care of the only son of an immune clergyman at puberty suddenly developed an intense pleasure in the flavor and odor of alcohol, and would spend hours in sipping it. Later, he became a periodical drinker, drinking to excess and then abstaining. His grandparents on both sides were inebriates. His father had intense disgust for alcohol and its effects. The inheritance of the alcoholic impulse to use spirits is variable and complex. In some a taste for cider and acid wines is transmitted; in others sweet wines or spirits combined with sugar are called for. The children of beer-drinkers are often fond of bitter alcoholic compounds such as absinthe and vermouth. While these cases are exceptional, they exist, and are as startling as the inheritance of the form, features, and mental peculiarities of the parents. The breaking out of the drink impulse at the same time in the next generation, and the development under like conditions are startling hints of unknown laws of heredity. The direction and conditions which favor and develop the taste for alcohol exactly the same in two generations is another illustration. The degeneration and profound changes which follow the excessive use of alcohol can only be seen in the effects which are not accidental or by chance, but follow a uniform line governed by laws. Heredity is still an unknown field. From the study of the histories of the mental and physical characteristics of parents and children some glimpses of the minute laws and exactness of movement can be seen.

Dr. Read's recent papers denying the heredity of inebriety, with his views of the evolution of the drink problem and its biological bearings, have the far-away sound of one who has lost his bearings, and has forgotten that anyone has ever written on the subject before. It is possible that the facts and conclusions which have been verified over and over again by competent persons in different countries and in different conditions may be fogbanks of theory, but it is presumptuous to expect one to accept sweeping conclusions without other evidence than mere statements. Theories and theorists are rarely constructive, and conclusions based on isolated or half-truths are always dangerous and misleading. New facts and new conclusions must come from the observations of many accurate witnesses, and be tested by time and experience. Heredity and the drink problem generally have been, and are still, occupying the attention of many able men — men who are more and more unwilling to pronounce dogmatically on any phase of the subject. They are satisfied to slowly gather fact after fact, and from these to draw conclusions, and study their meanings. It is only from this side, and in this way, that any new views can be obtained.

A physician, who is a professor in a medical college, has recently published an elaborate argument to prove that inebriety cannot be transmitted because it is a nutritional disorder. An eminent divine discovers from the theological point of view that inebriety cannot be transmitted, and disposes of the subject in a bitter condemnation of the foolishness of students who are trying to know something of the subject from the physical side. A man of letters has joined the objectors to heredity, and with some feeling condemns all efforts to sustain what he calls a great delusion. A self-assertive editor has delivered himself in oracular sentences at some length along this line, and discovers much danger in the

heredity theory. Thus the tide of criticism goes on building up and strengthening the facts by denying their accuracy. In this way attention is turned to them, and new inquiry and new examination follows, and the facts become firmer and clearer and better known. Denials and contradictions of facts held as correct are never destructive, but always constructive if the facts are vital and real.

Dr. J. H. Kellogg, in a paper read at the Seventh International Medical Temperance Congress, Paris, April last, stated: "Every drug capable of producing an artificial exhilaration of spirits and pleasure which is not the result of the natural play of the vital functions, is necessarily mischievous in its tendencies, and its use is intemperance, whether its name be alcohol, tobacco, opium, cocaine, coca kola, or any other of the score or more of inslaving drugs known to pharmacology. . . Artificial pleasure is obtainable only by borrowing a portion of the life and energy which properly belong to to-morrow. . . . All drugs which enslave are alike in this regard, however much they may differ in their physiological effects."

Clinical Notes and Comments.

INTOXICATION OF PHYSICIANS.

Judge Taylor in a series of most interesting papers in the *New York Medical Journal* on "The Law In Its Relations to Physicians," makes the following note on the subject:

"The fact that the fatal treatment may have been superinduced by drunkenness, or that the physician may have been in an intoxicated condition while rendering the services that resulted in the patient's death, would at common law be a circumstance for the jury to take into consideration in determining whether the defendant had been guilty of grossly improper conduct. The legislatures of several states have, however, expressly provided that a physician who administers while intoxicated a poisonous drug which results in death shall be held guilty of manslaughter, and many of the states have passed laws making it a misdemeanor for one to practise as a physician while intoxicated." Such acts have been passed in the States of California, Idaho, Michigan, Minnesota, Montana, Nebraska, New Mexico, New York, North Dakota, Ohio, Oregon, South Dakota, Utah, Washington, Wisconsin, and Wyoming.

THE INFLAMMATORY CONDITION IN PERITONITIS, ETC.

An interesting reference to an extensively prescribed remedy is found in that valuable text-book "Materia Medica and Therapeutics," by Finley Ellingwood, A.M., M.D., Chicago. The substance of the article is to the effect, that the influence as a pain reliever of the popular analgesic —Antikamnia — is certainly next to morphine, and no untoward re-

sults have been obtained from its use, even when given in repeated doses of ten grains (two five-grain tablets). It is especially valuable during the progress of inflammation, and given in pleuritis or peritonitis, it certainly abates the inflammatory condition, relieves the pain at once and the diffused soreness shortly, as satisfactorily as opium. It does not derange the stomach or lock up the secretions. It is also of value in pain of a non-inflammatory character, and is a convenient and satisfactory remedy in headaches without regard to cause, if the cerebral circulation be full.

I had a rather queer experience with your sample of *Ecthol.* I took it twenty miles north and gave it to Nicholas Diaz. He has had scrofula for four years, and has paid out in that time over one thousand dollars. He took a teaspoonful every two hours for four days, after that a teaspoonful every four hours until he had used two bottles. He walked in here to-day, cured. All signs of swelling and those awful scrofula sores and blotches on his face are gone. Of course, his soft palate was destroyed by the disease long ago, and he thought I could make him a new one. I replied only God can do that. He paid me enough, so I can buy more of your remedies, and I shall keep a supply on hand. I buy from Dr. Barry of Durango, Mexico, who orders for me from San Antonia, Texas.

Chas. A. Bailey, M.D.

A CASE OF INEBRIETY CURED BY BEEF AND HOT WATER.

A man thirty-five years of age, married some ten years ago into an English family of means. His wife was unaccountably and continuously ill, and, though he spent, it was said, some $5,000 a year on her for medical treatment, it was of no avail, because he discovered her disease by coming home unex-

pectedly and finding her dead drunk on the floor. She was incorrigible, and he left her. Curiously, he became an inebriate himself, spent all his substance and went home and lived on his parents. He became so bad that his father turned him out doors and he was a ruined drunkard in the gutter. A connection of mine who has had great things done with beef and hot water under my care, took him in from the street on his saying he wanted to reform and was willing to obey directions, which regulated all his actions, and gave him a diet of beef and hot water. This was some three or four months ago. To-day he is reported cured, back in his old position of a drummer, going with his old cronies and not drinking at all. Ephraim Cutter, M.A., M.D., LL.D.

Two new combination tablets have been prepared by the Antikamnia Company, which come very highly recommended. We have found them very valuable, and take pleasure in calling special attention to them. We give the formulæ in full.

(A Laxative Analgesic and Antipyretic)

Each Tablet Contains:

Antikamnia.....gr. 4½
Cascarin.....gr. ⅛
Aloin.....gr. 1/12
Ext. Belladonna.....gr. 1/12
Podophyllin.....gr. 1/12

Specify

"Antikamnia Laxative Tablets."

(A Tonic Laxative, Analgesic and Antipyretic)

Each Tablet Contains:

Antikamnia.....gr. 3
Quinine Bisulph.....gr. 1¼
Cascarin.....gr. ⅛
Aloin.....gr. 1/12
Ext. Belladonna.....gr. 1/12
Podophyllin.....gr. 1/12

Specify

"Antikamnia and Quinine Laxative Tablets."

Dr. Rosenthal in a paper in the *Gynæcological and Obstetrical Journal* draws the following conclusions: "*Maltzyme* is a powerful diastasic nutrient. It is acceptable to the stomach and causes a rapid increase in the patient's ability to take and digest food, and an increase in flesh and strength. It seems

to possess peculiar properties in maintaining nutrition in those patients suffering from serious organic and constitutional diseases, such as tuberculosis. It is the best malt preparation — in diastasic and nutrient properties — which I have ever used."

Always use *Listerine* in all external injuries as a standard antiseptic. It is a uniform and positive mixture which can be relied upon.

Horsford's Acid Phosphate has reached a place where notices in the press simply express the general sentiment of every one who has used it, not that it is a specific or universal remedy, but it is an excellent, safe combination in many serious diseases.

Pond's Extract needs no mention, it is a household remedy. Wherever it is used once it stays as indispensable. Some idea of the demand for it is apparent in the fact that at the distillery where it is made, one hundred tons of witch hazel shrubs were used in six months.

We take pleasure in calling attention to the drug house of G. F. Harvey Co., of Saratoga Springs, whose excellent preparations are standard on the market. Lately, *Rickine* has proved to be a most valuable preparation. It should be tried for neuralgia and many nervous affections.

Fellows' Syrup of Hypophosphites was used as a specific for inebriety in a certain fake home-cure. The results were excellent, and the patients were given this medicine after when the facts came out. It was certainly a more exact and practical remedy than the so-called "Gold Cures."

Borinine. The blood is literally ox blood taken direct from the arteries, and made palatable and portable, so it can be used as a medicine. The principle of introducing blood into the system is correct, and the practical results have been marked

and uniform. To prepare blood so that it can be used at all times is a triumph of art and an advance of therapeutics that should be more widely known and appreciated. In our experience this remedy has been very valuable in the exhaustion and debility following the use of morphia and other drugs. It seems to act as a tonic, and replaces the loss of blood-cells and vital force. In some instances of alcoholic inebriety the craving for drink was diminished and broken up altogether. In two cases all spirits were withdrawn, and the substitution of Bovinine seemed an excellent tonic, followed by rapid recovery. In all cases of drug addiction, there is a diminution of the blood corpuscles, and literally starvation and defective nutrition. Any remedy which will increase the oxygen carried to the centers, and also the nutrition, is valuable. Alcohol injures the blood-cells by abstraction of the water, and destroys their power to carry oxygen. Opium and other narcotics also act on the blood-cells, diminishing their nutrition. Bovinine brings blood-nutrient cells to the system to supply this want. This view is sustained in practice whenever it is given. The increase of blood pressure and of the weight and appetite, and the decrease of the pains and aches and anæmias are still further evidence of its value. Bovinine should be fresh and not be used long after it has been exposed to the air. It should be given in two-ounce doses with milk or hot water every four or five hours. In several cases Bovinine has been very palatable to the taste, and was used freely to the great advantage of the patient.

Don E. Ashley, M.D., Guy's Mills, Pa., says: "After the mania produced by improper use of alcoholic beverages has been controlled I know of no better compound than *Celerina* to restore tone to the nervous system and vigor to the whole human economy. I find it an excellent remedy for colliquative sweats, especially in convalescent cases of typhoid fever. I speak not from the experiences of other physicians, not from hearsay, but from knowledge obtained from the careful observance of happy results brought about by the administration of this useful medicine."

AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY.

(*Organized November 29, 1870.*)

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

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

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

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

V. The object of the association is:

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

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

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

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

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

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

Address: —

T. D. CROTHERS, M.D.,

Secretary and Treasurer.

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