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T. D. BROTHERS, M. D., Editor,
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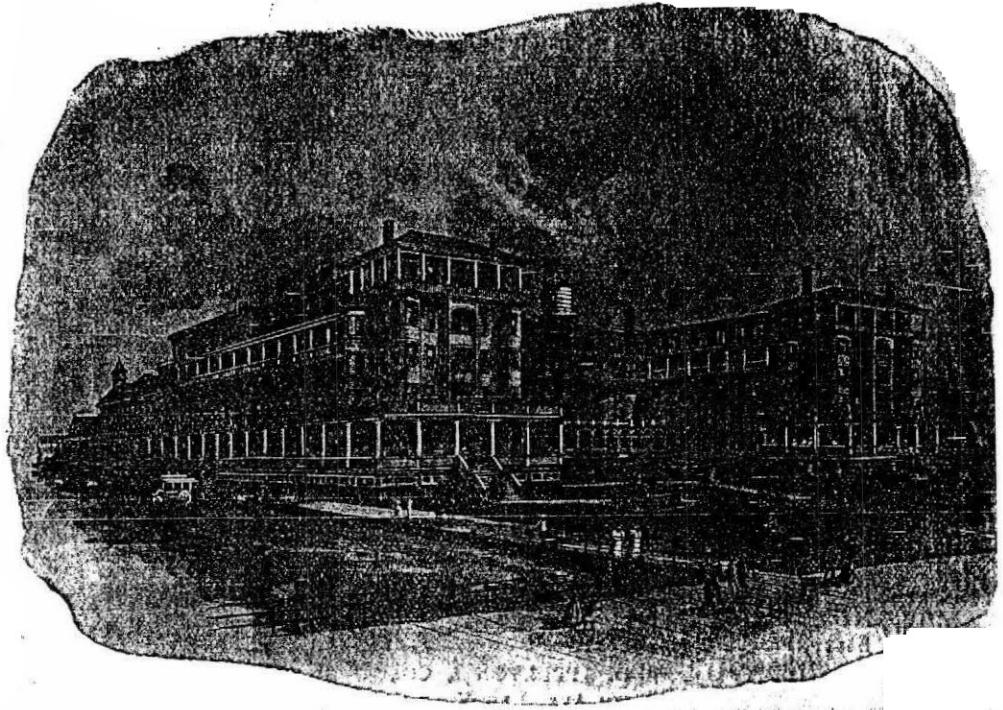
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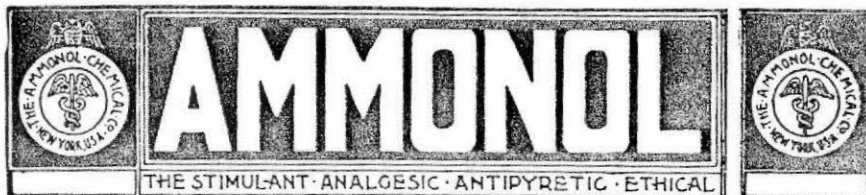
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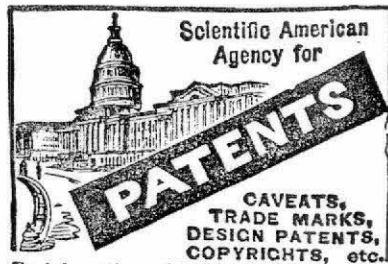
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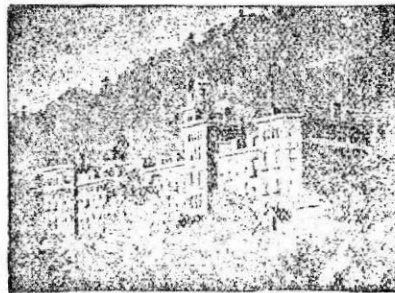
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THE RELATION OF ALCOHOL TO LIVING
NATURE.

BY WINFIELD S. HALL, PH.D., M.D.,

Prof. of Physiology, Northwestern University Medical School, Chicago.

Ethyl alcohol is one of the normal products of the life activity of the yeast plant, though most species of white mold form alcohol under certain abnormal conditions. The conditions which lead to a formation of alcohol by the white mold lead also to a marked increase in the formation of alcohol by yeast.

The yeast plant is a fungus. The method of reproduction used by this order of plants, when all conditions are favorable to vegetative growth, is a gemmation or budding.

Reess¹ grouped all of the alcohol-forming yeast plants into one genus which he called *Sacharomyces*. He further divided the genus into several species, which are gradually increasing in number as new researches are made. *Sacharomyces cerevisiæ* (8-9 micron) is the beer yeast. This species

¹Reess: "Untersuchungen über die Alkoholgährungspilze." Leipzig, 1870.

has been subdivided by Hansen¹ into a great number of races or varieties.

S. ellipsoideus (6 microns), *S. apiculatus* (6-8 microns), are the principal wine yeasts, though many other species have been described.

The fungi belong to the lowest subkingdom of plants and are distinguished morphologically by absence of root, stem, and leaf, and physiologically by the absence of chlorophyll, the green coloring matter of leaves and stems.

According to the plan of nature, only those organisms which possess chlorophyll are able to build up complex food substances from simple inorganic compounds. Thus we find the green-leaved cereal grasses building up cellulose, starch, sugar, oil, and proteids from such inert compounds as CO₂, H₂O, and the mineral salts of the soil. The energy which is made latent in this wonderful constructive process is derived from the sunlight by the chlorophyll.

Organisms not possessing chlorophyll are unable to utilize the inert inorganic materials of their environment. They are dependent upon the chlorophyll-bearing plants for their food. Animals live upon the cellulose, starch, sugar, oil, and proteid elaborated by green plants for their own use. Fungi subsist in a similar, though perhaps somewhat humbler, way: the toadstool and mushroom, appropriating the decaying vegetable matter of field and forest; the yeast plant, consuming the sugar of decaying fruits; while molds and bacteria are found wherever vegetable or animal matter is in the process of degenerative change. In fact, it is the presence of these non-chlorophyll-bearing organisms which leads to decay.

From the above we see that the fungus possesses many points in common with animals. Its life energies are liberated from the highly organized foods which it first consumes, then decomposes.

The food of the yeast plant must contain nitrogenous

¹ Hansen: "Untersuchungen aus d. Praxis d. Gahrungsindustrie." 1895.

matter, otherwise there will be a wasting away of the cell substance as shown by Pasteur.¹ Mayer² has shown that this nitrogenous matter may be in the form of such soluble and diffusible proteids as peptone, proteoses, syntonin, or yeast extract. A portion of the nitrogenous matter may also be in the form of ammonium nitrate, tartrate, or oxalate.

Besides the nitrogenous food there must be carbonaceous food, which is represented by sugar. Then there must be water and salts; the latter must represent iron, potassium, and magnesium in phosphates, and in some sulphur combination. (Not sulphate — Mayer.)

As these foods are all soluble, they may be directly absorbed by the yeast cells without the intervention of any digestive process. They are absorbed through the cellulose wall of the yeast cells and become a part of the cell protoplasm. In this connection we must remember that not all of the substance included under the term cell protoplasm possesses that property which we call life, and assimilation has not taken its highest step when a substance enters the cell.

The cytoplasm of the cell is now generally accepted as representing a reticulum (spongioplasm) whose meshes are filled with a fluid (cytolymph). Food substances are absorbed into the cytolymph, where they are supposed to be held temporarily in store for the use of the active and more highly organized spongioplasm. The spongioplasm is active, while the cytolymph is passive; the spongioplasm has the power to replenish its own substance from the foodstuffs of the cytolymph. The spongioplasm alone possesses the peculiar property which we call life.

In the manifestation of its life the spongioplasm may build up more spongioplasm from the various foodstuffs, or it may cause an oxidation of foodstuffs within the cytolymph without these foodstuffs having been built up into spongioplasm.

¹ Pasteur, cited by Schurtzenberger in "Fermentation." New York, 1893.

² Mayer, cited by Oppenheimer, "Die Fermente u. ihre Wirkungen." Leipzig, 1900.

4 *The Relation of Alcohol to Living Nature.*

How the cell accomplishes the building up of the new living material out of foodstuffs is not known. How it finally causes disintegration of portions of its own living substance is also unknown.

Something is known, however, of the processes by which the living cell-plasma extracts energy from the foodstuffs of the cytolymph. A study of the phenomena of fermentation through half a century by hundreds of investigators has revealed the existence of soluble ferments, or enzymes, which are the catabolic agents of the living substance; *i. e.*, they are the instruments through which the living substance breaks down food substances and liberates the latent energy of these foods.

Enzymes may be either secreted by the cell or retained within the cell; in the first case they perform an *extra-cellular fermentation*; in the latter case an *intra-cellular fermentation*.¹

Buchner² has shown that the yeast plant possesses an enzyme — *zymase* — which has the power, when extracted from the cell, of causing dextrose or grape sugar to break up into ethyl alcohol and carbon dioxide. No one has expressed a doubt that this enzyme is the agent through which the living protoplasm of the yeast cell liberates the energy of the sugar. The zymase is not secreted by the yeast cell, but does its work as an intra-cellular fermentation.

Very early in the study of alcoholic fermentation it was discovered that when the yeast cell has an ample supply of oxygen there is a rapid growth and reproduction of the cells, with a much decreased production of alcohol and a quantity of carbon dioxide out of proportion to the amount of alcohol.³ On the other hand, with a deficiency of free oxygen there is a great decrease in cell proliferation, while the energy for

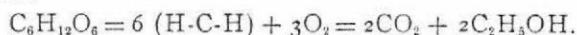
¹ "Green: The Soluble Ferments & Fermentation." Cambridge, Eng., 1900, page 13.

² Buchner: "Alkoholische Gahrung ohne Hefezellen," Ber. d. d. Ch. Ges. Berlin, '97-'98-'99.

³ Buchner u. Rapp: Zeitsch. f. Biol., No. 37, s. 82, 1899.

the life processes of the cell is liberated from the sugar through the action of the enzyme; the reaction being something as follows: $C_6H_{12}O_6$ (+ latent energy) = $2CO_2 + 2C_2H_5OH$ (+ kinetic energy), which was first suggested by Gay-Lussac,¹ but now accepted for practical purposes by Oppenheimer.²

Kassowitz³ suggests the following preliminary step in the formula:



Every living organism absorbs certain foodstuffs, assimilates these, and either directly or indirectly causes their catabolism or breaking down. The catabolism of complex substances results in the formation of a number of substances of simpler composition which are passed out of the cell or organism.

Among the substances which leave the yeast plant are: CO_2 , H_2O , glycerine, a nitrogenous substance, succinic acid, and ethyl alcohol.

But the matter which passes out of living cells may be divided into two categories: (1) Matter which is elaborated within the cells and passes out into the surrounding medium, where it performs a function or serves a purpose advantageous to the cell or to the organism of which the cell may be a part; (2) matter which has been more or less completely broken down and, being useless to the cell, is passed out in order that its accumulation within the cell may not clog the vital processes or otherwise injure the cell.

As examples of the first category one thinks at once of the enzymes of the digestive glands, elaborated from substances within the cell-plasma, passed out into the lumen of the alimentary canal, where they induce in the contents of the canal chemical changes which are highly advantageous to the organism as a whole. Then there is mucin, formed and passed out to lubricate and protect the delicate surface of the

¹ Gay-Lussac: *Ann. de. Chimie*, No. 95, p. 311, 1815.

² Oppenheimer: "Die Fermente u. ihre Wirkungen," Leipzig, 1900.

³ Kassowitz: "Aufbau u. Zerfall d. Protopl." *Allgemeine Biologie*, Vienna, 1899.

alimentary, respiratory, and other membranes; also oil, prepared in the sebaceous glands and thrown out upon the skin to keep it soft and nonabsorbent.

As an example of the second category, one may name carbon dioxide, a product of the oxidation of the carbon of the cell-protoplasm. In the case of the higher animals, urea and uric acid, products of the oxidation of the nitrogenous matter, are good examples of the second group.

The line of division between these two classes of substances is a very clearly marked one. Johannes Müller made this subdivision and it has been generally accepted. The substances belonging to the first category are called *secretions*, and those of the second *excretions*. Such leading dictionaries as Foster's, Gould's, and Century recognize the division and define excretion as waste matter thrown out of an organism. The term *excretion* is used in this sense by physiologists generally.

In the light of the use and definition of the word "excretion" in the literature of nutrition, we can formulate the following definition, which would be acceptable to any physiologist: An excretion is any substance (1) which is the product of intra-cellular oxidation of food; (2) from which the organism has extracted the maximum energy possible for it; (3) which would injure the cells that formed it if retained in them; and (4) which is expelled by the cells immediately after its formation.

All of the substances mentioned above as leaving the body of the yeast plant fulfill these conditions, and must, therefore, be classified as excretions. In no case could they, or any one of them, be looked upon as a secretion in the sense in which that term is generally used. No one has ever contended that the yeast plant makes any use of these substances after they are thrown out of the body. The fact is that the yeast plant throws them out because it can get no further energy out of them. They are thus typical excretions.

The Biological Significance of Excretions in General, and the Influence of Excretions upon Living Matter.

The living organism throws out excretions for two reasons: (1) it can make no further use of them, and (2) if retained the substance poisons the organism. A clinical fact long known and frequently illustrated is that retained urea and uric acid cause profound disturbance of the nervous system, followed by convulsions and death. It is a biological principle universally recognized that *the decomposition products of any organism are injurious to that organism*. Vaughan¹ expresses this law in the following words: "*They (the cells of the body as well as bacteria) are injured when the products of their own activity accumulate about them.*"

The excreta of bacteria are all classed as ptomaines by Vaughan,¹ and he subdivides these into two classes: (1) *Toxic ptomaines*, formed in the presence of little oxygen (scarcity of O); (2) *non-toxic ptomaines*, formed in the presence of abundant free oxygen. Quoting further from Vaughan:² "It is true without exception, as far as we know, that the excretions of all living things, plants and animals, contain substances which are poisonous to the organisms which excrete them. These poisons originate in the metabolic changes by which the complex organic molecule is split up into simpler compounds."

We must now inquire whether or not alcohol is one of the constituents of the yeast plant excretion which is injurious to that organism. The latest authority on fermentation, Carl Oppenheimer,³ says: "The question as to how far the cleavage products affect the ferment injuriously can be answered very easily in the case of alcoholic fermentation, since in this case one of the cleavage products, namely, alcohol, is, in a certain degree of concentration, a protoplasmic poison, and

¹ Vaughan. "Ptomaines, Leucomaines, Toxines, and Antitoxines," 1876, p. 549.

² Vaughan, l. c., p. 550. Refer also to Aitken, "Animal Alkaloids," 1889, p. 14 et seq.

³ Oppenheimer, "Die Ferment u. ihre Wirkungen," Leipzig, 1900, s. 276.

injures the yeast and decreases the fermentation. When the alcohol has reached a strength of twelve per cent. the growth of most species of Saccharomycetes is much decreased, while with fourteen per cent. all activity stops."

Mucor in general and some of the Saccharomycetes are much more sensitive to alcohol, one per cent. to four per cent. being sufficient to completely stop all further growth as well as fermentation.

Not only will the excretion of any living organism poison the organism which produces it, but it will have a toxic action upon any organism of a higher rank. Thus the excretion of a mammal might serve as food for some of the lower invertebrates, and certainly for fungi and bacteria; while the excreta of the yeast fungus (alcohol) serves as pabulum for the bacterium of acetic acid fermentation. The excretion of the bacteria (ptomaines) are, however, poisonous to the bacteria and to the yeast fungus; alcohol is toxic to the yeast and to all animals.

The biology of ethyl alcohol may be thus summed up: (1) Ethyl alcohol is the excretion of a fungus; (2) excretions which are toxic to the organism which excretes them are also toxic to all higher organisms; (3) alcohol is therefore toxic to the yeast plant, and, from its inherent nature, is toxic to all animal protoplasm.

Dr. W. A. Dickey of Toledo, O., in an address before the Mississippi Valley Medical Association, says: "I am firmly of the belief that the individual who habitually consumes large quantities of alcoholic beverages is more prone to take tuberculosis and other infectious diseases, such as typhoid fever and pneumonia, than is the total abstainer, and when these diseases are once taken his prospects of recovery are materially lessened; the cells of muscle, lung, and nerve being in a large measure devitalized renders the individual more vulnerable."

THE STUDY OF INEBRIETY, AND ITS PROPER
PROSECUTION.

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All progress advances on tentative lines, and its onward movement is necessarily intermittent and gradual. Of all the sciences, that of medicine, dealing as it does with our organism and sensations, and through these affecting our mental, moral, and physical natures, has to follow the most tentative and most actively criticised paths. The history of medicine tells of the long and tedious struggles through which have passed many of its principles before becoming accepted facts. Fully two centuries passed by while succeeding generations of anatomists and physiologists battled over the details of isolated ideas in medicine that finally led Harvey to announce the discovery of the circulation; even then Harvey devoted a score of years towards perfecting its details before venturing upon its announcement, or its final and conclusive demonstration. In the beginning of the eighteenth century Lancisi first described the nature of malaria, calling attention to the fact that a forest would stop its progress. At the same period Linnæus suggested its parasitic or animalcular origin. It is only after the lapse of two centuries and the arduous labors of Laveran, Manson, Ross, Sonsino, and Grassi, within the past twenty-five years, that the question has been definitely settled. And yet, all the laborers in these two fields of investigation were at all times working with material subjects susceptible of demonstration through the scalpel or the microscope.

Unfortunately all medical subjects are not cast in lines that lead into such easily demonstrable fields, nor are they at all times, owing to their lack of visible materiality, as susceptible of such easily explained and conclusive demonstrations. Medical subjects at times leave the solidly trodden ground to wander into the morasses and sloughs of psychology, where neither scalpel nor microscope, instrumentation nor the analytic chemist, can either follow or sound the depths or pierce the mists that surround them. Our progress is here most tentative, and, of necessity, slow, and its discoveries and real advances not easily demonstrable to the uninitiated. Patient observation and analytical comparisons, close study of all collateral subjects, and devotion to our self-imposed tasks, will often, however, permit us to accomplish more than we expected, even in these most unpromising fields.

Inebriety is essentially one of the subjects pertaining to this elusive category. Leaving aside the acute variety, which may in general be termed an accidental condition, and restricting our inquiries to its chronic and periodic forms, we are at once in face of one of most complicated problems in medicine. While it is true that chronic or periodic inebriety at times rests, through traumatism, upon easily discernible physical causes, we must admit that the majority of the cases depend for their causation upon such a mass of mixed physiologic and psychologic factors, varying racial diathetic conditions, family-inherited tendencies, and acquired conditions of physiologic, physical, and psychologic disturbances, and upon so many sociologic and environal conditions that to analyze any given case and attempt to reach a rationally acceptable conclusion requires not only the broadest imaginable grasp of medicine, but a ready comprehension of the influence that is exerted on man through all the environments in which he dwells, as well as of all the influences that he has experienced from his racial ancestry. In fact he must here consider all cosmologic knowledge, as it all bears on the subject, and

must, first of all, adapt himself to approach and deal with his subject in the utmost spirit of philosophic charity and unprejudice.

To well consider this subject one needs possess an appreciation of sociologic and industrial conditions, of the effects of extreme cold and heat upon the system, the effects of an illness or of an injury, or of a great physical or mental shock, the effects of heat exhaustion, and of any great physical or mental prolonged attack entailing an exhaustion that may be more or less permanent in its results. All these must be taken under careful consideration, and well weighed in connection with the hereditary racial diathetic condition and family or individual tendencies or susceptibilities of the person. In fact we must familiarize ourselves with every possible factor than can disturb the normal healthy equilibrium that should exist between mind and body as well as with all the conditions that tend to favor a weakening of this equilibrium.

The first essential requisite in the study of inebriety is a philosophic state of mind, and to obtain this we must follow Descartes' advice, that "to philosophize seriously and to good effect it is necessary for a man to renounce all prejudice; in other words, to apply the greatest care to doubt all of his previous opinions, so long as these have not been subjected to a new examination, and been recognized as true." In other words, we must consider and well sift all available evidence, and conclude without reference to any preconceived ideas that are usually without foundations.

Very evidently we must entirely divest ourselves of these obstructing, preconceived, and unfounded ideas before beginning our inquiry, as they will otherwise materially interfere with the admission of evidence, and thus deflect us from the proper path and cause us to wander away from the object of our investigation. First of all we must abandon the idea of a distinct and independent separateness of mind, morals,

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and body and adopt the views held many centuries ago by Timæus the Pythagorean philosopher of Locria, by Plato, and still later by Galen, who all looked upon a cacochimic condition of the body as the cause of the disturbances of the mind and sentiments. The ancients termed all sentiments as being the soul. Galen's interpretation of Aristotle gives to the latter the same view, to wit, that the affections of the soul depend upon the nature of the blood and the bodily conditions.

This is not bad philosophy, because it is so very ancient, as the ideas of the old Greeks, and those that Spinoza enunciated some two centuries ago, and which Ribot and the modern school of psychology have taken for the foundations of all their premises are identical. Metaphysical psychologists, as expressed by Ribot, look above for the mind and spirit, while the followers of his school look below and in the body for all the impulses of the mind. Spinoza's ideas were eminently materialistic and unmetaphysical. In his "Ethics" he thus defines his views on this subject: "The object of the idea that constitutes the human spirit is the body—that and nothing more." "L'objet de l'idée qui constitue l'ame humaine, c'est le corps—et rien de plus." "L'idée qui constitue l'etre formel de l'ame humaine n'est pas simple, mais composée de plusieurs idées." There is the great point of divergence where in the discussion of the causes of inebriety the philosophic and the unphilosophic part company and cannot thereafter meet on any common ground.

To insist upon ignoring all that has been stably learned and solidly established in these lines carries with it the denial that man is largely the creature of climate or environment, or that he is in many ways either physically, mentally, morally, or psychologically just the product of his food and environment, when the ethnologist and sociologist know full well that outside of his racial characteristics, which are indestructible, climate and its products determine every phe-

nomenon of his sociologic and psychologic, as well as of his physical existence. In connection with the subject of racial traits and characteristics we come upon more ideas that we must also abandon, if we wish to study the subject of inebriety from a philosophic point of view to some definite purpose. We must divest ourselves of the old and now otherwise untenable ideas concerning the monogeneous origin of man, of a reflective man created in the full powers of mind, and in the full consciousness of moral rights and wrongs, and that without any intervening Neanderthal man or any Pithecanthropus Erectus, or any other intervening missing link, to connect man with the rest of his brother mammals as he ascended the evolutionary scale to his present estate. Ethnologists have hardly been strictly philosophic in their adherence to the monogeneous, and in their rejection of the polygeneous origin of man. The former theory has greatly simplified their labors, while it has materially increased them for those who are attempting to harmonize varying racial diathetic and psychologic conditions, as well as many varying conditions of immunities that will not harmonize. With all the modifying influences of climate, civilization, stage of social standing, and industrial environment, we observe racial traits in the field of inebriety that may well be termed diathetic and that are seemingly indestructible, just as in others we can observe, regardless of all associations and temptations, or of all climatic and environal influences, a very distinct and opposite condition of apparent racial immunity to alcoholism in its various forms or degrees.

The stunted inhabitant of the arid regions of Tierra del Fuego is, in his primitive state of mind and body, and morally as well as physically, just what the inclement climate and the ungenerous diet of that terrestrial purgatory would produce and nothing more. Any other human being born and raised under like conditions, and undergoing the same hard struggle for existence, would, after a time, have all of its better

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inherited intellectual faculties dwarfed, and faculties that were requisite to maintain a purely animal existence under such adverse circumstances, as proportionately over-developed — he would soon degenerate into a man-animal. This was E. Ray Lankester's idea. Condillac went even further than Lankester, as he believed that if Descartes had been nurtured and raised by bears that he never would have walked erect, but on all fours like a bear. Buffon shared in these opinions. It is needless to say, however, that an Anglo-Saxon born in Tierra del Fuego, and left to be raised by the natives, would either die young or employ all of his indestructible racial ingenuity and courage, as soon as of sufficient age, to seek some more congenial, salubrious, and productive climate and region. Racial traits, tendencies, and immunities, whether in the direction of physical, physiologic, pathologic, or psychologic conditions, are so indestructible that the very distinct races of men must have possessed as separate an evolutionary process of growth as the different species of monkeys, dogs, felines, or horses and asses.

The psychologist and specialist in mental and nervous diseases have, from observation, practice, and experience, become well acquainted with the utter dependence that inseparably exists between mind and body. When the memory fails or the power of volition is in abeyance, or one is stricken with the loss of some special sense or particular motion, or when the previously well-balanced mind begins to totter or suddenly gives way to driveling idiocy or to furious delirium, we no longer look upon the afflicted one as being possessed either by a demon or an incubus. Neither do we now look upon the afflicted one as being a victim of sorcery. We no longer exorcise such a being nor sprinkle him with holy water, neither do we burn or drown him. Why a temporary or permanent mental or physical malady, or any psychologic derangement attended with an irresistible impulse to stimulation, should not be judged by the same rule, is incomprehen-

ble. Especially is this incomprehensibility accentuated when the afflicted individual is plainly seen to be laboring under a total or partial suspension or loss of his accustomed will power, this being accompanied at times with a perversion of his natural ideas, tastes, and affections. I have known many periodic inebriates thus to experience and exhibit various premonitory symptoms of the coming storm, wherein morals and mind would for a time be completely perverted or seemingly irretrievably wrecked. The patient is often, just prior to one of his spells of inebriety, in a condition no way differing from many of those who suffer from pre-epileptic attacks, and is at such times no more morally or mentally responsible for the succeeding attack than is the unfortunate epileptic for his.

Some races are more prone to nervous diseases and to affections of the mind than others, just as some races lack imagination, while others are very imaginative. In a like manner a racial tendency to inebriety depending purely on a diathesis which cannot be ignored — in which these nervous and mental forms of disturbance acting as precursors to the spell of inebriety which almost inevitably follows — is a fixed and transmissible racial inheritance among some people, while the diathesis and accompanying undesirable results are altogether absent in other and more fortunate people.

There exists in the above a very grave and serious medico-legal responsibility, which is in principle diametrically at variance with the accepted ideas as expounded in law or court. Courts do not recognize this prior state of irresponsibility as having existence. A crime or lawless act, or an act of any kind, committed by a person under the influence of alcohol is not considered as being voidable or excusable, because the law takes it for granted that the individual was fully aware of the irresponsible state of mind in which he would be placed by partaking of any alcoholic stimulation. While not desirous of entering into the discussion of the right or wrong of

admitting, in general, either emotional insanity or inebriety in the gross, as a defensive excuse for the commission of crime, I cannot escape the conviction that in the face of known facts, individual conditions should be more minutely examined and unjust convictions in many cases avoided, as the state of suspended volition and consequently that of moral or mental irresponsibility may have preceded that of the actual incipient drinking by periods of from twenty-four to seventy-six hours — periods during which the poor unfortunate was as mentally and physically helpless to prevent the approaching catastrophe as the unlucky victim of a Western cyclone to hold on to terra firma.

The need of a broad and comprehensive grasp of medicine and the immediately collateral sciences is here evident, as the subject under discussion at times steps over the imperceptible boundary line that divides distinct medicine from the domains of the criminologist, the jurist, and penologist. Our profession has been somewhat backward in recognizing the importance and value of the application of the general principles of preventive medicine in dealing with the defective classes or even in recognizing their early remediability. We have here too much ignored the inseparability and interdependability of the labors of the sociologist, jurist, penologist, and physician. The lines where the labors of one cease, to be taken up by the others, are very dim and unobservable.

Another injury of this failure of law to recognize and appreciate the liability to mental and moral irresponsibility that resides in nearly all inebriates, consists in the utter lack of legal provisions through which a person known to medicine as being afflicted with any degree of this irresponsibility, can be restrained from dissipating his or his family's substance, or from ruining his reputation, and so place him that he may be subjected to such required discipline or treatment as will in the most rational manner either tend to abridge or cure the attack and restore the individual to health and usefulness.

A person laboring under the requisite degree, either of physical or psychologic disturbance, to usher in a spell of debauch is often as mentally and as morally helpless either to appreciate or to avoid acts which may end in crime, as he is morally or mentally helpless to resist the awakened desire for stimulation or tendency to drink alcoholic liquors. And yet the law-making element has persistently refused to grant that relief that medicine, through careful observation and experience, and actuated by a rational exhibition and consideration for both prudence and humanity, has as urgently suggested and proposed. This is even more true of England, where every consistent effort of the medical profession has been defeated in Parliament through the resistance of the legal members sitting in that body.

Whatever differences there may exist between medicine and law upon many subjects, we have, however, but to place ourselves in the position of the judge or lawyer to perceive wherein it comes that law takes such a different view of the subject of inebriety, or of its close ally, insanity, from that taken by the physician. The law and medicine have here altogether different offices to perform. The law has to comprise within its scope of observation, and especially that of action, which is still more important, the many intricate and conflicting aspects of the sociologic environment of the question, whereas the physician is at best simply occupied and interested with its humanitarian and physical relations, and that only as it directly affects the afflicted individual, and his office is more or less restricted to the simple or complex efforts of restoring him to physical and mental health. When, however, the law is invoked, other and varying interests besides the mere recognition and physical treatment of the disease enter into serious consideration. First of all may come the question of restraining the individual of his personal liberty, a question that medicine expects the law to decide and issue its orders upon, but one which the courts will not entertain

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or consider, and still less act upon without being fully convinced of its extreme necessity and full legal propriety. It thus becomes incumbent upon the relatives or friends, but more particularly upon the attending physician, to fully establish the order and degree of mental irresponsibility of the afflicted person, as well as the order and degree of danger that may follow to the afflicted one or to others if this is not done. Secondly, there may be property or business interests implicated, liable to cause serious injury or loss to the individual or family if the law should unnecessarily or injudiciously adjudge him either incompetent or irresponsible. Attending all these perplexities there is the further question of the appointment of a guardian; in all, forming a series of acts involving the present and future welfare of the individual which the law does not lightly approach or assume.

Another serious question that impedes action consists in the stigma that at once attaches itself to any person who has been legally adjudged irresponsible. By one of those paradoxical workings of the mind a man in jeopardy of his liberty or life, or even of a fine, will not hesitate to have himself adjudged either irresponsible or insane to escape the penalties attached to his misdeeds, but this is after the crime or illegal act has been committed, and the claim put forth for absolution, on grounds of irresponsibility of will, is made with almost a certainty that it will have no permanent evil effect on the individual's future. If, however, such a claim is made to prevent the person from committing such deeds or acts, there exists a feeling that the injury to the individual's standing or to the future reputation of the family is irreparable, and there are very few — either friends or relatives — who, under the circumstances, would unhesitatingly make affidavit to the facts required in law to place the person under proper restraint. These paradoxical forms of illogical conclusions are but indices pointing to want of proper appreciation of the conditions that go to constitute and accompany inebriety. No one

would hesitate to restrain a patient in delirium due to some uremic condition resulting from a fever or some analogous cause from running into the street and committing some crime, but the same person will utterly fail to perceive in the inebriate conditions not only tending to the same order of irresponsibility, but which are still more liable to cause injury to the afflicted one and additional injuries to others. This all tends to exhibit a lamentable want of knowledge of a common and familiar subject, which should be far better understood and more logically treated.

No hard and fast rules can be devised that would at all times, and under general circumstances, meet all the requirements of the subject, and do full justice to all parties concerned. Any law to affect these cases must be firm in its intent, but sufficiently elastic in its application to cover all forms and contingencies, as well as every order and degree of inebriety. Whatever physician may be appointed to take charge of such inebriate irresponsibles should be in the permanent employment of the state, and out of the reach of the influence of political rings; neither should he be dependent upon private patronage or practice for either position or livelihood. The inebriate is at times, while in a state of inebriety, or even during the convalescent stages, subject to some of the many forms of paranoiac delusions or hallucinations and fixed ideas of persecutions which not infrequently leave a permanent impress upon the senses, thus giving to these delusions or hallucinations a tinge of reality. Under these conditions, inebriates will at times become suspicious and distrustful, and form ideas of utterly unfounded strong personal dislike to the medical attendants or nurses, which nothing can ever afterwards either mitigate or efface. Many a physician in private practice has, during his attendance upon some patient during a spell of periodic inebriety, forever lost the confidence and esteem, and gained the distrust and hatred of patients who have

theretofore been not only his patients, but even warm personal friends. Temporary mental derangements or long spells of unconsciousness after an injury or serious illness are, at times, attended in a like manner by some forms of these psychologic disturbances, that have, thenceforth, through their continued influence, separated formerly long-time friends or even relatives.

That the cause of temperance should permanently advance and flourish instead of remaining in its present unsatisfactory ebbing and flowing condition, and thus periodically nullify all the great amount of labor expended by the many associations devoted to prohibition and temperance, it is requisite that many of the present views independently held and employed as premises from which the work of different associations, sects, and churches is projected, should be permanently discarded, and that the clergy, the moralist, lay worker, and the legal and medical profession unite in evolving a more uniform and harmonious as well as a more philosophic manner of treating the subject so as to arrive at some intelligent, stable, and advantageous appreciation of its causes, conditions, and possible remedies.

A comprehensive and philosophic treatment of the subject of inebriety will require the abandonment, in a great measure, of the more moralistic and clerical, or theological views of the subject, which look upon it as a sin or a moral delinquency, liable to be improved or ameliorated by appealing to the emotions and sentiments, while on the other hand the too constricted materialistic views into which too many medical men are driven by their studies must be broadened, and they must recognize the existence of a psychologic condition that partly resides under the dominion of the moral senses. In other words, while inebriety, especially the periodic type, and much of that which is habitual, can safely be said to be the result of a diathesis or a disease, there are various degrees of these forms of inebriety wherein it is as safe to ascribe as being partly due to a lack of mental or moral stamina.

The antagonism that existed between those who persisted in holding on to the narrower theologic views concerning philosophic progress, and the active laborers in scientific fields, has largely disappeared. It was formerly believed that one could not hold evolutionary views concerning the earth, man, animals, or plants, without at once becoming a confirmed atheist or infidel. Now, it is well known that a belief in the evolutionary rise of man is perfectly compatible with a Christian belief, and that to the extent that the churches and the clergy have adopted the new philosophic ideas without detriment to their principles. We have simply moved into a new era of discovery and of thought into which the older philosophies had to follow, and here it is where the clerical, socialistic, legal, and medical forms of thought must enter to observe and study intelligently any great social problem.

With the progress and development of the general cosmologic knowledge so assiduously elaborated by Darwin, Huxley, Haeckel, and Wallace, in conjunction with the demographic and sociologic labors and teachings of Buckle, Spencer, Draper, and Lecky, a new system of philosophy was gradually evolved, which has slowly but steadily displaced the less comprehensive and less harmonious systems of philosophy that have for many centuries attempted to control all thought as well as arrogated the right to dogmatically censor all scientific progress. The older systems existing in ignorance of the history of the earth's development looked for a solution of all the problems connected with man's existence to metaphysical reasonings, and to such traditions of the past as were in accord with long-established theologic dogmas, while the new based all of its knowledge upon physical research and study, taking for its guide the revelations of theology, the ethnologic history of the various races, and the effects of climate, season, and environment upon animal and vegetable life, and the special influence that these

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exert upon the physique and upon the psychologic nature of man.

The new philosophy, without committing itself to the unprofitable wanderings and speculative entanglements in the realms of metaphysics that would attend any attempt to solve the problem connected with the origin or cause of life, has generally accepted the evolutionary views and teachings of Haeckel and looks upon the monera as the first representative of an organized body. The primary stomach long preceded the existence of a notochord, or the rudiments of a nervous and cerebral system. In these views it radically differed from the older systems which could not emancipate themselves from the idea of a spontaneously complete or fully developed creation, or from the later ideals that attempted a reconciliation of geologic evidences with the old theologic traditions by teaching, as the great Cuvier believed, that each geologic period possessed its particularly created fauna and flora, periods that came to a sudden world ending to begin a new period with a newly created surface, new fauna, and new flora.

Students of medicine in its broadest scope will recognize in the basis of this new philosophy a return to the old-established Hippocratic principle, that the only proper and correct mode of studying man was to consider him in relation to the influence exerted upon him by his environment, and that the basis of such a study should be material observation supplemented by experience and practical judgment. All speculative systems or forms of philosophy with any intercurrent metaphysical or theologic reasoning here part company with either ancient or modern medical thought as well as with the new philosophy, as they cannot by any means ever reach analogous points of view or conclusions. Much of the warfare that has existed between the clerical as well as the lay mind and medicine, has ever had for its basis the divergent paths individually followed by these

three orders of minds with the most important factor, that the two former were generally in ignorance of the prospects seen of humanity from the vantage grounds of medicine, as well as of the routes followed by medicine to reach its points of view and conclusions.

In the lay mind the real scope of medical studies in all their great comprehensiveness is something that is but ill understood. That medicine views man and his varying conditions of physical or psychologic health or disease from the influence exerted by all of his surroundings, does not convey to the lay mind that medicine must acquaint itself with all the details of these climatic, seasonal, and enviroinal elements which comprise a multitude of factors, from the air he breathes to the food and drink of which he partakes, down to the clothes he may wear, and the religion that he may practice, or the form of government under which he exists, and that, therefore, medicine has a wider grasp of the subject than that held by one who has not studied it from all of these bearings.

Theology had dogmas preconceived regardless of any of these material factors, and has, until the last quarter of a century, been utterly disinclined to notice any of the teachings of philosophic medicine, or of the material or physical factors which it has studied as possible causes of either psychologic disturbance or of moral delinquency. Hence, the lay view as well as the legal status of the inebriate, whose condition is the easier explained, even if erroneously, by the adoption of the dictum that it is either a sin, as seen through theology, or a crime as observed through the eye of the law. Then, again, the points of view from which medicine has formed its ideas are wholly obscured to the laical eye, as this can only perceive in medicine a simple empirical art or practice only devoted to the study or accumulation of such a knowledge of drugs as in an emergency may fit this or that particular disease. To the lay mind, that

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physician who is the most replete with a knowledge of specifics is the most scientific practitioner. The average lay mind, as well as the average of the clerical, although professing Christianity, and asserting to hold the Holy Bible as their guide of conduct through life, utterly fail to recognize those principles of preventive medicine of the Old Testament which are still daily practiced by the Jewish people in every land, and under every clime. The lay mind cannot grasp the importance or scope of the science of preventive medicine, nor of the requisite amount of detailed demographic knowledge necessary for its application. This is one of the channels of study through which medicine informs itself upon the causes, nature, and conditions of inebriety. Modern medicine is now in general more Hippocratic and Mosaic than the simple empirical art that the Arabians gave to Europe with the close of the crusades, and, as has been said, this leads into fields too vast for the untutored and inexperienced lay mind to follow.

The educated mind, however, whether clerical, lay, or legal, or whether attempting to direct either philosophic or sociologic thought, can claim no excuses for its ignorance of the proper lines or points for study when dealing with such an important and so complex a subject as inebriety. It is pitiable to observe the erroneous ideas that are formed upon this subject through want of proper premises and sufficient scope of observation; ideas and conclusions that are impracticable, and only serve to arouse antagonism, as well as to keep up unprofitable agitations and commotions, while, in the end, they only impede a rational understanding of the subject, and, therefore, its proper treatment.

Only a few days ago a socialistic periodical announced that the recognition and practical workings of socialism would eradicate the drink evil and all of its dire consequences. According to the socialistic view, alcoholism is the natural result of the unequal distribution of wealth and the resulting extreme

states of poverty and squalor in which so many live. The nervous strain consequent upon the actual, successful or unsuccessful, chase for wealth, under the competitive racing, struggling, and pushing after wealth, is looked upon as being a most fruitful source of inebriety that would be removed if socialism prevailed. The removal of all incentives and all opportunities for acquiring wealth would do away with poverty and with all inebriety.

Like in many other conditions there is so much truth in the above that if one does not look beyond he is very apt to imagine that the discussion is closed, and that having done away with classes in society, unequal wealth and abject poverty, that inebriety would take its leave for want of any further incentive or reason for its existence. It is, however, when considered historically, racially, clinically, and physically, as seen with the eye of medicine, a subject not so easily and summarily disposed of. Men drank even more deeply and fiercely, and even more continuously, in the old Norse days, long before wealth had any existence beyond that which existed in fables. The old piratical Danes were the champion drinkers and fighters of their period, and their cruel raids on all the neighboring and far coasts in search of adventures, slaves, pillage, and chances for fighting and slaughtering are as much matters of history as their warring and carousing mythology and their prowess when alive at the trencher board or with the drinking shell.

Those old pirates that ruled the seas do so now in their descendants, to whom they have bequeathed not only the mastery of the seas, but their love of adventure and psychologic necessity for constant activity, as well as their proclivity to resort to stimulation and to be carried away, when in fight, with the old Berserker ragings that made their forefathers so terrible in battle. However Huxley may believe that "the wild pirates of the North Sea have become converted into warriors of order and champions of peaceful free-

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dom, exhausting what still remains of the old Berserk spirit in subduing nature and turning the wilderness into a garden," there is ample evidence that the descendants of those old North Sea pirates only differ from their ancestry in so far as to be in keep and in touch with the changes wrought by civilization in their environments. They still roam the seas in quest of adventures and conquests, and their mastery of the briny deep is as unquestioned now as it was twenty centuries ago. They have not changed in instincts or proclivities, but only in methods. As observed by Kinglake, only place them in the fight and men and officers alike shed twenty centuries of civilization as if it were an old garment, and go into the fray with all the delight and the furious vehemence of the aroused Berserker rage, just as their ancestors did when storming the coasts of Britain so many centuries ago. Christianity has truly replaced Odin and the Valhalla, but the spirit that created the long banquet hall of Odin, with its never-ending supply of juicy boar's meat and flow of strong mead, and the ever-recurring daily give-and-take fighting, still lives in the Norse descendants as firmly, fiercely, and as persistently as it did in the breasts of their sturdy forefathers.

As observed by Jonathan Hutchinson, Reclus, and the many who have carefully looked into the make-up of England in an ethnic sense, the old Norse element, however predominant, has mingled and been modified by the blood of the aboriginal dark-haired Briton, the fair-haired Belgian tribes whom Cæsar found disputing his landing, and the Roman, who for nearly five centuries occupied the best parts of England proper, with the final infusion of mixed Norman and Frankish blood that went to England with William. This is the blood that with the great waves of Danish, Jute, and Scandinavian elements that had sporadically gone over and the greater wave of Anglican blood that overwhelmed England in the fifth century, giving to England its name and language, as well as its physical and psychologic cast, that

has made of England and of its people a nation differing radically from every other nation on the continent.

In my travels and contacts with various nations I have always observed, and that in Spain and in France, as well as in Italy, that wherever that old Norse blood is seen to exist there will be found the old Odinic propensities and proclivities, as well as the old diathetic conditions, all alive and only requiring a little opportunity and a little culture to flame up with all their pristine intensity. The modifications imposed by environment are only transient. The particular variety of the race that crossed to England, a variety that was well described in Cæsar's times, and which differs most materially from any Teutonic tribes now to be found on the continent, possessed in an eminent and in an accentuated degree all the psychologic characteristics and proclivities of their race. And there it is where we must repair to study the existence of the inherited psychologic tendency to inebriety, just as one must look to Palestine and the Hebrew variety of the Semitic race for the opposite condition.

The subject of inebriety must be observed and studied from its climatic, racial, sociologic, and environal points of view, and not from the impracticable, narrow views adopted by too many extremists. Ill-timed and ill-advised arbitrary measures inconsiderately attempted to be enforced often result in an actual increase of the very evils that they are intended to remedy. Persecutions never attain the intended ends, and this applies to other sociologic conditions, as well as the many moves made in the direction of enforcing total abstinence, which degenerate into petty displays of fanatical zeal and narrow-minded persecutions. The subject is broad and should be treated accordingly, either in our methods of investigation or in our attempts at relief. The unreasoning perversity that prevents efficient legislation for control that does not meet its views, and that forever reaches for the unattainable while it neglects that which reasonably could be

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obtained, cannot be too strongly condemned, as it is through the exercise of this unphilosophic dogmatism that the evil continues to thrive and flourish, a dogmatism that really should not exist but for the utter want of proper information and education on the part of its promoters. The medical profession from its vantage ground of observation and experience should take the lead in placing the subject in its proper light before those whose good-intentioned efforts now miscarry for the want of that light.

The assertion that drunkenness is rare in Germany by reason of good beer and light wine is a fiction that can be dispelled by a vast array of most startling facts. Recently the Society for Combatting the Use of Spirituous Liquors met at Breslau and occupied two days discussing the means of prevention of what has proved to be the greatest menace of the age to German civilization. It was shown that thirty quarts of spirits were consumed per head of the whole population of Germany. This society is composed of college professors, physicians, and leading business men, who are not pronounced advocates of any special measures, but men who begin to realize the danger to all persons from the use of alcohol.

Alcohol and syphilis are the twin sources of a large part of all the disease of modern times. Stamp out and eliminate these active causes and the longevity of the race will double and disease and misery will decrease in equal proportion. At present this is the great field of preventive medicine in which there are but few workers.

Morphine is used extensively in the town of Juana Diaz, Porto Rico. It is estimated by the Insular Board of Health that out of the 2,500 inhabitants 1,000 are victims of this terrible habit.

PATHOLOGICAL INEBRIETY.

A lecture delivered before the Medical Society of Halle, Germany, Jan. 23, 1901, by Dr. Karl Heilbronner, chief physician to the Hospital for Nervous Diseases, in Halle. . . . [Translated by E. L. Transeau.]

The importance of this question is evident when we consider the large proportion of crimes committed under the influence of alcohol, and also that the greater percentage of those criminal cases for the adjudication of which the opinion of the physician is sought concerning the mental state of the actor are to be traced to alcoholic excess.

Precise knowledge, however, of the conditions of pathological inebriety is not as general as one would be led to expect from the numerous accounts of casualties which abound in the literature of forensic psychiatry. One reason for this is that the ordinary, quickly terminating cases of intoxication seldom come to the physician's knowledge, and that the occasional drinking-bout cases, which would be exceptionally favorable for close observation, and of particular importance to the psychiatrist, he seldom has opportunity to see.

To the term pathological inebriety I would give a somewhat circumscribed limit, differentiating it from general drunkenness, not only quantitatively, but qualitatively. Such a limitation may be attempted by designating as pathological inebriety all those acute, quickly terminating cases affected by the use of alcohol, the features of which are not developed in the familiar symptoms of alcohol intoxication.

Putting aside the immediate effects of very small quantities of alcohol, we may consider as essential consequences of intoxication in a narrow sense, changes in the disposition of the individual, which fluctuate, according to the amount of alco-

hol taken between euphoria and passionate irritability, beatitude and apathy; a decrease of the faculty of association, and an increase of psycho-motor irritability, which resolves into an increasing motor paralysis. In some circumstances wholly psychic features may constitute the main disturbance.

The intensity of the motor discharges is not an essential criterion; they may in drunkenness reach an excessive degree, which I am not able to consider pathological.

In pathological inebriety one observes first in very large measure an emotion which is foreign to intoxication: the emotion of fear. There is generally a close connection between misuse of alcohol and the appearance of the emotion of fear. It seldom fails to be the initial appearance of those cases of delirium tremens which later show the typical humorous disposition. Most alcohol psychosis subsides without the excessive fear characteristics. It may, as complicated "fear psychosis," or as "melancholia agita," or as simple, slight "brandy-fear," cause the patient voluntarily to seek help and rest in the hospital.

Like psychotic fear in general, the fear in pathological inebriety appears also to manifest itself, almost without exception, as localized sensation. It may occur without an object, but yet reach a very high degree, and eventually lead to attempted suicide also, which is of particular significance to sudden attempts to murder, as, for instance, one's own children. I believe that a large part of the cases designated "*raptus melancholicus*" belong here.

In the majority of cases the fear reaches the most extreme degree. It may increase to an agony of despair, and is generally combined with fantastical terrors and false interpretations such as of torture, burning, falling, mutilation.

In exceptional cases I have observed the expansive emotion, never the contented euphoria of light intoxication, but a very expansive, exuberant, happy feeling of the type met sometimes in epileptics, once in a while after a stroke of paralysis.

But in all these cases it appears to me probable that with the normal conception of affable manners there are also mingled sensations of fear.

One symptom rarely absent is the loss of localization. This has been called the Rubicon of pathological inebriety. It is not simply an imperfect conception of surroundings as in heavy intoxication, but a total misconception of the outer world, together with fantastic misrepresentations, with a preponderance of fear. The patient is not in the hospital, but in the cellar, in the morgue, in the slaughter-house. The bed is a dangerous machine. Every attempt to render assistance, every approach toward the patient, is misinterpreted, and if he is in any way armed, it may cost the assistant dear. Unimportant occurrences have for him a fearful significance. He shows the symptoms of fear delusions. With hard drinkers I have repeatedly noticed during excessive drinking very marked delusions, which afterward disappear.

Hallucinations of the optic realm appear most frequently during the extreme states. In many cases they are of the same character as in fear, colored delirium tremens, coarse, frightful animals, often snakes and worms, which cling to the patient, usually connected with corresponding physical sensations. To hysterical individuals in the state of pathological drunkenness, a masculine figure frequently appears, a man threatening from the corner. With many cases shadows or figures, which move under the bed, are typical.

Hallucinations of hearing appear so seldom that they might be left out of the account. Among the most essential, in the exceptional cases where they appear, are sudden screams, which the patient hears behind him, the sound of trumpets, people stealing past him. In other cases hallucinations of the hearing appear like those with which we are familiar in alcoholic delirium: insulting words, threats, remarks made about the patient in the third person, such as, "There goes the scamp!" "Away with him!" "He belongs in the madhouse."

In the few cases of expansive emotions appear also great ideas of wholly fantastic, mostly religious coloring, analogous to those of acute epileptic-psychosis.

Severe motor discharges, according to the most characteristic conceptions, may be wanting. Some kinds may be considered as in a certain sense psychological in connection with the fear motive; they are modified, therefore, according to circumstances. The patient who is suffering from strong fear does not always by any means restrict his movements to self defense. The physician has to be prepared for most furious, often entirely unexpected, attacks from the patient, who is in a state of despairing terror. This fact should be remembered in court trials where the patient has resisted the officers of the law.

Another class of movements more independent of outside impressions are rhythmic motions of the body, regular raising and lowering of the arms and legs, rhythmic inclinations of the back of the head, often accompanied by synchronous, monotonous cries, or even by absolute mutazismus, yet not breaking out into speech. This condition on superficial view presents a certain similarity to hysterical seizures called "fits" by the laity. The acceptance of this conception by the physician may become a source of serious misunderstanding of the pathological state of drunkenness.

The outbreak of pathological inebriety results from acute, often peracute, simple drunkenness, indication of which often, but by no means without exception, precede it. Cases are not infrequent in which the state sets in after the alcoholized person has fallen asleep, perhaps at home in bed, perhaps in a corner of the beer house in which he has withdrawn. A sudden, impulsive movement is frequently, but not always, a symptom. A convulsion is often the initial symptom, but often a later accompaniment. For reasons already stated precaution must be exercised in the interpretation of such attacks. A true epileptic attack as the conclusion of the

pathological drunken state, I have not been able to observe. Cases in which patients experience series of true epileptic attacks on the first day after admission to the hospital may be looked upon as direct consequences of the use of alcohol.

The duration of the condition is in all other cases very short. In many cases the whole course occupies only a few minutes, particularly with those in whom the excitation stage sets in during half sleep. Those attacks, which were not modified by some other foundation trouble, I have not known to last over an hour. Most cases end in a deep sleep. Tranquillity after agitation seldom comes without sleep. At the beginning the sleep does not appear to be very deep, and imprudent management may awaken the patient, and lead to a fresh outbreak. Gradually the sleep becomes very deep. My observations in this respect are undoubtedly somewhat obscured by the fact that in the greater number of cases narcotic medicines were given. In spite of the original resistance of such patients I have seen strong men and sometimes women unaffected for an unusually long time by from $\frac{3}{4}$ to 1 mg. of Hyoscin — the depth and duration of the subsequent sleep may yet be influenced by such means. In the literature of the subject you find the subsequent deep sleep alleged as quite generally present, indeed, as out-and-out pathognomonically important. After awakening few are entirely well. In the majority of cases there are, besides the obvious appearances which constitute the familiar symptoms of chronic alcoholism those which usually follow even slightly deleterious alcohol excess.

The number of attacks may be considerable. I remember a number of patients of both sexes who every little while would be brought back to the hospital a few weeks after their discharge, and only remained away longer when in the interim they were sent to prison or the workhouse for excesses. From this it appears that even with these disposed individuals by no means every alcoholic excess, to say noth-

ing of every alcohol consumption, leads to a serious outbreak of this condition, and that many more go through weeks of considerable excess without such a consequence.

Considerably less furious though not less characteristic, symptoms belong to quite a distinct class of conditions. There are patients who, under the influence of alcohol, begin to manifest various hallucinations of the optical realm, such as seeing animals, black men, heads at the window. The emotions usual in this condition are generally quite unimportant; strong motor reaction is often absent, localization is retained. In a few cases acoustic instead of optic hallucinations appear accompanied by somewhat violent fear, but with retained localization and presence of mind. The first form may be recognized as abortive delirium tremens, the other as abortive hallucination, and it is not always easy on the admission of such patients to say whether the symptoms will disappear with the influence of the intoxication, or will go on to fully developed form. A part even of those who come under hospital observation terminate with a critical sleep. But of the majority of these cases the physician learns only by the art of memory. Not infrequently one hears through a relative on admission that the patient has suffered such abortive attacks for a long time, perhaps evenings, or every pay-day, according to the kind and degree of his drinking habits.

Generally such habitual pathological drunken states are developed only by very serious long-continued potations, but they may exist for a long time without coming into recognition until some act of violence or some other alcohol psychosis, delirium, or hallucination, or even alcoholic polyneuritis necessitates admission to the hospital.

I believe that no ground exists for separating these conditions from pathological inebriety of other kinds where they are genetic and their significance accordingly not distinct from these if one only keeps in mind that an absolutely etiological group of patients need not on that account be

symptomatically identical. The forensic significance, for instance, of abortive delirium lies in another direction. The patient is not in all cases conscious of his condition. This holds for cases in which the state frequently recurs. When he is not conscious of this condition the uncorrected, distorted occurrences become the source of fantastic illusions, and I believe that the shadows and figures which the home-coming husband sees suddenly in the room, or stealing past him, are not without influence for the genesis of many forensic cases of jealous delusions of drinkers so difficult to estimate. In other ways, also, relatively slight forms of pathological inebriety become the source of jealous delusions.

The kind of alcoholic drink used appears immaterial for the development of pathological inebriety. It can develop from the use of costly wines as well as from raw spirits. The chief contingent, however, is furnished by the brandy drinkers, because they constitute the greater numbers, and because the concentrated liquor is better adapted than the lighter for bringing large quantities of alcohol quickly into the organism. The amount of alcohol necessary may also fluctuate. To give any absolute estimate appears to me to be impossible. Pathological inebriety can be developed under some circumstances from an amount of alcohol which at another time would have no toxic influence upon the same person. This fact it is important to remember in forensic cases where the amount of alcohol used and the degree of intoxication is considered before awarding punishment. The mistakes which may follow from neglecting this fact are illustrated by an example which recently came under my observation.

A young man who, so far as could be ascertained, was in other respects healthy, was with a number of comrades in a beer-house one afternoon. They returned home in a wagon. N. was, as the whole company asserted, cheerful, not drunk. During the journey they indulged in bantering in which N. also took part. Suddenly he fell to the bottom of the wagon

and began to strike about him, senselessly defending himself desperately against his comrades, who tried to raise him, and, in the course of his struggle, wounding one of them with a knife. A while after the return home he awoke in a smithy to which he had been carried with no recollection of the occurrence.

At the trial in the court-room where he was brought on account of the assault was a physician who did not think that the hypothesis of nonresponsibility applied in this case. The deputy consented, however, to postpone the case, and allow a psychiatrist to testify at a second trial. At this I testified that the case was probably one of those known as pathological drunkenness, and that the madness of the patient against his comrades with whom before and afterwards he was in the best of friendship was the result of his terrified apprehension.

The physician before mentioned maintained his former position that the case did not come within the hypothesis of nonresponsibility, but gave as his reason that the intoxication was not of a sufficient degree. The accused was allowed to go free. I need not enter into the consequences to which the case might have given rise.

A pathological state may be interposed upon a state of intoxication, psychosis also may subside before the influence of the alcohol has disappeared. Of this I have recently met with a very instructive instance:

About two o'clock one night an old scholar was brought to the hospital. He was what would be called a hard drinker, but tolerant, and until then had been healthy, had never suffered an epileptic attack. He had been drinking heavily in the evening, and was somewhat intoxicated, but yet good company. About an hour before he was brought to the hospital he suddenly screamed out as if terrified, and began striking about him. All attempts of his acquaintances to quiet him failed. He appeared not to know them, and repulsed all offers of assistance in desperate terror. It was de-

cided to bring him to the hospital. When they went to put him into the carriage he struggled so fiercely that a crowd gathered, and followed to the hospital. On the way he became quiet. I found him in the reception room a well-nourished gentleman, a little indistinct in his speech, lighting a cigar. He knew that something unusual must have happened to him, but he had no remembrance of what it was, nor of the scene in getting him into the carriage. He first became conscious while on the way, where he found himself between two of his drinking companions, and supposed that, as had frequently happened before, they were taking him home, a supposition which they did not correct. Now he was very much surprised to find himself in the hospital. He had at once recognized his location, and protested energetically against the trick, as he supposed, that was being practiced upon him. He was obviously in a state of pathological irritability as a probable sequence to a first epileptic attack, which was not to be regarded seriously. His condition now was chiefly a state of intoxication, and I did not consider myself warranted in holding him against his protests.

The same problem, pathological inebriety or simple intoxication, very often gives rise to the question as to whether the alcoholized person should be sent to the hospital or to the police station.

Intolerance of alcoholic drinks often plays a large part in the occurrence of pathological drunkenness. There are those so intolerant that symptoms of intoxication of the psychic or somatic realm will appear with unusually small doses. Genuine epilepsy also constitutes one disposing element. It is also true that the pathological state may set in with a genuine epileptic attack with those who are not subject to epilepsy. On the other hand I hold it unjustifiable to consider every pathological state of drunkenness as symptom and therewith proof of epilepsy.

I believe that forensic practice requires a more precise

definition of epilepsy. In genuine epilepsy we see the expression of a chronic disease of the brain, the real nature of which is not yet understood. The alcoholic epileptic attack, in the majority of cases at all events, appears only as the immediate consequences of intoxication, and disappears with abstinence.

As great if not a greater contingent to pathological drunkenness as epilepsy is hysteria. Among the "*puellæ publicæ*" particularly, who have supplied me with many cases of pathological drunkenness, are found a considerable number with typical hysterical symptoms. An additional part of the young patients whom I have had opportunity to see were weak-minded, and carried in head and face formations the stamp of degeneration.

Injuries of the head appear to play a further part in the condition in question. There are numerous cases in which those who have received such injuries involuntarily diminish their use of alcohol, although they previously never seemed to suffer any difficulty.

In many cases, for instance with strong men in middle age, I have not ascertained what other predisposing causes existed. One would be justified in supposing that the chronic abuse of alcohol itself had caused changes in the brain which prepared the way for acute toxic psychosis.

One interesting observation which seems to me to indicate that definite constitutional factors play a large part in deciding the particular form of pathological drunkenness in individual cases is the identity of the separate attacks occurring in the same individual. For instance a shoemaker in nearly every delirium imagined himself to be taking the remains of his just deceased wife to the grave in a wheelbarrow. Another patient always presented to us with uniform expressions the same religious big ideas. A female patient was always lamenting the loss of her children. In some the impulse to suicide thus reappears.

In some cases the final incitement to the outbreak is not

apparent. It may be that a few days before the individual has been violently excited, and thereby has injured his general condition. Other weakening factors are sleeplessness, long holidays, physical exertion, sexual excesses, and emotions. Frequently the outbreak follows a fright, a quarrel with another, anger from banter. In court trials for acts of violence against life and health it is to be remembered that a quarrel may precipitate the psychotic condition, and it may be assumed that the conception of the act has had its origin in this diseased state. I am far from assigning the pathological condition to all cases in which a drinker has opposed resistance to arrest for acts of violence, but, on the other hand, it would not be warrantable to reject from the start the assumption that the irritability has first been developed in view of the threat or proclamation of arrest.

The diagnosis of pathological drunkenness will generally not be difficult if one has the opportunity to observe the condition itself, and holds to the limits above explained. I have already observed that I am not able to look upon the violence of the motor discharge alone as a criterion which proves the psychotic character of the condition. The most valuable aid for the differential diagnosis of pathological inebriety lies in the condition of the emotions. The difference between the fearful or despairing emotions of the patient and the brutal anger of the drunken man is directly noticeable. The way in which the patient or drinker responds when spoken to is very characteristic. The presence or absence of localization is usually an indication, but it must be remembered that the occasional correct recognition of a person or a place by no means signifies that the comprehension of persons and surroundings is retained. Of other symptoms one is able to obtain information only occasionally and by chance. A systematic examination of hallucinations, for example, may be prevented by various causes, the physician's attention and ability being often taxed to the utmost to keep his irritated patient from injuring himself or others.

One fact which may sometimes aid in differential diagnosis is that the drunken man usually falls asleep as soon as he is put to bed. But in pathological inebriety the patient is less responsive to quieting influences. Usually when I have tried to separate such patients, the majority of whom come for admission in the night, they are generally made restless by other noisy patients. Most cases of drunkenness and disturbance, which the police bring in, become quiet so quickly in their cells, where they are shut away from outside excitement, that I incline toward the assumption that the pathological factors, particularly insufficient localization and terrified misconceptions, explain those instances of long-continued raving and the demolishing of furniture.

With the less turbulent forms information concerning hallucinations and fear may be obtained from the patients themselves.

Decisions are more difficult when they must be given supplementary to the act than when direct observation can be made. It goes without saying that for the judge actual proof of the psychotic symptoms, within definite limits, is necessary. Sometimes the report of the police officer or the statement of witnesses as to fantastic utterances, threats, fright, misunderstandings, or illusionary misinterpretations furnishes matter at hand. But in the majority of cases a study of the acts is without result. Instead of facts that are most important to the physician, the utterances and deeds, which are the distinguishing traits of the matter in hand, there are recorded with painful precision certain paragraphs of penal offenses.

In such cases of supplementary decision greater value is to be placed upon the retaining of the recollection. I cannot escape the conviction that loss of recollection, without anything more, is to be looked upon as proof of the pathological condition. I need not state that in every such case the question of what constitutes the loss of memory is to be examined

closely. The declaration, "I was drunk, and knew nothing of it," recurs so often that at the outset there is occasion to doubt. Determination as to the accuracy of the statement does not fall alone upon the medical consideration. But I believe that even demonstrated or undoubted amnesia does not yet prove the existence of a condition of pathological inebriety in the sense herein designated. Heavy intoxication alone can bring about a very extensive loss of memory in connection with which, moreover, quite independent individual differences again show themselves. Whether those in whom serious psychotic conditions are shown may be distinguished from the clinical, whether the recollection gaps, not very often sharply defined, always admit the conclusion of a psychotic condition, needs yet further investigation.

On the other hand, in pathological inebriety amnesia, that is, total loss of recollection, need not always exist. As with epileptics one seldom observes a complete, but often a dim, remembrance of the psychotic condition, quite often the emergence of a solitary recollection out of the otherwise amnesia period.

Finally, may I call to mind a practical, quite extraordinarily important relation, which likewise finds its analogy in the amnesia of the epileptic? A recent example may illustrate this:

An epileptic girl in our hospital suffered a slight attack. Afterward she declared that her "dosig" was in her head calling upon her to obey.

At its bidding she pulled off her jacket, turned somersaults, played with a child's toy. After about an hour she regained, apparently, complete self-possession; she knew exactly everything concerning which she was asked to give an answer. On the following morning she had forgotten everything, did not know that I with other colleagues had talked with her a long time the day before.

Analogies occur in the condition which we are consider-

ing. The patient who has committed a penal offense is arrested directly afterwards, taken to the police headquarters, and confesses. Days afterward, taken again before the judge, he knows nothing either of the deed or the first hearing or of his confession. For the uninformed the conclusion at once would be: The accused simulates his amnesia. He has learned, subsequently, that it is to his advantage to know nothing of it, and he answers accordingly. The remembrance of accumulated examples of this kind will guard those who give judgment on the grounds of medical experience from falling into like error.

Decision from the acts may in many cases be impossible. In such cases I hold it as not only allowable, but as directly required, to pronounce a "non liquet," or to emphasize only the possibility of pathological inebriety. As little as pathological anatomy can be asked to make confirmations concerning fine variations on a decomposing body, or as little as bacteriology is in position to affirm concerning the germ contents of a fluid in the case of a sample incorrectly obtained, so little can the psychiatrist be asked to give a decision concerning a mental condition which he himself has not had opportunity to observe, and for the decision of which only inadequate material is placed at his disposal.

Supplementary prolonged observation for the clarification of these cases generally contributes very little. Aside from those cases where indications of permanent disease are apparent, observation at best can bring to light factors which appear as disposing the individual to symptoms of pathological inebriety, and thereby make the probability stronger. It seems to me important, however, to adhere to the principle that information as to important factors by reason of which a psychotic disease may have developed does not furnish proof of symptoms of actually developed disease.

In all cases the business of the professional expert is to call the attention of the judge to the pathological factors and their significance.

A HISTORY OF TEXT-BOOK TEACHINGS OF AL-
COHOL AND NARCOTICS IN COMMON
SCHOOLS.

BY T. D. CROTHERS, M.D., HARTFORD, CONN.¹

Mistaken ideas that attribute to alcohol and other narcotics virtues they do not possess is an admitted cause that often leads to their use and its consequences.

The fact that the civilized world is coming to realize this is a long step toward the prevention of inebriety, because it is the true diagnosis.

Compulsory education concerning alcohol as a part of the study of elementary physiology and hygiene is the rational preventive prescription now embodied in the laws of this entire country.

Dr. George F. Shrady, in a popular magazine article on "Preventive Medicine," referred to the compulsory study of this subject in our public schools as one of the greatest gains.

To Mrs. Mary H. Hunt, who was formerly a college teacher of science, the inception and growth of this great movement is almost entirely due.

Possessing a rare genius and contagious enthusiasm, she not only created public sentiment, formulated laws, and secured their passage in Congress and in all of the states of the Union, but has aroused an international interest in the subject.

The Woman's Christian Temperance Union early recognized the importance of temperance instruction in common

¹Read at Medical Temperance Association, St. Paul, June, 1901.

schools, and at Mrs. Hunt's request organized a special department for this study, making her its superintendent.

Beginning in 1879, Mrs. Hunt has been constantly engaged in writing, lecturing, visiting educators, legislators, and professional men, and in all parts of the country creating public sentiment and interest in the subject, having at all times the most cordial support of the Woman's Christian Union, and an ever-increasing army of enthusiastic friends.

In 1882, through her efforts and that of the Woman's Christian Temperance Union, the legislature of Vermont passed the first so-called temperance physiology law.

This law required physiology and hygiene, with special reference to the effects of alcoholic drinks and narcotics on the human system, to be taught in the common schools.

In the year following, Michigan and New Hampshire passed similar laws, and the year after, in 1884, New York and Rhode Island. In 1885, Pennsylvania, Maine, Massachusetts, Kansas, Nebraska, Nevada, Indiana, Missouri, Wisconsin, and Alabama enacted like statutes. The Pennsylvania law was the most specific, and provided a heavy penalty of forfeiture of public money for non-compliance with its requirements.

In 1886 Congress passed a national temperance educational law with the same provisions, making the teaching of the nature and effects of alcoholic drinks and other narcotics, in connection with physiology and hygiene, a compulsory study for all the pupils in the schools under federal control, including the schools in the District of Columbia, the territories, in the national military and naval academies at West Point and Annapolis, and in all the Indian and negro schools supported wholly or in part from the treasury of the United States.

From that time on to the present, similar laws have been enacted by the legislatures of forty-five states of the Union. Georgia is the last state to pass the same law compelling this

instruction. The rapidity with which these laws have been passed indicated a recognition of the need of checking intemperance, and the appreciation of the possibilities of this new movement for reform.

The passage of the Vermont law in 1882, which was quickly followed by the enactment of similar laws in other states, requiring this study in the public schools, created a demand for graded school books to meet its requirements.

The first set of books that the friends of the movement recognized was the "Pathfinder Series," published in 1885, which immediately had a large sale.

This aroused the publishers of other physiologies, who gathered a few statements concerning alcohol, added them to the back of their old-time high school physiologies, and forced them on the schools, regardless of grade, as manuals of instruction, to meet this new demand.

Very soon other books appeared that were distorted in proportions and of doubtful, inferior grade, and it was very evident that to make these laws effective some accurate standard of books must be fixed and maintained by some acknowledged authority, otherwise a confusion of books and theories would neutralize the good effects of the teaching.

These laws called for the teaching of physiology and hygiene, including the nature and effects of alcoholic drinks and narcotics on the human system, but there was nothing to prevent the use of books that would teach any view in favor of the so-called moderate use of alcohol, or any other theories the authors sought to promulgate.

The school authorities could adopt any books that the publishers, or others, wished for pecuniary and other reasons, to have sold. To provide against this defect it would be necessary to enact further laws, defining what the teaching in the common schools should be concerning the value of alcoholic beverages and other narcotics as a part of physiology.

This would have precipitated a conflict that might have continued for a long period, destroying the value of all such instruction for the time being. To avert this danger it was thought best to organize a voluntary committee, consisting of clergymen, educators, and physicians, who, from their different points of view, would decide on the merits of the different books and endorse those that attained a given standard of scientific and pedagogic accuracy.

Such endorsement would give a certain value to good books and check the sale of poor ones, and in this way raise the standard and promote the usefulness of the instruction given.

The duty of organizing this committee devolved on Mrs. Hunt, making it an advisory board, for the purpose of examining and reporting on the accuracy of the books offered by the authors and publishers for school use.

This advisory board is independent of the Woman's Christian Temperance Union, and has only one purpose, namely, to promote adequate and scientific teaching in the school text-books on physiology and hygiene, including that relating to alcohol and other narcotic substances, and also the pedagogical adaptation of such teachings to all grades of pupils.

The reputation of the members of this board gave to their endorsement a value that was quickly noticed by authors and publishers. The enactment of these laws in the forty-five states created a large demand for text-books, and when the interested parties found that public opinion demanded books endorsed by the advisory board they became bitter opponents, denouncing Mrs. Hunt and her board, contending it was a "publishers' ring," then condemned the laws, and also maintained that the endorsed text-books contained many grave errors.

One of the first acts of this advisory board was to formulate conclusions of the facts of science, as then recognized,

and to secure their acceptance as a standard for the text-books in the public schools.

This measure received the cordial endorsement of two hundred eminent physicians, chemists, members of boards of health, teachers, and others who had in the national Congress and in the state legislatures voted for the laws that require this study. A committee chosen by its signers to do so sent this standard as a petition to all publishers of unworthy school physiologies asking that their books on this subject should be revised to conform with its provisions.

This petition was very generally responded to, and there are now some thirty-two different endorsed school text-books on this subject, covering all grades that are well adapted to the class of pupils for which they are intended.

Nearly every school book publishing house in the country is issuing one or more series of these school books, which have a larger sale than the unendorsed books, to the intense disgust of those publishers who failed to come up to the necessary requirements.

The scientific accuracy of these endorsed books is attested by the fact that among the authors are such writers as the late Dr. H. Newell Martin, F.R.S., Professor of Biology in Johns Hopkins University; Dr. Winfield S. Hall (Leipsic), Professor of Physiology in Northwestern University Medical School, Chicago; Dr. Henry F. Hewes (Harvard), Instructor in Physiological Chemistry, Harvard Medical School, Boston, and other competent writers and teachers.

With the revision of the unworthy books and the publication of better ones, there came a lull in the text-book war, but only for a time.

In 1895 the legislature of New York, in response to the petition of the people, added such strengthening amendments to their temperance education law as to make evasion very difficult. With this amendment of the New York law it dawned on the minds of the manufacturers and dealers in

spirits, and others, that a mighty power was at work making a profound impression on the 16,000,000 school children in the country, teaching them facts that might in the future be dangerous to their interests.

The attempt in 1896 to secure the repeal of the strong New York law having failed, the old charge of inaccuracy of the books was renewed.

Then followed a frantic storm of abuse in which the press joined, charging Mrs. Hunt with being a paid agent for a book trust, and the Woman's Christian Temperance Union as weak sentimentalists and impractical reformers. Wild statements of the mercenary character of this work and its managers were repeated with the design of checking and finally destroying it. In reality it had the opposite effect. Mrs. Hunt became more prominent, and the movement attracted greater attention, increasing in interest and sympathy wherever it was known. Thus detraction and criticisms had actually enlarged the circle of friends and solidified their faith and confidence in the value of this work. The belated critics who still keep on condemning these efforts to promote temperance reform are all unconsciously widening the field and building up the cause.

In 1896, to refute with authority the charge of inaccuracy, eight different series of endorsed text-books were submitted to six leading medical men in the country, two of them active professors in medical colleges, one a leading medical journalist, and three ex-professors and medical teachers.

These persons were asked to examine the books in question and to point out any statements which called for correction. Not one such statement was cited. Instead, all these medical authorities agreed that these books were in accord with the latest teachings of science.

In addition to this, in 1895 a state medical society was persuaded by the opponents to appoint a committee to examine and report on the text-books on temperance physiology

used in the public schools, and this committee, after four years' search, made a report in which, after an investigation of some thirty books, they cited from all only two statements that could be justly criticised, and only one of those referred to the subject of alcohol.

The opposition, having failed to disparage the value of the text-books, sought to amend the laws so as to weaken their influence, and has finally met with success in Connecticut. Here the opponents succeeded in securing a law more satisfactory for their interests. This law requires no study of this subject in the high school or in the primary grades, and no use of text-books until the sixth grade. As the majority of the future men and women of this country do not attend school much beyond the lower grades, this law keeps the study from these classes, who therefore will be less likely to oppose the liquor trade in the laws they help make in the future. Furthermore, the liquor trade has always opposed the requirements of text-books, especially books that give a specified space to temperance matter. Such books in the hands of the children will not make them good beer customers.

The amendments are thus in harmony with what the brewers want, in that they take the study entirely out of the first three primary grades, and, if it is taught at all in the fourth and fifth years, this new law requires no text-books for either teacher or scholar, the assumption being that the common school teacher in Connecticut, untaught in this subject and without any guide whatever as to what is to be taught, is a safer source of knowledge on this subject than text-books which have received scientific approval.

The inconsistency of wanting the law amended on the grounds of alleged errors in the books, and then providing such an unlimited opportunity for the teaching of all kinds of error, is at least remarkable.

These amendments practically nullify the law and give

authors and publishers an opportunity to join the brewers and avoid all teaching prejudicial to the interests of the latter. Literally these changes of the Connecticut law are simply protests against the evolution and revolution of public sentiment that is fatal to the spirit and beer interests and to the delusions of moderate drinkers.

Wise, discerning men and women recognize this and join heartily in every effort to widen and enlarge the work of temperance education, while the unwise continue to disparage and condemn the law and the text-books. These later critics of the text-books follow the same lines as the earlier opposition, confining themselves to generalities, and when pressed to point out specific errors fail or refer to some insignificant statement in the earlier editions of books which were in harmony with the teachings of science when they were written and perhaps have been corrected in the later editions to conform to the most recent researches.

It is very apparent that some of the critics have evidently not read the books, but have accepted the statements of others as correct, without question, and most of the critics, judging from their writing, are not familiar with the modern teachings of the nature and physiological action of alcohol.

A recent critic has pointed out statements in the later text-books as false and evidence of ignorance of authors. In reality, these statements are made by Drs. Carpenter, Jackson, Horsley, and others among the most eminent scientists in England. Similar criticisms are made with an ignorant assumption that only reflects on the critics and not on the books.

One of the objections urged is that the school books should not teach that alcohol is a poison and that it has no food value, and the reasons given are that the questions concerning the food value of alcohol and alcohol as a poison have not yet been answered to the entire satisfaction of all the leading scientists.

Such criticisms practically ignore all modern researches, and also the experience of capital, and many employers of labor, and insist that the theories of the last century should be accepted as correct at the present time, in spite of all the advances of science. Scientifically, the absurdity of attempting to draw dividing lines, contending that alcohol is a food and safe up to a certain point, and dangerous beyond, is clearly evident from all experience and observation. While it is intended to present only the general facts and their hygienic relation in the text-books, the critics demand that these facts must agree with their own opinions and those of parents and the public generally. If the parents and the public generally possessed an accurate knowledge of the facts on this subject there would be no need of this education.

The endorsed text-books are not only written by practical men familiar with the subject, but by men devoid of partisanship, and whose only motive is to make these works complete, and to correctly represent the facts of science as they are understood at the present time.

Any careful examination of these books will show care and accuracy in the statements concerning alcohol and its effects, and some of the latest of the endorsed books are models of scientific truth, in a popular form, and many of the statements in reference to the physiology of the human system are remarkable for their clearness and exactitude.

For laymen to characterize all these books as inaccurate is to assume a superiority of knowledge above the authors, who are scientific specialists, that is at least very startling.

The special object of the superintendent and the advisory board is to perfect and increase the accuracy and value of the text-books on this subject, the work being purely a scientific one, both in a physiological and pedagogical sense.

While perfection cannot be claimed for any school book ever written on any subject, the authors and the board endeavor to have these books correctly represent the facts as

they are at present understood. The law requiring the nature and effects of alcohol to be taught in the public schools and the books to guide in the teaching are great evolutionary advances, and no opposition or criticism can destroy them.

The work of Mrs. Hunt and her advisory board is a part of this movement; the law will be sustained, and the books kept at a high standard, no matter how strong the opposition. The recognition of these facts is constantly attracting the active co-operation of an increasing number of earnest men and women.

At the congress of alienists held at Limoges last August, Dr. Bourneville submitted new conclusions on the subject of alcoholic heredity. Contrary to the commonly accepted belief, he was convinced hereditary syphilis was quite rare in idiots, infants, imbecile epileptics, etc. Of the "little maladies" which he has observed he has established only one per cent. as due to inherited syphilis. He has no doubt that the majority of children, the issue of syphilitics, were stillborn. On the other hand, he had assured himself that more than forty per cent. of the parents of idiots and paralytic children were clearly proved alcoholics.

Dr. Wiggin of New York says the use of morphine in appendicitis is stupid and should be stopped. While the patient is made more comfortable, the condition is really dangerous, because it masks the symptoms, and should the patient recover, complications are likely to ensue of a fistulæ nature, making it necessary for secondary operations.

The Salvation Army has opened a home for male inebriates at Hadleigh, England, the house being capable of accommodating sixty inmates, and with grounds sufficiently large to keep them constantly employed at outdoor work.

CIGARETTE INEBRIETY.

BY J. M. FRENCH, M.D., MILFORD, MASS.

It is impossible to study the cigarette habit intelligently without at the same time considering the whole subject of the effects of tobacco upon the human system. For the cigarette habit is only one form of the tobacco habit. Its chief peculiarities, as distinguished from the other forms of the use of tobacco, are three in number: (1) It is indulged in to a very great extent by young and growing boys; (2) the cigarette, being only "a little cigar," and mild and pleasant in its immediate effects, is in some instances smoked almost constantly; (3) also, because of its mildness, it is the common practice to inhale the smoke, thus largely increasing the poisonous effects of the nicotine, which is the chief deleterious agent in tobacco.

A careful examination of the charges often made against the cigarette, as containing arsenic, opium, and other poisonous ingredients, aside from those properly belonging to tobacco, and also as being a fertile source of insanity and crime, has shown that they are almost wholly without foundation in fact, being largely created by the fertile imaginations of yellow newspaper reporters and anti-tobacco extremists. These charges, it is true, have been widely circulated and illustrated by a most astounding collection of sensational stories. For example, one of the most enterprising and widely-circulated journals in America declared recently in its editorial columns that the newspapers of New York have within a little over a year published accounts of sixty cases of insanity, robbery, murder, suicide, convulsions, blindness, and death caused by

the use of the cigarette. It further claims that it is prepared to furnish names, dates, and circumstances connected with every one of these cases. Charges similar to these have been circulated broadcast throughout the land, and are religiously believed by many persons who are opposed to the use of the cigarette. As a matter of fact, the truth about the cigarette is bad enough, and does not need to be bolstered up by any extravagant statements or questionable arguments.

In January, 1898, Clark Bell, Esq., of New York, editor of the *Medico-Legal Journal*, wrote to a large number of chemists, neurologists, superintendents of insane hospitals, and other high authorities, asking them if they knew of any evidence that in the manufacture of cigarettes any ingredients are used, other than tobacco, which are deleterious to the health of those who use them, or that the use of cigarettes, even by the young, is a cause of insanity or mental unsoundness.

The replies were almost entirely negative on both counts. There was a general agreement that there is in cigarettes no more harmful agent than tobacco, and an entire lack of any evidence to prove that cigarette smoking produces insanity, except perhaps in very rare instances. Neither did they consider that it is a fertile cause of murder, robbery, and suicide.

Quite recently a committee appointed by the London *Lancet* has been investigating the same subject, led thereto by the many sensational stories in the public press of England and America. They report that a very careful search has failed to elicit the slightest evidence that cigarettes are injurious because of any foreign poisonous ingredients contained in them. Tests for opium, arsenic, and other alleged ingredients were made, but they were negative in every instance. The only injurious substance found was tobacco.

We may then regard it as settled that whatever harm is done by the cigarette is done by the tobacco of which it is composed, and not by the rice paper in which it is wrapped, or any foreign poison which it contains.

Having thus disposed of this preliminary question, we are now ready to consider the real subject, namely, the effects of the use of tobacco upon immature and growing boys. And here we are not at a loss for evidence, and that of a most unimpeachable character.

From the measurements of 187 men in the class of 1891, Yale College, Dr. J. W. Seaver found that the non-users of tobacco gained in weight during the college course 10.4 per cent. more than the regular users, and 6.6 per cent. more than the occasional users. In height the non-users increased 24 per cent. more than the regular users, and 12 per cent. more than the occasional users. In increase of chest girth the non-users had an advantage of 26.7 per cent. and 22 per cent., and an increase of lung capacity of 77.5 and 49 per cent., respectively. These facts in regard to the dwarfing effects of tobacco are corroborated by the observations on the class of 1891, Amherst, made by Dr. Edward Hitchcock. He found that in weight non-smokers increased during their course 24 per cent. more than the smokers; in increase in height they surpassed them 37 per cent.; in gain of chest, 42 per cent.; and in gain of lung capacity, 75 per cent. In Yale only 22 per cent. of those reaching the highest grade in scholarship were users of tobacco, while 85 per cent. of the lowest grade used it.

At the Polytechnic School in France it was found that the non-smokers took the highest rank in every grade, and that the smokers continually lost grade. Hence the use of tobacco was prohibited in the public schools. It is also prohibited in our government schools at Annapolis and West Point. It is stated that one-fifth of all the boys who apply for admission to the Naval Academy are rejected on account of irregularity of the heart's action, and this, the surgeons claim, is caused almost universally by smoking cigarettes.

In an experimental observation of 38 boys of all classes of society, who had been using tobacco for periods ranging

from two months to two years, 27 showed severe injury to the constitution and insufficient growth, and 32 showed irregularity of the heart's action, disordered stomachs, cough, and a craving for alcohol. Within six months after they had abandoned the use of tobacco, one-half were free from their former symptoms, and the remainder recovered by the end of the year.

The statements which are here given do not emanate from yellow journalism. They are simple facts from scientific sources, and may be relied upon as correct. They prove conclusively that tobacco is in the highest degree injurious to growth and development, not only of the body, but also of the mind. But the facts are by no means all in, nor the range of the injurious effects of tobacco covered by the evidence which has been given.

Dr. Francis L. Dowling, in a paper read before the Mississippi Valley Medical Association, shows, as the result of careful investigations by himself and others, that impaired vision is one of the common results of the habitual use of tobacco. He conducted a personal examination of 150 male employees in a large tobacco factory, all of whom used tobacco. Of these he found that in 45 cases the normal acuteness of vision was diminished in a greater or less degree. In 30 cases the impairment was very serious, and was accompanied with some form of color-blindness.

Investigations made in Belgium by the authority of the government have shown that the general and excessive use of tobacco is the main cause of color-blindness, thus corroborating the results obtained by Dr. Dowling.

A New York oculist describes a peculiar disease of the eye among smokers, the symptoms of which are dimness and film-like gatherings over the eye, which appear and disappear at intervals. This has been shown to be due to the use of tobacco, and can only be cured by long treatment. It is known as the cigarette eye.

The injurious effects of tobacco on the heart are well known. It is a common experience for the physician, in examining candidates for life insurance, to come unexpectedly, in an otherwise apparently healthy person, upon the peculiar, nervous pulse, and quick, jerky heart-beat, rapidly mounting up, under the slight exertion or excitement of the examination, to 100 or 120 beats per minute, sometimes intermitting, and sometimes presenting a slight valvular murmur, which denotes an excessive user of the weed, and which is known as "tobacco heart." In its slighter degrees, a cure is readily effected by abstinence from tobacco.

Dr. William T. Cathell declares that cigarette-smoking makes a delicate person's lips and face lose their natural healthy hue quicker than any other mode of using tobacco. He finds that all inflammatory affections of the nose and throat are more persistent, and recover more slowly, in excessive users of tobacco than in other persons. He adds that a scratch, pimple, blister, or wart, or a sore lip, mouth, tongue, or throat, may be made cancerous by keeping it constantly bathed in tobacco juice or smoke. He quotes the case of General Grant as a well-known instance of this nature.

It is often claimed that there are many strong and vigorous persons who can use tobacco without injury. As a proof of this instances are pointed out of many habitual users of tobacco who have attained a hale and hearty old age, some of whom even believe that their lives have been lengthened by its use. From these cases it is argued that the use of tobacco is not necessarily harmful.

The answer to this argument is twofold. In the first place, the proper mode of testing the effects of a drug is by watching the results of its use, not by the strong and vigorous, who can endure much, and are not easily influenced, but by the young, the weak, and the delicate, upon whom any influence, whether beneficial or injurious, is easily manifested. If tobacco is essentially beneficial in its nature it will benefit

this class as well as the strong and robust. And if it is injurious to the weak and frail, the inference is a safe one that it is essentially of a harmful nature, and that to all alike.

In the second place, in order to determine with any claim to scientific accuracy, the nature and effect of tobacco upon the human system, it is necessary to observe its action, not only upon the individual user, but also upon his descendants. Tested in this manner, the statement may safely be made that among those strong and vigorous men who have used tobacco habitually and constantly for many years without apparent injury, in not a single instance will their children, especially those born after the habit had been long indulged in, possess an equal degree of vigor and endurance; and particularly in not a single instance can they indulge in the habitual use of tobacco without experiencing those injurious effects which their fathers escaped. But whatever may be the verdict with reference to the use of tobacco by healthy adults there exists no difference of opinion among physicians or scientific men as to its effects upon young and growing boys. All agree that none of these ought, for the sake of their own development, physical, mental, and moral, to use tobacco in any form. It is its effect upon this class which constitutes the essential reason why the cigarette habit is properly regarded as a menace to civilization.

The president of a life insurance company drank wine and was often intoxicated secretly. He was very severe in denouncing temperance advocates, and publicly asserted that they were untrustworthy and unreliable. Moderate drinkers were taken into the company as agents, officers, and managers and insured for large amounts. Several years later the receiver paid the last installment of a fifteen per cent. dividend, all that remained for the stockholders of a company that at one time had many million dollars assets. The president and most of the officers are dead, and the harvest has been reaped from the seed sown, with the same absolute certainty of the change of the seasons.

Abstracts and Reviews.

BLINDNESS FROM INHALATION AND INGESTION OF METHYL ALCOHOL.

By H. V. WÜRDEMANN, M.D., OF MILWAUKEE, WIS.

Professor of Ophthalmology and Otology, Milwaukee Medical College.

Inhalation of Methyl Alcohol. — R. E., aged 33, consulted me October 1, 1900, stating "that he was a painter employed in the new Brandt Brewery, Chicago; had been shellacking vats for several years, but that about July 15, 1899, he had used the shellac with Columbian spirits. After working about six days he had to discontinue on account of nausea, dizziness, and severe frontal headache; the following day he noticed that his sight was dim, and on the next day he became totally blind; he was unable to see for twenty-four days, then his sight gradually improved, and improvement has continued to the time of examination in Milwaukee."

About October or November he was seen in Chicago by Dr. Casey A. Wood and by Dr. R. S. Patillo, probably at the Post Graduate Medical School, and his case, with that of the other men who worked with him (case abstracted below) was presented to the Chicago Ophthalmological Society November 13, 1899, and reported. At the time the cases were reported to the Chicago Ophthalmological Society with the R. E. he could count fingers at three feet, and with the L. E. fingers at one foot. November 10, 1899, the vision was

slightly better in the R. E., being about 1/L or fingers at 2 m., while that of the left eye was equivalent to movements of the hand at 1 m.; this was slightly better than October 1st, as then his vision was equal to fingers at 2 m. with the R. E., and movements of large objects down with the L. E. The optic nerves were whitish and opaque; the retinal vessels, particularly the arteries, were contracted; the capillaries on the disc not marked. At the time the cases were reported, November 13, 1899, the optic nerves were opaque-white, but the retinal vessels and capillaries were normal; this showed that atrophy of the optic nerve had taken place between November 13, 1899, and October 1, 1900.

The previous history given in Chicago and in Milwaukee was that his sight had always been good; that he was a moderate user of tobacco and stimulants, and he had no history or symptoms of syphilis. The visual fields showed characteristic contraction with central scotoma or blind spot in the center of vision. Diagnosis both by Drs. Wood and Patillo in Chicago, and by Drs. Würdemann and Black in Milwaukee was methyl alcohol amaurosis due to inhalation of the alcohol from the Columbian spirits, which had caused retrobulbar neuritis, producing partial atrophy of the optic nerve, more especially of the central fibers.

The other case is reported by R. S. Patillo of Chicago, pages 599-600 of the *Ophthalmic Record*, December, 1899:

J. G., aged 36; painter. On July 10, 1899, was engaged with his partner, Mr. E., in shellacking some new beer vats. The shellac was mixed with Columbian spirits, said to contain ninety-seven per cent. to ninety-eight per cent. alcohol, specific gravity 0.796, three coats of which were applied to each vat. The vats, eight in number, size 20x11 feet, were enclosed, except a vent-hole of about 18 inches square. The temperature of the vats was about seventy degrees F. After working four days Mr. G. had to discontinue on account of nausea, dizziness, and severe frontal headache. On the fifth

day he noticed his sight was fogged, and on the sixth day he became totally blind. Total blindness lasted for a week, when gradually sight returned until he could see to go around and to read large headlines of a paper. Two weeks later sight again began to fail, until the following conditions remain:

R. E. vision fingers at three feet; optic disc has a bluish tint; retinal vessels normal; tension normal.

L. E. light perception only; optic disc opaque white; vessels slightly contracted.

Previous history: Sight had always been good; was a moderate smoker, and only stimulant used was an occasional glass of beer. No history or symptom of specific trouble.

No similar cases to these have been reported, although others of blindness from *drinking* methyl alcohol have been given. The first case of methyl alcohol blindness reported is that by Mengin, which was also reported by Viger, and is the only instance referred to in the monographs of de Schweinitz and Casey A. Wood.

This was a convict 31 years old; he drank small amounts of methyl alcohol off and on for three months without decidedly unpleasant effects; he obtained this by precipitating the gums in varnish with water, the supernatant fluid containing the alcohol being used as a beverage. One day this man put two liters of water into a barrel containing a remnant of varnish, and the next day drank one-half liter of the liquid. An hour afterward he was taken with intense headache, vomiting, profuse sweating, dilation of the pupils, and delirium; the next day the delirium was gone, but he was completely blind, remaining so for a week, after which his sight slowly returned, until, at the end of about six weeks, he could see to find his way about with the left eye, although with the right he could barely distinguish light. He then asked to be sent back to work, but ten days later he returned to the infirmary, saying that his sight was getting worse again, and this deterioration continued gradually until he became entirely and permanently

blind. Viger apparently made no ophthalmoscopic examination, but when the patient was seen by Mengin two years later the latter found the optic discs of a dull snowy white, the lamina cribrosa not visible, and the vessels not markedly reduced in size.

Other cases have since been reported by Kuhnt, whose patient drank dilution of methyl alcohol with rye spirits. A comrade of this patient drank a great deal more of the mixture, but died during the night.

H. Gifford of Omaha had a man who drank a half pint of a mixture containing two-thirds water, one-third wood-alcohol, having similar symptoms to the foregoing cases, ultimately becoming entirely blind. At the same time another young man drank a similar mixture on a Thursday night, dying Saturday morning, after having become entirely blind and then unconscious; a woman obtained some alcohol in the same town and became unconscious, and died.

E. L. Foster of Hooper, Col., reports through Gifford the following: Two brothers purchased a beer bottle of Columbian spirits which they poured into a half-gallon jug, and filled it up with water; one of them drank freely of this mixture, the other only about three ounces, they then turned the jug over to their friends, and in all eight persons drank from it; the man who drank much died within twenty-four hours; the brother had headache, vomiting, but no trouble with his eyes; another man became delirious and totally blind, and died twenty-six hours after drinking; the other man only took a small amount, having severe headache, vomiting, and pain in the stomach.

McCoy and Michael report the case of a young man who became totally blind after drinking 100 cc. of wood alcohol; the ophthalmoscope at that time showed optic neuritis, which later passed into atrophy; the sight, at last accounts, was reduced to light perception in one eye, and fingers at six inches in the other.

Moulton's case was similar to the other, total blindness twenty-four hours after drinking wood alcohol, with subsequent improvement to light perception with one eye and fingers at one foot in the other; optic nerve atrophy existed.

The experimental poisoning of dogs by Holden with methyl alcohol shows that retinal cells become degenerated, and the medullary sheaths and the fibers of the optic nerve become broken down.

Hiram Woods reports six cases of blindness following the use of Jamaica ginger as a substitute for whisky. In the *Baltimore Evening News* of December 13th there is copied from the *Cambridge Democrat and News* the announcement of seven deaths at Crasfield from Jamaica ginger; also the statement that in Dorchester county, where Cambridge is situated, the courts have included the sale of ginger as "a beverage contrary to the law."

H. Harlan of Baltimore reports two cases, one of blindness and death from drinking fourteen bottles of Jamaica ginger, another case, a periodic drinker, who drank three bottles of essence of peppermint and part of a bottle of essence of lemon, becoming blind and later improving. He had the essence of ginger and peppermint analyzed by Chemists Ryson and Wescott of Baltimore, who show that the mercenary manufacturers of these products have here substituted the methyl alcohol for the more costly fruit alcohol. The chemists' report will be found, p. 83, February *Ophthalmic Record*. It is particularly interesting as it shows the processes of determining the nature of the alcohol in these spirits.

The first case of blindness due to ingestion of Jamaica ginger was reported by A. G. Thomson of Philadelphia. Nowhere in ophthalmic literature is acetone poisoning causing blindness referred to, with the exception of the one by the chemists Ryson and Wescott, which simply states that "acetone boils at 56°," probably irrelevant.

The drugs which act as chronic and sometimes as acute poisons capable of originating definite tissue changes and degeneration are the following, placed in order of their importance:

Coal tar products, including anilin naphthalin, safranin, fuchsin, etc., carbolic acid, hydracetin, picric acid.	Alcohol.
Arsenic.	Amyl alcohol.
Lead.	Methyl alcohol.
Mercury.	Tobacco.
Nitrate of silver.	Carbon bisulfid.
Oxalic acid.	Iodoform.
Phosphorus.	Iodin and iodid of potassium.
Osmic acid.	Chlorate of potassium.
Chromic acid.	Nitro- and dinitro-benzol.
Sulfuric acid.	Benzines (petrol ether).
Ergot.	Hydrocyanic acid and cyanid of potassium.
	Nitrite of amyl and nitrate of ethyl.

There is no evidence to prove that adulteration of ordinary drinking spirits, for instance, amylic alcohol, empyreumatic oils, wormwood, oil of juniper, and the like, are capable of producing amblyopia in cases where alcoholic blindness is suspected.

The affection of toxic amblyopia, *i. e.*, retrobulbar neuritis and subsequent atrophy, is present in about 0.68 per cent. of all eye cases applying for treatment. The proportion of causes of cases of toxic amblyopia is well stated in the following table from de Schweinitz:

Alcohol,	64
Alcohol and tobacco,	45
Tobacco,	23
Diabetes,	3
Lead,	1
Bisulphid of carbon,	2

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The typical symptoms in cases of blindness from poisons of the above character are practically the same. They are

characterized by loss of sight with more or less immobile pupils, contraction of the visual field, and scotoma or blind spot in the center. The appearance of the optic nerve is almost characteristic, the disc being whitish, particularly so in the region of the axial fibers. These points, of course, can only be determined by an oculist who has had particular experience with this class of cases.

These cases are usually of a chronic form, but with the stoppage of the alcohol and tobacco or other poison and some treatment these patients generally make full recovery. The prognosis in blinding from fruit alcohol or tobacco is usually good, a complete recovery usually being made.

In methyl alcohol poisoning, the inflammation seems to be so great and sudden that complete and sudden blindness sets in, with subsequent imperfect partial recovery. No patients whose cases are cited in the literature nor any in my experience have made complete recovery. I will likewise state that in the Miller Brewery (Milwaukee) some time in the early part of 1900 there were a couple of cases in workmen affected from varnishing vats with a mixture composed mostly of Columbian spirits. One of these people died. They were taken care of by Dr. D. J. Hayes. I also understand there were some cases in St. Louis.

In reply to a letter by Dr. E. L. Foster of Hooper, Col., to the Manhattan Spirit Company, which manufactures the methyl alcohol used by miners, it is stated that this substance has caused death in a number of cases, and that they always put upon packages, "for external use only."

Review.—From the foregoing it seems that the ingestion of methyl alcohol by the mouth or inhalation of its vapor will produce blindness of a characteristic type which is sudden and in most cases complete, which tends later to a partial or incomplete recovery. Without securing an authentic history and without observation for some weeks of a case or from one examination, it would not be possible to state that

"a certain case of blindness was or was not caused by methyl alcohol," as the ocular appearance, the state of the vision, and the scotoma in the visual field are the same as in the other forms of toxic amblyopias; but I should say that if in a certain case proof were given of the ingestion of the inhalation of methyl alcohol, which was followed by vertigo, nausea, vomiting, and mental disturbances with sudden blindness, and which upon examination showed the objective appearances above stated, and which did not make a recovery, as usually occurs with ordinary alcohol or tobacco poisoning, that the physician could be positive in stating that the cause of the blindness was due to the methyl alcohol. — *Medicine.*

ALCOHOL AND NUTRITION.

Foods are distinguished from poisons in this, that they have no energetic action upon the tissues, neither disturbing nor destroying sensibility, power of contraction, or nutrition, nor do they alter the texture of the tissues. The neutrality and the absence of salient chemical properties distinguish some foods from poisons without direct experiment, but with many poisons, especially those of vegetable origin, experience is necessary to distinguish them from food.

Has alcohol the property of accelerating the nutritive molecular renewal of organic tissues — in other words, does it favor digestion, assimilation of nutritive substances, and the elimination of the products of decomposition? Has it not rather an energetic action upon the tissues by which it disturbs or destroys the sensibility, the contractibility, and by which it alters the texture? Is it distinguished by the absence of salient chemical properties? If we are in doubt on this subject, examine the results of experiments made by a large number of impartial and conscientious observers.

If we examine all the researches that have been made in the entire domain of physiology and pathology we are forced

to the conclusion that alcohol can neither strengthen nor nourish the body, but that its anæsthetic and sedative influence renders it injurious in proportion to the amount taken. As a medicine its indications are extremely limited. In the majority of cases there are other substances that could replace it to advantage.

It is not necessary to go farther to be convinced that alcohol is not truly a tonic, and that its apparently beneficent action is in reality false and dangerous.

Nor is it any more a food, as some physicians still declare, without having verified this too superficial opinion.

If this were true, alcohol would equal in value a respiratory food whose combustion would furnish the calories necessary for the preservation of the heat of the body. The fact of its combustion being admitted, in order for alcohol to be a food it would be necessary evidently that there should be (for the body) no quantitative difference in the calories, which the latter produced, and those furnished by one or another of the carbohydrates.

But the most superficial observation shows that this is not so. There is an actual difference between the absorption of an equal quantity of alcohol or of sugar. This difference must, therefore, proceed from the manner in which the combustion takes place. And, in fact, a whole series of purely chemical observations force upon us an entirely new conception of the action of alcohol in the living organism. Physiological experiments entirely confirm this idea, but the literature upon alcoholism has not taken it sufficiently into account.

According to these observations we may consider alcohol as a respiratory poison which, in the vital process of respiration, hinders the physiological course of the gaseous exchange either in the lungs or in each of the cells of our tissues in general.

This action is due to the promptness of its combustion,

to its great affinity for oxygen, to its considerable reductive ability on the one hand, and to its easy diffusibility on the other. We must, in general, admit that for the preservation of our bodily heat there must be regular and continuous processes of combustion. The supply of fuel must undergo a regular and progressive oxidation, so that the charge of carbon in the form of calorifics, admitted at one time, does not burn instantaneously, but is consumed at a regular time, due to a current of air regulated in harmony.

The special kind of coal that corresponds to one system of stove may be looked upon as its physiological aliment, while with another fuel either one could not obtain heat, or else an explosion even would be produced.

Now we may likewise affirm that only certain hydrocarbons are appropriate for fuel for our bodies. These are those that by a progressive combustion, exactly regulated by the automatic nervous centers, liberate the heat necessary to the vital processes of the organs without exciting a superfluous afflux of oxygen to those that produce the normal respiration.

We see already at first sight that alcohol does not answer to these essential requirements of respiratory food. Moreover, we have reason to believe that on these two accounts alcohol produces a double damage: First, because it burns with too much energy, and the normal respiration is not able to provide for the sudden increase of the demand for oxygen; second, because the carbon dioxide produced by the more intense oxidation is not eliminated with sufficient rapidity.

This being admitted, we have matter for an active and a passive poisoning for the time. The first mode of intoxication is produced by the rapid passage of the alcohol from the stomach into the blood. The oxygen of the blood not being sufficient for the energetic combustion of this alcohol there must be produced, reflexly, a greater amplitude of the respiratory movements in order to increase importation of oxygen.

It is this that confirms the experiments of Zuntz, who has shown an acceleration of nine per cent. of the respiration, and those of Geppert, which indicated seven per cent. at least after the ingestion of small doses of alcohol.

Nevertheless the organism may not sufficiently incorporate the oxygen to correspond to the increased necessity for this gas produced by the alcohol. Wolffers has demonstrated this by a conclusive experiment upon rabbits, to which he gave alternately alcohol and other hydrocarbons. As measured by the gasometer, the ratio between the carbon dioxide exhaled and the oxygen inspired showed for the oxidation of alcohol only a quotient of two-thirds. Now, although the rabbits of Wolffers consumed by the gasometer much more oxygen when they were given alcohol than when they took other hydrocarbons, the respiratory quotient remained extraordinarily elevated, and increased at times the unit. That is to say, the quantity of carbonic dioxide expired exceeded the corresponding quantity of oxygen inhaled.

This result can only be explained in two ways: either with the other hydrocarbons a greater quotient should have been consumed in the same time as with the alcohol, and Wolffers admits that the rabbits in his experiments had fasted a long time, or else, and this seems to be more reasonable, it must be believed that the alcohol not finding in the oxygen in the circulation a sufficient quantity for its combustion, borrowed even from the cells of the tissues the oxygen that should serve those tissues for their very life.

And thus the anatomical, pathological diagnosis of alcoholism is explained in an entirely natural manner, for it institutes, as we know, a degeneration of the cellules of practically all of the organs. Degenerations, particularly typical of acute poisoning, are observed in the organs where the vessels of absorption are closest, primarily in the liver.

In serious poisoning with alcohol this degeneration is very pronounced, even so far as the complete destruction of

certain cells, for example, in the brain, as they are shown in the fine preparations of Nissl and Delio.

This shows us that we should distrust the physical advantage to be derived from the heat which, without doubt, is formed by the oxidation of alcohol, and which has gained for the latter the reputation of being a respiratory aliment. This mistrust is increased when we consider the final results of this production of heat.—*Revue Medicale, Geneva.*

REPORT OF THE MASSACHUSETTS HOSPITAL FOR DIPSOMANIACS AND INEBRIATES.

The following selections from the report gives a fair idea of this institution and its success:

The hospital was kept so well filled during the whole year that even in the summer months, when the daily average is usually the smallest, there were but few less than the normal capacity of 200 beds. This is but one of the indications of a better appreciation of the hospital's usefulness on the part of the courts and of the public which it has been created to serve. To this end it is again in order to emphasize the importance of a careful discrimination by the committing magistrates of proper cases for the hospital. Attention should be given to two practical considerations in this regard: first, that, if the number of commitments is increased any further, they will exceed the capacity of the hospital and the patients cannot be accommodated; and, second, that, instead of increasing the commitments, a more careful selection should be made of the patients who will appreciate the privileges of the hospital, and will better co-operate with its efforts in their behalf. There are still too many persons sent to the hospital who prove themselves to be unworthy of being offered its benefits; they form a large part of those who elope at an early opportunity, and are not only out of place in the hospital, but they exert an evil influence upon the more hopeful

cases, under a plan of treatment of which it is one of the fundamental principles that the patient must be trusted upon his parole of honor, in order to restore his power of self-control. It comes to pass that with a full hospital the trustees must exercise more freely the provision for discharging those who are not likely to be benefited by treatment; and, in order to make room for the more worthy patients, some also must be discharged who show the lesser degrees of fitness.

The trustees, on the other hand, often find themselves in a difficult position in regard to doubtful cases when the best has been done that can be in their selection; patients once having been committed to the hospital by the courts, it becomes a duty to do all that is possible, in the hope of ultimate benefit. It is true that a considerable proportion of those who escape afterwards return,—a fair proportion of them voluntarily, and with good results in the end. Patients of this class need, in their earlier weakness of purpose, the deterring influence of a penalty for elopement, by enactment of a law such as is recommended by the superintendent. With such a law, a means of restraint would be placed in the hands of the committing authorities which would give force to their commitments and sustain the hospital in its curative methods, which must include the principle of trusting patients with the opportunities for escape. The conditions created by such a law would be most favorable to the further development of the hospital's usefulness in conjunction with the probation system. This could be made to improve the discrimination of proper cases to which reference has already been made. It has been advocated in these reports that this hospital should bear a closer relation to the probation work of the courts. In many cases there would be less liability of relapse if the patient on his return, after his six months' stay in the hospital, could be required to report to the probation officer during the remainder of the

two years' period. The trustees have been gaining the co-operation of an increasing number of the probation officers throughout the commonwealth, and it is believed to have been distinctly to the advantage of the patients confided to their care.

The committee recognizes in its report the grave difficulties to be met in carrying out a plan of compulsory remedial treatment; and the question is considered whether committal to special institutions for that purpose would not largely defeat its own end. In this regard "the more distinctly pathological group of habitual and of periodical drunkards" and those who are on the verge of descending into this class come within the province of the Foxborough Hospital. It is in these cases that the hospital and the probation officers can mutually help each other. It is precisely in this field of work that this hospital holds a unique position. The whole movement for remedial reform is yet in its infancy. Although in Great Britain it has been in operation for more than twenty years, it has only recently reached the stage of permitting the establishment of state institutions for habitual drunkards (in addition to those of a private character, before allowed), to which compulsory committal may be made. In that country there is still a penal criterion for determining the constitutional authority of courts to make commitments. In Switzerland, notably, great success has been gained in small but essentially private institutions. But Massachusetts has taken the stronger ground that "inebriates and dipsomaniacs" are the subjects of a mental infirmity, to be dealt with under the same statutes which relate to the protection and treatment of the insane.

Another feature of the hospital's unique position is that it constitutes an attempt to deal with a larger number of patients than has seemed expedient from other points of view. The argument is made against what may be characterized as "wholesale attempts to deal with the problem of

asylum treatment." But there is a counter argument. The work for individual rescue, in the small institutions, is most beneficent, and is undoubtedly best suited to certain cases. But Massachusetts has begun a vigorous attack on the most humanitarian ground upon the "mass of inebriety," which is so great that large measures are necessary to produce effective results. There are many patients who can be restored to usefulness and good citizenship by the methods at Foxborough. The compulsory detention there is recognized as "medical restraint" by sensible patients, and it no more defeats its purpose than compulsory detention in a hospital for the insane prevents recovery from curable mental disorders. A majority of the patients come to this hospital voluntarily; more and more they subject themselves to commitment, as they would to the necessity of going to a general hospital, and in a like spirit. Among sensible people there is growing, through practical experience, an appreciation of what the hospital can do; and its curative work is worth the doing, both for the individual and for the state. The patient, being held long enough to become conscious of his gain in physical vigor through the methods of treatment, submits to detention; when he feels the first effects of the process of restoring the foundation of his sense of mastery of himself, the recovery of his moral tone is aided from the physical side. This is a potent and essential reinforcement of the external moral influences. There are, indeed, the weaker brethren, who can only be led out of their slough of despond by assiduous moral guardianship, long continued. Such work of individual rescue brings its rewards for the time and thought expended. This work has its place and its proper subjects, though the state probably could not undertake to organize and support it to the extent of a considerable number of small institutions, or as individual workers can do. But the commonwealth aims to deal, through its hospital, at first with the material which has the largest

amount of salvage in it, — it invites first to its privileges the most hopeful cases; the earlier they seek for cure, the better. Now that the hospital is receiving better material and its methods are becoming more effective, attention can be given to more of the individual work, of which all that is possible should be done in the hospital, and to extending helpful influences to patients when released on leave, or after discharge. This in part is already made practicable by the probation system, which is another unique method of dealing with the same class of cases. Hence this appeal for co-operation; the hospital and the probation system both represent pioneer work, and, working together, they discover an opportunity for larger results than are offered anywhere else. The work of this hospital cannot be classed properly with that of any other existing institution for a like purpose. This plan invites the criticism of being perhaps "wholesale" in its aims, but its defence is that it is being developed on independent lines, and under peculiar and exceptionally favorable conditions as to legislation, which has recognized the principle of compulsory commitment because of mental infirmity, and has established the probation system with its helpful possibilities not yet fully recognized.

The superintendent, Dr. Woodbury, reports a daily average of 221.46 patients, an increase of 44.21 over last year.

As a part of the remedial treatment suitable occupation is required of each patient as his condition allows. Outdoor work producing by far the best results, a great majority of the men are assigned to the farm under suitable supervision; this supervision is both for a proper direction of the work, and for instruction, as a large part of those engaged are not accustomed to farm work. The number of hours of work required per day has been gradually increased to five, with an additional hour for physical training in the gymnasium. Patients not paroled to have the liberty of the hospital grounds are required to work the same length of time in the broom shop.

The results, as exhibited in the patients who are discharged in good physical and mental condition, are pleasing alike to patient and physician; the reports which reach the hospital of these patients after discharge are such as to strengthen belief in the method. Of those discharged in a twelve-months period fifty-five per cent. were reported by the inspector as abstinent, or doing well. This is an increase of eighteen per cent., and a most gratifying result.

A CASE OF TEA INTOXICATION WITH SPINAL SYMPTOMS.

Gordon, in the *Indian Lancet*, October 23, 1901, reports the following case:

Mrs. A. B., married, thirty-one years of age; peddler by occupation. Her father enjoys good health, and is seventy-eight years of age. Mother is sixty-eight years old, but always ill. One sister of thirty-nine is also constantly ill. One brother of twenty-nine is in good health. Mother had several miscarriages.

Personal history: Was operated upon seven years ago for a tumor of the uterus, and since then has not menstruated. Eight months later she began to suffer with pain and stiffness in lower limbs. Before the operation she used to drink about ten cups of tea daily, but for the past two years drank about forty-five large glasses (360 ounces) a day. The tea was always black, and extremely strong; sometimes she drank it in infusion, but most of the time in decoction. She has been a peddler for the past three years, and is constantly exposed to cold. When she had no means to buy goods, she used to do any other work she could procure, which most of the time was very hard. For the last ten years she has complained of weak eyesight, which has become still weaker during the past three years, so that she was compelled to wear glasses.

The symptoms the patient presented three months ago were combined sclerosis, and functional disturbances. Ataxia of the legs and arms, pain and sensation of numbness in the lower limbs, fatigue on the least exertion, rigidity of the lower extremities, but not of the upper, also involvement of the sphincters causing frequent and imperative micturition.

The eye symptoms were very prominent, nystagmus present in both eyes, congestion of the discs, paresis of the internal rectus, and hypermetropia.

As far as functional disturbances are concerned the patient was excitable, and when she became angry she fainted—to use her own expression. She did not lose consciousness, but was unable to move her arms and legs for fifteen minutes. About three weeks ago, subsequent to a fright, she suddenly became deaf. The examination revealed nothing abnormal. Her mental condition was perfect; memory excellent, no hallucinations, no nightmares; sleep was fairly good.

The examination of the viscera revealed nothing abnormal, except that the first sound of the heart was slightly accentuated. The patient appeared to be anemic. She has wasted a great deal within the last two years.

Under treatment in three weeks she improved considerably in regard to her functional disturbances, but the spinal symptoms remained as before the treatment.

At the beginning of the treatment the tea was suppressed entirely, but her abstinence did not last long, and after three months' time she was drinking, on the average, fifteen glasses a day, or 120 ounces.

If from the history of the patient the spinal symptoms cannot be attributed to any other cause, and as we find here an extreme abuse of a beverage, we are led to attribute them to tea-intoxication. As to the disturbances of sensations, they might be of hysterical nature, although no other stigmata were found. The patient perhaps always was hysterical, and it is easy to understand how a fluid containing intoxicating

principles absorbed in an unusual quantity for several years, and therefore circulating daily in the blood-vessels, could develop hysteria and spinal symptoms in a patient who is predisposed to nervous diseases. The predisposition is present here on account of hard labor, unhygienic conditions of life, and perhaps artificial privation of the genital organs. It is also possible that the spinal symptoms were to some extent present previously to the abuse of tea; the last circumstance, perhaps, hastened the development of the symptoms, and in addition gave place to hysteria. At any rate, in our mind the intoxication in question played a certain rôle in the existence of all the symptoms combined. The only remarkable feature in our case is the fact that cerebral symptoms are not marked, and the majority of those mentioned by other writers are totally absent.

CONTRADICTORY REPORT ON HEREDITY.

The Society for the Study of Inebriety in England was persuaded some time ago to take up the subject of heredity. Dr. Reid has published some very extraordinary papers denying the impossibility of drink heredity. Accordingly a committee of fourteen persons, including Dr. Reid, attempted to solve this great subject. This committee consisted of two surgeons, a professor of bacteriology, an army surgeon, and two general medical practitioners. After eighteen months of repeated meetings this committee has drawn up a report consisting of fifteen statements. Curiously enough only four of the entire committee signed these statements without comment. Four make separate reports, and one declines to sign four of the statements. Four sign the statements with a personal explanation of what they understand by the different opinions expressed. Two decline to sign one paragraph; so that altogether it is one of the most confusing attempts to find any facts which they will agree upon.

The general statement which seems to be most prominent is that acquired characteristics are never transmitted to the next generation, and hence inebriety is not a disease which comes from the parents. This is so clearly contradicted by evidence, which can be found in almost every section of the country, as to make it appear absurd. The minority reports indicate that it is thought best to present this mass of conflicting evidence for the purpose of stimulating further research. In reality the whole report is an acknowledgment of weakness, imperfect knowledge coupled with dogmatic assertions. Practically it is not the statement of experts or anyone who has considered the facts judicially, and altogether it is one of the most unfortunate deliveries on this subject which has appeared.

Men of large experience who have carefully studied heredity agree that inebriety is directly transmitted from parents to children. This does not mean that children of drunken parents must of necessity follow in the footsteps of their parents, but it means that under certain circumstances there is a greater tendency and liability to become inebriated than in others from more temperate ancestors. The observed fact that many children of inebriate parentage are total abstainers, with an aversion for alcohol, does not prove that they have not received from their parents a defective organization, which is liable to break out on certain lines, not always in the craze for drink, but other defects may appear in after life. Any careful study of the children of inebriates will indicate lines of degeneration pointing to heredity beyond all doubt or question.

This report, therefore, cannot be considered as having any authority in settling this question or throwing doubt on the general consensus of public opinion in regard to this matter. Anyone who has any doubts can have them cleared up at once by a study of persons in their own vicinity and neighborhood.

In a report which I made before the American Society for the Study of Inebriety where the histories of 1,744 inebriates were studied 1,080 had a distinct history of heredity. Many of these cases were direct heredities, the impulse to drink passing down from father to child with great exactness. This is the most extensive study of the subject which has been made up to this time, and is not based on any theories, but on the facts of the histories of inebriates.

Usually the transmission of a drink impulse ends in extinction of the race after the second generation, not always by inebriety or drug-taking, but by other diseases, which are encouraged by low vital power of the victim. What we most need now is a grouping of more histories of cases giving the facts of the drinking of parents and children to show the transmission from one generation to another; also of the tendency to exhaustion and the craving for relief which finds gratification in the narcotism of alcohol. — *T. D. Crothers, M.D.*

REPORT OF INEBRIATE RETREATS IN ENGLAND.

The twenty-first report of the Inebriate Retreat Inspector, Dr. R. W. Branthwaite, is a very suggestive volume, containing tables and conclusions of great interest.

The following is a general summary: At the close of 1900 twenty retreats had received their license in accordance with the provisions of the acts, and the accommodation, which, at the end of 1899, showed 276 available beds, had been increased by the end of 1900 to 357.

During the current year two other retreats have been added, giving twenty-two institutions in full working order. It is a matter for satisfaction that some of the recently added retreats are designed for persons of strictly limited means. This has become possible owing to the introduction of the principle of compulsory labor. At the same time a fair amount of daily labor is both physically advantageous to the

patients concerned, and an important agent in reformation by breaking habits of idleness associated with inebriety, thus aiding in developing a moral tone. At Spelthorne, St. Mary, Bedford, the minimum weekly charge is five shillings; at Corngraves Hall, Cradley Heath, at Ellison Lodge, Dulwich, at the Grove, Fallowfield, Manchester, and at Hancox the minimum charge is seven shillings and six pence per week, and at the Hermitage, South Cave, Yorkshire, it is ten shillings and six pence. Absolutely destitute inebriates are still almost unprovided for; there are eight beds available for women in this condition, but not one for a male case throughout the kingdom. During 1900, 219 persons were admitted as signed patients under the act, an increase of sixteen over the admissions during the previous year. During the same period 203 persons entered licensed institutions as "private" patients; that is, by simple contract, undertaking merely to conform to the rules in force in the retreat. During the year 207 private cases were discharged from retreats; the average term of voluntary detention barely amounting to 4.5 per case, a period certainly inadequate. It is found that inebriates usually consider themselves cured after a few weeks' abstinence, and it is a matter of extreme difficulty to detain such persons for a beneficial period unless they are signed under the act.

The desirability, therefore, of obtaining the patient's consent to a definite period of detention, and of having it duly attested by a justice of peace before admission to a retreat is obvious.

One hundred and seventy-five persons who had signed under the act were discharged during 1900, 131 of whom left upon expiry of the period for which they had signed. In forty-one instances persons were discharged by order of a justice on the request of the licensee of the retreat. Two deaths occurred during the year due to disease attributable to alcoholism.

In spite of the voluntary character of the retreats a number of cases give constant trouble after admission by setting rules at defiance, and by nullifying all attempts at maintenance of discipline and restraint from liquor. Out of 422 cases treated during the year, forty-eight, or over eleven per cent., were troublesome in this way. The difficult patients are, as a rule, those who approach nearest to definite lunacy, and, therefore, most need control alike in their own interest and that of their friends. The only method of dealing with such at present, open to licensees, is their discharge as uncontrollable; but this method is clearly unsatisfactory, and the ideal method, that of transference to an institution more capable of exercising the necessary control, is not yet in the range of practical politics.

During 1900 five reformatories have been in use, giving 416 available beds, as compared with four having 227 beds in the previous year, and during the current year an additional reformatory has been certified. During 1899 eighty-eight cases were admitted, all female; in 1900 144 were admitted, of which 128 were female, and sixteen male.

The certified reformatories are as follows: Two at Brentry, one for men, and the other for women; one at Horfield near Bristol for women; one at Duxhurst near Reigate for women; St. Joseph's at Ashford, Middlesex, and Farmfield at Horley, Surrey, both for females, and one, opened during 1901, Newdigate Farm House at Dorking for male cases. At present the London City Council is the only local authority having a reformatory of its own certified and in working order. Out of fifty councils in England fifteen have already made definite arrangements for the reception of cases committed from courts situate in their jurisdiction; that is, thirty per cent.; thirteen out of the sixty-five county boroughs have taken similar action; and of 220 non-county boroughs in England and Wales sixty-four are now supplied with beds for the use of committed cases. During 1900 144 committed

cases were received into reformatories, of these seventeen were sentenced for crime caused or contributed to by drink, and 127 for habitual drunkenness. Of the crime cases no fewer than twelve were associated with cruelty to children arising out of drunken habits. The great majority of the committed cases were of middle age, but four young girls under twenty-one, the children of drunken parents, were admitted, indicating mental defect with a low moral standard. It is pointed out in the report that for generations past many endeavors have been made to lessen drunkenness by advocating national teetotalism as a remedy, but no real attempt has been made on a large scale to reach this end by attacking individual drunkards. Consequently all initial action will of necessity be directed against inebriates who are the progeny of those who have themselves been confirmed inebriates through many years, and who are morally degraded by constant prison and police-court proceedings.

About twenty-seven per cent. of the cases admitted in 1900 were the subjects of mental defects, and wherever lunacy is present, or mental deficiency to any great extent, the possibility of reformation is very greatly reduced, as in the majority of such cases drunkenness is a symptom of an insanity which is irremovable, and itself due in many cases to hereditary causes. As in retreats, so in reformatories, troublesome cases are a great difficulty. There are only two ways of dealing with such — either discharge from sentence, or detention in a state inebriate reformatory. The discharge plan is obviously out of question, as it places a premium on bad behavior, yet, in the absence of a state reformatory, no fewer than seven cases were thus discharged during the year. A scheme has, however, been approved by the secretary of state whereby a portion of Aylesbury Prison has been adapted for female cases, and a portion of Warwick Prison for male cases. Permanent buildings are to be erected for the same purpose in the near future on grounds contiguous to the former. Of

nine cases discharged from expiry of sentence three are known to be doing well, one was satisfactory when last heard of, and five have relapsed.

Of the number discharged by order of the secretary of state five were for lunacy, and seven for continued refractory conduct, which could not be otherwise dealt with, as explained above, owing to the absence of a state reformatory.—
From The British Medical Journal.

HALLUCINATIONS.

From *L'Alcool*, November, 1901. A gentleman in speaking of his visit to Egypt described it as a country tending to the production of melancholia.

The "nargelich" (water pipe), and the intoxicating drink, "Raki," were his principal consolers.

"Raki" is described as extract of anise, and as strong as absinthe; taken in moderation it is a mild stimulant and appetizer, but when used to excess is as dangerous as the strongest form of alcohol. During the first month of his stay he was usually sober, but, as the melancholia increased, he became addicted to the constant use of this drink, taking it regularly at 5 A. M. and 7 P. M., using a moderate amount in the mornings, but in the evenings he always drank five or six glasses at the one sitting.

He soon became the victim of hallucinations, and the first intimation he had of this complication was the imaginary arrival of his children, clothed in colored garments, blonde tresses, and followed by a long procession of Arabs; the arms of the Arabs took on the forms of great serpents stretching out their bodies over the heads of his children, and repeatedly striking him in the eyes.

This occurred at night, and, getting out of bed, he remained until morning in a chair.

This condition was accompanied with a high fever, and, as a result, he drank large quantities of fresh water.

The second hallucination was even worse.

He had a friend whom he took care of during an attack of cholera, and this friend suffered greatly, and finally died.

He was intensely affected by the death-bed scene of this person, and soon after began to drink freely of the "Raki" again, very shortly developing symptoms similar to those of his dead friend. He summoned his children to his bedside, bid them farewell, and at this moment his departed friend appeared, his eyes darting fire, his nose elongated, resembling that of a bird of prey, and clutching in his hands the flag of the French consulate.

Very soon after entering the room the apparition pointed his finger to the place where he had secured the flag, and the patient turned his eyes towards the consulate building, where he saw his children on the roof waving a black flag, and shouting out: "Papa's dead."

He was very sick after this attack, but he did not drink another glass of "Raki" during his stay in Egypt.

THE ORTHODOX PREACHER AND NANCY; BEING THE TALE OF THE MISFORTUNES OF A MINISTER WHO TRIED TO DO AS JESUS WOULD; A STORY OF MINISTERIAL LIFE AS IT IS. By Rev. Magee Pratt, Author of "The Life and Times of Oliver Cromwell," "The Moral Philosophy of Floriculture," etc. Connecticut Magazine Company. Hartford, Conn., 1901. Price \$1.00.

This is one of those revolutionary books calling attention to abuses which have grown up in the education of clergymen, and has followed them throughout their lives.

In the form of a story, about which there will be much

difference of opinion, the errors of the present system of teaching are exposed. Also the jealousy and intrigue among clergymen, their ignorance, and want of manliness.

Already the subjects of this book have attracted much attention, and the author is at present the storm center of a veritable cyclone of bitter criticism. It is very evident that the book describes actual facts, the revelation of which is most startling. Like all other revolutionary efforts it has created two contending parties in the church. The vivid, graphic style of the work gives great force to the interest of the story, and brings out the author's purpose very clearly. This book should be in the library of every advanced thinker.

A TEXT-BOOK OF MEDICINE FOR STUDENTS AND PRACTITIONERS. By Dr. Adolph Strumpell, Professor and Director of the Medical Clinique at the University of Erlangen. Third American Edition. Translated by permission from the Thirteenth German Edition by Herman F. Vickery, A.B., M.D., Instructor in Clinical Medicine, Harvard University, etc., and Philip Coombs Knapp, A.M., M.D., Clinical Instructor in Diseases of the Nervous System, Harvard University, etc., with Editorial Notes by Frederick C. Shattuck, A. M., M.D., Professor of Clinical Medicine, Harvard University, etc. With One Hundred and Eighty-five Illustrations in the Text, and One in the Plate. New York, D. Appleton & Company, 1901.

The third edition of Strumpell's work has been considerably changed by its American authors, and it is without doubt one of the best single text-books covering the general field of medicine. The one particular feature that is noticeable is the changes that are made in the treatment of the common dis-

eases. Drugs are gradually ignored, and in their place hygienic and hydrotherapeutic measures are advocated. Only a few prescriptions are mentioned as of particular value, and these are generally single remedies. Much attention is paid to diet as a remedy associated with changes in the method of living, and also symptomatic treatment. Similar to the other modern text-books a large space is given to pathology, etiology, and diagnosis.

The chapters on nervous diseases are quite exhaustive, and very practical; cerebral hemorrhage and epilepsy are discussed with great minuteness. The illustrations are praiseworthy, and the text is unusually satisfactory in the breadth and scope.

Several pages are given to the discussion of alcoholic neuritis, and throughout the book many references are made to the injurious effect of alcohol and the diseases that arise from this source. The classification is quite distinct, and the reader is able to turn at once to the reference he wishes to consult. The authors' and editors' purpose to make the work a good index of modern medical thought and knowledge is accomplished. We commend it most heartily as one of the most practical works of the year, and a necessary addition to the library of every physician.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS.

A Practical Exposition of the Methods Other than Drug-Giving Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic. Volume III — Climatology, Health Resorts, Mineral Springs. By F. Parkes Weber, M.A., M.D., F.R.C.P. (London). With the Collabora-

tion for America of Guy Hinsdale, A.M., M.D., Secretary of the American Climatological Association, etc.; in Two Books. Book I — Principles of Climatotherapy. Ocean Voyages, Mediterranean, European, and British Health Resorts. Book II — Mineral Springs, Therapeutics, etc. Illustrated with Maps. Price for the complete set, \$22.00 net.

These are the third and fourth volumes of Cohen's System of Physiologic Therapeutics. The first part treats of the factors of climate with their effect on physiologic functions and pathological conditions, and describes the fundamental principles that underlie the application of climates, health resorts, and mineral springs in the prevention of disease, and to promote the comfort and recovery of the sick.

The second part describes health resorts; and the third part discusses in detail the special climatic treatment of various diseases and different classes of patients. Book II also describes the health resorts in Africa, Asia, Australasia, and America.

In Book I ocean voyages are first treated of with considerable detail and their advantages and disadvantages. As very little exact information on this important subject exists in an available form, this chapter should be of great use to physicians. The subject of altitude is treated in a similarly full and definite manner, and not only are we told what classes of patients and disorders are benefited by Alpine and Rocky Mountain climates, but also what classes are unsuitable for such treatment; also the difference between summer and winter climates in Switzerland. In addition, the sea coast and inland health resorts of the Mediterranean countries, those of Continental Europe, and those of the British Islands, including mountain stations of various elevations, plains, and mineral water spas are described. Not only geographic and climatic features are pointed out, but also social and other characteristics so important in selecting a resort that shall be suitable

to the tastes and means of the individual patient as well as beneficial in his disease.

The existence of sanatoriums for special diseases, as those at seaside resorts for scrofulous and weakly children, and in various regions for consumption, nervous affections, diseases of women, and the like, are specified; and the mere lists of such places, as found in the index, are likely to prove invaluable for reference. We know none other so complete. A mere glance at the closely printed pages of the index will show how unusually full is the treatment of special resorts and their particular qualities. Like the preceding volumes, these are thoroughly scientific and eminently practical, a combination that reflects credit alike on authors and editor.

WARWICK OF THE KNOBS; A STORY OF STRINGTOWN COUNTY, KENTUCKY. By John Uri Lloyd, author of "Stringtown on the Pike," "Etidorpha," "The Right Side of the Car," etc. With photographic illustrations of Knob County. Dodd, Mead & Co., New York, 1901.

In the thin garb of fiction the author has given us an actual history of men and events in a rural town in Kentucky. The picturesque hero as a religious delusionist and the incidents which grow out of the application of his belief to everyday life are told with marked accuracy and pleasing detail. Like the stories of Dickens and Thackeray, the characters are graphic pictures of persons described with great reportorial art. The scenes are both intense and dramatic in their setting and movement. Warwick as a theologian is well known in literature, but the effect of his theories on home life and its surroundings is new to most readers. The mental vigor of Warwick is reflected in the other characters of the book, and the easy, natural, historic truthfulness of the story moves

with unceasing interest to an abrupt ending. Why the curtain falls and the narrative ends at a time when the characters are in their most dramatic situation is a mystery. Perhaps another book will explain it. Such books are the beginning of a new literature, and there is more real art in the photographic quality of mind required to correctly represent the common everyday incidents of social life than in the highest work of fiction. The story is descriptive of events and persons in a little town in northern Kentucky during the Civil War. The community was divided in their interest and sympathy and they contributed men and money to each side, following every movement with an intense personal feeling. The religious faith of the hero of the story is the central theme, and the other characters, both dominated or antagonized by his personality, are grouped around him in a spectacular way. The author, Professor Lloyd, has shown his great power as a writer, and Warwick will be among the most widely-read books of the present day. The great works of the future will be written on similar lines, being the histories of social life and thought in different parts of the country.

MORPHINISM AND NARCOMANIA, FROM OPIUM, COCAINE, CHLOROFORM, AND OTHER DRUGS; THE ETIOLOGY, TREATMENT, AND MEDICO-LEGAL RELATIONS. By T. D. Crothers, M.D., Hartford, Conn., Superintendent of Walnut Lodge Hospital, Professor of Nervous and Mental Diseases, New York School of Clinical Medicine, etc.

This is the title of a book which will shortly appear from the press of W. B. Saunders & Co. of Philadelphia, Pa. It will be the first elaborate text-book on this subject which has appeared in the English language.

THE CROWN OF THORNS. By Dr. Paul Carus. Open Court Publishing Co., Chicago, Ill., 1901.

This little story by an eminent author is very touching in its theme and style, and is founded on a legend which has been repeated a great many times, but always with great satisfaction to its hearers. The book contains the narrative of the growth of the thorns that were used on the head of our Saviour at the Crucifixion. A suggestive little work that is well worth reading.

Of the newer British medical publications, none has attracted more favorable mention than *The Journal of Physical Therapeutics*. It furnishes a detailed and critical record of the current progress in the field of physical therapeutics, and the latest reports of the recent researches in both physical and biological science. As the work and methods become better understood there is naturally a demand for a journal that will devote itself exclusively to the consideration of this branch of collateral science. The American editor of this instructive quarterly review is Margaret A. Cleaves, M.D., the well-known electro-therapeutist of 79 Madison Avenue, New York city.

Of recent years the great advancement in the range of application of static electricity in nervous and general diseases has made the possession of a Static Electric Generator a necessity, not only to the specialist, but the general practitioner. To meet the indications of a successful instrument, as well as an ornament to the doctor's office, the machine manufactured by Dr. A. J. Gawne of Sandusky, O., will give the best satisfaction.

The Homiletic Review begins the new year with a number of very vigorous papers, sermons, and reviews of the religious thought of the world. For the physician this is an excellent magazine, elevating the mind to a new standard of truth and ethics above the materialism of everyday life. To the clergyman it is a mine of suggestion and stirring thought. Funk & Wagnalls are the publishers.

The publishers of the *Scientific American* recently issued an extra number containing illustrations and interesting reading matter concerning the United States navy up to date. It is a model in neatness and design, and the information pertaining to the navy invaluable. Probably no publication is more eagerly looked for and read with more gratification than this paper.

Electro-Therapeutics is fortunate in acquiring the services of Dr. William Benham Snow, whose reputation as an authority on electro-therapy is generally recognized. With its large list of eminent collaborators, it promises to attain the highest degree of excellence among the journals devoted to this branch of medical science.

The Physician's Visiting List for 1902. Philadelphia, P. Blakiston Son & Co. With this number *The Physician's Visiting List* enters on the fifty-first year of its existence. To have attained this great age is a testimonial of decided merit. It contains all the necessary tables, statistics, etc., for the physician's use.

The Popular Science Monthly enters the new year as the exponent of scientific literature and the leader of advanced thought in all substantial and accurate investigation. In no other scientific publication can be found a greater learning or a wider range of truthful representation.

Frank Leslie's Weekly maintains its deserved popularity through the efforts of its editor and publishers, who are ever on the alert to provide for its readers, not only the latest illustrated events of the day, but instructive reading in relation to current topics.

The pencils manufactured by the Joseph Dixon Crucible Company at Jersey City, N. J., still retain their high grade of excellence, the result of many years of experience and workmanship.

We have received a copy of Dr. Reid's work on alcoholism, which will be reviewed in the next number of the JOURNAL.

Dr. Edwards, in the *Temperance Record*, writes as follows: There are two parties holding practically opposite views in regard to alcohol and heredity. One party maintains that inebriety is simply a matter of heredity and, therefore, advocates the limitation of alcohol consumption with a view of making future generations more sober. The other party holds the view that parental acquired conditions are not heritable by the children, that it is no good training mankind in sobriety, that a nation must pass through a drunken era before it can evolve a sober one, and that ordinary temperance reform is of no avail in curing the national evil of intemperance. Dr. Wilson says there is a good deal of nonsense talked about "acquired characters," and that nothing is more nonsensical than the assumption that the children of a drunkard will not tend to inherit the parent's proclivities towards alcoholism. There is no lack of medical experience confirming the assertion that the children of a drunkard are liable to be born with a greater tendency towards alcoholic excess than the children of temperate parents.

Editorial.

The past year has been prominent in a steady uniform advance of the scientific study of inebriety. Many facts previously stated have been reasserted with greater emphasis, based on new and broader evidence. The influence of toxins in the early stages of inebriety has attracted some attention, and a number of new studies are being made in this direction. In the treatment of inebriety, the radiant light bath is a new remedy, and promises to be of much value in the future. Hydrotherapy has become more popular, especially in the treatment pursued in asylums, and Turkish and other baths are used more freely than ever. In four different states movements are under way for the building of asylums for the indigent inebriate, and bills have been introduced in the legislatures for the enactment of laws to control these institutions, and appropriations for buildings. At the annual meeting of our association a committee was appointed to devise means and measures for a closer union of all asylums conducted on a scientific plan. The increasing pretensions of asylums managed by empirics makes it necessary for the regular organized institutions to associate themselves together, so that the public can make a distinction in the methods and work employed at the different places. An acrimonious controversy over the food and force value of alcohol has been prominent during the past year, and, while no new facts have been brought out, many old ones have been more firmly established, and the fallacy of theories has become more apparent. Evidently a change and revolution in public opinion is going on. That inebriety is a disease has been questioned again, but in a timid, hesitating way, and the practical acceptance of the dis-

ease theory, and the recognition of the incompetency of drinkers, is evident in the more stringent rules of large corporations requiring total abstinence in their employees. The JOURNAL OF INEBRIETY has had the rather grim satisfaction of seeing its papers and editorials translated and published abroad, reprinted in this country, but credited to foreign sources. This has occurred nearly every year since the first issue in 1876. There are many reasons for hoping that the time is near when the matter published in the JOURNAL will be recognized in this country, and not go the rounds of translation and publication in foreign journals before it is accorded the recognition it deserves.

The first inebriate asylum for the treatment of inebriety as a disease was opened at Binghamton, N. Y., in 1863. From that time down to the present there have been established more asylums, retreats, sanatoria, and homes for the treatment of inebriates in the United States and Canada than in all other countries combined.

During the gold-cure epidemic it was estimated that nearly two hundred asylums were opened in this country for the treatment of inebriates. Since then the number has diminished, and at present it is estimated that there are over a hundred different institutions of all grades engaged in this work.

As a result, the institutional care and treatment of inebriates has attained unusual prominence in theories and methods of procedure both along scientific and empiric lines. Notwithstanding the great number of asylums, some of them being the largest and best equipped in the world, there is no governmental control or central authority over the organization and management of such places. The asylum for inebriates in Massachusetts is the only institution in the United States under state control. Some places are under city or church

management, or boards of charity, while the others are free to open and close at any time for any purpose and motive. Charlatans, irregulars, or any one who may choose to do so, can receive at any place inebriates who are delusional, maniacal, demented, or in any other mental condition, and treat them by any methods or plans without obligation, responsibility, or inspection. There is little or no law regulating the public or private treatment of inebriates; superintendents and boards of managers of such places are free to do what they choose in the care and control of their patients.

In England with only twenty-two small asylums for the care of inebriates there is a government law and inspector, who is a trained physician, who issues permits to organize and conduct asylums to the proper persons, and also to exercise a general supervision over their management. The summary of his last report, which appears in this issue, is an indication of what should be done in this country to make practical scientific work successful. Every city or county should require all persons or companies who wish to treat inebriates to be registered and conform to some standard of fitness, and have the proper facilities for doing this work. Such institutions should come under the laws similar to those regulating the care of the insane, and be managed by reputable men who would have some responsibility to the public. Yearly reports from the inspector or the board of managers should be made public, so that abuses may be prevented, and the character of the work done be above suspicion. No incompetent or irresponsible persons should be allowed to conduct places for the treatment of this class by quack means and methods and dangerous drugs.

The few reputable asylums suffer severely from the failure of the public to discriminate between the scientific work and the pretensions and mystery of irregulars. This will continue until all the asylums are under legal control and management.

The efforts to solve the alcoholic problem by means of legislation is productive of the most startling blunders, because they do not go far enough to reach the source of the evil.

Legislative bodies enact laws on the assumption that the sale of spirits as a beverage is legitimate, and that criminality, insanity, and poverty are necessary consequences, and, therefore, this traffic should be taxed to pay for the cost of arrest, trial, and imprisonment, and also for the maintenance of asylums to care for persons who are injured by the use of spirits.

In this way the state actually becomes a partner with the saloon in taking money for the privilege of selling poisons, then punishes the victims for using them.

Rigid laws against drunkenness and high license for the dealers diminishes the revenue from the sale of spirits, but increases the taxes for the care of the victims, whose numbers rather increase than diminish, from the enforcement of these measures.

A lax enforcement of the laws and a low license increases the revenue, but fails to lessen the injuries, and always increases the number of victims; thus both measures utterly fail in the results expected.

Practically one creates a monopoly, the other cheapens and weakens the product, while in both the evils and injuries increase steadily.

The present efforts for suppression of the traffic in spirits through the means of license, stringent laws, and police regulations must fail, because they do not reach the first causes.

The practical remedy is to abandon all license or tax on the sale of spirits, let any person sell who pleases, but hold them responsible for all the injuries which spring out of the traffic.

Put alcohol among the poisons to be used as a medicine or in the arts; then if it should be used otherwise to the detriment of the victim, make this act a cause for action against the dealer.

Persons who persist in using spirits as a beverage should be liable to arrest and imprisonment as paupers and degenerates, who are dangerous to the law and order of every community.

At present there exists contempt for the laws intended to regulate the alcoholic traffic, and by punishing its victims as willful law-breakers, and regarding the business as degrading, this is increased.

Legislation should be honest, and the laws just and fair. If the sale of spirits is a necessity for the happiness and security of the community, and for the best interest of its citizens, license and regulation is right; but if, on the contrary, it is productive of crime, misery, and insecurity in the community, and a detriment to the best interests of its citizens, then all license and regulation must be wrong.

We present in this number a portrait and sketch of the life of Dr. T. D. Crothers, who has been the editor of this journal since its first issue, December, 1876.

Born in 1842 in West Charlton, New York. He prepared for college at Fort Edward, New York, but owing to the excitement of the Civil War he gave up a college course, entered upon the study of medicine, graduating from the Albany Medical College in 1865.

He began a general practice at West Galway, N. Y., and in 1870 he removed to Albany, and became clinical assistant to the chair of medicine in the Albany Medical College. In 1875 he was appointed assistant physician to the New York State Inebriate Asylum at Binghamton, N. Y. The next year he was elected secretary of the "American Association for the Study of Inebriety," and editor of the journal of this association. In 1878 he was appointed superintendent of Walnut Hill Asylum at Hartford, Conn., and, resigning his position at Binghamton, he moved to Hartford.

In 1880 the name of "Walnut Hill Asylum" was changed to Walnut Lodge Hospital. Dr. Crothers has continued as superintendent of this institution up to the present time. The doctor has become prominent as a student and writer on the subject of inebriety, and has received many honorary titles and memberships in leading societies both at home and abroad. In 1887 he was given a dinner at the International Congress of Inebriety held at London, England, and also made an honorary member.

In 1893 Dr. Crothers compiled a volume on inebriety from the papers published in the journal, and this was brought out by E. B. Treat of New York. He has been continuously elected secretary of the "Association for the Study of Inebriety." In 1871 he was made secretary of the "American Medical Temperance Association," and has been re-elected each year since. In 1900 the New York School of Clinical Medicine elected Dr. Crothers professor of nervous and mental diseases with the view of having the subject of "Spirit and Drug Neurosis" made a special topic for instruction. A course of lectures was delivered last spring at this school, and will be continued throughout the coming sessions.

It is needless to say that Dr. Crothers, through his writings in the journal and other medical publications, and his practical scientific work at Walnut Lodge Hospital, has become one of the leading authorities in this country in the study of inebriety, and the neuroses which follow.

LOUIS J. GAYNOR, M.D.

In almost every circle there are stories of centenarians who have drank spirits, smoked tobacco, and lived in defiance of all hygienic laws. These stories are repeated, as if to discredit the teachings of science and prove the value of spirit taking, and yet when examined are found to be largely mythical. The persons of whom these stories are related are

usually garrulous imbeciles whose statements of themselves are accepted without question. They seem to enjoy the credit of having made life-long efforts to destroy themselves by whisky and tobacco, and then to have practically failed. One of these remarkable centenarians whose history was reported in many ways was used as an example to prove the mistakes of temperance advocates, but investigation showed the following: His age shrank ten years and his whisky drinking was doubtful up to fifty, and from that time on was largely influenced by his ability to procure spirits, and this at all times was a more or less difficult matter. At seventy he became feeble and was allowed small doses of spirits daily for two years, then the use became irregular, with long periods of abstinence. Tobacco was used in about the same way. Finally he posed as a constant drinker from early life, and the attention he attracted increased the conviction that he was a remarkable man, and his history of using spirits became to him a fixed belief.

Another ambitious drinking man who claimed to have drank from early life was found to be a neurotic with a feeble constitution, and who had lived indoors for years. The circumstances of his life and physical condition made it impossible for him to have used spirits for any length of time, and also because of his having been a sufferer for years from dyspepsia and nausea.

But few reported examples of drinking spirits during a lifetime bear a critical examination, and the statements of such persons can seldom be verified. The possibility of any regular user of spirits reaching old age is small, but it may occur under rare and peculiar circumstances, particularly if the person lives out of doors. While nature may lengthen life under the most adverse conditions, there is a limit which cannot be passed.

Alcohol and tobacco never increase or lengthen vital forces, but always lower it, and the octogenarian who claims to have

drank and smoked with regularity year after year appeals to credulity to believe that he is a rare exception to all laws of health. A recent examination of five instances of persons who claimed to have been constant users of spirits from early life brought out the following facts: In two their statements were falsehoods; one was an imbecile from infancy, another was a sailor, who could not have used spirits regularly, and the fifth lived in the country, and his history was very doubtful. These are the probable histories of nearly all persons who are supposed to discredit the modern teachings of the danger of alcohol as a beverage.

INTERNATIONAL MEDICAL MANIFESTO.

The following statement has been agreed upon by the Council of the British Medical Temperance Association, the American Medical Temperance Association, the Society of Medical Abstainers in Germany, and leading physicians in England and on the continent. The purpose of this is to have a general agreement of opinions of all prominent physicians in civilized countries concerning the dangers from alcohol, and in this way give support to the efforts made to check and prevent the evils from this source.

In view of the terrible evils which have resulted from the consumption of alcohol, evils which in many parts of the world are rapidly increasing, we, members of the medical profession, feel it to be our duty, as being in some sense the guardians of the public health, to speak plainly of the nature of alcohol, and of the injury to the individual and the danger to the community which arise from the prevalent use of intoxicating liquors as beverages.

We think it ought to be known by all that:

1. Experiments have demonstrated that even a small quantity of alcoholic liquor, either immediately or after a short

functions of the cells and tissues of the body, impairing self-control by producing progressive paralysis of the judgment and of the will; and having other markedly injurious effects. Hence alcohol must be regarded as a poison, and ought not to be classed among foods.

2. Observation establishes the fact that a moderate use of alcoholic liquors, continued over a number of years, produces a gradual deterioration of the tissues of the body, and hastens the changes which old age brings, thus increasing the average liability to disease (especially to infectious disease), and shortening the duration of life.

3. Total abstainers, other conditions being similar, can perform more work, possess greater powers of endurance, have on the average less sickness, and recover more quickly than non-abstainers, especially from infectious diseases, while they altogether escape diseases specially caused by alcohol.

4. All the bodily functions of man, as of every other animal, are best performed in the absence of alcohol, and any supposed experience to the contrary is founded on delusion, a result of the action of alcohol on the nerve centers.

5. Further, alcohol tends to produce in the offspring of drinkers an unstable nervous system, lowering them mentally, morally, and physically. Thus deterioration of the race threatens us, and this is likely to be greatly accelerated by the alarming increase of drinking among women, who have hitherto been little addicted to this vice. Since the mothers of the coming generation are thus involved the importance and danger of this increase cannot be exaggerated.

Seeing, then, that the common use of alcoholic beverages is always and everywhere followed, sooner or later, by moral, physical, and social results of a most serious and threatening character, and that it is the cause, direct or indirect, of a very large proportion of the poverty, suffering, vice, crime, lunacy, disease, and death, not only in the case of those who take such time, prevents perfect mental action, and interferes with the

beverages, but in the case of others who are unavoidably associated with them, we feel warranted, nay, compelled to urge the general adoption of total abstinence from all intoxicating liquors as beverages as the surest, simplest, and quickest method of removing the evils which necessarily result from their use. Such a course is not only universally safe, but is also natural.

We believe that such an era of health, happiness, and prosperity would be inaugurated thereby that many of the social problems of the present age would be solved.

There are two dangerous classes of men in every community who are seldom recognized. They are, first, respectable moderate drinkers who use wine and spirits at meal time, and boast of being able to use alcohol and not abuse it, and second, the practicing physician who prescribes spirits freely as a tonic and stimulant. Both these classes practically oppose all studies of alcohol and efforts to save the inebriate and prevent the growth of inebriety. The saloons and the sale of spirits are encouraged wherever they are found.

The physician who persists in using spirits as a stimulant and tonic in his practice literally denies the conclusions of modern science and the experience of advanced teachers. The man who uses spirits at meals poses as an exception to all rules, and by example and conduct obstructs efforts to check the alcoholic evil. These are the men who oppose all truth which reflects on their personal habits, and are more dangerous to the community than the open saloon.

The value of the spirits sold in Great Britain during the year 1889 was over eight hundred million dollars. This was thirty millions more than the amount sold in the United States. In this year Great Britain led all the other nations in the amount of spirits consumed. Last year France attained this pre-eminence.

Clinical Notes and Comments.

OLD-TIME TOBACCO LEGISLATION.

It is one of the curiosities of old-time legislation in New England that the use of tobacco was in early colonial days regarded by the magistrates and elders as far more injurious, degrading, and sinful than that of intoxicating liquors. Both the use and the planting of the weed were forbidden, the cultivation of it being permitted only in small quantities, "for meere necessitie, for phisick, for preservation of the health, and that the same be taken privately by auncient men." But the "Creature called Tobacko" seemed to have an indestructible life. Mrs. Alice M. Earle writes of these early restrictions about tobacco in "Stage-Coach and Tavern Days."

Landlords were ordered not to "suffer any tobacco to be taken into their houses" on a penalty of a fine to the "victualer," and another to "the party that takes it." The laws were constantly altered and enforced; and still tobacco was grown, and was smoked. No one could take it "publicly," nor in his own house or anywhere else before strangers. Two men were forbidden to smoke together.

No one could smoke within two miles of the meeting-house on the Sabbath day. There were wicked backsliders who were caught smoking around the corner of the meeting-house, and others on the street, and they were fined, and set in the stocks and in cages.

Until within a few years there were New England towns where tobacco smoking in the streets was prohibited, and innocent cigar-loving travelers were astounded at being requested to cease smoking.

Mr. Drake wrote in 1886 that he knew men then living who had had to plead guilty or not guilty in a Boston police court for smoking in the streets of Boston.

In Connecticut, in early days, a great indulgence was permitted to travelers—a man could smoke once during a journey of ten miles.

Karl Petren of Upsala, Sweden, reports the results obtained in a recent investigation upon the frequency of neurasthenia. Contrary to the usual statements, he does not find a larger number of cases in the upper than the lower classes. In the period from 1895 to 1899 there were some 2,478 patients observed. And out of this number 285, or eleven and one-half per cent., had definite neurasthenia.

In Sweden there are evidently more cases among the working classes; he found the greater number of patients were artisans, peasants, tradesfolk, and under officials. As regards sex the males were easily first.

He also thinks that the results disagree, because many neurasthenics do not come under hospital treatment. That the disease is not dependent on the rush of modern life seems apparent from the fact that most of the cases came from the provincial parts of Sweden, where life is very simple.

In regard to the causes, he mentioned alcohol as a most prominent factor. In the early years of the century large quantities of spirits were almost universally consumed, and where the alcoholic tendency is not directly apparent its influence is felt in the nervous equilibrium of the present generation.

In summing up he finds the prominent causes to be, first, hereditary alcoholism, then, in the order named, domestics' disappointments, overwork, influenza, financial difficulties, excessive venery, pregnancy, and alcoholic excesses. Also that hygiene, lack of nourishment, insanitary surroundings,

and monotony of existence, all contribute to the causative elements of neurasthenia.

Rev. J. W. Horsley of England, in commenting on the judicial statistics of the cities of London and Liverpool for the year 1899, states that the remarkable features are: First, The general decrease in crime, especially in the more serious forms. Second, The great increase in the prosecution for drunkenness. Third, The increase in suicide. He also points out that the number of drunken females, during the ten years preceding 1899, has not increased in proportion to the population, but that habitual drunkards among females were greatly in excess of the males. During the last two years, however, there has been a marked change in the number of female habitués, probably due to the rigid enforcement of the inebriates' act, under which a proportion of eighty females to one male was committed. The increase of suicide, he maintains, is due as much to more honest returns from the coroner's office as to excessive drinking.

The famous Dr. Wlassak of Vienna recently gave particulars of a most extraordinary series of experiments upon only young people in excellent health. His object was to ascertain the effect of alcoholic beverages on the mental powers, and he adopted the plan of giving small fixed doses and of observing the effect on the speed and quality of simple and calculable mental operations, such as sums in addition, committing figures to memory, and noting impressions on the senses. An appreciable decline in the power of addition was produced by a quantity of alcohol equivalent to a fifth of a litre of beer. There was a marked and rapid decline on the consumption of two to three litres of beer when a certain number of figures had to be added in a given time. The in-

jurious effects of such a quantity were noticeable for over twenty-four hours. The other tests gave similar results. When alcohol was taken daily a cumulative effect was produced. The persons experimented upon had no consciousness of their diminished capacity, but, on the contrary, believed that they were working easily and well. The circumstance that alcohol thus falsified facts was taken by Dr. Wlassak to constitute its greatest danger. While actually diminishing the capacity for intellectual labor, it produces a feeling of satisfaction with the inferior work accomplished under its influence. Thus is the important fact established, on scientific evidence of the most incontrovertible order, that it acts as a hindrance to culture, even in cases where there is no approach to intemperance.

Whether alcohol increases the susceptibility to infection or not is a question of great importance and one in which comparatively little work has been done. So far as experiments have been made on animals it would seem that alcohol, like carbonic oxide, etc., does render the consumer more liable to fall a victim to the germs of infectious diseases, and this view is supported by clinical experience in the tropics and elsewhere. Seeing that brandy and other alcoholic stimulants are frequently given to patients suffering from infectious diseases, the question presents itself whether we are increasing the disease or not by giving them. Dr. Laitinen has recently experimented on no fewer than 342 animals — dogs, rabbits, guinea pigs, fowls, and pigeons — with a view to settling the question. As infecting agents, cultivations of the anthrax, tubercle, and diphtheria bacilli were employed. These were chosen as types of acute infection, chronic infection, and a pure intoxication. The alcohol employed was, as a rule, a twenty-five per cent. solution of ethylic alcohol in water. In greater strength the alimentary mucous

membrane of the birds became inflamed. Some of the dogs had fifty per cent. solutions. It was given either by esophagus, catheter, or by dropping it into the mouth from a pipette. The dose varied with the animal and its weight, from one and a half cubic centimeters in the case of the pigeon to sixty cubic centimeters in that of some of the dogs. It was administered in several ways and for varying times; sometimes in single large doses, at others in gradually increasing doses, for months at a time, in order to produce here an acute poisoning and there a chronic poisoning. A full account of these experiments is given in an elaborate series of tables, to which we must refer the reader for details. Briefly, Dr. Laitinen found that in all these cases without exception the effect of the administration of alcohol, in any form whatever, was to render the animal distinctly, sometimes markedly, more susceptible to infection than were the controls. — *British Medical Journal*.

INVESTIGATIONS ON THE ACTION OF OPIUM OR MORPHINE ON THE INTESTINES.

Dr. J. P. Wiener, in an article condensed by the *St. Paul Medical Journal*, gives the following: The investigations of the author lead to the interesting result that neither opium nor morphine causes a paralysis of the intestines, as was generally believed heretofore. On the contrary, these drugs act excitingly on the nerve apparatus of the intestines, aggravate or regulate the tonus of the same, and create in this way the inhibitory or styptic effect. These drugs cause an even, contractile condition of the intestines which, in consequence, is the cause for the inhibitory action. Nevertheless, the contents of the intestines will be accumulated in the colon in spite of opium, but the desire to defecate will be abolished by it. Pains which occur in non-inflammatory conditions are to be referred to excitation of the nerves of the peritoneal covering, which may be excited by mechanical irritation or con-

vulsive contractions. Opium relaxes the intestines and acts against the stimulating influence over the ganglionic apparatus of the intestinal wall. In cases of inflammatory affections, opiates only act beneficially in large doses.

“ Drunkenness is not a crime, it is a disease, and should be treated as such. This is an opinion of men of eminence in law and medicine, and, therefore, let us begin to treat it as such, in this the opening year of the twentieth century of our era. Insanity was considered a crime but a short time ago, but now the civilized world considers it a morbid condition of the mind, and provides proper hospitals for its cure. Let us, therefore, give the alcoholics, like the insane, proper surroundings and proper treatment and cure. We do not liberate the insane before he is considered cured, by proper authorities; let us, therefore, on the same basis, put alcoholics where they properly belong. Give the alcoholics, meaning the chronic drunkards, the men who compose the majority of the prisoners on the blotters at the police stations, and who occupy the greater majority of the cells in the penal institutions, proper hospitals, proper surroundings, and proper treatment and care, and a large percentage of chronic alcoholism will disappear. Alcoholism, like smallpox through vaccination, or typhoid fever through hygienic prophylactic measures, will slowly cease to be an endemic disease in certain localities, and many a medico-legal case will thereby be eliminated from the dockets of our criminal courts.” — *Dr. Froncsae.*

Alcohol is found to be an active cause of puerperal insanity. Women who use spirits freely before and during pregnancy are more likely to have deliriums and delusions ending in death after childbirth. Dr. Jelly of Boston, in a

recently published paper, makes the following reference to this subject: "Alcohol is an important factor, because if it exists to any great extent in either parent of the woman it may lead to those neurotic conditions in her which predispose to insanity. Moreover, a woman may, by drinking to excess, be laying the foundation for an attack of insanity when she becomes pregnant. It happens, however, sometimes that the alcoholism is merely one of the signs of disturbed mental condition, due to pregnancy, in a woman temperate when not pregnant." Some cases have been reported of women who were given alcohol during labor, and suffered from puerperal fever, recovered, and developed inebriety. Using spirits during pregnancy favors the formation and retention of toxins which lower the vitality and resistance of the body. The brain after labor is very sensitive to alcohol, and many instances of delirium have been due directly to the spirits used for a stimulant at this time.

SIMILAR TO THE EFFECT OF SUNLIGHT.

(From *The Medicus*, May, 1901.)

The physiological chemistry of antikamnia in disease exhibits analgetic, antiperiodic, antipyretic, and antiseptic functions. Its antiperiodic tendency is similar to the effect of sunlight, though differently expressed. However, with antikamnia, this latter function is materially aided when combined with other well-known drugs, such as quinine and the milder laxatives. The ideal combination I have in mind may be obtained in "laxative antikamnia and quinine tablets." To reduce fever, quiet pain, and, at the same time, administer a gentle tonic laxative is to accomplish a great deal with a single tablet. Among the many diseases and affections which call for such a combination I might mention la grippe, influenza, coryza, coughs and colds, chills and fever, and dengue with its general discomfort and great debility. These tablets, administered in doses of one or two and repeated every one or two hours, are a perfect antiperiodic in malaria, and a perfect reconstituent tonic—an expression of solar life, light, and energy in malarial anæmia.—L. P. Hammond, A.B., M.D., Rome, Ga.

SUBSTITUTION EXTRAORDINARY.

Physicians may guard themselves against a prevalent evil by placing prescriptions with reputable druggists, and assuring themselves that no substitute cheaper, "but just as good," is used over their name, and to avoid those who counterfeit labels and preparations — for they are dishonest. Farbenfabriken of Elberfeld Company has done much to prevent this form of dishonesty.

Every physician who has treated inebriety has felt the need of a safe, reliable drug to check the acute maniacal symptoms at the onset. The common narcotics and sedatives are unreliable, and are followed by functional and nutritional derangements. The Bromides, Chloral, and the many coal-tar derivatives are unsatisfactory, and cannot be used with the same results in all cases. Acting on our suggestion, the Central Chemical Company of New York have prepared a solution of Quassia to meet this want, which they have called *Quassone*, to distinguish it from other preparations. The object of this preparation is to lessen and check the drink impulse, and produce an aversion to its use, also acting as a tonic. The preparation more nearly approaches this want than any other drug which we have used. The delirious impulse to procure and use spirits quickly subsides after taking a few doses, and a tonic effect is apparent, manifested by an increased appetite.

There is no prostration or particular stupor following its use. It is given in one-ounce doses every hour until the craze for drink dies out, then it is used three times a day for a week or more. The company are anxious to have this remedy tested fully, and will send a trial bottle to any person wishing to test it.

D. S. Maddox, M.D., United States examining surgeon, Coroner Marion County, Ohio, says (*Med. Brief*): For the control of pain opium is and always has been the sheet anchor. But opium, pure and simple, has many disadvantages which render its use in some cases positively harmful. Opium is one of the most complex substances in organic chemistry, containing, according to Brunton, eighteen alka-

loids, and an organic acid. The ordinary alkaloids, of which morphia is the chief, have the same objections as the crude drug. They constipate the bowels, derange the stomach, and, worst of all, induce a habit which utterly destroys the moral and physical nature of the individual. While looking about me for some agent which would produce satisfactory anodyne and hypnotic results without the deleterious and pernicious after effects of opium and its ordinary derivatives I came upon the preparation known as papine. After a somewhat extended trial of this remedy I am convinced that it is the ideal anodyne. Although derived from the *Papaver Somniferum* it is singularly free from the objections of the ordinary opiates. It does not constipate; it does not derange the stomach; it does not cause headache; it does not induce any drug habit; it is safe, and may be given to children as well as adults.

Jonathan Hutchinson, F.R.S., general secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co. of Philadelphia, the American agents of the society, to announce the publication of "An Atlas of Clinical Medicine, Surgery, and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years in fasciculi form; eight to ten plates issued every three months in connection with the regular publications of the society. The New Sydenham Society was established in 1858 with the object of publishing essays, monographs, and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership in order to extend its work.

Bovinine is a most valuable tonic in all conditions of exhaustion resulting from spirit and drug excesses. For the insomnia following the withdrawal of opium it should be given a careful trial, for in many cases it acts as a sedative, relieving this distressing condition. Very recently it has proven to be more of a tonic restorative and anti-periodic in malarial poisoning than cinchona. *Bovinine* long ago passed the experimental stage, and is now firmly established in a prominent place in modern therapeutics.

The celebrated house of Elberfeld Company, New York city, have put on the market several very valuable synthetic compounds. Among these may be mentioned *Hedonal* and *Heroin*, which have come into use very generally, and are now regarded as very safe and efficient remedies. Other compounds are now under preparation; the firm deserve the highest praise for their honest efforts to enlarge the field of therapeutic science.

Every function of the body is controlled by the nervous system, hence, just to the extent of the nerve lesion, will there be a depression of the vital forces. The experience of the profession proves that one of the best possible remedies for this condition is *Celerina*, in teaspoonful doses, four or five times a day. No one, after an intelligent use of *Celerina*, will deny its power to give renewed energy to the whole nervous system.

It is a personal pleasure to hear that the Antikamnia Chemical Company is about to build one of the largest laboratories in the West. Its president, Mr. F. A. Ruf, is a well-known banker of St. Louis, and his association with this enterprise makes it a success from the start.

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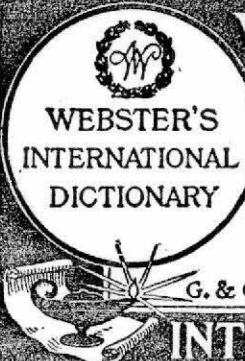
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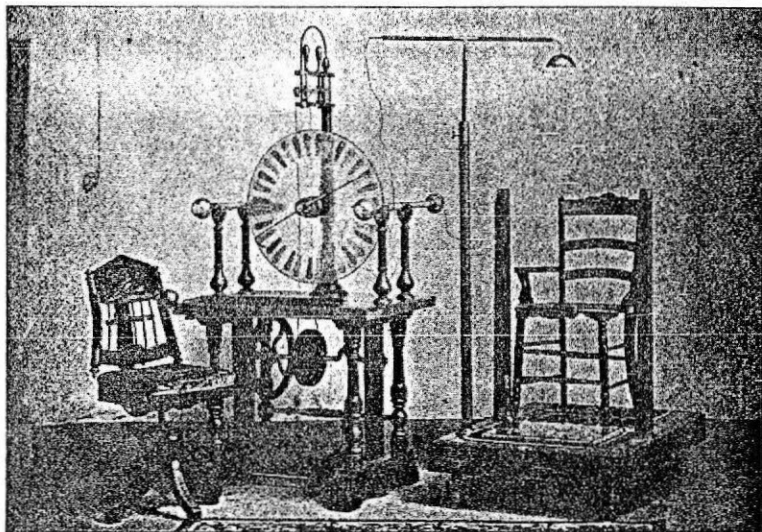


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II. All such institutions organized and conducted in proper conformity with the laws of the several states in which they are located are entitled to representation in this association.

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

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

V. The object of the association is:

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

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

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

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

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

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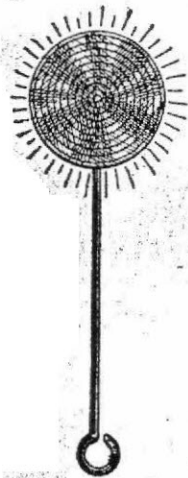
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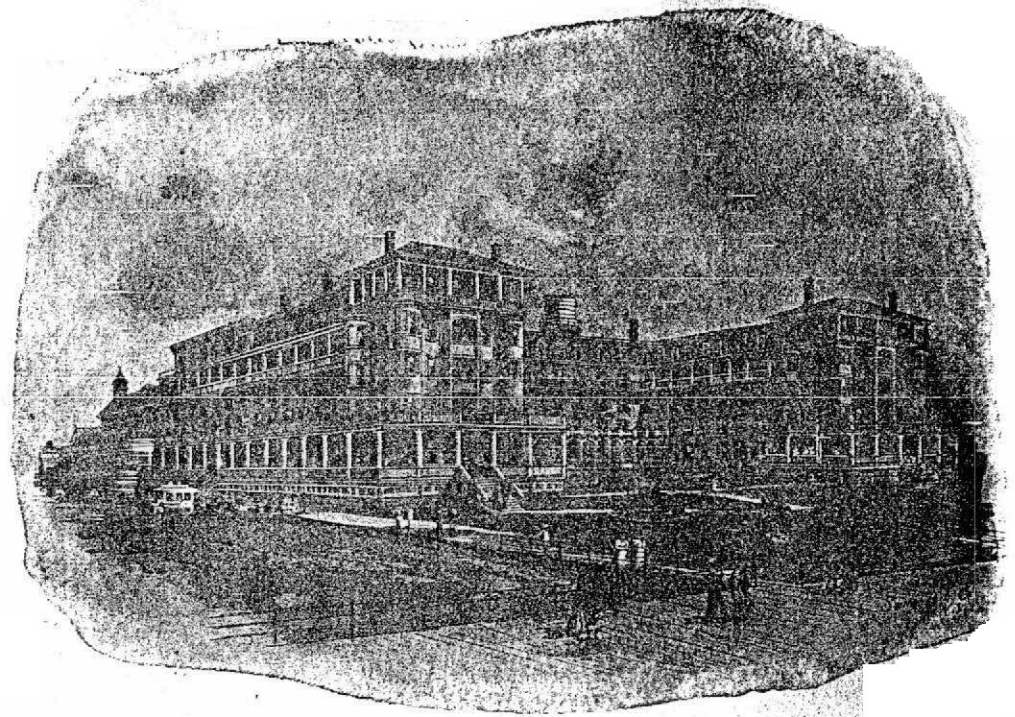
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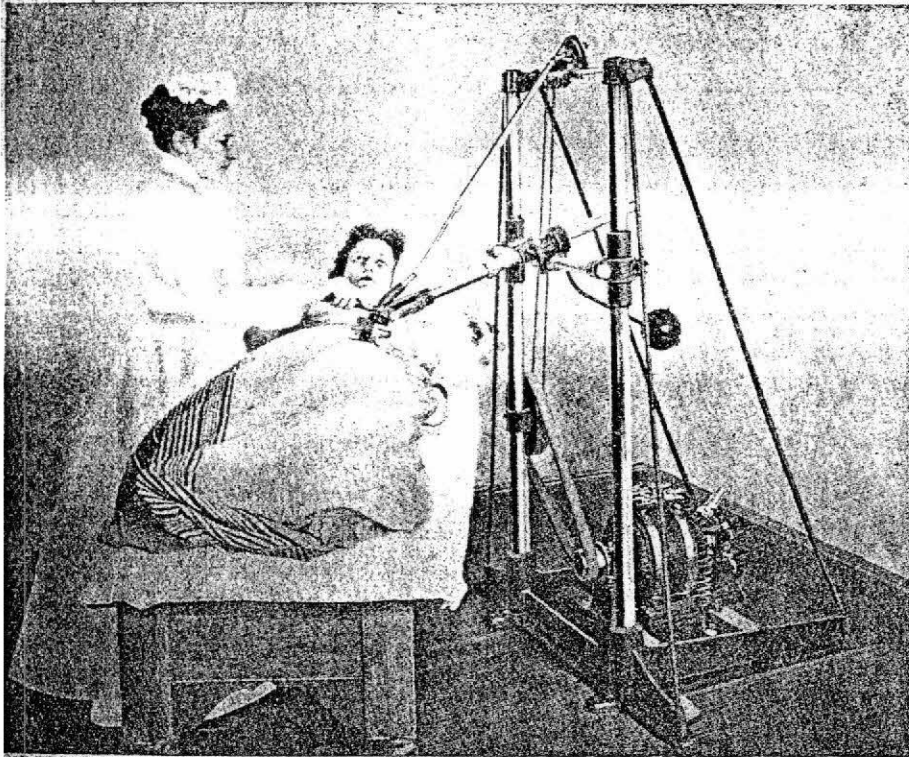
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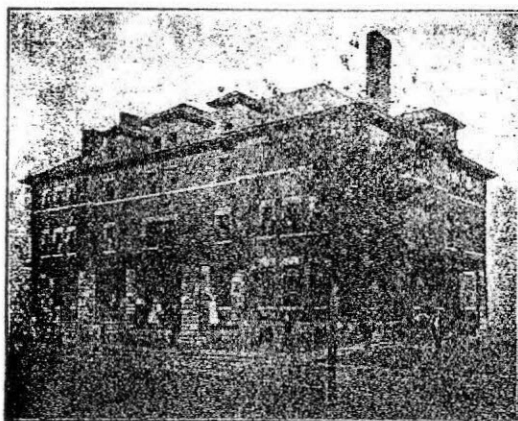
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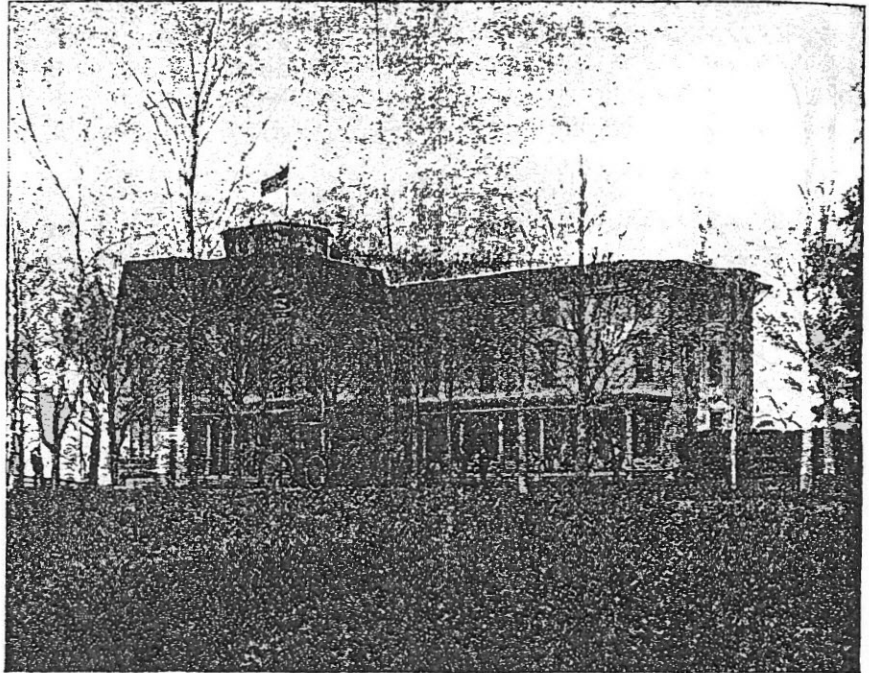
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