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OFFICIAL ORGAN OF THE AMERICAN MEDICAL ASSOCIATION FOR THE STUDY OF INEBRIETY AND NARCOTICS

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ORIGINAL ARTICLES

Some Obscure Pathological Effects of the Moderate Use of Alcohol	83
By C. C. HERSMAN, M. D., PITTSBURG	
Parental Alcoholism as a Factor in the Mental Deficiency of Children	90
By ALFRED GORDON, M. D., PHILADELPHIA	
Spirit and Drug Taking Among Medical Students	100
By WILLIAM FRANCIS WAUGH, M. D., CHICAGO	
A Few Suggestions Toward the Solution of the Liquor Problem	108
By G. H. HEALD, M. D., WASHINGTON, D. C.	
The Social Glass, a Menace to Civilization	117
By B. C. KEISTER, M. D., ROANOKE, VA.	

EDITORIALS

Two Great Conventions—What Intoxication Means	
Progress—Inebriety in Boston—The Army Canteen	
Insanity and Alcoholism	127

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ORIGINAL ARTICLES

A Review of the History a
nal and Its Work up

By T. D. CROTHERS,

Alcohol and Its Effect on I

By ARTHUR EVANS, M

The Role and Methods of
Inebriety. The Funct

By TOM A. WILLIAMS,

Some of the Medical Probl

By IRWIN H. NEFF, M

The Influence of Alcohol a
ment

By CHARLES R. STOCKAR

The Treatment of Drug A

W. OSCAR JENNINGS, M.

EDITORIALS

The Alcohol Delusion

Theories of Narcosis

Inebriety and Tubercu

Inebriety in Colleges

Possibilities of Cure

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The Quarterly Journal of Inebriety

AUTUMN, 1911

SOME OBSCURE PATHOLOGICAL EFFECTS OF THE MODERATE USE OF ALCOHOL

BY C. C. HERSMAN, M. D., PROF. OF MENTAL AND NERVOUS
DISEASES IN THE UNIVERSITY OF PITTSBURG, PA.

IF it were possible to demonstrate the extent of the disturbances of the cerebral function of toxic origin we might be able to determine some clue to the alcoholic psychoses and the method by which it attacks the mentality.

The manner of our psychologic study along the lines of this self-toxic condition, is in error if we restrict ourselves to the analysis of symptoms. By a general survey of the whole cause of the disease we find our isolated groups of symptoms always related to others. If sketched out in a general way these groups, closely studied, always prove our observations to justify our position, while if studied as individual phenomena without reference to the whole course, we hinder our progress as well as our success. Every factor in the problem must be taken into consideration and accounted for. Since Hall announced several years ago that alcohol is an excretion, and that according to physiologic law excretions are always poison to all of higher order than the body excreting, this drug has been studied in a somewhat different light. We find that in that manner of living which has produced gout, long continued excessive use of alcohol may eventually give rise to a general inflammation involving the pia, arachnoid and the superficial layers of the chord in various degrees. Gowers says: Alcoholism may produce an isolated gouty peri-neuritis which may accompany general polyneuritis of parenchymatous nature and symmetrical distribution. The cranial nerves as a rule escape the sensory disturbance, but the

vagus, and the nerves of the eye ball muscle may suffer if the alcohol is continued after the onset of the palsy.

Following prolonged excesses we may have amblyopia, optic neuritis, central scotoma for colors, with the dimness of vision as the first symptom. There is possibly some interstitial inflammation followed by atrophy of the nerve fibers. Even with this disturbance the ophthalmoscope may show a normal eye ground or nothing more than a hyperaemia of the papillae. Sometimes there is a partial retrobulbar neuritis, followed by a secondary atrophy. This is usually confined to the outer half. Some go blind. Mr. W—— came to me from an adjoining state with many of the above symptoms. The dimness of sight was so marked that he was unable to follow his business. Abstinence with very little treatment brought about a complete cure. Mr. ——, almost blind, was greatly improved by a partial abstinence. Gudden affirms that even in acute alcoholism there is either a marked impairment or a complete absence of pupillary light reflex.

The spinal chord disease thought to be a common cause of alcoholic palsy is most likely the result of neuritis, for an isolated affection of the chord due to alcohol is said to be rare. Epileptoid convulsions is an occasional accompaniment of alcoholic excesses but not a true epilepsy as it is not periodic, but accompanies or follows a drinking bout. Mrs. M—— aged——, widow, seldom engages in an extreme excess that she does not have anywhere from one to a series of convulsions. If a series it is usually of the graver form, and she has to be sent to a hospital. I have seen her have one or two following very slight excesses. She is always unconscious for from an hour or two to several hours. I have known several men who usually had one, rarely two, but soon recovered consciousness.

With headache, and trifling mental changes it is possible that a chronic meningitis is the cause as a postmortem thickening of the arachnoid and dura are found chiefly over the convexity of the brain. Fatty degeneration of the walls of the small arteries seems to be more common in alcoholic subjects than others. Occasionally minute foci of softening due to vascular disease have been met with in the cortex,

especially if there have been long standing mental changes. The production of many forms of definite insanity may be aided by chronic alcoholic excesses certainly that of chronic dementia usually progressive for a time, often accompanied by defective powers of judgment, want of cleanliness, impaired moral sense, defective articulation, recurring slight paralytic attacks, symptoms resembling somewhat that of paresis, but usually not progressive if alcohol is given up. At this stage actual recovery however, is rare, although the patient may live many years. In this class, as mentioned above, there is a probable chronic meningitis of low grade. These conditions may even influence a true general paralysis. In fact, in progressive paralysis and in certain forms of chronic alcoholism are to be found the most severe anatomic lesions of the psychoses. Abnormal psychic states due to the effects of alcoholic excesses have been sufficiently established to warrant further investigation. It seems that alienists have not recognized the far reaching character of these investigations. Intelligent and accurate observation along this line will reveal an interesting topic for study.

More recent experiments seem to show that alcohol is more injurious to the fatigued than the non-fatigued muscle. There is still some difference among observers as to the effect upon the psychic activities. It is believed, however, that the higher the intellectuality the more apparent is the immediate effect. In all cases there is said to be a disturbance in the attention.

Psychological and physiological laboratory research has not yet been carried to the point of certainty that gives us the clinical authority for positive statements on small dosage. In some forms of mental disease we find an intolerance for alcohol especially among the early symptoms. Particularly do we notice this in some of the functional diseases and occasionally in head injuries, dementia and arteriosclerosis. These observations are not only of clinical but of forensic importance. It is impracticable and unscientific to try to distinguish clinically between ordinary intoxication and supposedly distinct pathological conditions. The writer has seen large doses of alcohol produce lapses in the field of consciousness rendering certain acts com-

pletely blank or remembered only indistinctly or in part, although they may exhibit evidence of decided intellectual activity.

Paton states: It is important from a forensic point to remember that mere tolerance to alcohol is not sufficient evidence of mental disease to justify the belief that his acts are always necessarily beyond volitional control.

Moeli affirms that cases occur in which the acts executed during the disturbances in the field of consciousness caused by alcohol are prompted by ideas which have already existed for some time. For instance, it is not uncommon for a man to get drunk before he can have the courage to do some overt act, which has weighed on his mind heavily. Vague suspicions of a wife's infidelity during intoxication may cause serious attacks and severe injury with no memory of the act or even any recollection of any event that transpired during the intoxication. It might be said this would suggest an epileptiform attack. Bergman suggests that the most dangerous form of alcoholism is with those whose nervous systems show a decided power of resistance for the toxic action of the drug, and instead of the development of neuritis, delirium or other psychoses, only lapses in morality and intellection occur. There is much confusion yet as to the identity of alcoholic psychoses in obscure cases. In one case I saw a marked echolalia. Not only no question was answered, but all said in the presence of the patient was repeated even if changed to a foreign language. This continued for several hours before there was any semblance of sense to his replies. Hallucinations are of various forms. I have seen a man strip to look for the insects that were crawling over his body. Another continuously brushing small winged insects from his clothing, others stuck in the mud (teamsters) whipping their horses to urge them to greater effort. Often we see them talking to imaginary voices and so intently that it is impossible to engage their attention even for a moment. In some of these cases it is even impossible to prove whether there is cutaneous sensibility. A complete psychic anaesthesia. Some clinicians discredit these occurrences in part or wholly, but we must be governed by actual facts observed. Sometimes there is a rapid sensory

flight of ideas. The patient rambles along with no definite aim, any subject mentioned gaining his attention for a few seconds, time sense being badly disorganized. Occasionally a case will show megalomaniac symptoms and we may suspect incipient paresis. This symptom, however, is not apt to occur in acute but in chronic alcoholics. Just recently I saw the motor disturbance so great in the right arm following a debauch of 24 hours that it was an effort to put his right finger on his nose and retain it there while in the left the tremor was almost nil. He claims this difference is of over 20 years' duration. I have known a man (a physician) during the prodromal stage (the desire for drink coming on after a period of weeks or months of sobriety) whose temperature would rise to 102, 103 and sometimes to 104 F. before he would yield to the temptation. During this time he was afraid to be alone. Some one, usually a doctor friend, must be with him constantly, for he rarely slept during these prodromes which sometimes lasted two days, when he would finally elude his watch and break over. Occasionally we find some who think nothing is secret, that even their thoughts are heard. Some improve both mentally and physically, except that one or more delusions may persist. Often these suffer a decidedly hereditary taint of insanity and are in danger of mental breakdown. However, in most cases the insane ideas are transient. In chronic hallucinosis, suspicions and jealousies may arise, frequently directed against the closest friends and the anaesthesias and paraesthesias, if any, are the unseen agencies employed for their torture. In many of these the delusions are sexual. Kraft Ebing says among the males about 80 percent. If there is hyperaesthesia sexualis the failure to satisfy the passion may so enrage the patient that the life of the wife becomes almost intolerable from the abuse and revolting accusations of infidelity, and the emotional instability is so great that the outbreaks of temper are so violent as to cause murder. The variety of lesions caused by the abuse of alcohol is great and give rise to various symptoms. It is said that at least one-fourth of all arteriosclerroses are caused by it. We know that the intolerance in this lesion in many is very great. The medical profession could do much to mitiga

te

this evil by educating the public. This should be and is taught in the schools, but much of it is so garbled and imperfect that little has been accomplished. This is a question of much needed study, by careful physiologists, pathologists and psychologists; for these unfortunates are neurotics as a rule and open to suggestion and care should be used not to influence in the wrong direction. Hence the fertile field for quackery. As to the lesions of the central nervous system, none are said to be specific, as we may have the same from other causes. We may have atrophy of the convolutions and according to some atrophy of the cells. There may be granular degeneration of the cells with change in the contour. In the frontal and central convolutions the inclination to hemorrhage is considerable. It is estimated that from 12 to 15 percent or more of all cases of paresis is caused by excesses in alcohol. In the earlier stages of paresis associated with the neurotic tendency these often show marked inclination toward excessive alcoholic uses, and are very susceptible to its toxic effects. Occasionally, however, we find some who show great tolerance. Also acute exacerbation with intensified hallucinations is more apt to occur in those of marked alcoholic habit, and if the mental symptoms become markedly progressive the prognosis becomes much more serious if there is a history of alcoholism. Paton, referring to Korsakow's syndrome, says that the symptoms of chronic alcoholism may bear a striking resemblance to dementia paralytica. The speech disturbances, however, are not marked with such tremulo and articulation is not difficult. In doubtful cases, however, alcoholics often make quite a marked degree of recovery while paresis is markedly progressive. Paton also states that it is affirmed that at least one-fourth of the cases of epilepsy can be traced to an alcoholic history in one or both parents and that this poison is responsible for many cases of pure functional epilepsy and a factor of great etiological importance in cases of idiocy and imbecility with epileptiform seizures. Wernicke's work deserves the sanction of every psychologist. Insufficiency of study on this thought has been the reef that wrecked and rendered useless many a medical man's expressed opinion. In alcoholic manic states the failure to answer

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questions is often due to excitement. In heart disease mental disturbances may develop secondarily by lowering the opsonic resistance so that the effects of alcohol are less easily combatted. It is difficult however, to differentiate the pure uncomplicated cases of hepatic disorder from those in which such etiological factors as alcoholism, syphilis or tuberculosis are added. Bourneville in 1,000 cases of imbecility, noted alcoholism in the father 471 times, in the mother 84 times, and in both 65 times. Demme found that the occurrence of alcoholism was noted in 81.9 percent of parents, and that in ten families of alcoholics normal children were noted in only 17.5 percent. Guck maintains that following the use of absolute alcohol there is a slight but temporary increase of the functional capacity of the muscle, but Kraepelin explains this apparent increase to the disappearance of normal inhibition.

PARENTAL ALCOHOLISM AS A FACTOR IN THE
MENTAL DEFICIENCY OF CHILDREN. A
STATISTICAL STUDY OF 117 FAMILIES

BY ALFRED GORDON, M. D., EX.-PROF. OF PHYSIOLOGY,
JEFFERSON MEDICAL COLLEGE, PHILADELPHIA, PA.

UNDER the influence of the teachings of Morel during the last century heredity was considered as the principal factor in genesis of mental affections and of various forms of mental deficiency. We learned, however, since that hereditary influence per se is not sufficient to create mental abnormalities. It is true that the morbid tendency produced by heredity cannot be suppressed, nevertheless it is possible and sometimes not difficult to modify the organization of an individual. The latter is a complex product of hereditary and environmental factors. It is well known that environment determines to a certain degree morphological and physiological variations. Experimentally it has been demonstrated that plants transferred from a valley to the summit of a mountain became acclimatized and assumed a different appearance. In the animal kingdom, species undergo evolution and transformation under the influence of the exigencies of the environment. Certain organs, for instance, atrophy because of inactivity, while others develop by virtue of their functioning.

Anatomical, physiological and psychological characteristics are the resultant of two kinds of influences: heredity and environment. The latter corrects and modifies the hereditary tendencies. A pathological heredity by itself is not necessarily fatal. It is not usually transmitted in its pure forms. Most frequently what is inherited is a certain

morbid tendency, but the latter can be modified by other influences which arise during the developmental period of life.

Confining the consideration of this subject exclusively to the field of morbid psychic phenomena, we must admit that some difficulties are encountered. In any given case of mental abnormality it is quite difficult to demonstrate with incontrovertible evidence to what extent the latter is influenced by heredity and to what extent by environmental factors. In statistical studies one must not neglect to separate these two etiological causes. Since this is not always possible, one must be cautious to become too exclusive in ascribing to one of the two factors an omnipotent role.

Clinical observations show that while the ensemble of environmental influences may orient individual predisposition, inclination and aptitude, so as to impress upon the individual certain determined characteristics, nevertheless the nervous and mental make-up of the given person determined by powerful hereditary factors transmitted from several generations remains and always will remain a very powerful etiological cause. In collecting data concerning heredity too great caution cannot be taken, as the obstacles are very serious. No matter how careful one may be in obtaining information from the family, certain reservations must be made in regard to uncertainties, restrictions of some members of such families in revealing matters concerning individual characteristics. It is also exceedingly difficult to proceed to minute investigations of all the descendants of the patient. Many a detail escapes our notice. Another source of error which particularly concerns alcoholics is found in many diseases which are traced in members of the family as well as in the offspring. Many factors consequently are susceptible to create pathological conditions outside of alcoholism, so that it is difficult to ascertain which belong to alcoholism itself. Individuals suffering from chronic alcoholism are not infrequently the descendants of degenerates, of insane, so that observations of this character present still more difficulty. What can statistics teach in such cases?

Despite the obstacles mentioned in spite of other degen-

erative elements observed in families and superimposed on alcoholism, in spite of the frequent association of alcoholism with other serious pathological tendencies, it is possible nevertheless with a certain degree of accuracy to obtain sufficiently precise information from a considerable number of observations.

The present study of 117 families extends over a period of eight years. During that time I endeavored to collect data concerning all the cases that came under my observation and succeeded through persistent efforts from various sources in tracing the characteristic tendencies of some members of each family through three successive generations. Cases with various constitutional diseases, such as diabetes, pernicious anemia, tuberculosis, neoplasms, chronic rheumatism, when being discovered in the family histories have been rejected and not included in the series under consideration. Out of 117 families there are 78 in which only alcoholism could be detected as a hereditary degenerative factor. In the remaining 39 there are 15 with doubtful syphilitic infection and 24 with histories of some mental disorder in some members of each family. The predominant hereditary feature in all 39 cases was alcoholism so that if the effect of other influences contributed to a certain extent to the pathological phenomena observed in the offspring, the coexisting alcoholism had unquestionably served as the most potent factor to reinforce or accentuate the obnoxious results produced by the pre-existing abnormal tendencies.

The condition of the first generation was successfully investigated in 90 families, that of the second generation in 20, and that of the third generation in the remaining seven.

I. Mental Deficiency in the Offspring of the First Generation.

The 90 families furnish a contingent of 200 individuals who are all more or less affected mentally in a quantitative sense of the term. This is certainly an appalling proportion of pathological units produced by alcoholic generators. A detailed analysis shows that apart from physical stigmata of degeneracy, such as cranial malformations, strabismus, anomalies of dentition, of the formation of the palate, of the ears, of various parts of the face and spinal column, also

anomalies of the special senses—deafness, mutism, congenital, partial or complete blindness, finally various nervous phenomena of paralytic or spasmodic nature—apart from these physical signs of degeneracy, the 200 individuals furnished by 90 alcoholized parents presented in the most striking manner important varieties of mental deficiency. Idiocy, imbecility, feeble-mindedness were frequently accompanied by other serious disorders. Epilepsy is the most frequent affection. In 150 of the 200 this disorder existed. In infancy during dentition convulsive seizures occurred at rare intervals. Later, in childhood and boyhood typical epileptic seizures were manifest. Epilepsy per se is a sufficiently powerful factor for an arrest of mental development, but in the majority of the cases the mental degeneracy was evident from early childhood before the epileptic condition became firmly established. The co-existing epilepsy naturally accentuated the pre-existing condition and interfered considerably with serious attempts to develop the mentality of the afflicted individuals.

Besides epilepsy, other episodic manifestations of morbid mentality were evident. Obsessions, phobias, irresistible impulses, tendencies to criminal acts—are all phenomena very frequently observable in neurotic persons, also in feeble-minded ones. They present no special features as far as the present study of the mentality of a generation created by alcoholized parents is concerned. They are being mentioned for the reason of completeness of the subject. Various manifestations of a vicious character, such as are observed in the so-called moral insanity cases, are also observed in feeble-minded individuals. There is no need mentioning the fact that moral insanity of some writers is closely and intimately allied to mental deficiency. Indeed in my opinion the term of moral insanity is not altogether scientific and I believe it only obscures the real issue of the underlying condition. If moral insanity expresses a pathological deviation in the direction of what is considered morality, of conventional laws, this deviation does not constitute a separate form of mental disorder, but abnormal phenomena of the above mentioned character which occur in all forms of mental derangement, in genuine psychoses

and in all forms of mental deficiency. High, middle and low grades of imbecility present among their chief characteristics abnormal moral tendencies. At all events the latter symptoms were all present in my cases, but there is nothing characteristic to enable us to distinguish a low mentality in the children of alcoholic parents from a low mentality in the offspring of parents whose degenerative tendencies originate from other sources than alcohol.

I wish to call special attention to a special characteristic feature observed in 75 out of the 200 members supplied in the first generation by 90 parents, viz.: an extraordinarily great desire for alcohol at a tender age. Some of them commenced to use it at the age of eight and others at the age of puberty. The fact that if besides mental deficiency observed in children born from alcoholic parents in the first generation a tendency to alcoholism is superimposed,—this circumstance presents an unusual interest from the standpoint of hereditary transmission of tastes and passion, and of fatality of laws of heredity. It tends to prove the gravity of alcoholic intoxication, which from the first generation became so disastrous in its direct consequences. If a drinking father can create a drinking son, the situation is unquestionably serious, as in such cases the vicious circle may continue indefinitely unless vigorous measures are promptly applied to interrupt it.

The alcoholic children are subject to the same disorders produced by alcohol, as the alcoholic parents. Thus delirium and confusion with visual hallucinations occurred in my patients a number of times. Stupor was frequently observed for weeks following the use of small quantities of alcohol. Stupor was particularly marked in the younger children, delirium in the adults. Tendency to commit crimes is quite pronounced, attempts at homicide are more frequent than at suicide.

Alcoholism in feeble-minded individuals assumes a somewhat different aspect than in otherwise normal persons. It seems that the original mental deficiency renders the alcoholic more brutal, more vicious, less responsive to external influences, more intensely delirious, more confused and more stupified, than a normally constituted individual who

becomes intoxicated. The inherent mental deficiency lays a special mask on the individual when he uses or abuses alcohol. It is not a special or a new form of alcoholism that it creates, but an alcoholism whose individual features in every direction are peculiarly intensified and lead to graver consequences.

II. Mental Degeneracy in the Offspring of the Second Generation.

This study embraces 78 individuals whose parentage could be traced to 20 families of two generations back. Very careful inquiries and very cautiously gathered data led to the discovery of marked alcoholism in the 20 grandparents. The 78 living grandchildren presented mental abnormalities of a very grave nature. If comparison is drawn between the degree of mental deficiency in the individuals of the first generation studied above and that in the members of the second generation we find a decidedly lower mental status in the latter than in the former. There were more idiots than imbeciles and more imbeciles than backward or feeble-minded. The low moral sense, vicious tendencies, outbreaks of extreme anger, destructiveness, irresistible impulses for all sorts of crimes—are all exceedingly pronounced. In adults of this category may be mentioned in addition to the above symptoms also perverted sexual sense and act, theft, vagabondage, debauchery, precocious prostitution, frequent sojourn in prisons, finally alcoholism. A large number of the 78 individuals were committed to asylums for the reason of frequent outbreaks of delirium and confusion. A number of them spent considerable time in prison because of a great variety of offenses.

It is interesting to observe that the majority of these 78 individuals were orphans (56), their parents died at a young age. Painstaking investigation showed that the parents were all mentally abnormal; some were imbeciles (35), others insane (25), although a few (18) were considered normal. As to the latter group, if the information concerning their normal mentality is correct, their children's degenerative state can be traced to the grandparents whose alcoholism is an averred condition. The phenomenon of

transmission of a hereditary morbid tendency to a second generation, without the interference of the first generation is, generally speaking, not very rare. On the other hand, in my series of cases the supposed normal mental status of the parents could be ascertained only from lay relatives. Feeble-mindedness in a slight degree could not be expected to be observed by them. Frequent intoxication and in some of the cases actual craving for alcohol were ascertained at an early age. From this standpoint the cases do not differ from these of the first generation studied above. Physical stigmata of degeneracy have been equally observed in almost all cases of this series. A great many of them presented various nervous manifestations not infrequently encountered in the lives of feeble-minded individuals. They are: convulsions in infancy, epilepsy later, also attacks of meningitis. In seven a history of hydrocephalus could be detected.

To sum up, the mentally deficient individuals of the second generation in my study present the same multiplicity of manifestations, but with greater intensity and depth than those of the first generation. The mentality is apparently more seriously deficient and the attempts at correction were met with greater difficulty than in the first case because of the gravity of the nature of the pathological condition. It is also to be observed from a few of my cases that alcoholism in grandparents may lead to mental and physical degeneracy in grandchildren without apparently affecting or at least to any great extent the direct parents.

III. Mental Deficiency in the Offspring of Third Generation.

This study comprises 21 individuals originating as a third generation from seven families known to be alcoholic. In all of them various mental abnormalities could be traced in the two preceding generations. Great difficulty was experienced in collecting the correct data, but with persistence the endeavor proved to be quite successful. Imbecility with and without epilepsy was the main feature of these cases. Other manifestations incidental to imbecility and described in the preceding two chapters were present here. These cases present a remarkable chain extending back to three generations, a chain which is uninterrupted

and uniformly covered by degenerative elements and deriving its original source from great grandparents who were suffering from chronic alcoholism. It is true that in the members of the intermediate generations alcoholism was present and greatly added to the degeneration created by original alcoholic sources. The seven cases of this series, although small in number, nevertheless are strikingly illustrative of the manner in which a complete mental debility is established by a serial transmission of a deteriorating taint which becomes more and more pronounced in each successive generation.

Conclusion.

This study embraces 298 cases of mental deficiency observed in 117 families. This number may appear small at first glance, but if we remember that the mortality in each of the families studied was great, that death occurred at a very tender age, finally if we consider the fact that some children die early in life and the living present mental and physical stigmata of degeneracy, we must logically conclude that the effect of alcoholism on offspring is most disastrous. Confining myself to the chief subject of my investigation, viz.: mental deficiency produced by parental alcoholism, I am led to conclude from the painstaking study carried on during a period of eight years, that alcoholism is unquestionably one of the direct causes of imbecility, idiocy and feeble mindedness in the offspring. The pictures traced from facts gathered with a great amount of accuracy show that alcoholized individuals create degenerates and mentally feeble. They in their turn, if permitted, continue the chain of the pathological condition and so endlessly if not interrupted. One such family, for example, is able to throw into the community dozens of useless or dangerous individuals who again, if capable of multiplying, will produce their kind. The mental inferiority of such units leads the community backward and its intellectual niveau is thus lowered. A mentally deficient cannot adapt himself to his surroundings and his efforts in that direction are futile. Moreover, he becomes dangerous to society, as his conception of obligations and of conventional laws are primitive,

undeveloped and frequently perverted. A large proportion of them are found in houses of correction, in prisons. The burden of keeping them and caring for them lies on the community. Hence the enormous losses from a financial and social standpoint. If depopulation is meant not only loss of individuals in a quantitative but also in a qualitative sense, alcoholism is undoubtedly one of its causes. It leads to a degeneration not only of the individual, but also of the species, to depopulation; it is dangerous to society as it produces a slow and progressive deterioration of the individual and an intellectual and physical sterility of the race with all its social consequences, viz.: lowering of the intellectual status and depopulation. Quite recently in England The Interdepartmental Committee on Physical Deterioration presented to the House of Commons a report on the effect of alcoholism. Elderton and Pearson, the reporters, expressed themselves in the following astounding manner: "Alcoholism does not appreciably affect either the efficiency or wage-earning power or the physique and ability of their offspring." They also claim that a drunken workman is of a little more value than a sober workman. Time and space do not permit to enter into a discussion of the most inaccurate and the most unscientifically conducted investigations of those two writers. Errors not only in judgment, but also in the mode of collecting data, errors in inferences are all abundant in their superficial study. Such reports do considerable harm to the community and interfere with the earnest work and efforts of the majority of scientific investigators. Horsley and Sturge in a recent very able contribution (*British Med. Jour.*, Jan. 14, 1911), have shown the inexcusable inaccuracy of Elderton and Pearson, whom they qualify very justly as not only unscientific writers, but also as dangerous to the cause of eugenics which every right minded man has at heart.

It may be of interest to mention the results of experiments conducted on animals with reference to the question of germ deterioration which is discussed here from a psychiatric standpoint. There is no doubt that ethyl alcohol taken into the organism in any form and allowed to act for some time can produce changes in the germ cells which determine

many generations in the descendant. These changes are multiple, from an ordinary nervous disturbance to an anomaly and deformity, also to production of foetuses which die in utero. These manifestations have been designated by Forel, as blastophthoria, which means injury to the germ plasm (Hygiene der Nerven und des Geistes 1903). Heredity consists of the transmission of the individual and form of character of parents to child by means of the energy of the nuclear plasm of the germ cells. After a sexual union takes place, a union of hereditary characteristics of both cells follows. Should any change occur in the qualities of the plasm of the germ cells, a lasting alteration will develop in the hereditary energies of the germ cells. Alcohol is one of the agents that can produce the blastophthoria of Forel, or germ deterioration; which in its turn causes many anomalies and defects which influence the embryonal development of various organs. Blastophthoria or germ deterioration continue through many successive generations by habitual hereditary transmission.

SPIRIT AND DRUG TAKING AMONG MEDICAL STUDENTS

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FOR some years two voices have been heard discussing medical education. One voice, loud and insistent, has proclaimed from the housetops that the medical profession is in a bad way. Our ranks are frightfully overcrowded, half of us are on the verge of starvation, and we have lost control of the public to which we look for employment. The remedy urged is usually designated by the phrase, "raising the standard of the profession." The means recommended are, taking the control of medical education out of the hands of medical educators and placing it in the hands of state officials, selected by the successful politicians of the day. Graduation has been shorn of its importance, the privileges once conferred with the degree of M. D. being abolished. The right to practice medicine is now conferred or refused by a State Board. The state has also assumed the right of deciding who may be permitted to enter the medical schools as students. The tendency is becoming more evident to restrict the teaching of medicine to wealthy, richly endowed institutions, or to those that are also creatures of the state. At the last meeting of the Association of Examining Boards the discussion of state medical education was one-sided—all those present advocated it.

These are but so many evidences of that change in sentiment which is so swiftly altering our ideals, from those pertaining to self-reliant, self-respecting individuality, to dependence on official support and guidance.

The result of this movement has been to vastly increase the demands made upon the student of medicine. Most states now require as an entrance or matriculation qualification, a high-school diploma or its equivalent as shown by examination; while some require in addition one or two years at college, and the goal in view is evidently a college degree. Then the medical course has been prolonged to four years, and a fifth is urged. The final test preliminary to license to practice seems to indicate a desire that the physician shall be a man of science, an adept in the use of the microscope, a product of the laboratories of chemistry, physiology, pathology, histology, bacteriology, etc.; while in at least one 'highly advanced' State all tests of proficiency in surgery, practice, obstetrics and therapeutics are prohibited.

The result must be the creation of a class of exceedingly scientific gentlemen, who know little of the practice of medicine and have but slight interest in suffering humanity; but whose prolonged and costly education must perforce render their services so expensive as to limit them to the wealthy class. In sympathy and in usefulness they are separated from the masses of the people, who can only avail themselves of the aid of this highly-cultured class when it is tendered them by the state, as a paternal boon to the indigent wards of the government.

Another inevitable result is the development of a class of practitioners who, being less widely separated from the masses by education and sentiment, will possess their confidence as being more likely to comprehend and fulfil their needs, and who will do the bulk of the practice. This is now the condition of Germany, the most highly educated country of Europe, and of California, where the prevalent view on medical education has been pushed to the furthest extreme. Both are overrun with quacks to a phenomenal degree.

The other voice is less commanding, less imperative in its demand for a hearing, but none the less insistent. It says that there are two sides to these questions; that if the American requires the aid of one physician to 600 persons, while Europe only needs one to each 1000, 2000 or 6000, there are reasons for these as for all phenomena. In Europe the

paucity of physicians is in direct proportion to the lack of general mental development and the preponderance of the peasant element. If Americans employ ten times more physicians than Russians do, it is because the average American demands ten times more attention than the average Russian. The vast majority of Europe's undeveloped people only send for a doctor when the case is desperate. The American has been trained to expect the most effective intervention in the earliest stages of disease; and even to look to us for the practical exemplification of that preventive medicine, which we laud in our addresses and adopt in resolutions.

The proportion of one physician to each 600 population embraces all classes of practitioners of the healing art; it means that one doctor must do all the general practice, surgery, obstetrics, gynecology, eye, ear, nose, throat, rectal, neurologic, pediatric, geriatric, hygienic, and all the other specialty work for this number.

Can he do it?

If preventive medicine means anything, the physician should see each of his 600 persons at least twice each month, to note any tendencies to disease, unsanitary conditions or habits, etc., or the need for services whose importance or existence the patient may not realize. That means 1200 visits a month. Allowing 25 working days for a month—for really the doctor has a soul, and needs his Sabbath rest and exercise quite as much as do other men—and we have 48 visits each working day. Allow 15 minutes for each patient, including the time spent going from one to the other, and we have 12 hours a day spent in strictly necessary visits to the well! Add to this the care of the sick, the surgery, obstetrics, etc., the time to be spent in study and laboratory investigation, and I ask you to tell me frankly if any one man can do his full duty as a physician to 600 people?

Perhaps, that we do not do our duty thus thoroughly, partly explains the existence of so many medical practitioners outside the pale of educated, legalized practice.

There is another aspect of the cases that more nearly concerns us: called upon to investigate the death of a student from morphine poisoning, in the medical department

of the University of Pennsylvania, the Coroner of Philadelphia, speaking in his official capacity, declared that three-fourths of the students of that institution were in the habit of resorting to drugs to enable them to keep up with their classes. Ask anybody connected with that university, of the intellectual quality of its students, and he will assure you that the average is up to that of any medical school in America.

Although in most instances the drugs whose aid is sought are caffeine and strychnine, the significant fact remains that these young men find the tasks placed upon them too great for their unaided mental powers, and they are resorting to outside aid, to artificial stimulants, to compel their brains to do the work demanded of them.

One feels tempted to ask, what sort of educators are these, who make of their pupils demands beyond the unaided powers of three-fourths of the class? Are they ignorant of the primary facts known to every student of pedagogy? Yet, they are in this respect not different from the faculties of other medical colleges. The men who teach the Art of Healing begin by breaking its most vital laws in the case of the students they presume to teach.

There are wide variations in the capacities of human brains. No two human beings are qualified to receive and assimilate new knowledge at the same rate. No two brains have the same capacity for receiving facts. Medical educators have apparently gone upon the assumption that the task of teaching medicine to students is like pumping water into a tank; and the only reason any man fails is that he has not held himself under the pump long enough.

We see the curriculum crowded with studies, the daily study hours multiplied, the school terms lengthened; and if the student fails he is down, no second chance being allowed for retrieving his errors. Moreover, if any other school receives the man who has failed in an examination, that school is held up to obloquy, and threatened with extinction by withdrawing its State Board recognition. Last year, under the panic following the Flexner bomb, Yale plucked a large part of her medical class, and refused them a second chance. An item in the papers today tells me that

of over 1000 students enrolled at the University of Kansas, 469 have failed in their examinations. If these students are debarred from a second trial, it is easy to comprehend that the inevitable apprehension might lead them to fortify themselves against the ordeal by a resort to drugs.

The following extract from a daily paper presents another of the lamentable consequence of this policy:—

“ALARMED BY STUDENTS’ SUICIDES

GERMANY TURNS ATTENTION TO TRAGEDIES CAUSED BY EXAMINATIONS.

Special Cable to the Daily News.

“Berlin, Germany, April 14—Alarmed by a fresh outbreak of suicidal mania among students, medical men and educators of Germany are turning their attention seriously to the question of modifying the conditions of study in the higher educational institutions. The number of recently reported cases leaves no doubt that the severity of the requirements of university entrance examinations, many of which take place at Easter time, is primarily responsible for the evil. The worry, tension and positive terror with which students face the ordeal of passing from the secondary schools to the universities, it is realized, involve serious dangers, and leading physicians declare that the examination must be modified, if not abandoned.

“In a symposium on the subject today Dr. Albert Eulenberg, an eminent Berlin neurologist, urges that students leaving the gymnasia be admitted to the universities without further examination.

“The strain accompanying preparation for the examinations’, he says ‘produces a mental condition that often develops into severe psychoneurotic disturbances, neurasthenia and melancholia. Cases of the kind lately have been forced conspicuously upon my attention.’

“This subject is painfully emphasized by a shocking case in Leipzig, where three students in

the same class committed suicide in one week."

Few examiners appear to realize what is the object of an examination and what is to be expected of the average candidate. The possession of such facts as may be called for, is of less moment than the general intelligence and aptitude of the student, his capacity for acquiring and comprehending knowledge and of utilizing it. The acquisition of education is the matter of a lifetime. It resembles our progress into our Western realm. We reached the Pacific not by steady encroachment on the border of settlement, but by leaps and bounds. When the western edge of the continent was attained there remained behind us vast reaches of unoccupied territory, which we will be busy for the century in settling and bringing under cultivation. So with our education:—after the reception of the diploma we will be all our lives filling in gaps in our acquisitions, and lie down at the end with the consciousness of how very little we have really done—merely gathered a few shells and pebbles from the shore of the ocean of truth.

The examiner forgets. He thinks he always knew the primary facts that have come to him in all the years. At his graduation he really could not have told of the Thirty years' War, the Edict of Nantes, or a hundred fundamental facts in history. He would deny that he has learned these since he received his A. B., but such is the fact. He thinks the youth of 23 to 26 years should know all the multitudinous facts of medical science and art that have come to the examiner during a life of active work in the profession, and yet he himself would be unable to pass a really strict examination, on some of the branches of his own profession.

Success in passing examination is always a matter of luck.

The most perfectly educated candidate who ever appeared before any Board of Examiners must have been aware of many gaps in his acquisitions. No one man can possibly compass in his consciousness all the facts of any single profession, and among the things he does not know, there will be some that appear axiomatic to other persons. That an examination shall hit upon things deemed essential by the examiner, must always be a matter of chance. Nor should we look upon the mere memorizing of facts, as the sole

object of education; since some men may make more of a few facts than others will of many thousands.

The whole system that seeks to train all alike, by the Procrustean method, throwing the student overboard at the first failure, is unscientific, unjust and intolerant. This is the most fruitful source of the alcohol and drug habits among physicians, whose prevalence would appal the public were it generally known.

The student who has to face an examination becomes acutely conscious of the gaps in his knowledge and of the superficial nature of that knowledge he does possess. He delves into his notes and textbooks, until he finds himself nodding, his attention wandering. He needs sleep, but dares not stop. Coffee is the first resort, and he may push this until his brain is saturated with the potent alkaloid, work is done on this unnatural stimulus, and the brain loses its power of work without stimulus. This is the fatal lesson, and herein lies the injury done by coffee. More work is needed, more stimulus demanded, and the transition to alcohol, morphine or cocaine is easier than many appreciate. Before the college term ends the student has acquired the habit of using some outside stimulus to enable him to be at his best, to do the best of which he is capable, and the power of unaided action diminishes.

How far does this go? During the 30 years I have been a teacher in medicine I have seen students develop the alcohol and drug habits, and in a few years after graduation drop out of sight—their career blasted; their early promise blighted they sink into the grave, or in some cases become charges on the public. In the twenty years during which I have studied and treated drug habitues, nineteen-twentieths of those who apply to me for help have been physicians, or their wives. It is impossible to say what proportion of physicians are habitues, since men are never so secretive as in such matters; but every new revelation that is made, every time the curtain of secrecy is lifted, we get a new idea of the far-reaching prevalence of the evil.

That men who have learned the temporary advantages of stimulation should utilize it in their practice is inevitable; and I have learned to look on every doctor who habitually

takes a drug as a center for the dissemination of the habit.

The remedy:—The promulgation of rational ideas on the scope of examinations. The limitation of these tests to what may reasonably be expected of candidates. The advance of moral standards, of general intellectual capacity, of ability and aptness in practical application, as qualifications to be determined, instead of the acquisition of facts, memory, and the parrot-capacity to relate matters whose utilization may be impossible to the person who recites them. We learned in the Shorter Catechism that 'man's chief end is to glorify God and to enjoy him forever'; but how many of the children who glibly rattled off the uncomprehended words sought to put the thought into practice?

Teach the teachers.

Examine the examiners.

Let each learn first what the student ought to learn, can learn and does learn.

Restore education to its place as a means of developing and training the mental faculties, and restrain the acquisition of facts to its proper limits.

Encourage on the teacher's part the study of his pupils rather than limiting his efforts to imparting knowledge.

Let the science and art of personal hygiene as applied to every student be learned, and taught, from the day the student matriculates until he receives his diploma; and in the wide realm of modern medicine there is no lesson so essential.

A FEW SUGGESTIONS TOWARD THE SOLUTION OF THE LIQUOR PROBLEM

BY G. H. HEALD, M. D., EDITOR OF "LIFE AND HEALTH,"
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BEING called upon to prepare a paper for the consideration of this body, the writer feels perplexed for he is not in practice bringing him into contact with alcoholic victims, nor has he performed any laboratory or research work. What he says must, therefore be a repetition of what has been said—and better said—by others. This contribution then will be understood to be nothing more than an expression of the writer's sympathy with the purposes of this society.

Inasmuch as there is a general assent to the proposition that alcohol in large quantities is injurious, study should be largely devoted to the disputed question whether it is also injurious in minute quantities.

Nearly every argument in favor of the use of liquor is to the effect that, like any other substance used by man, it is injurious when taken in excess; that the injury lies in the excess and not in the alcohol; or as it is often stated, in the "abuse" and not in the use of alcohol; that persons who go to excess in this direction would, if the temptation to use alcohol were removed, go to excess in the use of some other drug; and instances have been given where under prohibition in the South, the use of cocaine and other harmful drugs was markedly increased.

It seems to the writer that this contention is partly right; that the "abuse of alcohol" (a favorite expression, by the way with the friends of alcohol), is often a constitutional vice. In other words many of the people who drink moderately,

if they could not indulge in alcohol to excess would have to do something else of an irrational nature, such as Dr. Tom Williams' case that found relief by pouring scalding water on his feet. It would seem that the cure of these people by prohibitory laws, is something like the cure of a thief by imprisonment. It takes away the opportunity but does not work a reform.

The reform of this unstable class, to be effective must begin earlier. Tom Williams has effectively shown in an earlier paper presented before this society (Washington, 1909) that the seeds of this unstable nervous and mental condition are shown in childhood, in a faulty education.

The medicine of the future will be preventive medicine; and the alcohol problem will never be rightly handled until it reaches the preventive stage, dealing with the young generation, not only by means of instruction regarding the evil effects of alcohol—that is good enough in its place, provided it is within the range of scientific truth—but by instruction in the *new hygiene* which includes not only diet and clothing, and ventilation, but mental hygiene and sex hygiene as well. When we cease to puzzle our children with impracticable problems in arithmetic, and to cumber their heads with useless geography about the steppes of Siberia, the mountains of Montenegro and the fauna of the Falkland Islands, when we cut down the grade work from eight to six according to the suggestion of the superintendent of the District of Columbia schools and other prominent educators and make a principal part of this six grades of work, a comprehensive understanding of the care of the human machine, we will be on the way to a solution of the liquor problem.

Then we want to go back still farther. Inasmuch as a very large part of the education of children is in the home, our educational system in the higher grades should include a preparation for parenthood in the true sense. It should prepare young people so they may properly educate and train their children in the matter of character formation.

It is not the intention of this paper to antagonize the work of the prohibitionists. My own city is free from saloons. The deeds conveying property perpetually forbid the use of

any property in the town for the purpose of liquor-selling. And if the writer moves elsewhere, he will always protest against the opening of a saloon in his vicinity; and if he can spread that vicinity to include the State or the nation, so much the better. But, after all, this voting out of the saloon is only a makeshift. It does not and can not get at the root of the liquor evil.

Drunkenness is not the product of the saloon. The saloon only gives an opportunity for an unstable nervous organization to find vent. It is necessary to avoid by proper education the formation of such unstable characters. In addition to the educational reform, another reform must also commence, which will at once render the saloons less of an attraction to the laboring men, namely, better housing conditions and more attractive homes for this class. These sociological questions are, now for the first time, being intelligently and scientifically agitated in a broad way that will slowly but surely remove some of the most prominent of the social festering sores.

Give the poor more attractive homes and provide them with innocent amusements and recreation, and the saloon question will largely regulate itself.

As has been shown, man must have some time for rest and recreation, as well as for work. Recreation he *will have* if not in some more innocent way, than in the dive, the bagnio, the gambling den or the saloon. Cut out one or more of these forms of amusement by law, and others will take their place. We cannot, and if we are wise we will not attempt to ignore this fundamental instinct of man; and instead of trying to shut up by law the only avenues of recreation now open to millions of people we will adopt the constructive plan, and provide innocent recreation.

In the mind of the writer, the principal evil of the saloon is not that it swallows up our boys—yours and mine—that's bad enough heaven knows; but that it corrupts politics, and lowers our national ideals. Bad as the personal ruin is, the political and national ruin exceeds it! But much as he antagonizes the saloon, much as he regrets its presence, the writer can not help feeling that prohibition is a measure bound to be only partially successful, even where the law is most successfully carried out.

In the first place, law is valid and enforcible, only when it has back of it the general sentiment of the community. The presence on the statute books of laws, which a large proportion of the community believe to be unwise or oppressive, has a tendency to lower respect for the law, and by so much tends to disorder and anarchy. An election campaign often works up sufficient gunpowder sentiment to carry the election. The sentiment "flashes in the pan," explodes and goes out—with many who voted. The temperance workers, having secured the law, feel that all that is necessary is to enforce it. They have gained the victory. The attempted enforcement of the law against the feelings of a considerable proportion of the community gradually ends in more or less open and defiant violation of the law. Moreover it leaves a wide open door for the entrance of graft.

Conditions in all the prohibition states show how well such laws can be enforced. As a matter of fact the law makes law-breakers out of many who were formerly law-abiding. The writer does not deny that there is less crime and less drunkenness where there is prohibition. What he contends for that *prohibition*, alone, prohibition before the proper education of the masses, prohibition without furnishing the laboring man a more comfortable home and a rational and healthful recreation is insufficient and is bound always to give imperfect results. We must have more than prohibitory laws in order to make prohibition successful.

Speaking of prohibition or restriction of the liquor evil by law, another criticism is in order; namely that it is unwise for the leaders of this movement to allow any other issue, such as a religious issue to become entangled with the liquor issue. Let the question "License or no license" stand on its own merits. Entanglement with a religious issue is bound to divorce from the movement many who might otherwise connect with it. To connect a liquor issue, for instance, with a Sunday issue, is to weaken the temperance issue for every person who conscientiously believes that the government should not meddle with religious questions.

Now returning to the question suggested in the first part of the paper. Is alcohol in small amounts beneficial or is it harmful? This is a most important question and one

that should be given the most conscientious and careful study. In teaching the young it is not enough to make improved assertions. We have passed the day when it is considered right to say anything that may serve to bolster up our cause.

Many men of prominence have earnestly and conscientiously defended the use of small quantities of alcohol, or alcoholic drinks, in the treatment of disease, and as a beverage. And these men are some of them prominent in the medical profession. In fact it has been believed that the refusal to administer some form of alcohol as a stimulant in certain diseases was malpractice. Two decades ago it was difficult to find a reputable physician, who unqualifiedly advocated the non-alcoholic treatment of disease. There has been a marked change in the attitude of the profession. And now it would be rather difficult to find a physician of ability who would give his unqualified endorsement to the medical use of alcohol, except possibly, in rare cases, and many physicians make no exception.

Hospitals formerly having a heavy liquor bill and a light milk bill have reversed the process with undoubted benefit to the patients.

There certainly must have been some reason for this radical change in a rather conservative body of men. The reason is not difficult to find. A quarter of a century ago the outcry against alcohol was based on assertion not backed by scientific observation. At that time, though it was conceded that an immoderate use of alcohol was harmful there was very little scientific proof that its moderate use was not beneficial.

Since that time, very largely, the eyes of an army of laboratory workers have been turned to this question, and instruments of precision have been called into requisition to determine the effects of moderate and even minute doses of alcohol; and to the surprise of many of its friends alcohol, even in minute dosage has repeatedly and in many ways been shown to be a paralyzer of the functions of the body, especially the higher functions.

The first notable work of this kind was performed in the eighties by Kraepelin, Professor of mental disease in the

University of Munich. Kraepelin was not particularly interested in the effects of alcohol. He was attempting to determine the psychic effects of various drugs in order to ascertain the nature of mental disease. He tried to produce artificially a condition of insanity by means of such drugs as bromine, caffeine, alcohol, cocaine and chloral. There was such a marked mental change produced by alcohol that Kraepelin decided to give it particular study. As a result of his experiments he concluded that alcohol is a leading factor in race degeneracy.

Professor M. J. Rosenoff, director of the chemical laboratory, Clark University, Worcester, Mass., and Dr. A. J. Rosenoff, physician, Kings Park State Hospital, Long Island, recorded in McClure's, March, 1909, a series of experiments performed by a number of workers, from which they conclude:—

1. That alcohol impairs every human faculty.
2. The higher and more complex the faculty the more pronounced the effect of alcohol upon it.
3. The effects of the alcohol are cumulative. That is, its continuous use, even in moderate quantities impairs the faculties at a rapidly increasing rate.

This is an astounding indictment and it is all the more significant that the subjects of the test usually felt that they were doing better work with the aid of the alcohol than without it.

Among the experiments recounted by the Rosenoffs was one by Dr. L. Schnydear and Dr. Paul Dubois, who in 1903, made a series of careful observations measuring the capacity of certain muscle groups. The muscular efficiency was measured at hourly intervals from four to sixteen hours after the morning meal.

In one series the subject took no food or drink after breakfast; in a second series protan (a proteid food) was taken just previous to the first test; in the third series two-thirds of a cup of Bordeaux wine, giving a supposed energy value equal to the protan of the second series, was taken before the first test.

The conclusions reached as a result of this experiment were:

"Unlike ordinary food, alcohol in moderate quantity on an empty stomach has two distinct effects on the muscular system; a stimulating and a weakening effect. During the first stage the strengthening effect predominates, but no sooner is the first stage over than the weakening effect becomes more prominent."

Another experiment was performed in order to ascertain the effect upon muscular activity of a good meal without alcohol, as compared with a good meal to which a glass (300 cc) of Bordeaux wine had been added. This amount of wine is considered by many as perfectly harmless, and even necessary.

The experiment showed conclusively that "Moderate amounts of alcohol when taken with the meal affect very considerably the lowering of the capacity for doing muscular work."

Dr. Martin Meyer of Heidelberg in 1898 and 1901 showed by careful experiment the effect of alcohol upon the ability to do work intermediate between muscular and mental (writing words). His conclusion was that "moderate drinking retards to a very considerable extent" these activities. It may be stated that Dr. Meyer was not working with the purpose of proving a certain hypothesis. At the time of his experiments he was unacquainted with the literature on the effects of alcohol, and was himself surprised at the results he obtained. His experiments were carefully controlled and were made with very moderate amounts of alcohol. In one series he used one ounce of alcohol per test and in another series two ounces alcohol per test.

Kraepelin in 1900 determined the effect of alcohol in moderate amounts on the ability to add figures. The conclusion was: "Moderate drinking reduces considerably the rapidity with which the habitual association ideas are formed in the mind. The effect of alcohol is cumulative and increases as time goes on."

Experiments were undertaken to determine the effect of alcohol on the free association of ideas, by noting the number and the character of words which certain words would suggest in the mind of the subject within a given time. When a word is spoken to a subject it recalls other words by associa-

tion. There is a lower or rhyming association as when the word book suggests cook, look, took, etc., and a higher association, as when the same word suggests reader, leaf, paper, library, author, publisher, printing, etc. It is noted that the more intelligent the mind, the greater the proportion of the words suggested by this higher association. Each person has a certain normal proportion between the number of the lower and the higher associations which he habitually makes.

In the afternoon or when one is fatigued or exhausted, the proportion of the lower associations are greater than when he is fresh. The same is true when a small amount of alcohol has been taken, showing the tendency of even a small amount of alcohol to lower the grade of mental activity. This line of experiments was carried on in Zurich in 1907 by Dr. Fred Peterson of New York.

Way back in 1873 Exner of Vienna showed the effect of alcohol on the reaction time, the subject being required to press a telegraph key when he received a certain signal. This reaction time was lengthened by a small quantity of alcohol. It was, however, shown later that with a robust subject and a very small quantity of alcohol, the reaction time was actually shortened for a time and afterward lengthened.

Later the experiment was varied by having the subject depress one key with one hand on seeing a white light and the other key with the other hand on seeing a red light. This reproduced something of the emergency of the engineer who must act quickly upon seeing some unexpected signal.

The result was a slight decrease in reaction time after a moderate quantity of alcohol with a much larger percentage of errors. He pressed a key more quickly under the influence of alcohol, but was much more likely to *press the wrong key.*⁴

Speed was gained at the expense of accuracy. Here we have alcohol producing a vitiated judgment, and a tendency to hasty and in-coordinate movements, that is, the higher functions are dulled and the lower functions are increased.

In harmony with this is the observation of the school work done by children. In schools where there were all classes

from total abstainers to those who regularly had beer three times a day, there was a steady deterioration of scholarship.

In fact the experimental work on the effects of small doses of alcohol have been so overwhelming as to suggest the propriety of making these studies more prominent in the schools.

The aim should be, not to present the lurid effects of excess but to show what science has taught, that alcohol, a solvent of lipid is and can be, in any quantity injurious and only injurious to every tissue and every faculty of the body and that its effects, though so small at first as to be imperceptible except by instruments of precision, are cumulative, and with continued indulgence, the effect is rapidly progressive, but is of such a nature as to be hidden from the victim who constantly imagines he is receiving benefit from his indulgence. Teaching of this kind showing the anatomic, physiologic and psychologic changes effected gradually by small doses of liquor supplemented by more thorough teaching in general hygiene and sanitation, and more attention to character formation in the developing age will do more in the opinion of the writer, to reach the root of the drink evil, than will prohibitory measures without such instruction.

THE SOCIAL GLASS, A MENACE TO CIVILIZATION

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SANITORIUM, ROANOKE, VA.

AS conservators of the public health and benefactors of mankind, in behooves the medical profession to take the initiatory steps in the matter of awakening public sentiment to the great danger that lurks around the so-called "social glass."

During the past ten years patient and honest men, seeking after the truth, have investigated with scientific accuracy the physiological effects of alcohol upon the human organism. A large amount of data has been compiled. Many of the older theories and false teaching have been disproven. We now have the effects of alcohol upon a scientific basis. Its effects upon vital resistance, upon the phagocytic power of leucocytes, upon heat production, digestion, the heart's action, blood pressure and upon the nerve centers, have all been carefully studied by many observers, all of whom have arrived at practically the same conclusion. I may be pardoned for stating, that much of the credit for the elucidation of this problem and the compilation of these facts is due the American Society for the Study of Alcohol and other Narcotic Drugs.

Now, since we have accomplished the great task of classifying alcohol and placing it in its proper position among the other narcotic poisons from a physiological standpoint, let us with equal energy and determined effort study and consider it from a sociologic point of view.

Considering the weakness of mankind and his proneness to yield to the pleasant temptations and common allurements of life as a temporary refuge from the embarrassments and

responsibilities of a strenuous life, regardless of the after results, let us pursue our task along social and economic lines, by first offering a timely and friendly warning to our educators.

Ancient and ignorant people used alcohol because they liked the effects of it. Later it was used in religious rites and for some two thousand years it had defenders who took the ground that the Creator would not have made it and given His children an appetite for it unless it were good.

We have many of these advocates at the present day in both church and state, whose judgments are biased, not only by monetary interests, but by their *special liking* for the exhilarating effects it has upon their mentality.

A general awakening has at last dawned upon our country. It is observed as a settled fact, that no other agency in the realm of civilization is contributing so much to the increase of poverty, crime and mental agony as alcohol. It is filling the prisons and alms-houses. Not a man or woman in all the world, of high or low ancestry, but has felt the sting of this poison either directly through near relatives and loved ones, or indirectly through dear friends. The medical profession has learned much of alcohol of recent years, but strange to say, it has not given the public the benefit of this knowledge. Physicians have steadily diminished the use of it in hospitals and sanatoriums until it has become almost obsolete as an internal remedy, but still, the public has continued to judge the medical profession's attitude toward alcohol by the large amount prescribed in the past, as well as by what it sees of the doctor's habits at the club and at the banquet table. Hence so far as the public knows, alcohol is still approved and prescribed by the medical profession.

It is time that the public should be set straight on this important matter, and if we cannot agree to cast it out entirely from our pharmacopeia, much good would come if the public could be informed that alcohol is but rarely used as an internal medicine by up-to-date physicians. The practical layman will comprehend the meaning when we tell him that in the last 25 years the medical use of alcohol has decreased more than 75 percent, and at this rate, it will

be only a short time until he will see its complete elimination from our medical dispensatory.

Let the honorable faculties of our medical colleges take decided steps in excluding its use from the hospitals with which they are connected, and also denounce it as a remedial agent in their lectures to the student body. These are among the many fountain sources from which a large number of our medical colleagues, in years gone by, drank in the false theories on the subject, hence too much confusion in the matter of the careless prescribing of alcohol as a medicine, unconsciously making drunkards of a large per cent of their patients. Sad and shameful as it may seem, many of our medical brethren, some of whom were shining lights in the profession, started on the drunkard's path during their course at medical college. And it is no uncommon thing to see these men at the annual meetings of our state and national medical conventions enjoying their usual banquet carousals!

It is with feelings of sadness that the writer recalls an instance of this kind who was a friend and consultant, and died only a few years ago from alcoholic paralysis. With the exception of his weakness for strong drink, he was a model man and physician. He graduated at one of the leading medical colleges of this country, and was honored with an internship at the Bellevue Hospital, N. Y., after his graduation. It was during his medical course and service as intern that he began the use of soft drinks and gradually tapered up to stronger drinks. He was a man of fine physique and prepossessing appearance and belonged to one of the most aristocratic families of his state. He built up a lucrative practice among the best families in his town, notwithstanding his periodical sprees. He never failed to attend the annual meetings of his state medical society and always took an active part in the discussions until the first banquet supper, after which he was never seen outside of his hotel room, nor was he seen back at his home until about two weeks after the adjournment of the society. This is only one out of the many similar instances observed, and I don't doubt but every member of this society could cite cases of a similar nature. Would it not be a commendable idea

and within the bounds of discretion on the part of this society, to pass a suitable resolution in the form of a "memorial" and recommend it to the courteous consideration of the Honorable President and House of Delegates of the American Medical Association, and also to those of our respective state medical associations, imploring them to omit from the bill-of-fare, at their respective "smokers" and banquets all intoxicating drinks?

In this move for the *right* and general *uplift* of our noble profession, I do not think we would transcend the limits of common discretion.

If we wish to reach the laity and general public on the subject of "strong drink" and the importance of driving the enemy from the field, we must first enlist the sympathy of the entire medical profession. And after having fortified it with the power of self-control a suitable weapon of defense and vindication, let it lead off in the fight, occupying the honorable position of advance guard, thus adding new honors to her many other recent achievements along the line of preventive medicine.

While the medical profession is doing such commendable work in the fight against tuberculosis, typhoid fever, diphtheria and other infectious diseases, and winning the plaudits of the entire world, why should we not put up just as strong and determined a fight against a "curse" that is destroying about as many lives (one in every ten deaths) and causing over one hundred fold more destitution and distress of heart among our people and kindred of every land and nation, saying nothing of the immoral tendency on future generations? The medical profession of all the leading nations of the world is taking a decided stand on this great question. The public looks to the profession for instruction and guidance in matters pertaining to health. The time has come when we should take a decided stand on this important matter. We know the large amount of harm that alcoholic beverages are inflicting upon the people. Its ravages are known as well as those of typhoid. We know how much weaker the resistance to disease is on the part of the man or woman who has habitually taken alcohol, than it is in one who has not. We know the frightful mortality in pneu-

monia and Bright's disease among drinking men. We know the frequency and dangers of delirium tremens occurring, as it often does, in men who have drunk daily, but never in amounts sufficient to produce intoxication. We know the difficulties experienced by the drinking man when he requires a surgical operation. Above all else, we know that according to the very latest statistics, alcohol causes over one-tenth of the deaths in the United States, and the people spend yearly over two billion dollars for this poison. In view of these facts, it behooves the medical profession of the United States to take a very bold stand on the subject. In the year 1907 the United States consumed 2,019,690,911 gallons of intoxicating (alcoholic) drinks, which was more than any other nation in the whole world consumed. In the year 1909 the United States consumed only 1,935,544,001 gallons, showing a difference in favor of temperance organizations and the great prohibition wave of 84,146,910 gallons, which according to a careful estimate, reduced the number of hard drinkers in the United States about 151,666 in the two years. This reduction in the use of alcoholic beverages plainly indicates what can be accomplished in the near future by concerted effort, and is worthy of the careful consideration of every loyal citizen and voter in this country.

The number of murders committed in the United States in the year 1896 caused indirectly by alcohol was 10,662, while in the year 1909 there were only 2,854, showing a reduction of 7,806. This is quite significant when we consider the constant increase of population and the influx of a certain class of foreign element.

In the year 1909 there were 8,402 suicides committed in the United States and the two cities giving the largest number according to population were San Francisco, California, and Hoboken, N. J. It is claimed by standard authority that 78 percent of all suicides is due to alcohol. The mental depression that supervenes upon a debauch or the excessive use of alcohol is due to the direct action of the poison on the brain cells, and also to its power of interfering with metabolism, in consequence of which various products of delayed excretion are allowed to accumulate and thus poison and

depress the nervous system. During the past decade suicide, insanity, imbecility, epilepsy and nervous diseases have increased about 20 per cent among women, and is due, according to a standard authority, to the sad fact that our women are indulging too freely in the use of alcoholic drinks.

This brings us to the discussion of that part of my subject which causes me some degree of embarrassment and trepidation, knowing the fact that out of regard and simple courtesy for our noble fair sex, few writers have dared to expose this rapidly growing evil on the part of the women of our country. It is only a matter of time, however, when the glaring facts will be proclaimed from the hill-tops in every land.

During a part of my vacation travels in continental Europe, as well as in our own country, I did not fail to take notice as well as notes of some very notable sites, people and things along the various routes and highways.

In my travels through France and Germany I saw a great many drinking women but very few drunken men. The national beverage of wine and beer of these two countries may account in part for my not having seen more real drunkenness. During my sojourn in the world's metropolis, London, I saw not only drinking women, but women bartenders and drunken women. In making my rounds after hospital hours to the various places of amusement I made it a point to call at a number of the most fashionable saloons, where I gained some very important information on the "drink problem." On inquiry I ascertained that about two-thirds of the most fashionable saloons in London were run and managed by women, many of whom were comparatively young women. I also observed that when serving a new customer, the bartender invariably added to each glass of beer a certain quantity of either whiskey or brandy, and on questioning her about this she replied that her object was to draw custom as well as produce a more exhilarating effect upon her new patrons. In one of the most fashionable of these resorts I counted nine drunken women, five of whom were reclining on handsomely upholstered couches, while the other four were sitting in a half bent posture at a round, mahogany-top table, ringing for more drinks. In this saloon there were over a dozen bright-faced young girl

waitresses, whose respective duties were to deliver drinks and attend the drunken-women. In speaking to the bartender on the subject of her patronage, she informed me that about three-fourths of her customers consisted of society women, who drink a mixture of beer or ale and a specified quantity of the best brand of Scotch whiskey. She also informed me that her busiest hours were between eleven and one o'clock at night, after the closing of the theatres and on Saturday nights she rarely closed before 5 o'clock in the morning. She also stated in the presence of my traveling companion, Dr.—, that the society women of London drink more alcoholic drinks than the society men. I also found that the best restaurants and some of the leading hotels were run exclusively by women. I may add here that many of these conditions, I am sorry to say, prevail in many of our American cities, but not to the same extent, I am glad to know.

It behooves every true and loyal citizen of America, who has any respect for the female sex and the general uplift of future generations to cry out with a loud voice his utter disgust and disapproval of this most lamentable condition of affairs. We have here in our own country and almost at our own doors, women who are high up in Society, who drink intoxicating liquors at their homes and at their clubs until they are too drunk to walk. It was a recent experience of the writer to attend one of these unfortunate so-called, society women through an illness of delirium tremens and morphine addiction. When she could not get her usual beverage of rye whisky, she would invariably resort to morphine, and vice versa. Her father was once a judge in the supreme court of his state, besides being prominent along other lines. She told me that she had been taught to drink wine at her father's home when quite a young girl, especially on stated occasions, until a fondness for stronger drinks gradually grew upon her. After her marriage her husband continued to indulge her in the habit until it got control of her. Her daughter at the age of 18, also became a victim to the habit, and after her graduation at college, married a worthless young man, and after a few months had elapsed a temporary separation became necessary on account of the young hus-

band's inability to support his drinking wife. When last heard from, both the mother and daughter had separated from their respective husbands, and had returned to the old homestead to live with the old mother and grandmother; the old Judge having died only a few years previous.

It is becoming quite a custom of late years among our so-called, society women to keep a "whisky book," (a bottle shaped to appear like a small book), accessible when starting out on automobile spins, social calls to bridge and card parties, etc., in order to fortify them and refresh their conversational powers for these exasperating ordeals. These are but common observations of every day life in the experience of about nine-tenths of the medical practitioners of the entire country, more especially of the towns and cities.

When we consider the physiological effects of alcohol on the brain of the mother and the unborn child, and its effects on a future posterity, can we wonder at the fact of our lunatic asylums, penitentiaries and reformatories being crowded to over-flowing with inmates? Are we surprised at the increase of insanity, suicide and nervous diseases among our women? It is claimed by standard authority that 92% of all persons addicted to alcoholic drinks have or had near relatives who were hard drinkers. The degeneracy caused by drinking women on their children and grandchildren, lays the foundation for many diseases, such as tuberculosis, anemia and all forms of mental and nervous diseases. But the worst effects observed are upon the generative powers, which are the main factors in the production of degeneracy and anomalous conditions of both mind and body. Knowing the great susceptibility of the brain and nerves to the effects of alcohol, and its power to extract water therefrom, leaving them, as it were, in a hardened and dwarfed condition, we can readily account for the peculiar looking anomalies, born from degenerate mothers, who are filling our anatomical museums with these half-human monstrosities. It is a well known fact in physiology that the gray matter of the brain contains about 80% water and it is an equally well known fact in chemistry that alcohol extracts the water from any substance that contains the smallest amount of moisture when applied either directly or indirectly, in small

or large quantities. This being true, it is but natural to conclude, that when the mother's system is tainted with alcohol, the same poison will be transmitted through the mother's blood to the child's brain and nervous system, and in this way, cause such pathological changes as above mentioned. It is a physiological fact that the blood corpuscles contain about 79% water and the same rule holds good in reference to the affinity of alcohol for the water in blood cells as for that in brain cells. We are all familiar with the important function of the white blood corpuscles in protecting our bodies from the ravages of infectious diseases, and we also know the importance of not allowing their functions to be interfered with in curing disease. We know how much harder these little white blood-cells have to fight the microorganisms of pneumonia, tuberculosis and typhoid fever in patients who are addicted to alcoholic drinks, and how often they are over-powered or made drunk, as it were, by the paralyzing effects of the alcohol. It is a settled fact that alcohol, even in small quantities, paralyzes these white blood-cells to a more or less extent, and hinders them from exercising their microbe-destroying function. Herein lies the explanation of many infections, many chronic illnesses, many incurable diseases, and many premature deaths.

In view of the foregoing scientific facts, it is highly expedient and proper, that as an organization of broad minded benefactors, we should make known to the outside world the stand we have taken on this important subject. Let the laity know, that while we are trying to exterminate tuberculosis, yellow fever, typhoid, diphtheria and the many other infections that are destroying millions of the human race, we are exerting our energies with even greater and more determined effort to exterminate a "*CURSE*" that is not only destroying its millions of the human family, but causing more domestic unhappiness and heart-aches than the whole catalogue of diseases.

While we acknowledge the debt we justly owe to Pasteur for the discovery of the cause of fermentation and the effects of microorganisms upon living things, and bacteria as the cause of disease; and to our lamented Dr. Koch for his great discovery of the cause of tuberculosis, also to Finlay who

suggested that the mosquito was the infecting agent in yellow fever, and while we erect a monument to Reed, and lay a wreath upon the grave of Lazear, let us ever keep before us the writings as well as the memory of the great pioneers of the Temperance Cause, Turner, Warren, Rush, Davis, Duroy, Strumpell, Horsely, Crothers of Hartford and Mason of Brooklyn.

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EDITORIAL

TWO GREAT CONVENTIONS

The 13th International Temperance Congress at the Hague was the most important gathering in which 1200 persons were registered. Its significance was due to the fact that it was fostered by the Government, and attended by delegates from every country in the world.

For five days all phases of the alcoholic problem were discussed in four different languages. The evils of alcohol and how to suppress them, were the great central topics.

Dr. V. A. Ellsworth of Boston, one of our associates, was the only medical delegate from this country.

Many of the great leaders in medicine, theology and education took a very active part. This congress was a most thorough materialization and unification of the facts concerning alcohol, and the means and measures to suppress the evils that follow from it, and showed that the whole subject had come into international prominence, as one of the great scourges of the new century.

The first Universal Race Congress convened in London the last week in September of this year. Twelve hundred delegates from all parts of the world assembled to discuss the relations between the various races of the world, and the means and measures to enlarge scientific co-operation along the best lines of development and mutual interest.

Many of the papers and addresses refer to alcohol, opium and other intoxicants as enemies to the race which must be recognized and driven out. Alcohol was considered one of the great blights of the weaker races, and emphatic assertions were made of the duty of civilization to protect and eliminate these sources of destruction.

This in reality, was another temperance congress, although on a broader and more specific line.

WHAT INTOXICATION MEANS

It may be said in a general way that any substance producing disturbances of the body, may be called an intoxication or poison. Intoxication from alcohol is simply poisoning. The symptoms show profound derangement both of mind and body and this may terminate in stupor or delirium. The term poisoning exactly describes the condition.

Intoxication may come from various causes. It does not always appear as stupor or delirium, but may be other profound disturbances and conditions of distress. Thus the symptoms of fever are those of intoxication, caused by certain germs. Certain chemical salts will cause symptoms of poisoning and delirium tremens so commonly following the use of alcohol is simply profound poisoning.

Often matter absorbed from malignant cancers or tumors causes decided intoxications. In Bright's disease there are marked intoxications, due to substances that are not excreted by the kidneys, but are absorbed and go to the brain, producing very distressing symptoms.

Intoxications may come from germ diseases, such as diphtheria, smallpox, rheumatism, pneumonia, typhoid fever, etc. These all have special states of poisoning, marked by distinct symptoms. Certain parasites, often called worms, will bring about certain symptoms of the same class.

A diseased liver, with imperfect secretion of bile, poor digestion of food, and the accumulation of certain products, is marked by distinct symptoms. Often over-eating where oxidization is impeded, will be followed by distress and agony that can practically be called intoxication.

Many of the glands of the body when disturbed or diseased, produce distinct symptoms of poisoning, classified under various heads, but all can be called intoxications.

The man or woman whose life is full of hurry and worry, has disordered nerves and imperfect rest that are certain to show mental and physical changes, characterized by the same term. Bad living, bad work, foul air and a great variety of causes check digestion, starve the brain and produce distinct poisons, apparent

in headaches, in dyspepsia, fevers, and a great variety of disturbances which are really intoxications, because of their effect on the nerve centers.

There is in this irritation of the nervous system which may go on to inflammation. There is fever, diarrhoea, vomiting, pain, and very often melancholia, exhaustion, convulsions or epilepsy, especially in children.

Autointoxication which means self-poisoning, is a very prominent cause. Not unfrequently, persons who have not used alcohol, will have very significant intoxications and severe illness, especially where excretion by the kidneys, sweat glands, bowels and lungs is defective, and the waste substances are retained.

Neglect of bathing and proper exercise will result in a great variety of strange sensations such as numbness, headaches, derangement, irritability, and marked changes of conduct and thought. These are real intoxications.

Persons, who, by neglect and ignorance, permit these autointoxications to occur, very soon become diseased, and not unfrequently the disease is hardening of the arteries, enlargement of the liver and derangement of digestion, and for these conditions, alcohol is a most grateful narcotic.

While it relieves the acute symptoms, it actually increases the derangement begun. Thus a gormand and one who has neglected himself, has prepared the soil for alcoholic anaesthesia, and although he may have been a temperate man as far as spirits were concerned, up to a certain time, yet in reality, inebriety is almost certain to follow, with or without any special exciting causes.

It may come in the form of patent drugs or narcotics, but the relief is so pronounced as to be irresistible. Some of the most incurable forms of inebriety are those who have been intoxicated for years with bad air and bad living. Then suddenly they find relief in alcohol and the future is very uncertain.

Intoxications both from within and without are very common causes of disease and early death.

PROGRESS.

Never before in the history of our society, has there been such an intense movement and turning to physicians for counsel and help to decide questions of alcoholism. All the older members of

our society report increasing applications for lectures, papers and addresses from all sorts of societies.

At the Los Angeles meeting of the A. M. A. more than a dozen applications were received for physicians to discuss the alcoholic problem. Several of the literary societies this fall, in the middle states have asked to have some one discuss the problem from the scientific side.

A most significant sign of change was evident in the fifty addresses delivered by medical men on this topic in Birmingham and neighborhoods, during the meeting of the B. Medical Association.

Many of the most prominent men in England spoke before churches and societies. The tide of opposition has turned to the medical men, and they are beginning to realize that their previous conservatism must give way.

Over fifty papers have appeared in medical journals in the last six months, concerning alcohol, many of them by eminent men. Already the literature is assuming great proportions, and the most urgent calls are for medical men to take up this question and teach the public.

INEBRIETY IN BOSTON

Dr. Cabot in an address on *The Frequency of Different Diseases Prevalent in Boston and its vicinity*, brings out some very interesting facts. Among other diseases the excessive use of alcohol occupies a very prominent place. His studies include first, those who admit that they frequently get intoxicated. Second, those who admit that they drink before breakfast daily, not to intoxication. Third, those who take more than three or four drinks of spirits a day. Fourth, those who take beer and gin.

Of the 8356 persons studied, 32 % rated as drinking. Of this number the Jews showed the smallest proportion, and the Irish the largest. The Americans came next after the Jews. This proportion ran as follows:

The Irish 46%; the Italians 30%; the English 26%; Americans 23% and Jews 21%.

Fully one-fourth of all the adult males gave a history of using tobacco to excess. Here the same racial differences were noted. Venereal diseases composed the largest number of cases. Following this came nephritis, chlorosis and pyogenic affections, including tuberculosis.

The Government Delegates to the Anti-Alcoholic Congress at The Hague was represented by Dr. V. A. Ellsworth of the Washingtonian Home of Boston, Mass. This was an exceptional honor, as he was the only physician on the Board.

The State of Michigan has passed a law as follows:

No person shall be employed as an engineer, train dispatcher, fireman, baggage master, conductor, brakeman or other servant for any railroad in any of its operating departments, who uses intoxicating liquors as a beverage, and any company in whose service such person has knowingly been employed, shall be liable to a penalty of \$500 for every such offense, to be sued for, in the name of the people of Michigan."

The de-alcoholized beer of a Yorkshire brewery is produced by heating the beer to 120 degrees F., and forcing a current of carbonic acid gas through it. The gas extracts the alcohol in the form of minute bubbles. It is claimed that the beer is unchanged in taste and flavor, although its alcohol is reduced from more than 4 per cent. to only 0.2 per cent., and the three gallons of spirit driven off from every hogshead of beer is a valuable material for driving motor cars, etc. The chemist believes that he has made also the singular discovery that when carbonic acid gas is forced into frozen de-alcoholized beer, the alcohol is artificially increased to 2 per cent.

THE ARMY CANTEEN

A great many papers have come to this office for publication, advocating the use of alcohol in the canteen and condemning it. They were so highly controversial as to be unsuitable as contributions to the subject.

The proalcoholics think that their cause is helped by sneers at the W. C. T. U. and reformers, who have influenced Congress to pass laws driving out the canteen. To this they add personal experience, which is so obviously biased and narrow as to destroy the value of their conclusions.

On the other hand many of the statements to show the injury from alcohol are lacking in the very particulars that the authors should have presented. The real facts are above all controversy, and do not depend on the statements of army officers or enthusiastic reformers.

One of these facts is growing more and more prominent, namely that alcohol has no stimulant, or tonic properties, and that these terms describe a fictitious condition which is condemned by scientific study. The effects of alcohol are narcotic, paralyzing, weakening the capacity of the body to resist disease and lowering the power of control by the brain, and destroying the efficiency of the man.

Science and bitter experience are teaching that the use of spirits is destructive to the efficiency and healthfulness of all who use it. In the business world the great struggle is to keep alcohol, and alcoholic brains out of responsible positions, for the selfish reason that it means peril, loss and inefficiency.

Every position in life calling for intelligent brain work and physical capacity requires total abstinence. The Army or Navy is no exception. The canteen or any forms of spirits tolerated means loss and failure, and there is no theory about this. The canteen is crowded out by an evolution which is not dependent on theory or opinions, and the greater the effort to have it restored, the more positively the folly of this appears.

The Army and Navy, like every other great organization, must be governed on general principles and conducted on lines of the highest scientific accuracy. There is no retrograde movement in the demands for greater skill and higher brain power and more perfect organization and the canteen question is practically settled and all attempts to restore it are reflections on the failure of the authors to comprehend the great movements of science.

INSANITY AND ALCOHOLISM

The English Society for the Study of Inebriety, at its annual meeting in April last, was noted for two very significant addresses. The first by the President, Dr. Hyslop and the other by Dr. Mott. The following are abstracts of these most important papers:

Dr. Hyslop said that both in this and in other countries, the work done by scientific investigators had been so extensive and so real, that the conclusions arrived at had enabled temperance advocates to continue their work with a cheerfulness and sense of justification hitherto but seldom attained. The work of the Galton Eugenics Laboratory, of University College, London, had stimulated into activity some of the most able thinkers of the day, and in that respect the famous memoirs had been the indirect cause

of much benefit, inasmuch as, by attacking problems, the solutions of which had already been determined in the public mind, they had in reality emphasized certain truths which, although capable of still further elucidations and precision in definition, formed the very basis on which the cause of sobriety had formally appeared to have been justified.

It was of interest to note that the problem of the influence of parental alcoholism on the physique and ability of offspring would be discussed at the next International Congress against Alcoholism, which meets at The Hague in September, next, and Dr. Hyslop as President of this Society, had been asked to open the discussion. When one turned from the work of this and kindred societies to the consideration of some of the effects of that work, one could not fail to be struck by the fact that the community at large was becoming more and more awakened to the dangers of an indiscriminate or excessive use of alcohol.

The knowledge that civilization had brought with it not only a more highly constituted nervous mechanism, but also one less tolerant of the effect of alcohol, had done much to diffuse a general wave of temperance throughout the land.

To members of the learned profession alcoholism usually signified mediocrity in personal attainment. Survival of the fittest meant for them abstention from everything that tended to blunt the higher mental functions and susceptibilities. Abstention was for them, but the tacit acknowledgment of the possession of a nervous mechanism so finely constituted that, it being their chief asset, they could not afford to tamper with it.

It was now a state observation that alcoholism impaired commercial efficiency, and London could tell a tale of reform in the matter of drinking, which had afforded an example to be followed by every other center of commerce throughout the world. The ever increasing complexities of machinery and mechanical inventions required a mental and physical alertness but little known to their forefathers. The individual experience of those who had to control machinery, force convictions which were becoming more and more evident. Even the taxi driver openly admitted that things were different now, and that he could not afford to drink. In play, also they found more commonsense and temperance. There were always two classes of individuals in sport and play, those who aspired to play and those who played to perspire.

To the former, let him aspire to be in the front ranks of cricket, golf, tennis, foot ball, billards, or any other sports or games. His experience told him that his handicap would bear a certain ratio to his use or abuse of alcohol.

To be clear in vision and readily adaptive in recreation, the sportsman and the athlete alike, must choose between abstinence and failure. The later being coupled with self indulgence in alcohol. Not only did alcohol impair efficiency, but it diminished staying power, and nowadays its use was almost entirely discarded where there was any real aspiration to succeed or excell.

Of the second class including as it did, the "liver-brigade" and the thousands of elderly sportsmen, golfers and others who exercised themselves, in order to get rid of the effects of self indulgence or to counteract the effects of a too sedentary life, he had little to say. Were it not for such pastimes and an abundance of fresh air and exercise many plethoric individuals who had also been brain workers would stand but little chance of survival.

Prof. W. F. Mott, Pathologist of the L. C. Asylums in London, delivered a very elaborate address, illustrated by slides, of which the following is an abstract:

He said many difficulties presented themselves in an inquiry upon the subject of chronic alcoholism in relation to different forms of insanity when based upon data obtained from the numerous London County asylums, where different forms of classification were in use, and where often a different nomenclature was employed. Again, where a varying degree of interest occurred, and where personal opinions by medical officers concerning alcohol as an effective cause perforce existed, collective and comparative statistics, instead of helping to solve the question, made for confusion. Interest and diligence in interviewing relatives and friends to ascertain facts, instead of relying upon a printed form; which was seldom filled up, he had found, made a great difference in obtaining reliable information concerning the following necessary data: The cause of the patient taking to drink; the nature of the drink and the quantity taken; the period of time the patient has been drinking; was it taken with food or instead of food? was it taken because he was employed in an occupation where it was obtainable, or because his occupation caused thirst? or was it taken because he was miserable and depressed? Again it was necessary to ascertain whether drinking to excess, or the

transition from moderation to intemperance, was merely one of the signs of the mental breakdown. Such a circumstance frequently occurred in incipient general paralysis; again, it often preceded or accompanied an attack of manic depressive insanity, involuntal melancholia, and other forms of insanity. It was only when asylum statistics relating to intemperance were based upon such complete data as he had above indicated, that they could be taken seriously. He threw on the screen a table relating to alcohol and insanity for thirteen years in the London County Asylums, which showed that there was a great variability of percentages in the same asylum for different years, and in different asylums for the same year, although the admissions were drawn from the same class of population such a difference as could only be explained by a difference of opinion by medical officers, as to what constituted evidence of alcoholic excess, or because other factors contributed or were in reality the cause.

Not only had they, however, to take into account the personal equation of the medical officers who obtained, or failed to obtain, the requisite information, but also of the friends who gave, or failed to give, the information required to establish alcohol as a cause of the patient's mental affection. This variability was so marked that it could not be explained by the individuals admitted. Thus, in the year 1902, from the same class of people, alcohol was the assigned cause of 25.6 percent of the admissions to Hanwell, and to Claybury, it was only 11.2 percent; but in 1906 in 22 percent of the admissions to Claybury, intemperance was the assigned cause, while at Colney Hatch, it was only 14 percent.

At Bexley Asylum, where a modern classification was adopted and where the statistics appeared to be nearly uniform since its opening, intemperance as an assigned cause was very high, the average being 22.8 percent for the seven years. An analysis of the cases admitted during 1905 to this asylum, in which intemperance was an assigned cause in 25.7 percent of the total admission, showed that there were a large number of cases in which there were other and probably more important causes. Of 248 male admissions, alcoholic excess was assigned as a principle cause in 46, or 18.5 percent; and out of the 246 female admissions alcoholic excess was the principle cause in 38, or 15.4 percent, a total percentage on the whole admission of 17. But when one inquired into these cases, one found that 13 were imbeciles, 13 epileptics, five

were chronic delusional insanity, five organic dementia and no less than 20 were primary dementia. In fact, quite one half were imbeciles, epileptics, lunatics, or potential lunatics, and in a majority of these cases, doubtless the subject of an inborn tendency to mental disease. Dr. Mott's experience in Claybury and the other asylums, corroborated this statement. Moreover, he had found that the history showed hereditary insanity, or epilepsy, quite as frequently in these so-called alcoholic cases, as in other forms of insanity and much more frequent than in general paralysis. In the family history of these cases of insanity as a result of intemperance, there were found frequently neurosis, criminal degeneracy, imbecility, epilepsy and insanity.

In the personal histories inherent instability was frequently found in the form of neuropathies, imbecility, criminal degeneracy, epilepsy and intolerance of alcohol as manifested by previous admissions, when they were termed recurrent mania, recurrent melancholia or manic depressive insanity. Sometimes there was a history of a head injury, or organic brain disease, and not infrequently incipient or early general paralysis. Some few cases were admitted on account of murderous assaults or sexual crimes, to which might be added a considerable number of attempted suicides.

Coincidences and causes might thus be confused, for a lapse from moderation to intemperance might be the first recognizable sign of mental breakdown. Especially was this the case with the involutional psychosis occurring at the climacteric period in women; also men and women between 50 and 60, who suffered from melancholia and at the same time were the subjects of arterio sclerosis. Again, general paralytics and cases of adolescent insanity might take to drink. There could be no doubt that neurasthenics, hysterica patients, epileptics, imbeciles, degenerates, eccentric individuals, and potential lunatics, all those indeed, with an innate lack of self control were markedly intolerant of the effects of alcohol, and the failure to discriminate between what was the result of alcoholism and what was innate and due to inheritance had been the cause of much confusion. As physicians to the Charing Cross Hospital, for the past 25 years, Dr. Mott said he had seen a large number of patients subject to chronic alcoholism. He had seen numbers of persons who had drunk for very many years large quantities of alcohol in the form of beer or spirits, or both combined, and yet these patients had shown no

signs of insanity, the only apparent effect upon the mind, being the establishment of a vicious habit, denoting a lack of will power and moral sense. Situated amidst the theatres, restaurants, music halls and places of amusement, Charing Cross Hospital received a number of persons who were intemperate in the pursuit of pleasure; also it received a number of people engaged either directly or indirectly in the liquor traffic, or whose occupation led to prolonged intemperance. Among such were potmen, barmen, barmaids, publicans, prostitutes, waiters, cooks and kitchen servants for hotels, stage carpenters, scene shifters, cabmen, buss drivers and conductors, and particularly Covent Garden porters, who were addicted to drinking large quantities of beer. As a rule, all these people were, when they were brought to the hospital for relief in employment. He regarded this a very important point in connection with the nervous symptoms which might be manifested as a result of prolonged intemperance, because to the casual observer, certainly, and to the skilled observer, often, no marked mental deterioration might be discovered in a large portion of these inebriates when the effects of the liquor had passed off. Occasionally a head injury or other injuries, a surgical operation, the onset of disease, especially pneumonia or other microbial infections, or any extra bout of drinking, might result in delirium tremens, for which the patient might be brought to the hospital, or which might develop after he had been admitted, and when alcohol was withheld.

He mentioned the large number of cases admitted at Claybury with very pronounced psychosis that recovered from abstinence and general hospital treatment. Neuritis seemed to be a very common symptom, but this disappeared with careful nursing and diet.

In a comparison with the statistics of hospitals and asylums, particularly of the results of post mortems, there were great differences.

In the city hospitals cirrhosis of the liver with ascites were more common than in the asylums. The opposite was to be expected as the inmates of asylums had a pronounced history of alcoholic excesses.

He showed on the screen the physical changes which could be observed in the brain in cases of alcoholic dementia. They were principally thickening of the membranes, and deepening of the

fissures. There was some excess of cerebro-spinal fluid, also marked vascularity of the nervous fibers and despairity in the size of the cells.

In the discussion which followed, the President, Dr. Hyslop, declared that the real lesson was that every neurotic should be taught that alcohol was the most dangerous of all possible drugs. It attacked the weakest part of the brain and hence increased the degeneration which had already begun.

There was no doubt in his mind that alcohol was a very pronounced cause in a great many conditions of disease that was unknown at present, and what is needed is more exact study and comparison of data. This would no doubt clear up many of the obscure points at present.

NOTES

In insanity the brain and nervous system may be functionally disturbed and lowered. The nutrition may be seriously disturbed. Rest the former and restore the latter, and recovery follows.

In inebriety both the brain and nervous system, as well as nutrition are affected. Alcohol attacks and deranges the cell growth and prtooplasm. The apparent reason may be only transient. Alterations have taken place that are never fully repaired. The nutrition of the body may be corrected, but the functional activity is permanently disturbed. A tendency to return, not discernable, is present.

Hence alcoholic insanity is a more serious form of disease, than ordinary forms of degeneration.

A young man who drinks sharply and to excess before 25, is almost certain to die of some intercurrent disease, or to become an abstainer.

When the drink craze begins after 25 and in the neighborhood of 30, recovery rarely takes place. A condition of degeneration goes on to chronicity and such persons become inebriates, dipsomaniacs and may recover, but the future is very uncertain.

The children of parents who begin to drink after 30 are more seriously affected. Those who come from parents who began to drink earlier are stronger.

Inebriety usually begins between 15 and 25 years. Often the disease dies out between 40 and 50, should the patient live. Spontaneous recoveries are likely to occur any time after 30.

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