

ALCOHOL IN MEDICAL PRACTICE
ALCOHOLIC POISONING AND DEGENERATION

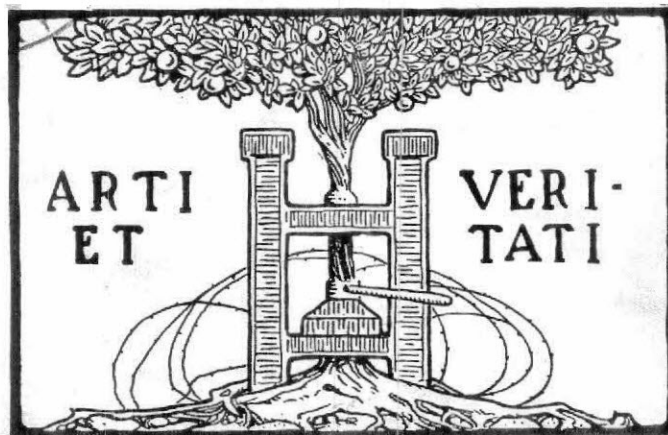
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T. D. CROTHERS, EDITOR

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Number 1

ALCOHOLIC POISONING AND DEGENERATION

By PROFESSOR G. BUNGE, M. D., PH.D.

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THE physician of to-day, when he takes up the question of alcohol, is in duty bound to lay particular emphasis on the aspects of its heredity, viz., its degenerating effects. The general public can see and appreciate all the other more palpable evils entailed by the habit of drink; they see how it yearly destroys its millions in all civilized countries of the world; how one-tenth of the combined productive power of the most highly gifted nations is squandered on the production of alcohol and the distribution of the poison, and how as the result of these labours, the workhouses, the hospitals, the lunatic asylums, and the reformatories are kept constantly filled. But what one still fails to recognize in all its bearings is the heredity of the terrible suffering and misery occasioned thereby, and the growing degeneration, which occasions the deterioration of our race. It is for this reason that I now wish to dwell in detail on this aspect of the question.

It was, while I was engaged on a purely scientific investigation, which I had undertaken for no special purpose and without any pre-conceived theory, that I was unexpectedly led to the consideration of the phenomena of deterioration. For thirty years past I have made the composition of milk my subject of study, submitting it to chemical analysis, and comparing the milk of the human being with that of other mammalia. In the course of my researches I became aware, with ever increasing admiration, that the composition of milk was one of the greatest

murels of organic nature. I saw with what care and foresight nature had adjusted the ingredients of which it is composed to the requirements of each individual mammal and how the constituents of the milk were mingled in exactly those proportions required by the particular sucking in order that the functions should perform their daily office, and that the young organism should develop into the image of the parental one. Different mammalia have very different requirements, this being, in main part, due to the difference as regards rapidity of growth among the various creatures. The quicker the growth of the sucking, the richer the milk in those ingredients which specially serve towards the building up of the tissues, both in Albumen and Salt, as is demonstrated in the following table:

	Time in days required for the doubling in weight of the new born creature.	100 parts of milk contains:			
		Albumen.	Ash.	Lime.	Phosphoric acid.
Man	180	1.6	0.2	0.033	0.047
Horse	90	2.0	0.4	0.124	0.131
Cattle	47	3.5	0.7	0.160	0.197
Goat	22	3.7	0.8	0.197	0.234
Sheep	15	4.3	0.8	0.249	0.293
Pig	14	5.0	0.8	0.349	0.308
Cat	9 1/2	7.0	1.0	0.455	0.465
Dog	9	7.4	1.3	0.591	0.508
Tabule	6 1/2	10.4	2.3	0.891	0.897

Since the human suckling is the slowest in growth, human milk is also poorest in Albumen, all inorganic matter and in incombustible ash-constituents. On the other hand, human milk is richer in one ingredient than the milk of any other mammal. This component is the so-called lactic acid, the chief agent in building up the brain, the weight of which is, in the human suckling, comparatively the heavier.

These general statements are sufficient to show that the milk of one species of mammal cannot be substituted for that of another without injury to the offspring and, above all, that the milk of the cow cannot supply the place of human milk. Practical experience corroborates this assertion, and every possible effort has been made to render the milk of the cow scientifically similar to human milk: it has been diluted with water, sugar; etc. has been mixed with it, but the desired result has never yet been obtained.

Nevertheless, it is the opinion of many medical men, that if the artificial food is carefully prepared and administered, infants so nourished flourish as well as those nursed at their mother's breast. This is highly improbable, and to prove the correctness of the assertion it is not enough to compare the growth of the child during the first year of its life only; we ought to be able to trace its development through the whole course of its existence. An investigation like this has, however, not yet been undertaken. Again, even if we admit, that with a careful adjustment and administration of artificial nourishment infants, so fed, flourish as well as those suckled by the mother, it nevertheless remains a fact that this careful carrying out of feeding by artificial nourishment is now, and will ever continue to be, an impossibility among the masses, for the simple reason that the strong instinct of motherly love cannot be replaced by sterilized milk. No infant is ever fully and properly fostered unless carried at the breast by its own mother, for herein is the law of nature, that the growing child shall remain in contact with its mother; then the mother is forced to care for her child as much as for herself; indeed, even to devote herself to it. Statistical facts bear out the truth of these remarks. For example: take London alone—it has been proved that in that city the mortality among infants under a year old who have been fed on cow's milk, is six times as great as among those nursed at the breast. The case may be somewhat better in other towns; but at any rate, it can be asserted without question of doubt, that throughout the civilized countries of the world, hundreds of thousands of infants are, year in, year out, simply murdered by being fed upon cow's milk, nay, worse than murdered—slowly tortured to death.

And now the question arises: What is it that prevents women suckling their children? With many, the non-nursing may be a mere matter of convenience, while others are dissuaded from so doing by the advice of foolish persons; still these women are comparatively few in number; many more are forced by their occupations to give up nursing their infants, but even these form but a small percentage of the non-nursing mothers. The greater number of women who do not give their children the breast are physically incapable of doing so. Their milk does not suffice, and has to be supplemented by artificial.

food; therefore, in the course of a few weeks or months the flow of milk ceases altogether and this physical incapacity is steadily on the increase. In many towns, more than half the women have already become incapable of nursing. I have endeavored, by collecting statistics, to find out the causes of this incapacity; over a hundred medical men have been my collaborators in this work, and we have been enabled, by the aid of tabulated questions, to obtain particulars of the condition of health among the members of more than 1,600 families. The first facts made clear by these enquiries was that the incapability of nursing is hereditary. If a mother cannot suckle her children, it almost invariably follows that the daughter can do so neither, and the power appears to be irrecoverably lost for all future generations. Ask a woman who has nursed all her children for nine months, or longer, if her mother was able to nurse her children; and the answer, with hardly an exception, is in the affirmative. Ask the same question of a woman who has not been able to do so and, in most cases, but not in all, one is told that the mother was also incapable; there are instances, and they are not rare, where a mother is still able to nurse her children, while her daughter is unable to do so. According to my statistics, these last mentioned cases constituted 39 per cent. of all the cases where the daughter was incapable of nursing. The frequency of these cases in which the incompetency of nursing is thus newly developed is a proof that the incapability to do so is rapidly on the increase. To the many cases of inherited inability, fresh cases are continually being added which, in their turn, transmit the inheritance.

Instances in which the mother is still able to nurse while the daughter is unable to do so, are of especial interest in so far that they bring us into direct contact with the causes of the incapability. Here we naturally turn to seek for these causes on the father's side, and are immediately brought face to face with alcoholism. According to my statistics in 78 per cent. of these cases the father is an immoderate and habitual drinker, and in 42 per cent. of the same, a notorious drunkard. In those families, on the contrary, where both mother and daughter are able to nurse their children, records of drunkenness are rare.

My tabulated questions were arranged in such a man-

ner, that the many conscientious answers given to them place me in a position to estimate what amount of alcohol was consumed by the father up to the time of conception by the daughter, and the result comes under four headings. In the first category, I reckon all those, who did not habitually, i. e., regularly day by day, indulge in alcoholic drinks, or who were total abstainers; in the second, all those who habitually indulged in alcohol, but whose daily minimum of consumption was less than about two pints of beer, or a half-quarter of spirits. The latter will be referred to hereafter as "moderate habitual drinkers." To the third category belong the "habitual and immoderate drinkers," that is, all those who consume a daily minimum of a half-quarter of spirits or two pints of beer, more or less. The fourth category comprises the confirmed drunkards; among these I have only reckoned the men who were distinctly stated to be such, either by their immediate relatives, or by their surrounding neighbors, or by their family doctor. I subjoin a table giving statistics concerning the question at issue in its relation to the consumption of alcohol.

	Mother and daughter both able to nurse.	Mother able, daughter unable to nurse.
Not habitual drinkers.....	52.3 per cent. of the cases	11.1 per cent.
Habitual and moderate.....	38.1 per cent. of the cases	11.1 per cent.
Habitual and immoderate.....	6.9 per cent. of the cases	35.7 per cent.
Confirmed drunkards.....	2.6 per cent. of the cases	42.2 per cent.

The figures to the left fall from 52 to 2, to the right they rise from 11 to 42. This cannot be the result of mere chance. The conclusion we are forced to is, that the chronic poisoning by alcohol of the father is the main cause of the inability of nursing in the daughter. As regards those cases where the daughter is incapable, although the father is not an habitual drinker, or an habitual and moderate one, the explanation remains doubtful. It is, however, possible that even here the cause may be due to alcoholism in other relatives, as the moderate drinkers may be descended from drunkards, and indeed, in several instances of this kind, this was proved to be a fact. As in most of these cases, however, it was beyond our power to obtain exact intelligence as to the amount of alcohol consumed by the grand parents

of a woman who was incapable of nursing, the possibility must be admitted that there are other causes to which this incapacity is traceable.

The connection between the chronic poisoning by alcohol of the father and the incapability of nursing on the part of the daughter is even more clearly set forth in the following table, than in the former.

In order that the effect of alcoholism alone, to the exclusion of all other hereditary disadvantages, may be clearly seen, all those families have here been omitted in whom either of the parents was a sufferer from any chronic ailment.

Consumption of alcohol by the father.	Daughters capable of nursing.
Non-habitual drinkers.....	61.6 per cent. of the cases
Habitual and moderate.....	88.0 per cent. of the cases
Habitual and immoderate.....	91.4 per cent. of the cases
Confirmed drunkards.....	10.0 per cent. of the cases

That the want of ability to nurse is only one symptom of general degeneration is evident from the fact that it is accompanied by other symptoms of deterioration, in particular by nervous and mental ailments of all kinds, as well as by a disposition to infectious diseases of a chronic nature, more especially to tuberculosis, as the following table demonstrates:

	Tuberculosis.	Nervous and Mental ailments.
Women able to nurse.....	1.6 per cent.	1.6 per cent.
Women unable to nurse born of mothers who were able.....	7.0 per cent.	10.7 per cent.
Women unable to nurse born of mothers who were unable.....	16.5 per cent.	28.9 per cent.

A further sign of deterioration, which accompanies the inability to nurse, is the decaying of the teeth. By aid of my questions I was able to obtain particulars as to the condition of their teeth from 1,052 women, i. e. from 394 capable of nursing and from 658 who were incapable.

In each case the number of decayed teeth, and the number of those which were missing, was given, together with the age of the woman at the time when her teeth were examined. Among the 394 women able to nurse, there

were 36 who had perfect sets of teeth, without one missing or one decayed. Of the 658 women incapable of nursing, there were only two without any decayed teeth, and these two were still young; the one 19, the other 25 years old. Among those capable of nursing, on the contrary, there were found women with perfect sets of teeth up to 72 years of age: 12 were between 20 and 30 years of age; 13 between 30 and 40; 7 between 40 and 50; 2 between 50 and 60, while one was 64 and another 72 years old. The average number of decayed teeth of the two classes of women at different ages is as follows:

	21—25	26—30	31—35	36—40	41—45	46—50	51—55	56—60
Women capable of nursing.....	6.7	8.2	10.6	11.9	13.6	16.2	21.3	17.4
Women incapable of nursing.....	15.6	16.1	17.4	21.0	23.9	25.3	23.8	27.8

These numbers are in so far inexact, that the average taken includes both decayed and missing teeth, and teeth lost through other causes than that of decay. At the same time there is no reason to suppose that these eventualities were unequally distributed over the two classes, and we may therefore accept these comparative averages as they stand.

In the above statistics I have only indicated the indirect connection between alcoholic poisoning and the decay of the teeth. I have shewn that the woman's unfitness for nursing is the result of alcoholic poisoning, and that the decay of the teeth accompanies this incapability. In the following tables the direct connection is set forth. The numbers given in them refer to males, being Mohammedan workmen on the railways of Asia Minor. I am indebted for these deductions to Herr Theodor Floras, a great medical man in Constantinople. Dr. Floras is chief physician to the Anatolian Railways, and with the help of his colleagues, he carefully examined the teeth of 398 Mohammedan laborers, and was able to tell at once whether they had remained faithful to the command of the Prophet or had already been seduced into European habits of drink. From the particulars sent me I have drawn up a table shewing the average number of decayed teeth at various ages, as follows:

	Average number of decayed teeth during the ages:					
	16—20	21—25	26—30	31—35	36—40	41—50
Minimunctans—						
Abstainers	0.5	0.9	2.2	7.6	4.4	5.3
Non-Abstainers	1.5	2.8	6.2	7.9	9.3	12.9

The following table shows the direct connection between the alcoholic poisoning of the father and the tuberculosis, or nervous disorders from which the father as well as the children suffered. Of the 1,629 families examined and questioned, those have been given from whom particulars were ascertained, not only as to the consumption of alcohol by the father, but of all cases of tuberculosis, nervous illnesses, and mental disorders by which either fathers or children had been attacked. The capability of suckling among the women has not been taken into account in here. The families are arranged according to the amount of alcohol consumed by the father.

Consumption of alcohol by the father.	Number of cases.	Tuberculosis in the father. Per cent. of cases.		Tuberculosis in the children. Per cent. of cases.		Nervous and mental disorders in the father. Per cent. of cases.		Nervous and mental disorders in the children. Per cent. of cases.	
Not habitual drinker.....	188	4.3	14.8	1.1	7.9				
Habitual and moderate drinker..	240	6.8	14.0	2.5	13.6				
Habitual and immoderate drinker..	128	10.2	22.1	2.3	17.6				
Confirmed drunkard	103	13.6	29.3	2.9	24.2				

The effect of alcohol on the father in respect to disease, even in tuberculosis is distinctly marked, and there is a striking difference in the numbers of those afflicted with tuberculosis and nervous disorders between the children of the moderate and those of the immoderate drinkers. But even the tables already given do not set forth with sufficient clearness the effect of pure alcoholism, as chronic ailments in fathers or mothers may have had their share in affecting the children. These complaints again may have been due to other causes, and may, independent of alcoholism, have given rise to the frequency of chronic diseases among the children. Further statistics

are therefore given in the following tables from which every family is excluded in whom either one or other of the parents, or both suffered from any chronic disorder. In the tables which I now give, only these families are entered that in every way accorded with the following conditions:

1. Both parents entirely free from chronic disease;
2. Exact information given as to consumption of alcohol by the father up to the time of the conception of the children;
3. Exact information given as to the occurrence of tuberculosis, and nervous and mental afflictions among the children.

Consumption of alcohol by the father.	Number of cases.	Tuberculosis among the children. Per cent. of cases.	Nervous and mental disorders among children. Per cent. of cases.
Not habitual drinker.....	149	8.7	4.0
Habitual and moderate drinker.....	169	10.7	6.5
Habitual and immoderate drinker.....	87	16.4	6.0
Confirmed drunkard	50	21.7	25.0

Here it will be seen more clearly than in the former tables, how far the chronic poisoning by alcohol of the father is connected with the want of power on the part of the children to resist the attacks of tuberculosis and nervous complaints.

It must, moreover, be further taken into consideration that the details here given, are incomplete since the children belonging to the families examined had not all attained the age when the symptoms of tuberculosis and nervous diseases can be detected.

Let me now sum up the results of our statistical researches:—The daughter of a drinker is rarely, if ever, able to nurse her children. As a rule, where the father has been a drinker, the daughter loses the power to suckle her children, and the capability is irrecoverably lost to all future generations. The incapability of nursing is no isolated phenomenon. It is accompanied by other symptoms of degeneration, in particular by want of power to resist the invasions of disease of all kinds: nervous disorders, tuberculosis, decay of teeth. The children are insufficiently nourished, and so from generation to

generation, the work of deterioration goes on, leading at length, after endless suffering, to the ultimate decay of the race.

Having once clearly recognized these facts, and pondered over them, can we any longer look on with indifference at the work of corruption proceeding among our fellow creatures even while still in the living body. For what is pulmonary consumption, what the formation of cavities in the lungs and the decay of the teeth—what are these but processes of decay taking place in the living body? By the term corruption we understand the decomposition of organic substances through the agency of bacteria:—In the case of tuberculosis and the decay of the teeth, the bacteria make their inroads on the living tissues and destroy the organic elements of these. And what gives rise to such inroads? The tissues of the teeth, or of the lungs, have lost their power of resistance. The bacteria are not sufficient cause in themselves to bring about these well known diseases. Every man and woman who has inherited healthy blood has these bacteria (which destroy the teeth) continually in the mouth, and may yet preserve a perfect set of teeth to the end; in the same way the tuberculous bacilli are often in the lungs and stomach of the healthy individual, but the undamaged tissues resist their onslaught. And how is it that the tissues have lost their power of resistance? For the simple reason that they have without ceasing, day in and day out, year in and year out, from generation to generation, been deluged with a particular poison, the poisonous excretion of a fungus, the yeast fungus.

Can we, therefore, be surprised that we are unfit to cope with these attacks? As the Darwinians express it: "Nature did not reckon upon this in the struggle for existence." Under natural conditions the yeast fungi with their poisonous secretions could do us no harm. When, under natural conditions, these fungi find a domicile in our stomachs—which, indeed, frequently happens, for they have their habitation on the surfaces of all fruits and berries—they are instantly killed by the normal gastric juice. The normal gastric juice contains one of the most powerful antiseptics, free hydrochloric acid. If by chance, the stomach being overcharged, some of these fungi slip through to the intestines they are there destroyed by the Gall; and if then just a few of them still remain, well, they can no longer do us much harm.

But the issues are very different when these fungi are cultivated in enormous numbers by purely artificial means outside our own bodies, their poisonous secretion collected, and then organs of our body deluged by it. Nature has not armed us against such attacks as these.

Let us for a moment pause to realize the madness of such a proceeding as this! Every year gigantic loads of our most valuable food products, various grains, fruits, berries, are sacrificed to provide nourishment for these yeast fungi. A tenth of the whole working power of the civilized nations is devoted to this service. The fungi eat up of our best; and what they leave us in return—their poisonous excrement—is collected in enormous quantities, put into casks and bottles, sent to all lands, and distributed among mankind in general. And then begins the daily swamping of all the organs, all the tissues of the human body with this poison—among the tissues those also which separate the germ cells, and hence arises the general debility, the general lack of resisting power which is passed on as an inheritance to all the following generations.

I do not wish to be misunderstood. I do not assert that the alcoholic poisoning of the individual or of relations is absolutely the one and only cause of all known suffering and infirmity. Above all I should not wish to affirm this with regard to tuberculosis, for we know for certain that this disease is due to many other causes. Everything which tends to lessen the power of resistance at the time, gives the advantage to our worst enemies in the struggle for existence, the bacteria, and makes it easier for them to enter into possession. But what I do assert is: that alcoholic poisoning is one of the causes—I go further, and say, that it is a chief cause.—And above all I assert: "That alcoholic poisoning is the one cause which can be immediately removed."—Do away with alcohol—it will then be an easier task to recognize what other causes there are for tuberculosis and for degeneration, and we shall be able to work more effectively for their extermination.

And what we have said on this matter with regard to physical health holds good as regards other important matters. Let us turn to the contemplation of crime! Do think only of punishing the criminal, and yet to do nothing to find out the causes of crime and to prevent same,

is neither more nor less than an unconscionable lack of principle. It is our duty to seek out the causes of crime. One of the causes lies before our eyes: the poisoning by alcohol, whether chronic or occasional. It is a fact beyond question that it is indeed the chief cause of all crimes connected with personal violence. Do away with alcohol—it will be an easier task to recognize what other causes there are for crime, and we shall be able to work more effectively for its extermination.

And it is this which lends so much weight and significance to the total abstinence movement, for its constant and far reaching endeavour is to accomplish this very work we refer to. It is the first step along the path of progress. And I would ask you to consider for a moment one other point in connection with this matter: Total abstinence claims to deal with no less important a question than the preservation of the noblest races of mankind. Let us not forget that we are the last of the reserve forces. When the Roman empire fell, there were barbaric nations of the finest race, ready and fit to enter upon the inheritance of culture—but it is not so with us. If we go down we leave only inferior physiques for our heirs, who will be unable to lift themselves up on our shoulders, and to carry forward the work of civilization. And if, in spite of all this, men still give themselves up to habits of drink, and thus further the work of degeneration, they can but be urged to it by that most unworthy of principles—“*après nous le déluge!*”

There is something that strikes us as revolting in this mode of conduct, and why? Because it is an indication of the most hideous and most contemptible feeling of which the human heart is capable, i. e., ingratitude. It is our duty to sacrifice ourselves for the coming generation; they, who have gone before, have sacrificed themselves for us. We are continually reaping that which we have not sown, we too are called upon to sow that which we shall not reap.

And now you will naturally ask: What are we to do to stop the progress of degeneration?

You have, I hope, sufficiently understood the statements I have been making, to realize that nothing can be attained by half measures. Only by the adoption of the most radical measures of reform is there any prospect of success, and the goal we are striving at is the total pro-

hibition, the general interdiction of the production and sale of all alcoholic drinks. The question remains: By what means are we to reach this goal?

There is, even amongst ourselves, a widespread and erroneous idea as to what constitutes the main object of our work as opponents of alcohol. To overcome prejudice, to enlighten the public, to deliver from the temptation of drink, these tasks have been looked upon as essential ones, and important considerations they undoubtedly are, particularly in the beginning of our movement. But very little will actually be accomplished by efforts in these directions alone. This is at once apparent if we look around us in those countries where the total abstinence movement is wider spread than in ours, for even there the consumption of alcohol and its attendant miseries are on the increase. We have reached the point when we must make it clear to ourselves, that the enemy we have to deal with is far other than prejudice, or the longing for drink. Our actual enemy, our enemy in chief is—the gigantic capital which is expended on Breweries, Distilleries, and Public Houses. Moreover the reason that prejudice is still rife amongst us is, that this same capital keeps a direct or indirect hold on a great part of the press, and thus the public are kept in ignorance of the real state of things.

THE RECOGNITION OF DRUG ADDICTIONS IN LIFE INSURANCE*

By T. D. УОЛНЕРS, M. D., HARTFORD, CONN.

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THE number of drug habitues in this country are increasing. Some comparative statistical studies of such persons in certain towns and cities have been assumed to indicate similar conditions in other places, and from these figures, the conclusion has been reached that there are over a 100,000 drug takers in this country. Other comparative statistics show that nearly one-half a million persons drink spirits to excess. Last year nearly 200,000 came under legal recognition for excesses in drinks and drugs. It is evident from this that the subject of drug and drink addictions is a very vital question in life insurance. The best studies from reputable sources show that at least thirty per cent. or more of all alcoholics, or persons who use spirits, are also drug takers.

Some are called reformed inebriates, who stop the use of alcohol, but continue some form of narcotic drugs.

Another class take proprietary drugs and defend them enthusiastically. Such persons die suddenly, usually of acute disease or collapse from trifling injuries. The constant alternation between spirit and drug taking is very common. The cocaine taker seldom gives up his drug. He may add to it spirits or morphine, but the fascination of the drug is so great that its secret use is often continued. The complexity of the symptoms, together with the constant effort on the part of the patient to conceal and mystify the real facts, make it very difficult to be absolutely certain of the presence or absence of drug taking. A common division of these classes is into simple and complex forms. The first class use only one drug, generally opium or some of the coal-tar preparations.

*Read before the annual meeting of the American Association of Life Insurance Examining Surgeons, Portland, Oregon.

In the complex class all sorts of narcotics are used, generally alcohol at first, then some narcotic to relieve the unpleasant effects of spirits, or in the absence of them, some narcotic may be tried and found grateful and its use continued.

Almost every narcotic in the materia medica has been used openly or secretly for its pleasant effects. When one drug becomes unpleasant, another is substituted for it. Inebriates of this class are very positive in their assertions of being able to give up all use of drugs and spirits at pleasure and apparently do so, but quickly turn to some new narcotic. It will be evident from these facts that the recognition of drug addictions among applicants for life insurance is an exceedingly difficult matter and one that will tax the diagnostic skill of the examiner to its utmost. The applicant who acknowledges that he has been a moderate drinker and at present occasionally uses beer or spirits, may be a most inveterate drug taker and dangerous risk. A careful physical examination will not always indicate his real condition. Narcotic drugs, unlike alcohol, produce pallor of the face, a form of vaso-constrictor paralysis which not only effects the blood vessels but the muscles.

This is often associated with anemia and defective red blood corpuscles. Such persons have a very pale face, with a certain stolidity of expression and absence of the emotional play of the muscles. The pupils always vary, if the narcotic is of the opium family they are contracted, and if the belladonna class dilation follows. With this irregularity there is a certain expression and condition of the eye, very sensitive to light and darkness and either staring or tremulous, that is significant. Associated with this, there are emotional changes, such as great abstractness and indifference or an excited disturbed manner and thought. The eye and face may show the play of emotions or the absence of it. In conversation together with these symptoms, there may be apparent excessive caution and conservatism in statement, as if guarding every word, for fear of the possible danger from misconstruction. This will be noted in extreme frankness and volubility with gushing confidence and reckless statements which are always significant of general disturbances from the presence of drugs. The following is an example of this class:

A man of some prominence sought a very large life insurance policy. The examiner was suspicious of his volubility also his extreme frankness and asked me to make an examination. The heart was regular but slow. All the other symptoms were negative, but the pallor of the face and his emotional anxiety to show his mental vigor seemed unnatural. After a protracted inquiry I asked if he had ever taken any drugs. The indignation that he displayed at the suspicion which this question implied, seemed to prove the correctness of this inference. After most emphatic denials of all knowledge of morphia and opium, he tried to explain his nervousness as a result of an electrical stroke and shock many years before. Later he acknowledged insomnia and the use of sleeping medicine, which he believed might be morphia, then gave a history of the use of cocaine for the removal of bad teeth. A week later another examination was made, ostensibly to determine the character of the lungs and heart, but really to test his mental condition and the possible concealment of real facts. This examination showed great reserve of manner and caution in replies. The conclusion was that he was using drugs secretly and later a detective found that he was purchasing both morphine and cocaine, and had been using spirits for years.

The policy was for \$100,000, and the agent was greatly chagrined at the decision of the examiner. Within a year another company took out \$50,000 on his life. He died two years later from some unknown disease. A patient under my care for drug taking, whose emotional disturbances alternated between stolidity and abstraction of manner, with gushing excitement and a starting expression of the eye or a shrinking or fugitive watery eye, had passed an examination for a \$60,000 policy within two months before admission. The medical examiner had evidently failed to understand his real condition and entirely misinterpreted the symptoms.

Two classes of applicants for life insurance should always be very carefully scrutinized, first, active business men in middle life carrying great responsibilities, living irregularly and apparently overworked. Men of this class, who spend some time in club houses or who go out of town frequently on the plea for rest to out of the way places, are very likely to be secret users of alcohol or drugs. If they use wine on the table at meals, and

acknowledge the use of spirits at other times, there is a strong probability that other means of breaking up the strain and stress are used and that he is a drug or spirit taker. Frequently persons of this class take out large policies.

A second class are persons who are practically without business and pose as bankers, investors and persons who handle large amounts of money and call themselves genteel business men, the principle business of life being to live well and enjoy themselves.

As a rule they claim to take wine at the table and call themselves temperate. The narcotic action of alcohol brings rest to the monotony and dreariness of life and prepares the way for other narcotics. Persons of this class are very likely to be drug takers, simply to overcome the poisoned conditions of unhealthy living and eating, also to give some form of pleasure which cannot be obtained otherwise. A patient of mine of the idle class succeeded in getting an insurance of \$200,000 in different companies.

During this time he used wine at the table, took cocaine, morphine and smoked opium at intervals. His liver was enlarged, digestion impaired and his manner became more and more secretive. Each examiner noted the pale face, feeble heart and enlarged liver, but otherwise considered him healthy. The morphia was removed and he died a year later from pneumonia. His ability to conceal his trouble lulled the suspicion of his friends and was not recognized by the medical examiner.

Another remarkable case came under my observation where the local examiner for several leading companies was an opium addict and notwithstanding his experience was unable to find any signs of drug taking in two persons of this class whom he examined. The probability was that his mental and sensory acuteness was greatly lowered and the examinations were purely mechanical and confined to one or two symptoms.

A patient died at my place after a short residence from alcoholic coma. The medical examiner for the company tended me a very large fee, requesting my signature to the death certificate, which was plainly false. I refused. The excitement he showed convinced me that he was a drug taker. A death certificate was procured otherwise and the policy was paid. This man had all the characteristic signs of an alcoholic and cocaine taker and was

very evidently taking advantage of the company in every possible way.

Some years ago one of the concealed drug takers, who was a very active successful agent, insured a large number of individuals of all classes, concealing the symptoms, sometimes paying the policy himself for persons whom he expected to live but a short time. He died under peculiar circumstances, indicating his drug addiction, and the company re-examined nearly all the risks he had taken canceling most of the policies.

The question came to me concerning the sanity of a man who committed a crime, who for years had been a most enthusiastic promoter of one of the popular proprietary drugs on the market, which was found to contain at least thirty per cent. of alcohol. Inquiry revealed drug taking and the use of spirits. He also carried a very large insurance contracted in a recent time.

Warm advocates of patent medicines suffer no doubt from conditions of body and mind that seem to require the drugs which they endorse. Persons who show great want of control, becoming alternately angry or extremely joyous over insignificant matters, have either a very uncertain nervous organization from inheritance, or made so by the use of spirits or drugs.

A clergyman who gave very warm certificates of a secret drug containing opium was found to be a large consumer of this article.

At his death the policy was contested and it was shown that he had used this and other drugs for half a life time. Drug addictions in inherited cases occur with the first breakdown or stress of early life and later in middle life. Then it is to be regarded as simply a business instinct to provide for breakdown already in sight.

In early life drug taking is not so serious as it is later. In one, it is an evidence of localized exhaustion and suffering, in the other it is a permanent derangement and general failure of vitality with an early death. Drug taking is frequently a disease of middle life and may begin with quinine from malaria or any other condition and go on to spirits then opium, then take up the coal-tar derivatives and finally come back to alcohol and morphia. All these drugs lessen longevity and increase the hazard and risk of life. While each case is law to itself and the possibility of concealing drug addictions is very

great for a time, there is always an end where exposure of the real condition is manifest.

In all instances the action of the narcotic on the sensory centers not only disturbs nutrition and the rhythmical flow of nerve energy, but also adds to the toxins and promotes auto-toxic states by checking the elimination of waste matters so that every drug taker is wearing out and becoming more and more susceptible to acute diseases and toxæmic conditions. The alcoholic taker is changeable, erratic and uncertain in his conduct. The drug taker is unreliable, secretive and exhibits oddities and eccentricities, while the cocaine taker is voluble, emotional and dreamy. Other drug takers are delusional, hesitating, positive and doubtful. The use of coal-tar products encourage melancholy and pessimism. In addition to this the changeable conduct, unstabled purposes, abrupt manners and extravagant language suggest changes and hint of drug taking.

I think where the applicant has a number of these symptoms and the examiner is not clear as to their exact meanings, all other things being equal, he should be accepted, charging him a hazardous risk.

A very important question has come to my observation. Should a person carrying a large insurance who has contracted an addiction for drugs or spirits after the insurance was taken be forced to give up his contract and relieve the company of all reliability? An example of this kind was the following:

A man who had carried a very large insurance for many years, after a period of alcoholic drinking, became an opium taker. The company finding out this fact wished to annul the policy. The insured contested it and claimed that this spirit and drug addiction had passed away and the company should continue the risk. A medical examination indicated general anemia and nervousness without any other symptoms. The company refused to take the applicant's statement of recovery notwithstanding the medical examination was negative.

Another expert examination was ordered and the opinion was given that it was possible for him to be still using a drug, and if not there was no certainty that he would not relapse in the near future. The company finally settled but the principle involved turned on the exactness of the medical examination.

I close with a summary of some of the facts on which a recognition of drug addiction must turn. If the applicant has a neurotic heredity with a history of an early and moderate use of spirits the conditions are most favorable for drug addictions. If the applicant has suffered from profound exhausting disease, associated with physical or psychical shocks, or if he has led a very strenuous life of excitement and exposure, these are favorable soils for the growth of drug addiction. If his occupation and environment has been irregular and subject to great strains, the examiner is justified in looking for some form of spirit and drug addictions.

If there is congestive and vaso-motor paralysis present, or if the face is pale and anemic with a blanched, shrunken appearance, both palsy and defect of nutrition are apparent. If the eyes lack steadiness, or are staring and suspicious, or watery and furtive, this suspicion of drug taking is confirmed. If the muscles of the face are palsied and do not respond to the play of thought, and if the patient talks in great reserve and with extreme caution, this is another confirming factor. If the person is very nervous, voluble and talkative, seemingly not able to concentrate his thought, some form of irritation exists that may come from drug poisoning.

The applicant's denials and indignation at the supposed insult which is implied by the examiner's questions is another strong hint. If to all these a careful history of the habits reveals irregularities of work and sleep, with impulsive conduct and periods of insomnia, the chain of evidence is complete. I believe a careful examination of the senses, particularly of the sight, hearing, taste and smell, carried on daily for a week or two, would show this same condition notwithstanding the denials of the patient. Patients under my care, who exhibit a wide range of sensory derangements by instruments of precision are found to be drug takers of some kind.

A clergyman came under my care who was examined by a physician for the purpose of showing that he was not a drug taker, and given a certificate to that effect. Later he was found to have suspicious variations of heart action and sense acuteness. This was finally traced to a remedy containing cocaine and laudanum which he took in secret, and when accused claimed that it was the prescription of a physician. As remarked before, spirit

takers quickly show gross changes and fibrous deposits in the cells of liver and kidneys, also in the nerves and arteries. The drug taker only in the last stages shows gross pathological changes. The heart will always be feeble and erratic and the mind uncertain and changeable; hence the psychical symptoms and the study of conduct and thought with purpose and ambition will be more prominent than any other symptoms. Great extremes of mental and emotional life should call attention to this possibility. When the psychological studies of applicants for life insurance will be made with as much minuteness as examinations of the heart, urine and blood, then this hazardous risk of drug takers as healthy normal persons will be eliminated.

THE NICOTINE QUESTION IN SMOKING

Habermann's Recent Analytical Researches and Experiments

By PROFESSOR STRANICH, M. D., OF VIENNA

IUST as the deadly nightshade contains atropine, and the poppy morphine, so does the tobacco plant contain nicotine as an active poison; it is its specific poisoning substance, which it alone can prepare.

A yellowish fluid, easily volatile, of disagreeable taste, it itches on the tongue, excites to vomiting, and acts chemically as a strong alkali. It is volatile, hence it easily passes through the mucous membrane of the mouth, stomach, and intestines. Having arrived in the stomach it meets with cells of peculiar construction, with which it brings about chemical combinations, whereby it first excites these cells to increased activity, and then leaves them paralyzed. These are the nerve-cells which build up the brain and spinal marrow. The consequences, which such a disturbance or destruction of the little wheels in the human organism is able to bring about, are termed symptoms of poisoning; in the worst cases it means death.

I may be allowed to mention a few of these symptoms. The heart is to the fullest extent adapted to all demands; when we run, perform gymnastics, or exercise ourselves in any way, the muscles of the body exert themselves most, and consequently must be provided with a more plentiful supply of nourishing blood. This is done forthwith by the heart: it beats quicker than before, and so performs increased work. If, on the other hand, we lie still in sleep, the need of blood for the organs is at a minimum; the heart then works slowly, much slower than during the daytime.

The order for increasing or decreasing the activity is transmitted by a special, automatic nerve channel—the *nerveus vagus*. Now, this nerve is just one of the many vulnerable points liable to be attacked by nicotine. It becomes excited, sometimes even paralyzed, but this only in cases of severe poisoning. The consequence is that the heart is no longer able to adapt itself to its functions, as the regulator of its activity has got out of order. This shows itself, accordingly, in a weakened or hurried pulse, with palpitation, difficulty in breathing, etc., as immediate consequence.

In the spinal marrow high up in proximity to the brain lie the cells which control the action of breathing. Should these become paralyzed by the poison, breathing would cease at once, and that would mean death to the affected person through suffocation.

Formerly, when nicotine and the tobacco plant were still extensively used in the medical practice, such fatal cases may doubtless have happened owing to mistakes. Nowadays, however, cases of nicotine poisoning, as a consequence of excessive tobacco smoking or chewing, come rarely under medical treatment.

The question now arises, what part does nicotine play in our different modes of enjoying tobacco, more especially in the case of cigars, of which alone I shall treat in the remainder of this article.

First of all, let us trace the process of development of the cigar. A tobacco-leaf, plucked from the plant, and dried forthwith, looks like tobacco, but it is quite unsuitable to our taste, even the Havana variety. In order to make the leaves fit for smoking, they must undergo a process of fermentation. To this end they are piled up in the moist state in heaps of from one to five tons, and

are then left to themselves for several weeks. In this way the bacteria, mould-fungi, etc., which are found plentifully on the leaves, are given the opportunity for an enormous increase.

The result is a partial destruction of the plant substance, and certain bodies appear as secondary products of the activity of these minute, but powerful and skilful chemists, which give to the prepared tobacco its peculiar flavor. Moreover the entire heaps become considerably heated; a temperature of 60 degrees C. even has been registered in the interior of such a heap—a sign of the violent energy developed during the fermenting process.

The entire circumstances are analogous to those which bring about the spontaneous combustion of hay, for in this case too, most probably, mould fungi are the primary cause of the evolution of heat.

The process of fermentation imparts, as observed, to the cigar manufactured in this way its flavor; and, indeed, a specific flavor, for a Mexican cigar tastes very differently from the Havana article. The specialty is to a great extent due to the properties of the fermenting organisms; and, considering the great variety of the bacteria flora, this is not to be wondered at. The fact itself is of great practical importance, for it points out a means of improving poor qualities of tobacco, viz., by "inoculating" them with germs from better kinds. Yet the fact remains unaltered, that the best cigars are obtained from the best classes of raw tobacco.

During fermentation the amount of nicotine is reduced by about one-half. Thus it appears very unlikely that we smoke tobacco for the sake of the nicotine. It would otherwise be acting very irrationally to lessen the amount of the desired substance by what is, after all, the secondary and unessential process of making it palatable. The supposition becomes still more improbable when we learn that the finest sorts of tobacco contain 5 to 2 per cent. nicotine, while the inferior kinds have from 2 to 8 per cent. calculated upon the dry state. In addition, it should be mentioned that, in accordance with the analyses of tobacco-smoke (*i. e.*, inhaled smoke) treated in the following paragraphs, the amount of nicotine contained in the Austrian "Regie-cigar," of almost all kinds, whether mild or strong, was found to be about the same, independent of the proportion in the cigar.

In order to arrive at a conclusive decision physiological experiences should suffice. There are few poisons to which the system can accustom itself more quickly than nicotine. A rabbit that is to-day just able to survive the effects of a certain amount of the poison, will require, a few days later, a considerably larger quantity of the poison in order to produce symptoms of the same intensity. If the poisonings be only carried on often enough, this can easily be brought so far, that the rabbit can, without inconvenience, take an amount of nicotine that would kill directly a normal animal. Applied to the human constitution this means that the smoker, who at first gets sick after one cigar, will soon be able to smoke several with comfort.

As I have already said, there is no direct, and probably no indirect connection either, between the "strength" of a cigar and the amount of nicotine it contains. I take the following data from an experiment performed in this connection.

A Manila cigar, marked as particularly strong, sold for 1-1/2d., contained 1.192 per cent. nicotine; a mild "Importe," on the other hand, contained 2.241 per cent. It must therefore be considered as purely accidental if an Austrian, strong "Regie-Virginia," has also yielded 2.96 per cent. as its maximum percentage. The fact that a so called "nicotine-free" cigar contained, none the less, 1.37 per cent, *i. e.*, more than the above-mentioned "Manilla," need not interfere with its harmlessness in other respects.

What really constitutes the strength of a cigar is so far, entirely unknown as a chemical factor, but will in all probability have to be looked for in the products that come into existence during the fermentation of the tobacco leaves, and which, as such, or in an altered form, mix during the combustion of the cigar with the inhaled air, producing in this way the effects of poisoning.

I may be allowed to add a few more words with regard to the changes the cigar undergoes while being smoked.

As the cigar smolders away slowly, under a comparatively slight development of heat, no flame arising, only the products of incomplete combustion appear, and among them, without doubt, are those unknown chemical bodies which impart the aroma to the smoke. Among the products of combustion accessible to chemical

research, carbon dioxide and carbon monoxide, which latter is the cause of poisoning by charcoal fumes, take the first place in point of volume.

By means of an ingenious apparatus, which exactly copied the action of smoking, J. Habermann has recently succeeded in collecting and classifying the different gases in the smoke of Austrian Regie cigars.

The following data are taken from his interesting treatise. The experiments were so conducted that, by means of a pumping apparatus a measured quantity of air was sucked through the lighted cigar, and at such a rate that the cigar quietly burned to the end. The combustion of the cigar passed off therefore exactly as if a smoker had kept it alight in the usual way. If the pump worked too slowly the cigar went out. In this manner it was possible to fix, for each sort of cigar, the necessary amount of ventilation. Now the question arises, what becomes of the nicotine, of which the cigar contains a considerable quantity. Being a volatile fluid, it cannot exist in this state at a high temperature, but passes over into the gaseous form. It therefore evaporates in the glowing part of the cigar, and, as nicotine vapour is carried off along with the inhaled air, to mix with the various gases of the tobacco-smoke.

Now during the analysis Habermann found again in the smoke one-sixth to two-sixths of the quantity of nicotine the cigar had originally contained. This is, therefore, the quantity to which it is believed poisoning effects may be ascribed. If we translate these figures into practice, we arrive at the following calculations:—A cigar of the Porto Rivo kind weighs about 4 gr. It contains .05 gr. nicotine, of which at most one-third, say, .02 gr, is absorbed by the smoker. But as the cigar end must be deducted from this, the quantity is reduced to .015 gr. Of this quantity, 15 milligrams, not more than one milligram enters the system of the smoker, and that is practically nothing.

As I have above observed, only a small fraction of the nicotine passes off in the smoke, the remainder is accounted for in two ways. A small portion cannot escape combustion, by which it is more or less altered, at all events it is changed into substances which are no longer nicotine. The other portion undergoes the following changes. The vaporized nicotine finds itself receding

from the "glow-zone," the farther it gets the less are the conditions fulfilled which are requisite for its continued existence in the gaseous state; in other words, when the nicotine vapour reaches the cooler part of the cigar, it condenses again into a fluid, and remains thus dormant. The small portion of nicotine which escapes this repeated condensation, is the same portion, which later can be observed in the smoke.

The part where the vapours thus condense, namely the cigar end, is therefore considerably richer in nicotine than is warranted by the amount of unconsumed tobacco. In accordance with this Habermann found, during the analysis of the cigar end, that its contents of nicotine and nicotine-like substances, were from 20 to 100 per cent. more than could be expected from the contents of the whole cigar.

A considerable number of other fluid substances were also found in the cigar smoke, such as pyridine—the fluid by means of which methylated spirits are made unfit for drinking—sulphuretted hydrogen, and perhaps also some prussic acid.

If now, we ask again, on what does the strength of a cigar depend, the number of substances which have to be considered can be considerably lessened. Carbonic acid and nicotine, as well as the minute quantity of sulphuretted hydrogen, may be left out of consideration to start with. There remains the group of pyridine-like bodies; among which, of course, there may still occur some most violent poisons—prussic acid, for example, which, being an extremely active substance, is able to produce its symptoms of poisoning even when present in very small quantities; and finally there is the carbon monoxide.

Indeed, it is extremely improbable that any single substance is accountable for the strength of a cigar; most probably a great many contribute towards it whose respective quantities will vary in each cigar, depending however, on the form of the cigar, the amount of moisture, the rate of smoking, and many other factors. Owing to these considerations a clear decision of the question is very remote.

ALCOHOLISM, SPEED MANIA AND OBJECTLESS ACTIVITIES

By WILLIAM LEE HOWARD, M. D., BALTIMORE, MD.

THE restless desire to rush into excitement, the feeling of unrest, of mental disquietude and recklessness are the symptoms of a highly-tensioned nervous organization. These conditions seem to exist as necessary factors in the success of the brain worker of today, but unfortunately it is that this same constant drain on the nerve cell material calls for some quick relief of the miserable mental pain following these impulses for excitement. Alcohol is generally this nepenthe, and once its aid is accepted in these cases of shrunken nerve-cells, there is scarcely any cessation, and chronic alcoholism is the inevitable result.

The present conditions under which we live are full of hypocrisy and inverted ideas of vice and disease. The sublimist of Nature's laws have been ignored by unformed teachers and cowardly hidden by those physicians who bend under the yoke of social convention or rest in the lap of silence.

Among the latter are those who will not see in our present era of lightning like living, a condition that calls for a thorough knowledge of physiologic psychology. This state of affairs makes victims for the morphine and alcohol venders who publicly advertise their "cure alls" in the daily press, and laugh at the moral cowardice of the ethical practitioner.

The chemist would be severely censured or punished who allowed dangerous explosives in the workshop without investigating its cause. Yet a student will go through four years of medical study without hearing one lecture on the morbid manifestations of psychic life.

Explosions of physical energy are constantly occurring in the normal man;—rightly directed they make for success. As every physical act has its corresponding psychological expression, the man will also have psychical explosions which are ruinous or otherwise, according to their direction and the soil on which they burst. It is the study and directing of these psychical explosions that

will ultimately result in the thorough understanding and control of inebriety and dipsomania and their congeners in the developing of ruinous habits, morphine and cocaine.

One particular evidence of these increasing explosives of psychical energy, and an objective symptom of the high nervous tension which characterizes the present day civilization, is the *speed mania* that so frequently attacks automobilists. It is the psychologic result of the high pressure which controls the active participants in the world's material movements. It is a sociologic toxin, and the antidote, mental and bodily relaxation, is as yet but little understood or desired by the victims.

This uncontrolled impulse forever moving restlessly, and often objectively, enters into all the acts of the neurotic; is seen at the lunch-counter, on the railroads and in the divorce courts. The facts we have seriously to consider are the harmful effects on the very young who are being whirled through the world at an age when their nervous systems need quiet and normal development. These are marked victims for alcohol or other harmful stimulants when they reach the age where new nervous energy is not daily developed.

There always exists a certain number of people whose access of nervous energy will display itself in apparently, dangerous and useless acts. Such acts will be injurious to the individual or to the community. When carried to excess this uncontrollable energy is a symptom of mental alienation—the exaltée—which frequently makes the individual a criminal from the legal standpoint. What the unthinking often call courage is in reality a psychic blindness to reason. This can be produced by alcohol as well as by the toxins of excitement. Aristotle long ago pointed out that true courage was the mean between foolhardiness and cowardice. Foolhardiness is often a mixed kind of insanity, or a condition of mental unrest.

I believe that in many cases the automobile is the best method we have of controlling and satisfying this high psychic pressure of mental unrest. Individuals who would at time give way to uncontrollable impulses of an injurious nature find relief in the reckless flying of the racing machine. The neurotic, who, after a tense day on the exchange, wants "to do something," gets rid of this awful feeling by dangerous dashes into the country. It

it a wholesome vent for the reckless courage that otherwise would go to disorder and riotous excess.

Those affected with speed mania demonstrate most of the symptoms shown in other functional disturbances of the nervous system, even those produced by alcohol. They first become exalted, then hilarious and reckless, and when the race is finished they react. A marked effect is seen when women take part in these contests over long distances. It is hard for the opposite sex to brook rivalry, hence they often drive the men to reckless and fatal speed. I have often, when watching the result of this speed mania on neurotic women, thought the cause might be a broken neurological fragment, or parts of old chains of activity in driving on their men in the pursuit and combat of enemies, for it must be remembered that the customs, institutions, and beliefs, of our ancestors are related to ours somewhat as instinct is related to reason.

The great danger in this speed mania as an outlet for neurotic restlessness is the constant psychic excitement. This must be kept up in certain individuals, and off the speedway there is the uncontrollable impulse for alcohol.

That many frightful accidents have been due to conditions of faulty orientation, to a mania for more speed, more excitement, and a fiercer tension—all the result of toxin stimuli—is undoubted. To what extent alcohol plays a part in these accidents is not easy to claim, but it is certain that the constant excitement due to this speed mania is a dangerous road to alcoholism.

ALCOHOL IN MEDICAL PRACTISE

By J. H. KELLOGG, M. D.

Superintendent of the Battle Creek Sanitarium



For all the learned professions, medicine is by far the most progressive. The theologian is anchored to his creed; the jurist is bound by precedent. The modern scientific medical man is an earnest, unprejudiced seeker after therapeutic truth. If this has not always been true of medical men, it has been increasingly true within the past half century. Under the stimulating influence of the teaching and example of such men as Jacob Bigelow of Boston, Oliver Wendell Holmes, the poet-philosopher, and professor of anatomy at the Harvard medical school, Alonzo Clark, the elder Flint, Sir William Roberts, Lauder Brunton, Dujardin-Beaumetz, Bouehard, Roger, Winteritz, Brand, Liebermeister, and Ziemssen, there has been within the past half century, particularly within the past twenty-five years, a thorough overhauling of the foundations of therapeutics, with the result that a vast multitude of time-honored remedies have been found lacking. Though many of them are still to be found represented in that museum of therapeutic antiquities, the United States Dispensatory, they are by the great mass of progressive medical men regarded as embalmed specimens, interesting only from a historical point of view.

The mighty change in medical practice which has been wrought within a single generation must be attributed almost altogether to the development of the scientific method, which in no other department of modern knowledge has found so wide a scope nor such marvelous opportunities for development as in medicine. Upon the foundations laid by Claude Bernard, Brown-Sequard, Lehmann, and Liebig, the laboratory method is to the medical man seeking for physiologic or therapeutic truth, almost what the Urim and Thummim of the ancient temple was to the Israelite.

The improved teaching of the modern medical school, especially in laboratory training, in chemistry, physiology, and bacteriology, has developed in the medical pro-

fession, to an extent to which it did not exist before, the scientific conscience. The modern medical man demands something more than clinical evidence of the efficiency of a new candidate for therapeutic honor before he pins his faith to it. This attitude of mind and the facilities afforded by our modern laboratories have lifted our profession out of the quagmire of an ever-changing empiricism, and have made of it a science which assimilates and utilizes all other sciences, and in so doing has become the most useful, most beneficent, and most glorious of all the products of human inquiry and endeavor.

The change thus wrought has been a veritable revolution. In no other department of human knowledge or activity have there been such radical and such universal modification and reconstruction as in medical practise. It is the purpose of this paper to inquire what is the status of one of the most widely used and trusted of all agents which have been used for the amelioration of human suffering, when considered from the standpoint of modern methods and modern knowledge.

Since Paracelsus, that prince of charlatans, first discovered the agent which he named *elixir vitæ*, alcohol has been appealed to as a remedy at one time and another for almost every human ailment.

Ethyllic alcohol is certainly a most remarkable agent. It possesses properties which produce at least an impression of benefit in the most varied conditions. For the past twenty-five or thirty years, however, there has been a growing skepticism respecting the actual benefit produced by this drug when therapeutically employed, and I think it will be generally admitted that, especially within the past twenty years, the number of physicians who have maintained an attitude of doubt has steadily increased. That this is not due to the influence of temperance agitators is, I think, clearly evidenced by the fact that notwithstanding the active and continuous opposition of teetotalers, the consumption of alcohol has steadily increased.

From the writer's viewpoint, the cause of the change in the attitude of the profession toward alcohol is to be sought in the laboratory findings in relation to the so-called physiologic effects of this drug, and the submission of its therapeutic claims to the crucial test of laboratory investigation. Let us see what are some of the results of this study.

The Influence of Alcohol upon Living Cells.—Darwin showed, nearly a generation ago, in his studies of insectivorous plants, that alcohol is a protoplasmic poison. Drosera and other similar plants ceased to exhibit their marvellous animal-like functions under the influence of alcoholic vapor. Sims Woodhead, the eminent Scotch pathologist, in a memorable lecture, clearly demonstrates that alcohol is a poison to protoplasm, and produces changes in muscle and nerve tissue closely allied to those produced by the toxin of the diphtheria bacillus and other bacterial poisons. Oxidation is the essential element in all metabolic activity. It is, according to Woodhead, seriously interfered with by alcohol.

The paralyzing influence of alcohol upon cell nuclei is clearly demonstrated by the fact that it lessens phagocytosis. The grave significance of the effects of alcohol upon living cells can be fully appreciated only when we keep in mind the fact that phagocytosis is the chief means of bodily defense against bacterial disease. It is only through leucocytosis—the migration of leucocytes, and their activity in attacking and destroying bacteria—that recovery from any infectious disease is possible. The paralyzing influence of alcohol upon the white cells of the blood,—a fact which is attested by all investigators,—is alone sufficient to condemn the use of this drug in acute or chronic infections of any sort.

Some years ago the eminent editor of the *British Medical Journal*, Mr. Ernest Hart, in a paper on cholera read before the American Medical Association, denounced alcohol as a remedy in the disease under consideration, even in cases of collapse; for, said he, when the system is already overwhelmed with the toxins produced by the cholera bacillus, why should we add alcohol, which is only another toxic body produced by a microorganism of another species? Professor Woodhead also pointed out the fact that through the influence of alcohol upon the cell, development of immunity is interfered with. The experiments quoted by Woodhead show that it is almost impossible to produce immunity against tetanus, anthrax, or rabies in animals which are kept under the influence of alcohol when being vaccinated against the maladies named. Any slight immunity which is conferred upon animals under the influence of alcohol is quickly lost.

That alcohol is a protoplasmic poison is a question

which is no longer debated among physiologists. A whole generation ago the toxicologist enumerated alcohol along with other irritant, narcotic poisons. The latest findings of science confirm and establishes this view.

The Influence of Alcohol upon the Nervous System.—If alcohol is a poison to cells in general, it could not be otherwise than that it should be a poison also to nerve cells, and hence its action upon the nerves must be to interfere with their functions. Piotrowski has demonstrated, according to Shaffer, that alcohol diminishes both nervous excitability and nervous conductivity. There is, of course, a very transient increase of excitability, and, to a slight degree, of conductivity. These quickly give place to a very marked increase in nervous conductivity; that is, in the rate at which nervous impulses are transmitted, the retardation amounting to the enormous reduction from ninety-one feet per second to thirteen feet per second—or a loss of eighty-six per cent..

Ten or twelve years ago I made an extended series of observations respecting the effects of alcohol upon sensation, and upon reaction time. I found that the effects of half an ounce of alcohol were to diminish acuteness of sensibility appreciably, and to nearly double reaction time. Professor Gotch has recently shown that the effects of alcohol upon reaction time are the same as those of morphia; namely, a very marked increase. Coffee slightly diminishes reaction time, but alcohol increases it. The reason of this is evident, for if alcohol diminishes both excitability and conductivity, the effect could not be other than an increase of reaction time.

Kleeefeld has shown that alcohol, when taken into the blood, produces almost immediately a marked change in the minute structures of the brain. The dendrons and contact globules are shriveled, thus breaking contact and thus interrupting the normal nerve circuits. This fact explains, to a large degree, the mental and moral effects of alcohol, especially its effect in destroying inhibition. When often repeated, this toxic effect gives rise to degenerative changes which are seen in their full development in general paresis. The flushing of the face seen after the administration of alcohol, and the exhilaration felt by a person in ordinary health, are due, not to a stimulating, but rather to a paralyzing or sedative effect. That alcohol is a sedative-

rather than a stimulant was pointed out by Wilkes a whole generation ago. A person who is fatigued, after taking alcohol feels relieved, not because he is rested or because his muscles have been reinforced, but because the nerves of fatigue are paralyzed so that he no longer appreciates the fact that he is fatigued.

A person who is cold, after taking a drink, no longer suffers from cold or chilliness, and imagines that the alcohol has warmed him. This is not the case, however. The alcohol has only lessened the sensibility of his thermic nerves, so that he is less sensitive to cold, while at the same time increasing the flow of blood to the skin by paralyzing the vasomotor centers. Smeideberg, nearly twenty years ago, pointed out the fact that under the influence of alcohol "the finer degrees of observation, judgment, and reflection disappear," and that all the effects produced by alcohol are really those of a sedative or paralyzing agent.

Effects of alcohol upon the Circulatory System.—The circulatory system is so completely under the control of the nervous system that it could not be otherwise than that the influence of alcohol upon the circulation must be that of a depressant rather than that of a stimulant. It is true that an ounce or two of brandy will often produce a quickening pulse; but Zimmermanberg showed long ago that this effect is extremely transient, and may not appear at all if the person is in a state of rest. As a matter of fact, sipping a liquid of any sort produces a slight exhilaration of the pulse, as shown by Lauder Brunton years ago. The full, bounding pulse usually produced by the administration of an ounce or two of brandy properly diluted, gives the impression of an increased vigor of heart action; but it is only necessary to determine the blood pressure by means of a Riva-Rocci instrument, or Gaucher's tonometer, to discover that the blood pressure is lowered instead of raised. This lowering may amount to twenty or thirty millimeters, or even more. The tonometer measures, not the average blood pressure, but the actual force of the heart. It can readily be seen, then, that the bounding pulse is not the result of increased heart vigor, but indicates rather a weakened state of the heart, combined with a dilated condition of the small vessels.

In this connection the fact should be recalled that the

heart is not the only force involved in the circulation of the blood. It is doubtless the great engine of the circulation, but it has been clearly shown by Schiff and numerous other physiologists that the movement of the blood is greatly aided by a rhythmic action of the small vessels, both arterioles and capillaries. These contractions are not simultaneous with those of the heart, hence do not interfere with its action; but as the pressure in the veins is very much below that of the arteries, these contractile movements serve most efficiently in pushing the blood along toward the veins. The heart keeps the large arteries pumped full of blood, while by means of the contractile movements of the peripheral vessels, the blood is, so to speak, milked out into the veins. We may say, in fact, that there are two hearts concerned in the systematic circulation, the work of the central organ being supplemented by the peripheral heart—the small vessels—working at the distal end of the vascular loop, where the resistance is greatest.

Active congestion, or hyperemia, is simply a state in which the movements of the small vessels are very vigorous, and have a wide swing, so that a large amount of blood is passed through the tissues. In passive congestion there is dilatation of the small vessels without increased activity. One condition results from increased action of the vessels through stimulation of both the vasodilators and the vasoconstrictors; the other from paralysis of the vasoconstrictors or excitation of the vasodilators, or both, resulting in dilatation of the small vessels, with stagnation of their contents. In active congestion, the aid afforded by the rhythmic movement of the small vessels is increased. In passive congestion this action is greatly diminished or entirely lost. The difference in the rate of the movement of the blood gives rise to the difference in color,—scarlet in active hyperemia or congestion, cherry red in passive congestion. In the one case a rich supply of fresh, oxygenated arterial blood is passing through the small vessels into the veins, the movement of the blood is rapid, and all the vital processes are quickened; the heart, as well as all other organs, is thus better nourished and energized. In passive congestion and all conditions of the circulation in which a cyanotic appearance is present, the usual condition is slowed circulation, the blood current is slow through cardiac weak-

ness, or the lack of the active assistance of the peripheral heart; as a consequence, an insufficient amount of oxygen is introduced into the body, the blood is charged with CO_2 and other tissue poisons, and all the vital processes are depressed. To aid the heart and the circulation the thing needed is not simply an increased rate of activity of the heart, or an increased volume of the pulse, but an increased movement of the blood current throughout the entire system.

Pallor is due to contraction of all the vessels of the skin. Local cyanosis is due to greatly slowed movement of the blood, either from passive congestion or spasm of the arterioles, resulting in excessive absorption of oxygen and accumulation of CO_2 in the blood.

In the application of any agent for the purpose of relieving conditions of this kind, the peripheral heart, as well as the heart itself, must be taken into consideration. In fact, the whole circulatory system must be regarded as one. The thing required when the heart's action is weakened is not simply relaxation of the peripheral vessels, but increased activity of these vessels and increased energy of the heart.

Alcohol paralyzes the vasoconstrictors, and so dilates the small vessels and lessens the resistance to the heart action; but at the same time it lessens the energy of the nerve centers which control the heart, diminishes the power of the heart muscle, and lessens that rhythmical activity of the small vessels whereby the circulation is so efficiently aided at that portion of the blood circuit most remote from the heart. A cold application to that portion of the chest overlying the heart reflexly stimulates and energizes the heart through the cardiac nerves. This reflex action is not confined to the heart muscle; the stimulation of the activity of the cardiac vessels improves the circulation through the heart structure, refreshing and energizing it in the same manner in which a voluntary muscle is energized by a cold application, as is so well shown by the ergograph.

It is well to remember that the vasoconstrictor nerves are one in kind with the excitor nerves of the heart, while the vasodilators are in like manner associated with the vagus. With this in mind, it is easy to see that while alcohol paralyzes the vasoconstrictors, it at the same time weakens the nerves and the ganglia which initiate and maintain the activity of the heart.

The apparent increase of strength which follows the giving of alcohol in cases of cardiac weakness is delusive. There is increased volume of the pulse for the reason that the small arteries and capillaries are dilated, thus lessening resistance and cardiac work; but this apparent improvement is very evanescent, as naturally results from the fact that while the heart is relieved momentarily by the sudden dilatation of the peripheral vessels, the accumulation of blood in the venous system through the loss of the normal activity of the peripheral heart, gradually raises the resistance again by increasing the load of blood which has to be pushed along in the venous system. This loss of the action of the peripheral heart thus in the end more than counterbalances the temporary relief secured by the paralysis of the vasoconstrictors. This accumulation and sluggish movement of the blood in the venous system is shown by the purplish hue of the skin in a person under the influence of alcohol—a wide contrast to the ruddy glow presented by the skin in which the small vessels are actively engaged in the pumping of the blood out of the arteries into the veins, an action in which the whole body may be made to participate by a suitable application of cold water to the surface.

The custom of giving alcohol just before a cold bath, which has been introduced into this country from Germany, has no physiologic foundation. The only excuse that can be found for it is in the fact that the alcohol produces an appreciable benumbing sensibility of the thermic nerves, and, by dilating the surface vessels, to some degree facilitates the loss of heat. But the surface vessels may be as fully and efficiently dilated by a short hot application to the surface, accompanied by rubbing; and the diminished thermic sensibility is not an advantage, but rather a thing altogether undesirable, since it is through stimulation of the skin that reaction and fixation of the blood in the skin is secured. It is also through the reflex activity set up by contact of cold water with the skin that the central ganglia are roused to activity, and thus the depressing effect of the fever-producing toxin antagonized. One of the most desirable effects of the cold bath is its tonic effect upon the heart. This, as well as the tonic effect upon the peripheral vessels, is diminished by the administration of alcohol in connection therewith.

Another point of very great importance is the fact that alcohol raises the venous tension, and there is hence increased diastolic pressure in the heart, and, as a result, when this condition is long continued, dilatation of the heart. I have met many cases of cardiac dilatation which could be traced to no other cause than this. The increased venous pressure produces a sense of fullness in the head from venous congestion. There is also great congestion of all the abdominal viscera. Alcohol paralyzes the centers which control the splanchnic nerves. The result is relaxation of the great portal veins and stagnation of the blood in the liver, spleen, and other viscera of the abdomen. Nothing could be more undesirable than this in any acute or chronic malady, since the most vital interests of the body are thereby damaged. The blood, which is the life, the healing power of the body, depends for its integrity first upon the stomach, to supply it with new, perfectly elaborated material; second, upon the liver, to close the door against toxins and to destroy toxins which may have been introduced with the food, and which are constantly thrown into the blood from the tissues; third, upon the kidneys, whose duty it is to maintain the purity of the blood by removing tissue toxins which, without the renal activity, would accumulate within a few hours in sufficient quantity to produce death. Congestion of these important viscera interferes in a most marked degree with their functions, crippling them, instead of reinforcing their energy.

Dr. James Barr, president of the Liverpool Medical Association, and of an important branch of the British Medical Association, at a recent meeting of the Association made the subject of his presidential address the question of "Alcohol as a Therapeutic Agent," and, in summing up the effects of medicinal doses of alcohol upon the circulation remarked as follows:—

"It causes dilatation of the arterioles and of all the arteries well supplied with muscular fibres, owing to its parietic effect upon the vasomotor nervous system, and its direct action as a protoplasmic poison on the muscular fiber. It has a similar, though less marked, action on the cardiac muscle. From these causes the systolic blood pressure is lowered, the systolic output from the heart is diminished, and the cardiac energy is wasted in pumping blood into relaxed vessels; the large bounding pulse

with comparatively short systolic period, which gives a deceptive appearance of vigor and force in the circulation, is due to the large wave in the dilated vessels. The venous pressure and the diastolic pressure within the heart are at least temporarily increased, and may become permanently dilated; with the increase in the capacity of the ventricles the effective contraction of the cardiac muscle is correspondingly diminished."

Relation of Alcohol to Digestion and Nutrition.—Cliffenden has shown that wines, especially sherry, and even claret, greatly hinder gastric digestion. Sir William Roberts demonstrated the same nearly a score of years ago. The experiments of Cliffenden showed that while alcohol excites the flow of gastric juice, this apparently favorable effect is wholly counterbalanced by its interference with the chemical process of digestion.

There has been an enormous amount of discussion of the question whether or not alcohol is a food. The answer to this question must depend very largely upon our definition of food. Professor Atwater took the ground that any substance which is oxidized in the body must be a source of energy, and hence must be a food. What alcohol is oxidized in the body there can be no doubt; but at the present time there are few physiologists who are willing to give so wide a latitude to the term "food." It will never do to argue that because foods are oxidized in the body, any substance which is oxidized in the body is a food. If we put the syllogism thus: All foods are oxidized within the body; alcohol is oxidized in the body; hence alcohol is a food, we have patently violated one of the rules of logic. The nature of the error becomes very evident when we put it in some simple form; as, for example: All dogs are animals; the frog is an animal; hence a frog is a dog. Professor Atwater showed that alcohol is oxidized in the body, and that through its oxidation in the body the burning of the body tissues was to some degree economized, showing that the alcohol contributed something to the body heat. This same thing is true with reference to strychnin, quinin, and many other organic substances which are oxidized while passing through the body; but we certainly would not be justified in calling all these oxidizable substances foods. Clothing economizes body heat and saves the consumption of tissue; but an overcoat is a very different thing from a square meal.

Professor Bunge, of Basle, takes decided issue with Professor Atwater, as have nearly all the leading physiologists of this country and Europe. Professor Bunge maintains that a substance, to be considered a food, must be not only capable of supplying energy to the body, but it must supply energy at the right time, in the right place, and in the right way. Any substance, to be considered a true food, must be capable of assimilation after digestion and circulation; it must become a part of the living cells of the body. Under the influence of the cell nuclei the complex molecules of food substance must be broken up into simpler ones, thus liberating energy. Alcohol and many other substances may be oxidized in the stomach, in the liver, in the blood, or in the tissues; yet this is not the sort of vital metabolism whereby the life processes are maintained, but a mere chemical process which, in the case of alcohol, is set up for the purpose of destroying and eliminating this poison, thus preventing its harmful effects upon the body.

There are some very marked contrasts between alcohol and true foods, which are worth considering:—

1. A habitual user of alcohol has an intense craving for his accustomed dram. Without it he is entirely unfit for business. One never experiences such an insatiate craving for bread, potatoes, or any other particular article of food. One experiences hunger when food is needed, but a normal hunger is satisfied if the proper number of calories in proteins, fats, and carbohydrates are supplied, without special regard to the sources of supply. Alcohol is simply a carbohydrate. If it were a normal food product, it should be just as easy to replace alcohol with bread or potatoes as to replace wheat bread with corn bread, rice, or any other cereal or source of carbohydrates. But it is not hunger which creates a demand for alcohol. Alcohol may appease hunger, but it does not satisfy the nutritive needs of the body. No evidence has ever been brought forward to show that alcohol could be assimilated even in the very smallest amount; that is, there is no proof that alcohol, when taken into the system, ever becomes in any sense a part of it. It is absorbed, taken into the blood and eliminated, and incidentally, on the way, is oxidized; but it never becomes a part of the actual tissues of the body.

2. By continuous use the body acquires a tolerance for

alcohol. That is, the amount which may be imbibed and the amount required to produce the characteristic effects first experienced, gradually increase until very great quantities are sometimes required to satisfy the craving which its habitual use often produces. This is never the case with true foods. A definite quantity of food possesses at all times the same ability to satisfy the body needs, and produces the same effect the thousandth time it is taken as the first time, taking into account, of course, differences in body requirements which may occur. Alcohol behaves in this regard just as does opium or any other drug. It has no resemblance to a food.

3. When alcohol is withdrawn from a person who has been accustomed to its daily use, most distressing effects are experienced. A healthy man does not suffer a tenth part as much from the total withdrawal of food for twenty-four or forty-eight hours as does the habitual user of alcohol when his accustomed dram is not obtainable. Who ever saw a man's hand trembling or his nervous system unstrung because he could not get a potato or a piece of corn bread for breakfast? In this respect, also, alcohol behaves like opium, cocaine, or any other enslaving drug.

4. Alcohol lessens the appreciation and the value of brain and nerve activity, while food reinforces nervous and mental energy.

5. Alcohol, as a protoplasmic poison lessens muscular power, whereas food increases energy and endurance.

6. Alcohol lessens the power to endure cold. This is true to such a marked degree that its use by persons accompanying Arctic expeditions is absolutely prohibited. Food, on the other hand, increases ability to endure cold. The temperature, after taking food, is raised. After taking alcohol the temperature, as shown by the thermometer, is lowered.

7. Alcohol can not be stored in the body for future use, whereas all food substances can be so stored.

8. Food burns slowly in the body, as it is required to satisfy the body's needs. Alcohol is readily oxidized and eliminated, the same as any other oxidizable drug.

Alcohol promises much, but never fulfils. It relieves pain by lessening nerve sensibility; but it does not remove the cause of the pain. Under its influence, a man imagines that he is making a brilliant speech, whereas

he may be making stupid blunders, for which he will afterward be ashamed. Alcohol gives a man a sensation of warmth when he is cold, but makes him colder. If he is weary, it destroys his sense of fatigue, and, perhaps, leads him to imagine that he is strong; but the final result is likely to be collapse from unwise exertion or increased exhaustion.

In an interesting paper entitled "Alcohol as Food," Cliftenden sums up a series of laboratory observations as follows: "It is, I think, quite plain that while alcohol in moderate amounts can be burned in the body, thus serving as food in the sense that it may be a source of energy, it is quite misleading to attempt a classification or even comparison of alcohol with carbohydrates and fats, since, unlike the latter, alcohol has a most disturbing effect upon the metabolism or oxidation of the purin compounds of our daily food. Alcohol, therefore, presents a dangerous side wholly wanting in carbohydrates and fats. The latter are simply burned up to carbonic acid and water, or are transformed into glycogen and fat; but alcohol, though more easily oxidizable, is at all times liable to obstruct, in some measure at least, the oxidative processes of the liver, and probably of other tissues also, thereby throwing into the circulation bodies, such as uric acid, which are inimical to health,—a fact which at once tends to draw a distinct line of demarcation between alcohol and the two non-nitrogenous foods, fat and carbohydrate.

"Lastly, I am inclined to emphasize another observation made by Dr. Beebe, viz.: that certain alcoholic drinks, such as port wine, for example, exert a much greater influence upon the excretion of uric acid than a corresponding amount of alcohol, thus suggesting that even moderate drinking of alcoholic beverages may be attended with even greater disturbance of the metabolic phenomena of the body than prevalent ideas would lead us to believe."

Cliftenden concludes his paper with the following interesting statement, which must be considered as authoritative, since it is made by a man who has probably given more exact and careful attention to this question than any other living scientist: "As an adjunct to the ordinary daily diet of the healthy man, however, alcohol can not be considered as playing the part of a true non-nitrogenous food."

So much for the physiologic side of the question.

Let us now for a moment briefly consider what are the actual, practical results in the disuse of alcohol as a therapeutic agent. Thirty years ago, when the writer was a pupil of the elder Flint, this able physician, following the teaching of Godd, urged upon his students the use of alcohol, even in enormous doses, in pneumonia, typhoid fever, and other febrile disorders whenever it was thought necessary to sustain the heart. The folly of this practise in pneumonia was early pointed out by Graves, and, at the present time, the best hospital practise, both in this country and Europe, discards alcohol almost altogether in pneumonia. The overworked heart in pneumonia requires, not an agent which will still further weaken its force and waste its energy, as alcohol has been clearly shown to do, but something which will actually energize its weakened muscle while lessening the work required of it.

The effect of alcohol in raising venous pressure, tending to dilate the heart, is in the highest degree calculated to do inestimable damage in pneumonia. The great fatality of pneumonia in men accustomed to the use of alcohol is well known. By a discontinuance of the use of alcohol, its mortality has been reduced from thirty per cent. to eight or ten per cent, and even less. In more than one hundred cases of pneumonia in the practise of the writer and his colleagues, in which no alcohol was used, the mortality has been but six per cent. If the pulse is weak, alcohol is certainly not needed, for the only effect can be to weaken it still further.

In the cases in which alcohol is prescribed, the blood pressure is already too low; but, as we have seen, alcohol invariably diminishes blood pressure, and never raises it; hence there can be no indication in such a case for this agent. The cold precordial compress, hot and heating compresses to the lower extremities, the chest pack, and other hygienic measures afford most excellent, convenient, and efficient means whereby blood pressure may be raised or lowered at will, and the heart energized, its work diminished, pulmonary congestion lessened, and every other indication in pneumonia perfectly met.

It must not be forgotten that in pneumonia the issue depends entirely upon leucocytosis. How carefully the up-to-date physician watches the blood count from day to

day. As he sees the leucocytosis rising from the normal 7,500 to 30,000, 50,000, perhaps even 100,000 or more, he knows that the body is rallying its forces to battle with the invading microbes, and that, if the battle can be maintained for a sufficient length of time, the victory will be won. By what possible argument can it be made to appear rational to administer an agent whereby leucocytosis is hindered, the development of alexins and antitoxins prevented, when it is only through the operation of these marvelous functions that there is any hope for success in the battle between the vital organism and the death-dealing enemies which have invaded it?

Dr. Mays, of Philadelphia, reports a mortality of only three per cent. in the treatment of a large number of cases of pneumonia by the non-alcoholic treatment. There can be no doubt, as has been asserted by an eminent English authority, James Barr, M. D., F. R. C. P., F. R. S., that "alcohol diminishes the power of the cardiac muscle." This being true, this drug would seem to have no place in the therapeutics of a disease in which everything depends upon the maintenance of cardiac energy under conditions which demand of the heart muscle an unusual, sustained effort.

What has been said with reference to pneumonia applies with almost equal appropriateness to typhoid fever. In typhoid fever, as well as in pneumonia, there is present a bacterial toxin the direct effect of which is to weaken the heart. The effects of alcohol upon the heart are almost identical with those of the typhoid toxin. When alcohol is prescribed in typhoid fever, the usual purpose is to strengthen the flagging energies of a weakened heart; but that it can serve no purpose, has been abundantly proved.

An eminent teacher of therapeutics who still maintains some faith in alcohol as a remedy, directs that it should be used with the greatest circumspection. Says Sir Lauder Brunton, "The ruler for the administration of alcohol is a very simple one. It is to sit by the side of your patient for a while and watch him after the administration of a dose of alcohol, and if you find that the alcohol brings back the various functions nearer the normal, then it is doing good; the functions of the organs diverge further from the normal after the administration, then it is doing harm." In other words, Lauder Brunton con-

fesses that there are no indications which can be relied upon as pointing to the necessity for the use of alcohol, but that after giving it the patient should be watched, and if it does him harm, it should be stopped; if it does him good, it may be continued. This is just where the opportunity for error occurs. Under the most favorable circumstances, the beneficial results which follow the use of alcohol are apparent only, and not real. Increased fullness of the pulse means only paralyzed vessels and a weakened heart; so when a patient seems better, he is really worse, and his chances of recovery are lessened.

Brand has shown that the weak heart of typhoid fever may be effectively energized by the cold bath. Winternitz has shown that the same thing may be accomplished by the wet sheet pack. The cold sponge bath, the cold compress over the abdomen, the precordial ice compress, are all means which can be relied upon to energize the heart and efficiently aid the circulation, not only in typhoid fever, but in all forms of infectious febrile disease. Under the non-alcoholic treatment the mortality of typhoid fever has been reduced from twenty per cent. to three per cent. In one hospital in London typhoid fever has been extensively treated during the past twenty years without the administration of alcohol in a single case, and the mortality has been greatly less than in hospitals in which alcohol was freely used. The deficiency of alcohol as a remedy in this disease has come to be generally recognized among the English physicians. Twenty-five years ago, milk punch, brandy, and whisky was the routine treatment of typhoid fever in nearly all the leading hospitals of England and of this country. At the present time, this treatment is practically unknown in this country, and the use of alcohol in English hospitals is very greatly diminished.

The injurious effect of alcohol in cardiac disease is now generally admitted. The excellent results obtained by the Scott brothers, at Nauheim, in the treatment of cardiac disease by carbonated mineral baths and by carefully graduated exercise, have clearly demonstrated their practicability in a large number of cases which, under older methods including the use of alcohol, had been regarded wholly hopeless. In view of the facts now known with reference to the influence of alcohol upon the cardiac muscle and the vasomotor centers, it must be con-

sidered wholly unjustifiable to prescribe alcohol for a weak heart with the idea of strengthening it. In fact, as Barr has pointed out, alcohol works great mischief in these cases. The vasomotor paresis of the small arteries which is produced by alcohol prevents the storing up of energy in the walls of the vessels during a systole through the lessening of the elasticity of the vessels. An abnormal difference between diastolic and systolic pressure is produced, the arteries become rigid and tortuous, the heart first hypertrophies, then dilates, and a series of degenerative changes throughout the body is set up. If it has not been proved that alcohol directly produces atheroma and arteriosclerosis, it certainly does produce changes in the middle coat of the arteries and arterioles, and the pathologic conditions which have been described.

There is perhaps no condition in which alcohol has been more frequently or universally used than in cases of shock and collapse; yet Crile has demonstrated that this drug is not only of no use, but is positively contraindicated. In both shock and collapse there is a great lowering of blood pressure as the result of exhaustion of the vasomotor centers; in collapse, through inhibition of the vasomotor centers. Nothing can be more certain than that alcohol diminishes blood pressure. It is true that when alcohol is taken into the stomach, there is at first a very slight rise of blood pressure, due to the reflex irritation set up by the contact of the alcohol with the nerves of the stomach, but as soon as the alcohol has been absorbed into the circulation, the blood pressure falls through dilatation of the small vessels, as a result of the paralyzing effect of alcohol upon the vasomotor centers. The result is an overfilling of the veins, and especially of those of the abdomen; for here both the veins and the arteries have muscular walls, and are controlled by that great regulator of the circulation, the splanchnic nerve. The paralyzing of this nerve by alcohol opens up that great reservoir, the portal system, which is capable of holding all the blood of the body. When this condition already exists, through the exhaustion or inhibition of the vasomotor centers, what possible good can come from the administration of an agent which, through its depressing influence upon the vasomotor centers, must still further dilate the already paralyzed vessels, and hence diminish the amount of blood in circulation? When alcohol, ether,

and similar substances are introduced hypodermically, the irritation produced, momentarily exercises a favorable effect, just as any other irritant might do; but as soon as the drug is absorbed into the circulation, its pernicious effects begin. The wonderful contribution to our knowledge of shock which has been made by Dr. George Crile must necessarily lead to the disuse of alcohol as a remedy in cases of shock or collapse.

The peculiar effects of alcohol upon the pulse, and the general transitory effects which occur immediately after its administration, afford ground for the popular belief in its stimulating properties; but the application of laboratory methods to the study of this drug, with thousands of others, has shown that the actual effect of alcohol is not that of a stimulant, but of a depressant, lowering the blood pressure, weakening the heart, lessening their sensibility, paralyzing the vasomotor centers, and damaging the leucocytosis processes, hindering phagocytosis, lowering the temperature, and generally weakening and depressing the vital forces of the body.

Alcohol can no longer be considered a stimulant. It must take its place along with agents of the depressant anodyne class. The question naturally arises: If not alcohol, then what, in cases of shock or collapse?

The master experiments of Crile have shown that while the shock can not be successfully antagonized by alcohol, nor to any appreciable extent by strychnin, simple pressure upon the abdomen produces marked and important beneficial effects by forcing into the general circulation the blood which is stagnating in the portal veins. I find a very convenient method of doing this is to slip under a hinder an ordinary hot-water bag with tube attached. This may be inflated with a rubber bulb, or more quickly, and as effectively, by taking the end of the rubber tube in the mouth and blowing it up. The effect is instantaneous. A case occurred in my practise a short time ago in which I had removed an immense sarcoma from the groin. I found the blood pressure at the close of the operation, which is my uniform practise, found the tonometer to be reading at zero. There was but little loss of blood, and the condition, more popularly speaking, was one of collapse, the resulting response inhibitive of the vasomotor centers from traction upon the large nerves involved in the operation. I quickly slipped a rubber bag under a

closely fitting binder, inflated it, and on taking the blood pressure again, found it to be eleven and a half. Letting the air out of the bag, the blood pressure dropped at once to zero again. A second inflation brought it again to the normal. The pulse and the patient's countenance at once showed an improved condition, and by maintaining the compression for three hours the patient's life was saved. I constantly resort to this method in cases in which any increase of blood pressure is required. Simple pressure of the hands or abdominal massage produces an immediate rise of blood pressure which is so marked that almost instant relief is given in all cases of persons suffering from low-pressure headache, and neurasthenic pains arising from low blood pressure. The cold compress or ice bag over the heart, cold rubbings of the surface, percussion over the heart and abdomen, general friction, the very short, very hot foot-bath followed by a cool application to the feet,—these and many other hygienic measures produce immediate and most pronounced beneficial effects in cases of shock and paralysis, effects from which there is no unfavorable reaction.

The pernicious influence of alcohol in pulmonary tuberculosis has long been recognized. Instead of preventing or curing this disease, as was formerly supposed, it has now been clearly established that the habitual use of alcohol actually produces a special form of pulmonary consumption. The success which has attended the open-air method of treating pulmonary tuberculosis has clearly demonstrated the uselessness of alcoholics in this disease, and its curability by rational measures which improve the general nutrition. There can be no question that the use of alcohol actually predisposes to tuberculous disease. The weakened heart which is exhausted in its efforts to force the blood through a diminished respiratory field, is still further weakened by the depressing effects of alcohol when this agent is employed, thus impairing the general nutrition. Leucocytosis, upon which resistance to the attacks of disease and its ultimate cure chiefly depend, is lessened, and general vital resistance is diminished. In the light of our present knowledge, there can be no possible apology for the further use of alcohol in this disease. It must be relegated to the limbo of useless and obsolete remedies to which so many time-honored and long-trusted therapeutic measures have, within these recent years of great enlightenment, been consigned.

The tendency of alcoholic preparations of all sorts to the production of catarrhal affections of the nose, throat, and bronchi must also be considered in connection with its use in pulmonary maladies.

The folly of using alcohol as an aid to digestion was clearly exposed by Sir William Roberts in his masterly research some fifteen or twenty years ago. This investigator showed that so small a proportion of a light alcoholic beverage as five per cent. of claret, or a smaller percentage of sherry wine, greatly impaired digestion; while a larger amount practically suspended it. Chittenden, the world-renowned head of the Sheffield Scientific School, has, within recent years, confirmed the observations of Sir William Roberts, as have also Buchner, Zuntz, and others.

Other forms of alcohol also seriously interfere with the chemical processes of digestion. If it is true that alcohol does increase the secretion of acid gastric juice, as seems to be proved, it has been clearly demonstrated by the same observers that even in so small a proportion as five per cent., proteolysis, that is, the gastric digestion of proteids, is seriously interfered with. It was further shown by Chittenden that the worst effects of alcohol are absent in cases in which the gastric juice is poor in quality; that is, the chemical activity of strongly acid gastric juice rich in pepsin was interfered with by the addition of a small amount of alcohol much less than was a gastric juice of inferior quality. In cases in which the gastric juice is abundant in quantity and of good quality, alcohol is not needed, though in moderate amount it might perhaps be fairly well tolerated; but in the very cases in which it might seem to be helpful, viz., in cases in which gastric juice is deficient in quantity or quality, its pernicious effects are especially manifested, thus wholly disqualifying it for use as a remedy in such cases. Chittenden has certainly done the cause of therapeutics a great service in his careful study of this subject.

With the co-operation of my colleague, Dr. A. W. Nelson, I have, within the past year, made a great number of observations respecting the effects of alcohol upon the chemical activity of the gastric juice. These observations were made in connection with the analysis of stomach fluids, of which from half a dozen to twenty are examined daily. In making the Metz test for the peptic

activity of the gastric juice, the fluid is divided into two portions, to one of which alcohol is added. Two tubes containing coagulated albumin are then dropped into each portion of the fluid, and the flasks are placed in the incubator, where they are kept for twelve hours at 100 degrees. These observations have invariably shown that alcohol lessens the activity of the gastric juice, and that its effect is most pronounced in cases of gastric juice of inferior quality.

Chittenden showed that when the gastric juice is very weak, in the absence of pepsin, "even very small amounts of whisky may exercise a very marked retarding effect upon the digestive process." Chittenden also showed that wines, and even malt liquors, produce a very decided effect upon both salivary and pancreatic digestion. On what ground, then, is the physician justified in recommending alcoholic liquors of any sort as an aid to digestion? Certainly physiology and physiologic research afford no basis for such a recommendation.

In relation to the use of alcohol as an aid to digestion, account must also be taken of its effect upon the liver. That alcohol in large quantities produces gastric and intestinal catarrh, and, secondarily, catarrh of the biliary passages, and hence cholecystitis, gall-stones, and other hepatic disorders, is well established. It has also been proved by Boix and others that alcohol when used for some time produces degenerative changes of the liver and spleen. Beebe, working in Chittenden's laboratory, has recently shown that alcohol in very moderate quantity causes a notable increase of uric acid in the urine through impairment of the oxidizing power of the liver. But the liver has for its function, not only the oxidation of uric acid, but also of numerous other toxic substances, some of them, though less in amount, of far greater importance than uric acid, because of their high degree of toxicity. During an attack of typhoid fever, pneumonia, diphtheria, or any other infectious disease, this oxidizing power of the liver is one of the most important means of protection against the destructive influence of the disease. The liver is also an important digestive gland, and if its oxidizing power is diminished, it is quite reasonable to suppose that other of its functions are likewise impaired. As Chittenden well says, alcohol "may also interfere with other processes normally occurring

in the liver, and thereby lead to the presence of other undecipherable substances."

In the light of the above facts, it is clearly evident that alcohol must be carefully interdicted in all cases in which there is ground for suspecting lithiasis to be an important factor in the cause of the pathologic conditions present. Chittenden's observations clearly show the influence of alcohol in producing gout and other uric-acid disorders.

The few points which I have touched upon are only the introduction to this subject. A careful study of the whole list of acute and chronic disorders in the light of modern research will compel the conviction that no physiologic or scientific ground can be found for the practise, still common with some physicians, of employing alcohol to produce so-called tonic or stimulant effects. It has been clearly proved that alcohol is a depressing agent, first, last, and all the time; that it is a protoplasmic poison, hence a paralyzer of muscles and nerves; and that it lessens vital resistance and metabolic activity, and tends to a degradation of tissue activity whereby are set up degenerative changes of various sorts and of grave import.

I will not prolong my paper further, as I do not wish to weary my auditors. I desire only to add that the statements which have been made in this paper are not simply my personal views, and are not, to any considerable extent, based alone upon my personal observations, but are the conclusions at which an application of the scientific method of this question compels us to arrive, in view of the overwhelming mass of the testimony which has been brought forward by the recognized masters of laboratory research within the past few years.

That there are conditions in which alcohol may be used as a palliative, producing temporary effects, can not be disputed. When acting as surgical assistant to the late Dr. Lawson Tait, of Birmingham, some sixteen years ago, and having observed that Mr. Tait never prescribed either alcohol or opiates, I one day asked him, "Do you never prescribe alcohol to your patients, Dr. Tait?" His instant answer was, "No, or at least not unless they are going to die. Then I give them alcohol to make them comfortable."


As a sudorific, as an anodyne, as a sedative, alcohol

will doubtless long be used by thousands who will not take the trouble to inform themselves respecting the use of superior substitutes; but, as a curative agent, this long-trusted and most alluring of all pharmaceutical agents must, in the light of modern research, be regarded as unworthy of the confidence which has so long been reposed in it.

THE PREDISPOSING AND ACQUIRED CHARAC- TERISTIC OF THE ALCOHOL AND DRUG HABITUE

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UR subject limits us to the personality of the habit former, and yet it will not be a serious digression if we incidentally refer to some of the environmental influences that are constantly operating upon susceptible individuals.

That the laity should manifest a seeming and probably a real indifference about this subject is not so amazing as is the attitude of the medical profession toward a malady more serious than pneumonia, tuberculosis or any other of the fatal infections. The average physician and the average laymen, strange to say, think very much alike about the drunkard, considering him a wilful and vicious violator of civic, physical and moral law who deserves contempt and prompt and severe punishment. The readiness with which they answer the question as to why some men are abstainers, some men moderate drinkers and others excessive drinkers, to be simply a matter of will pow-

er, is in inverse proportion to their knowledge of a very intricate and difficult problem.

Fermented drinks have been used from as remote a period as five thousand B. C., while the pleasurable sensations of wine drinking were discovered thus early, and its evil consequences were soon determined and restraining measures by moral suasion and punishment were early instituted.

Herodotus tells of the feasts in honor of Diana, where more wine was consumed than in all the rest of the earth. When he visited Egypt in four hundred and fifty-four B. C., he relates that at their conventional banquets among the wealthy classes when they had finished supper a man carried around in a coffin the image of a dead body, carved in wood, and showing this to each of the company he said, "look upon this, then drink and enjoy yourselves, for when dead you will be like this."

In Sir J. Gardener Wilkenon's Popular Accounts of the Ancient Egyptians is figured women at a feast drunk and vomiting. These are copied from Theban tombs, 1500 to 1000 years B. C. Without going into further detail, on nearly every page of history is the story of drunkenness and the record of innumerable ineffectual efforts to arrest it. A special research committee, appointed by the English Society for the Study of Inebriety, made the following report in April, 1901:

1. The genesis of inebriety in the individual depends on three essential factors, of which one is inborn and the others acquired.
 2. The inborn factor is a capacity for enjoying the sensations evoked by indulgence in alcohol, without it men would not drink for they would not enjoy drinking.
 3. The acquired factors are a personal experience of the sensations evoked by alcohol; without this acquired knowledge, this memory, no man would crave for the sensations in the sense the inebriate craves and the increased delight in drink which continued indulgence in drink confers.
 4. The inborn capacity for enjoying alcohol like other inborn traits is certainly heritable.
- Now let us briefly consider the inborn factor. Patton, in his recent work on psychiatry, defines the addiction as a symptom of a functionally unstable nervous system; keeping in mind this definition and conforming ourselves

to the personal equation, I insist that contrary to the generally accepted view, drinking is not a question of morals, only so far as the first indulgences are a violation of the code of ethics of many people. How unreasonable that anyone should maliciously and with malice aforethought do the thing that he knows is bringing to himself irrevocable ruin. The so-called immoralities are the certain sequences of chronic alcoholism and are the symptoms of functional and structural changes due to the toxic effects of a poison upon the nerve centers. Craving for alcohol has nothing to do with strength and vigor of character; neither has education anything to do with appetite. No degree of ecclasiasticism or erudition can change a pleasant sensation into an unpleasant one. Either may create an abhorrence for alcoholic excess, but neither can alter a nervous organization that responds with emotions of delight in alcoholic indulgence. We cannot substitute a delight in Shakespeare or Paderewski for a craving for alcohol.

You recall Lydston's illustration in his Diseases of Society, where he says "that certain moralists claim that, inasmuch as the inebriate willfully took his first drink, the question is of moral significance only. This is as logical as that typhoid is to be cured by moral suasion because the victim voluntarily drank water containing the germs of disease."

We read with abhorrence and just indignation of the atrocities of the Moslems and yet in obedience to the teachings of the Koren, one hundred and eighty millions of Mohammedans have been abstainers for thirteen hundred years.

This inborn susceptibility may remain latent for many years and even through the entire life, particularly in women, who, although possessing an unstable nervous organization, have also an innate spirit of idealism, and further they are more securely entrenched behind the protecting influences of home than their exposed brothers. This statement with reference to women needs particular emphasis, as the frequency with which we are confronted with homes where the boys are dissipated and the girls total abstainers is urged as an argument against the hereditary tendency to alcoholism.

Referring again to the question of latency I have had many patients who had remained abstainers until they

were twenty or thirty years of age tell me that their first drink had brought to them a sense of repose and well-being entirely new in their experience. There had come into their lives a temporary restfulness to their unstable nervous system so that they were willing to take chances on subsequent disaster in order to renew again and again their first experience.

Within the past six months a very intelligent man of thirty was brought to us for treatment who, after he was perfectly sober, gave this history: He had a decidedly neurotic temperament. He had always been restless, uneasy, found it almost impossible to sit still anywhere; was not a good sleeper; general health good. Graduated from the high school of one of Ohio's county seats, then at nineteen came to Columbus, where he was employed in a plumbing establishment. He was sent out by his employers to do some work at a wholesale liquor store, where by invitation he took his first drink. It was old whiskey, which he was told was perfectly harmless. He became intoxicated to the point of insensibility, and yet the pleasurable sensation that preceded insensibility was of such a character that he soon drank again and became a confirmed drunkard.

In the language of Defendorf, "defective heredity is the most etiological factor and is manifested by a diminished power of resistance." Some observers claim defective heredity exists in eighty per cent. of all alcoholics. Let this introduce us to a brief study of the acquired characteristics of the alcoholic. Primarily, there is an exaggeration of the predisposing characteristics, the unstable nervous system is more unstable, a restless, dissatisfied nature is intensified; power of resistance is increasingly diminished; power of mental application gradually fails; irritability and unjust criticism of his best friends is common; a desire to shift the responsibility for his unfortunate condition upon his wife or immediate family is frequent; the impairment of memory exists, and more disastrous than all, are the inroads upon the moral sensibilities and the failure to appreciate the seriousness of the situation. I am frequently led to believe that no alcoholic has a full comprehension of the gravity of his malady. Do not confound this statement with the transient penitence that immediately follows a drinking bout. This only means that he feels miserably uncomfortable, and

for the time being, thinks, and possibly states, that he has taken his last drink. This has no significance, and is forgotten in a day. An extreme case comes to my mind: An old soldier of sixty-two had lost his property, his wife had deserted him, he had had delirium tremens, neuritis, an advanced arterial sclerosis, a myocardial degeneration, urine with low specific gravity, and a trace of albumin, a picture of physical wreckage. After the acute effects of alcohol had subsided, I asked him if he did not think this was a very serious matter, hesitatingly, he said he "did not know but what it was rather bad;" I said, "if you had boys would you want them to drink in view of your experience?" He replied that if they could drink moderately, he thought it would be all right, and in fact, a pretty nice thing. The memory of the pleasurable sensations he had experienced with moderate indulgence overshadowed the disastrous condition which his diseased sensorium was unable to comprehend.

The alcoholic is eminently plastic; he is easily moulded by his environment; he is swerved this way and that by every extraneous force; there is no power of determinism, no fixedness of purpose; he is an excellent subject for hypnotism; he easily places himself in a passive state, and by suggestion, rapidly passes into the first stage of hypnosis, and often to complete somnambulism; he is frequently egotistical, having an exalted idea of his own importance; indeed, he approaches the expansive ideas of a parietic. He is a hale fellow, well met, and you admire him, but he sorely disappoints you. The advanced dysmaniac needs protection against himself, and the state needs protection against him. What shall be done with him is not a question before us today. Why do some drink moderately and others drink to excess? First, the moderate drinker of today is the immoderate drinker of tomorrow; as the taking of alcohol creates a demand for more alcohol. Second, one person has a pleasurable sensation from a small quantity and a larger amount renders him uncomfortable. Others do not reach the point of exhilaration until comparatively large quantities are taken. A recent patient said to me he would never drink if he had to be confined to one or two drinks.

The two chief predisposing factors are an unstable nervous organization and an unwillingness to bear pain.

There is an intimate relationship between the alcoholic and the opium user. Very frequently a double addiction exists. I do not recall a morphine patient who did not use alcohol as well. It is much to be regretted that the family physician is the initiative factor in very many cases. We will hail with delight the new-born day when physicians will dispense alcohol and opium with extreme caution. Alcohol is constantly prescribed without any consideration of its physiological action, and the lazy physician is of easy access who uses his hypodermic with unwonted frequency rather than take the time to patiently investigate the cause of pain and, if, possible, remove it. There are infinitely worse things than pain and one of these is the opium habit.

WINE AND THE POETS*

A Critical Study of the Poet's Devotion to the God of Wine

By JOHN MADDEN, M. D., PORTLAND, OREGON

ONE would naturally suppose that the lines of the great poets of America would show fewer examples of and less fervor in their worship of the wine-god than may be found in poetry of Europe. An examination of the great poets of America, however, does not bear out this supposition.

Benedict Bellefontaine, at his fireside in the village of Grand Pre, muses over the Burgundian vineyards in his beloved France, and on numerous occasions in "The Spanish Student" wine is mentioned as something desirable, both by the gentry and the servants who form the personality of that charming drama.

King Withaf's Drinking Horn is a poem that celebrates the charms of wine-drinking as enthusiastically and as religiously as though it had been written by an eighteenth century poet of the mother country

*This series of articles was begun in July, 1905, and back numbers may still be supplied on application to the publishers.

“Withaf, king of the Saxons
Ere yet his last be breathed
To the merry monks of Croyland
His drinking-horn bequeathed.

That whenever they sat at their revels,
And drank from the golden bowl,
They might remember the donor
And breathe a prayer for his soul.”

But one night even as they sat about the table while King Withaf's bowl went round with the wine and each drank no doubt with a silent prayer for the repose of the soul of the Saxon King, the soul of the Abbot suddenly took flight. Did they then cease their drinking? Why should they cease what was in fact a sort of religious ceremony, when death came to their chief? Rather they should have been stimulated to continue and this is what happened:

“But not for this their revels
The jovial monks forbore.
For they cried ‘Fill high the goblet,
We must drink to one Saint more.’”

Longfellow himself had a connoisseur's appreciation for wine. Some of his intimates who have written of him mention this fact; and his stanzas written to a friend upon the receipt of some sweet Catawba wine are confirmatory of this statement.

“This song of mine
Is a song of the vine,
To be sung by glowing embers
Of wayside inns
When the rain begins
To darken the drear Novembers.

While pure as a spring
Is the wine I sing;
And to prize it one needs but name it:
For Catawba wine
Has need of no sign,
No tavern bush to proclaim it.”

Fervent enough, indeed, these lines are, as a votive offering to the wine-god, to confirm the poet's love for the fruit of the vine.

“Tales of a Wayside Inn” have already been referred to. Essentially different is this picture of the country inn from that drawn by Burns in “Tam O'Shanter.” If there was wine present, even the sweet Catawba which the American poet says is to be sung in such places, there is no evidence of it in the picture that he paints. In Tam O'Shanter's inn the “nappy” is the central feature. One gets a sense of its presence almost as over-powering as the odor of beer which greets him upon entering a cafe in Munich or Milwaukee. The Wayside Inn is a picture in colors. It appeals to the soul through the eye. It is of historical interest for great men have left their names cut in the glass of the windows and there is a jovial hymn writ in the same way, a century ago by the great Major Molineaux of Hawthorne's story.

Not so with the inn of Tam O'Shanter. Its leit motif is alcoholic gregariousness, it appeals to the stomach, the delights of alcoholic intoxication; it is a place where Tam and his fellow drunkards may

“Sit bousing at the nappy
And get fou' an' unco happy.”

Without the ale the place would never have been visited by Tam or sung by Burns.

Let us, however, suppose that the frequenters of the wayside inn had their drink but not in quantity to destroy their sense of the beautiful, and let us then turn to a contemplation of Longfellow's picture:

“But from the parlor of the inn
A pleasant murmur greets the ear,
Like water rushing through a weir:
Of interrupted by the din
Of laughter and of loud applause,
And in each interesting pause,
The music of a violin.
The freight shedding over all
The splendor of its ruddy glow,
Filled the whole parlor large and low;
It gleamed on wainscot and on wall,

It touched with more than wonted grace
 Fair Princess Mary's pictured face;
 It bronzed the rafters overhead,
 On the old spinnet's worried keys
 It played inaudible melodies,
 It crowned the sombre clock with flame,
 And painted with a livelier red
 The land lord's coat of arms again:
 And, flashing on the window-pane,
 Emblazoned with its light and shade
 The jovial rhymes that still remain,
 Writ near a century ago
 By the great Major Molineaux
 Whom Hawthorne has immortal made."

The wine of Jurancon is a translation from the French, but as it speaks of wine exclusively the poet must have had a kindred feeling with its French author otherwise he would not have put it into English verse.

"Little sweet wine of Jurancon,
 You are dear to my memory still!
 With my host and his merry song,
 Under the rose tree I drank my fill."

A beautiful tribute to Burns is paid by Lowell. In a railroad car someone begins to read the poems of Burns aloud.

"Men rude and rough pressed round,
 And when he read, they forward leaned,
 Drinking, with thirsty hearts and ears,
 His brook-like songs whom glory never weaned!
 From humble smiles and tears."

Lowell however, showed no sympathy for Burns in his own habits as to drink. It is quite likely that we get closest in contact with a man's inner self when he sees fit to give us the results of his musings on self. "A Winter Evening Hymn To My Fire" undoubtedly speaks the heart and soul-thoughts of the poet—teacher:

"What warm protection dost thou bend
 Round curtained talk of friend to friend,

While the grey snow-storm held aloof,
 To softest outline rounds the roof,
 Or the rude north with baffled strain
 Shoulders the frost-starred window-pane!
 Now the kind nymph of Bacchus born
 By Morpheus' daughter, she that seems
 Gifted upon her natal morn,
 By him with fire by her with dreams,
 Nicotia, dearer to the muse
 Than all the grape's bewildering juice;
 We worship unforbid by thee."

A fine confession of faith by a man who loves his pipe! A delightful picture of the study fire on a stormy winter's night! A real hymn from the heart not only to Nicotia, but to the domestic Lares and Penates! It is, however, something more than a hymn to tobacco. It is an expression of important scientific fact of which its author was unconscious. Bacchus the sire, a daughter of Morpheus the mother, tobacco should inherit the properties of stimulating and soothing, of quickening the intellectual processes and provoking dreamful meditation as opium does. Tobacco does both of these things for one habituated to its use, and Lowell was as great a lover of the pipe as Tennyson. Not less significant for its scientific truth is "the grape's bewildering juice," for Kraepelin, the great German alienist, demonstrated years ago that alcohol injures the quality of the intellectual processes in exact ratio to the quantity imbibed.

Lowell's confession of the bewildering effects of wine put beside Burns' confession that his verses are "tuneless cranks" without whiskey, does not mean that alcohol thus differently effects individuals, a conclusion that some might feel warranted in drawing, it means that Lowell was a non-user, at least a non-habitue, upon whom alcohol produced its normal effects, while Burns was so habituated to it that it was necessary to him.

The few references to drink in the poems of Lowell are in harmony with his confession. They are quite impersonal, as when Hosea Bigelow speaks of a "young fellow" who got into trouble because of his "pong shong" for cocktails.

"Tis a time when our fancies are fleeing

As the whisper of foam-beads on fresh poured champagne,"

Oliver Wendell Holmes is America's convivial poet. If we are to judge from his poems he spent not a small part of the last fifty years of his life toasting something or somebody. No one ever suggested that he was a drunkard or that he drank to excess, but there is evidence enough that he loved the sparkling wine as a part of a good dinner, and that he was the most incorrigible diner-out in the history of our country. It is also known that he quite scandalized some of his good countrywomen by writing a too fervid hymn in worship of the wine-god, and that they sent him their protest. He thereupon wrote a poem appropriate for a banquet attended by women of temperance views, but it is not quite certain that he did not thereby add to his original offense. Indeed it is quite certain that he did.

The "Lending of a Punch Bowl" could have been written only by a lover of the good cheer of wine:

"This ancient silver bowl of mine,
It tells of good old times.

Of joyous days and jolly nights and merry
Christmas times;

They were a free and jovial race, but honest
Brave and true

Who dipped their ladle in the punch
When this old bowl was new."

This is the true religion of the wine cult, this looking back with unspoken regret to times when men were said to have drunk wine in greater quantity than they do now, — not only this, but to celebrate the memory of those wine-drinking ancestors as a happy "brave and true" race. The poet's punch bowl has other memories, it has a romantic history which necessarily enhances its value and interest:

"A Spanish galleon brought the bar—
So runs the ancient tale;
'Twas hammered by an Antwerp Smith
Whose arm was like a flail;
And now and then between the strokes,

For fear his strength would fail,
He wiped his brow and quaffed a cup
Of good old Flemish ale."

Even its history it enough to make you desire to drink from it! A Spanish galleon laden with silver ravaged from an Aztec King by the pirate hand of Pizarro, taken from the Spaniard after a fight, by a British frigate, carried to Antwerp, the world center for the cutting of precious stones and the making of hammered gold and silver ornaments and utensils—surely this is romance enough to stir the poetic mind to an appreciation of the silver punch-bowl. But this is not all. The smith never would have done his work so well had he not stopped occasionally to reinforce his strength with "good Flemish ale." And Flanders is the country of Gambryns nativity, of John Primus, or John the First, the Flemish duke who "discovered" beer. The smith, therefore, got his ale in all of its native purity and strength, in the chief city of the land that gave it birth.

With what psychologic subtlety do these facts appeal to the mind for the greater glory of Bacchus and Gambryns! You are now prepared to take your drink, not only with such physical pleasure as the wine affords, but with that warming enthusiasm which causes the heart of the religious devotee to glow and sing. You are quite ready to say with the poet:

"Then fill a fair and honest cup, and bear it straight to
me;
The goblet hallows all it holds, whate'er the liquid be."

"I once wrote a song about wine," confessed Holmes, "in which I spoke so warmly of it, that I was afraid someone would think it was written *inter pocula*, whereas it was composed in the bosom of my family, under the most tranquilizing circumstances."

As an atonement that did not atone with any degree of noticeable effectiveness he wrote his poem for a temperance dinner to which ladies were invited. The first stanza is given here:

"A health to sweet woman! The days are no more
When she watched for her lord till the revel was o'er,

And smoothed the white pillow and blushed when he came,
As she pressed her cold lips to his forehead of flame."

The detailing of such intimate history as is expressed in these lines suggests a personal experience.

It occurred to the poet, in one of his whimsical moods, that he could have on hand a sort of double-barreled poem and thereby avoid giving offense, should the temperance element predominate in the audience he was to address. He wrote a poem of the kind the first two lines of which are:

"Come fill a fresh bumper, for why should we go
While the logwood still reddens our cups as they flow."

There is little in the life of Holmes to suggest a parallelism with Burns. Each was convivially inclined, if the coarse dissipations of the latter can be designated by so mild a term as conviviality, but here the parallel ceases. Burns was a poet because God made him so; Holmes was a poet because he desired to be, and he had the nimble wit, the flash and brilliancy of intellect to enable him to accomplish his desire.

It does not, however, seem absurd when Holmes is asked to pay tribute to the genius of Burns, at the dinners of the Burns club of Boston. He responded on more than one occasion to this courtesy extended to him by the Scotch-Americans of his city. Nor would there have been anything more appropriate than a suggestion of drink in the American poet's contribution to the memory of Scotland's greatest singer. There is, however, something grotesque in making the mountains of the one country clink with the mountains of the other across the ocean, like the clinking of two glasses of wine. The simile is too gargantuan to please:

"The mountains glitter in the snow
A thousand leagues asunder;
Yet here amid the banquet's glow,
I hear their voice of thunder;
Each granite-bound goblet drinks;
Wachusett to Ben Nevis drinks;
Monadnock to Ben Lomond!"

"Vive La France" was read at a dinner given to Prince Napoleon. Its first stanza is:

"The land of sunshine and of song!
Her name your hearts divine,
To her the banquet's vows belong,
Whose breasts have poured its wine."

A very pretty figure indeed! A wine from the breasts of a land of sunshine and song—when thus characterized who shall not desire to drink it and having drunk it, who will not feel its inspiring power as of a veritable elixir vitae? It would be a psychologic impossibility for anyone not a lover of wine to write of it thus. One cannot read it and feel that wine is not good.

A passionate hymn to the wine-god is "Mare Rubrum"—a red sea—an ocean of red wine:

"Flash out a stream of blood red wine,
For I would drink to other days,
And brighter shall their memory shine,
Seen flaming through its crimson blaze!
The roses die, the summers fade,
But every ghost of boyhood's dream
By nature's magic power is laid
To sleep beneath this blood-red stream."

So too in "A Parting Health" to John L. Motley, Bacchus receives his meed of worship in the beautiful lines:

"So fill a bright cup from the sunlight that gushed
When the dead summer's jewels were trampled and
crushed."

Significant enough as an appeal to the subconscious mind is this making the grape a sunshine stored jewel, the crushing of which yields a liquid sunshine, such as Hawthorne celebrates in "The Marble Faun,"

Whittier, that staid old celibate Quaker of New England. One whose blood would seem to have been "very snow-broth,"—indeed, we expect to find little in his lines as tribute to the wine-god. A hater of human slavery shall we not find him inveigling against the slavery of

alcohol rather than turning his eye to the worship of Bacchus or Gambirinus? And so we do, indeed, find him.

Maud Muller gave the judge a drink, dipped with a cup from the wayside spring, and that grave gentleman was sufficiently impressed by her rustic beauty to consider her in the light of a future wife. The proud rich woman whom he afterward married, the exalted position that he held in the community among his fellows, the good things of his table—did they not all sometimes turn to ashes in the moments of retrospection when he permitted his mind to go back to that day when Maud made hay by the wayside? Proud women never make sweet sympathetic wives. Vain regrets!

“Often when the wine in his glass was red
He longed for the wayside well instead.”

Foolish man! He might have drowned his regrets in his wine; such would have been the suggestion of Burns, a suggestion that would have shocked the sensitive conscience of the Quaker poet.

Yet Whittier greatly admired Burns and sang of him:

“Thou son of Scotia!—nursed beside the grave
Of the proud peasant minstrel and to whom
The wild muse of thy mountain dwelling gave
A portion of its spirit;”

and on receiving a sprig of heather in blossom:

“No more these simple flowers belong
To Scottish maid and lover,
Sown in the common soil of song
They bloom the wide world over.”

Whittier was keenly alive to the dissolute habits of Burns and his reformer's soul burned with regret that the evil was not for him to abolish. “The Drunkard to his Bottle” is “what Burns might have said had he seen fit to put his name to a pledge of abstinence:”

“Hoot!—dour ye shaw yer'e face again
Ye auld black thief o' purse and brain?”

For foul disgrace, for dool an' pain
An' shame I ban ye:
Woe's me that e'er my lips have ta'en
Your kiss uncanny.”

The Quaker poet's sense of humor could not have been highly developed.

The Kahn's Devil is a temperance poem. The Kahn possessed by a devil goes to a priest to have the fiend exercised. As the Kahn's face was purple, his eyes blood-shot, his voice thick and his walk uncertain there is no difficulty in determining the nature of the demoniacal possession.

Hanza, the priest, “a santon of renown” promptly says to his visitor “Thou hast a devil.”

“Allah forbid, exclaimed the Kahn,
Rid me of him at once, O man!
'Nay,' Hanza said, 'no spell of mine can slay that cursed
thing of thine.
Leave feast and wine, go forth and drink water of healing.'”

For six long moons the Kahn drank the water of Zeben, when again he presented himself at the holy man's door:

“Not weak and trembling as before
But strong of limb and clear of brain;
'Behold,' said he, 'the fiend is slain.’”

But Hanza, knowing the tenacity with which the fiend clings to life, assures him that it is not so, instead of being dead he is only in a “death-like swoond,” and that

“One beaker of the juice of grape
May call him up in luring shape.

When the red wine of Badakshan
Sparkles for thee, beware of Kahn!”

Let us hope that the Kahn heeded this solemn advice and forever thereafter forsook the seductive company of the “red wine of Badakshan.” It is much more likely,

however, that he preferred to be a man who could "take it or leave it alone," and it is not less likely that he sought the holy man's "gold cure" a second or even a third time.

A fairy tale would not be a fairy tale without wine, for like all happy folk they are unconscionable drinkers. Every one who has attended their feasts, and mentions the fact afterwards, does not fail to speak of the excellent and sometimes magic qualities of their wine. So in "The Brown Dwarf of Rugen" when Dietrich invaded fairy-land we are not surprised to learn that

"He came into a banquet-hall
With table richly spread,
Where a young maiden served
To him the red wine and the bread."

"Disenthralled" has for its motif the old familiar but erroneous notion that drunkenness is a moral wrong willfully done. It is a time worn simile to liken drink unto a serpent, hence the poet's lines on a reformed drunkard:

"He shook the serpent folds away,
That gathered round his heart,
As shakes the swaying forest oak
Its poison vine apart;
He stood erect, returning pride
Grew terrible within
And conscience sat in judgment on
His most familiar sin."

Such sentiments appeal to only a small percentage of humanity. A thousand such stanzas will not neutralize a single couplet dedicated to the good cheer of wine. It is an unattractive picture which the cheerful drinker of "good wine" does not take to heart until he becomes the besotted creature portrayed thereby.

One would scarcely expect to find Ralph Waldo Emerson singing the praises of wine, the most conspicuous transcendentalist of the East should have found soul and spirit enough in the universe to contemplate without finding it necessary to tune his lyre in praise of the wine-god. Lowell's beloved *Nicotia* was to him an offensive jade. "Tobacco, tobacco! what a clumsy crowbar

to pry into the fine structures of the brain!" Such was his characterization of the universal weed.

Wine, however, the mystic poet of New England defied. His *Bacchus* is a devotional hymn, fervent, intense.

"Bring me wine, but wine which never grew
In the belly of the grape,
Or grew on vine whose tap-roots reaching through
Under the Andes to the Cape,
Suffer no savor of the earth to seape.
Let its grapes the morn salute
From a nocturnal root,
Which feels the acrid juice
Of styx and Erebus;
And turns the woe of night
By its craft, to a more rich delight."

He would have

"Wine of wine
Blood of the world,
Form of form and mould of statures
That I intoxicated
And by the draught assimilated
May float at pleasure through all natures
The bird language rightly spell,
And that which roses say so well."

He would have that

"Wine which is already man,
Food which teach and reason can,
Wine which music is,—
Music and wine are one,—
That I drinking this
Shall hear far chaos talk with me;
Kings unborn shall walk with me;
And the poor grass shall plot and plan
What it will do when it is a man,
Quickened so, I will unlock
Every crept of every rock."

The very delirium of devotional song to the wine-god! We dare not interfere with it in the way of putting it into

concrete terms, so short is the step from the sublime to—the less sublime.

This most fervent Bacchanalian hymn concludes with a prayer of thanksgiving, fervent as a petition of a prophet of old to the most high:

“I thank the joyful juice
For all I know;—
Winds of remembering,
Of the ancient being blow,
And seeming solid walls of use,
Open and flow.

Pour, Bacchus, the remembering wine;
Retrieve the loss of me and mine!
Vine for vine be antidote
And the grape requite the tale!
Haste to cure the old despair,—
Reason in nature's lotus drenched,
The memories of ages quenched;
Give them again to shine;
Let wine repair what this undid.”

False philosophy! Vain appeal! Nothing having the characteristics of wine can rouse the lotus-eating dreamer to activity.

In a May-day poem, Emerson frequently uses wine in his similes:

“It was a vintage day in field and wood,
Where magic wine for bards is brewed.”

and

“Poets praise that hidden wine,
Hid in the milk we drew
At the barrier of time,
When our life was new.”

In his verses to a wind-harp he declares that

“One musician is seen,
His wisdom will not fail,

He has not tasted wine impure,
Nor bent to passion frail.”

While his similes are often puzzling that poet makes wine synonymous with soul, with universal spirit, with magic nectar that has the power to make animate things inanimate, change matter into spirit, bring back memory “of ages past,” stimulate the doing of god-like deeds.

There is nothing sensual in the wine-worship of Emerson, it is of the soul, it is as far from the coarse material worship of Burns, as the christian heaven is from the material heaven of Mohammed.

Did Emerson love wine? It is not improbable that he drank it and found pleasure in doing so. In “The Adirondacs” he says:

“Our foaming ale we drank from hunters' pans,
Ale, and a sup of wine.”

This evidence, however, is insufficient for the purpose of drawing a conclusion. If he was not a wine-lover why does he then use wine in those puzzling metaphysical figures? This is a psychological problem of no little difficulty. No one sings “Hashish! Hashish!” unless he has experienced its delights. Lowell does not sing “wine! wine!” in spite of his having written “The Vision of Sir Launfal;” Bryant hardly mentions it in all his poems. Burns and Byron love and sing their love.

It is well known to physiologists that certain susceptible nervous systems are very pleasantly affected by the class of narcotics of which alcohol is a member. When taking ether, Holmes thought that he had discovered “the secret of life.” He was so convinced that a wonderful thought had come to him while inhaling the anesthetic, a thought forgotten with awakening from the anesthetic sleep, that he determined to take the ether, and as soon as the wonderful discovery came to him he would, if he could, write it and thus preserve it for all humanity. He did so, and when he recovered full consciousness he hastened to read what he had written under etherial inspiration. It was this: “An all pervading smell of turpentine!”

Alcohol, especially in combination with carbon dioxide, in champagne plays almost identical tricks on the brains of the susceptible. Did Emerson get any of his notions about wine through an experience of this kind?

Such then is the result of an examination of sixteen of the greatest poets* of the English language with a view of determining their conscious and unconscious pro-alcohol teaching—for the purpose of deciding how extensive and how strong is the faith of the world in wine.

What is collected here is significant enough of the devotion of the best minds of civilization to the wine-cult and the effects of its subconscious teaching in propagating a love for wine must be enormous. Who will, for instance, deny that Burns' poems made Scotch whiskey famous, a fame which has grown rather than diminished from his time to the present day?

Not only in the great poets, however, are the songs of the wine-god sung. They are everywhere in literature, everywhere they sing wine is an inspiration, a source of health and strength and strong drink a physician.

Let those engaged in the work against the alcohol evil take notice of these things, otherwise they will underestimate the task they are undertaking.

THE INTERNATIONAL ANTI-ALCOHOL CONGRESS

THE International Anti-Alcohol Congress held its tenth meeting at Buda-Pesth from September 11th to September 16th. Not only large attendances but generous hospitality, public and private, made the Congress a landmark in the history of the movement, which is spreading fast in all classes of society, and is beginning to exert an influence in public life. More than 750 members were present, amongst them being representatives of nearly all countries of Europe, and several from America and India. The chair was taken by the Chief Magistrate of Buda-Pesth, who in his opening address congratulated the meeting on the universal interest which it aroused in all official circles, thus ensuring a close study of its proceedings by public authorities. Herr Lukacs, the Minister of the Interior, then bade the Congress welcome on behalf of the Hungarian Government.

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Alcohol and Resistance to Infection.

The first address was delivered by Professor Lehtinen (Helsingfors). He read a paper on the resistance of total abstainers as compared with drinkers against infectious diseases.

Not only statistics of life insurance companies, but also hospital reports and the evidence of daily life proved, he said that the tissues were more liable to infection of all kind when under the influence of even small quantities of alcohol; especially was infection of even small quantities of alcohol; especially was infection of the respiratory and genital canals promoted by the action of beer or other alcoholic beverages. Dr. Wygandt (Wurzburg) delivered an address on the resisting power against mental strain in alcoholic and non-alcoholic individuals. His experiments with healthy persons of all ages, from 7 to 72, show that small doses of alcohol—such as, for instance, 7.5 grams (the quantity of alcohol contained in half a pint of light beer)—have at first a markedly accelerating influence on the process of associative thought. After the lapse of a short time—varying from eight to thirty-five minutes, according to age—thought is impeded, the time of reaction to certain stimuli is lengthened, and combination of thought and action is more difficult. Artificial wine is in the same category as natural wine in regard to its neuromuscular action if it contains alcohol in addition to the aromatic principles, and the artificial liquors—“stomach drops,” “Pick-me-ups,” must be looked upon in the same sense.

Poison not a Substitute for Food.

Professor Kassowitz (Vienna) read a paper entitled *Can a poison be a Substitute for Food?* Only material that can be utilized by the living protoplasm to make good the loss sustained by metabolism deserves the name of food. Alcohol, like chloroform and ether, is not assimilated by the cells, but partly stimulates, partly retards their specific functions; even the oxidation of alcohol has no strengthening effect on the body, as the final result of this process; CO₂ and HO₂ pass through the body without any effect whatever, whilst the intermediate stages act simply as momentary conservators of heat.

*Shakespeare is purposely omitted partly for the reason that the material offered by his plays and poems would, in itself, make a long paper.

An animated discussion followed the lecture, and it was mentioned amongst other things, that an enterprising firm of wine merchants had taken the opportunity given by the "Congress of German Scientists and Physicians" which was held at the same time in Meran, to send a box with half a dozen bottles of wine to each member of that Congress. An indignant protest against such advertising was sent to the firm, and also to the President of the Congress. Professor Kassowitz urged all practitioners to set their faces against the use of alcoholic beverages during reconvalescence.

He stated that, in his clinic for children's diseases, he had stopped the use of alcohol entirely without observing any ill effect.

Alcohol and Sexual Life.

Next came Professor Forel (Switzerland), who dealt with alcohol and sexual life. He said that the direct consequences of habitual drinking were a marked diminution in the number of births, a lessening of the resisting power of body and mind, and the increase of crime. In France the rise of birth-rate could be proved to be due to the fall in the consumption of alcohol; and in countries where drinking was a general habit, weakly, nervous children were begotten by drinking parents. The potentia Coundi, was often at first increased by alcohol, but children begotten under such circumstances were always defective in their bodily qualities. Sexual crimes were in 69 per cent, committed under the influence of drink. A degeneration of the race in most of the European nations was at present noticeable, and therein lies the danger for the Aryans. The abstinent Mongolians and Mohammedans showed an increasing birth-rate and ever increasing activity. The last war was a striking example of the value of abstinence. The coming fight for the supremacy of the commercial world would soon eliminate degenerate races. The question of alcohol in relation to the penal law excited much interest.

Professor Bleuler (Zurich) and Vambery (Buda-Pesth) severely criticized the present regulations and the law as regards crimes committed when under drink. The responsibility of the offenders was not lessened because they were drunk. The proper mode of dealing with such

individuals would be compulsory abstinence from alcohol, and rational treatment on medicinal principles in obstinate cases. Homes for inebriates should be erected by the Government.

The cost of the building and upkeep of such institutions would be covered by the savings in prisons and police.

Effect of Alcohol on Negroes.

A very interesting paper on the action and influence of drink upon the negro population in Africa was read by Herr Moller who had been a missionary in German East Africa. He observed the deleterious effect of brandy and spirits on the natives; it could be only compared with the facts in America, where the Redskins were disappearing before the onward march of civilization with its chief agents, rifles and brandy. Several speakers spoke on education and school in respect to abstinence. Some figures brought forward to illustrate the words are interesting. Herr Heubner (Aachen) examined 7,338 school children: of these only 166 (equal to 2.25 per cent.) had not drunk alcohol, whilst 989, or 13 per cent., had been already drunk once or several times. The only means of restricting the abuse was the adequate instruction of teachers and the propagation of this view among the lower classes of the population by the aid of their officers. A custom utterly to be condemned is the fetching of alcoholic beverages by children for their parents, as is so often the case with laborers and craftsmen.

Railway Officials and Drink.

The important subject of railway service and its relation to drink was exhaustively treated by Dr. Stein, the Secretary of the International Union of Railways. He stated that drink was the commonest cause of breach of the regulations, both by passengers and railway servants. As the gravest danger was involved in carelessness or neglect of the intricate precautions for the safety of the traffic, it would be advisable to prohibit the men from drinking even when not on duty. An international combined action by all Governments in this direction was advocated by Dr. Stein.

Only total abstainers, he went on to say, ought to be appointed to the responsible offices of station-master, blockhousemen, and junction-master. As even a very moderate quantity of alcohol was likely seriously to interfere with the sensitiveness of the retina to color, on no account whatever should an engine driver take a glass of beer, or something similar, before starting on his way. The ideal condition would be a teetotal staff.

The Alcohol Question in the Army.

Even military authorities are turning their attention to the question of alcoholism. Staff-Surgeon Mernetsch set forth the facts and experiments made concerning the value or otherwise of alcohol if administered, for instance before action in war. Sweden was the first country to put the question on a scientific basis. A number of picked soldiers and non-commissioned officers, all good shots, were told off for these experiments. They were ordered to shoot at a target at ordinary distance (200 yards), then they were given one-twentieth litre of brandy (equal to about 1-1.2 oz.). The trials were made on different days, under varying conditions, several times a day and the result was always the same. When under alcohol the result was 30 per cent. less hits in quickfire and the men always thought they were shooting faster, whilst actually they shot much more slowly. When slow aiming was allowed the difference even went to 50 per cent. in favor of shooting in a sober state. The conclusions are obvious. The effect of alcohol on the men when marching could be studied during the manoeuvres. Some companies were given small quantities of alcohol. It was shown that drinking predisposes to sunstroke, and heat-stroke was noticed only amongst the "drinking" companies. The explanation is easy. Since these facts have been ascertained the Austrian soldier is not allowed to carry brandy when on march, except in severe winter and in the baggage of the ambulance corps. Experiments with the view of ascertaining the value of alcohol as a food were a complete failure, owing to some errors in the arrangements. They will be taken up anew when all preliminary work has been done in a manner ensuring trustworthy results.

The Working Class and Drink.

M. Vanderveelde, the Belgian labour leader, spoke on the position of the proletariat and the labourers toward drink. He asserted that it was not right to say that the lowest class were most addicted to drink. It always depended upon the surroundings and the opportunity.

In Russia nearly all classes of the population were drinkers, and the average consumption of alcohol a head was more than four times that of an ordinary Belgian or French labourer. The present development of the industrial use of alcohol was very gratifying, as huge quantities of this material were wanted for the purposes of colour-vingear and celluloid factories—thus giving the alcohol factories a large field; the loss to such factories, if total abstinence prevailed in the civilized world, would not be felt by them at all, as it would be compensated by the demand for industrial purposes. The complaint of such factories—that the temperance movement was likely to ruin their business—was, therefore, not to be taken seriously. Already now the industrial demand was far in excess of the demand for drinking.

A Plea for Moderate Drinking.

A very animated discussion was provoked by the paper of Mr. Salzlehnery, a school teacher. He advocated temperance only, not absolute teetotalism, as it was not possible entirely to eradicate the habit. On the other hand, he questioned the detrimental action of small doses of alcoholic drinks, even if repeated daily for many years.

He stated that the French peasants, for instance, who were in the habit of drinking wine from early childhood, were known to be very quick-witted, active, and prolific. The fall—or, rather, the constancy—of the birth-rate and death-rate in France, which did not allow of an increase of the population was mainly due, he contended, to the low standard of moral life in the very numerous towns, and to the two-children system adopted by the wealthier classes in France.

Even Russia, where nearly everybody drinks, showed no fall in the birth-rate, but an exorbitant infant mortality which had but little to do with drinking. These asser-

tions aroused a storm of contradiction, and the President had some difficulty in closing the controversy.

Temperance Restaurants.

The last speaker touched a very important subject—temperance restaurants. Throughout the Continent especially in German-speaking countries, and also in Russia and Italy, the restaurants expect their guests to consume beverages, and in some places an extra charge, amounting to 5 or 10 per cent. of the bill, or more, is made for not drinking. A reform of these conditions is absolutely necessary if temperance principles are to prevail, as a large percentage of the unmarried men, mostly between 20 and 40 years, who have no family or are engaged in work far from their home have to depend on these public-houses for their midday meal at least, if not for all meals, and they are forced by the custom to drink. This must be made necessary by the erection of restaurants on the "No drink" system.

The Congress as a body could not dispose of any funds for such purpose, but every branch in the different countries should start a movement with that object, and no doubt it would be successful, besides being a very lucrative and prosperous business undertaking. A resolution to this effect was accepted.

Next Congress.

The final transaction was the choice of the place for the next Congress. Stockholm was selected, and an international abstinence bureau was founded for the purpose of preparatory questions.

EDITORIAL

Announcement

WITH this issue the publication of THE JOURNAL OF INEBRIETY is transferred to Mr. Richard G. Badger, of The Gorham Press, Boston. Our association takes great pleasure in announcing this change, by which the business interests of the Journal is to be put on a substantial basis to meet the increasing demands for a larger issue and a wider circulation in all parts of the country. It will be 30 years in the coming December since the first number of THE JOURNAL appeared. During this long period only two issues have failed to appear at the appointed time.

Its publication and business management has been under the control of its editor, but the time has come when its interests have grown to such an extent that only a great publishing house can successfully manage it. From a very small beginning THE JOURNAL has become the great organ of a new subject that is now being recognized by the medical world. It was the first, and up to a few years ago, the only Journal published in the world discussing the medical side of the alcoholic problem. It is now the oldest and largest Journal published in this field. The editorial management will continue the same as usual, and our subscribers and patrons will be pleased to know that arrangements have been made for greatly increased value and wider influence of THE JOURNAL for the coming year.

Some Diagnostic Symptoms of Inebriety

The delirium of suspicion is a very common symptom among inebriates. Often is concentrates into a delusion of the infidelity and treachery of his wife, children and parents. In many instances it is a constant fear of being imposed on, or hurt suddenly by someone. His arms and body are in a spasmodic condition as if to resent some assault or sudden danger. This is a very dangerous condition, and fortunately it does not last long. It is marked by altercations, assaults and violent conduct. An oppo-

site condition frequently appears in extreme credulity and faith in anything that is said, particularly if reiterated. It is at this time that wills and business contracts are entered into, which are the subject of dispute later.

With this condition is extreme tenderness, and generosity to relieve the real or imaginary distress of others. Another state is frequently noted of extreme selfishness and desire to obtain everything which might or might not contribute to his pleasure.

Frequently this merges into dishonesty, and with efforts to take advantage of every opportunity by pretention and falsehood, refusing to pay bills, and denying obligations, and his own signature to papers. Delirium of language is another marked feature, thought seems to be so rapid that only violent words and exclamations are found sufficient to express the feelings.

Persons who when temperate use the choicest words and express themselves in the most pleasing way, when under the influence of spirits exhibit startling profanity and depraved exclamations. Deliriums of grandeur are also prominent symptoms in which the patient seems to be conscious of great power and unlimited resources, and acts on this conception. These are only a few of the curious symptoms manifest by the alcoholized brain.

Alcoholism and Civilization

Recently in a public lecture a noted judge said. "I am convinced that alcoholism is one of the greatest perils to American civilization, and all real progress in America."

A leading Journal pronounced this statement false and extravagant. There are certain general facts that fully sustain this assertion. An outline of some of them will be of interest. All study of inebriety and alcohol show the depressing and delusive effects which follow from the use of spirits. Any sound brain is quickly perverted, distracted, and injured by the use of alcohol.

The senses are deluded, the judgment is disturbed, and this weakness is covered up so that the conduct and motives of persons using spirits cannot be understood. Both moderate and immoderate users of spirits are found in every section of the country. These persons center around saloons, support distillers, brewers and dealers in spirits,

and constitute a class called "Conservatives," opposed to all restrictions and efforts to drive out the saloons. These are the persons who in many sections are prominent in politics and law making, and are unmistakable incompetent citizens, not only by personal example, but their perverted judgment make them destructive to the best interests of civilization. A common example is the city of A. with six brewers, two distilleries, and nearly two-hundred saloons. The officers of the city and its legislative body are all controlled by the spirit and saloon men. They are nearly all moderate or excessive drinkers. Their position in office and election is decided in the saloons and club houses, and although this element is in the minority they have attained such prominence that the reputable citizens do not care to oppose them. Out of this political element men are trained to represent the city in the state legislatures in congress and in the United States Senate. Beginning in the saloon they have come up through the alcoholized interests and the power of capital controlled by this interest until finally they pose, as Statesmen, representing the intelligence, honesty and morality of the community.

Such law makers and representatives depend on the alcoholic influence to keep them in office. They are always moderate drinkers, many of them drink to excess at times. Their ideals are low, and their conceptions of the public interests are perverted by the fear of offending their political constituents. It is from such persons that the evils of political life spring. They support bad laws, are dangerous in their mental conceptions of things, are dangerous in the sense of being influenced for almost any cause either directly or indirectly. A gate keeper on a railroad is found half stupid from the effects of spirits. And although discharging his duties of opening and shutting the gate, is distrusted and discharged.

Capital refuses to take the risk of his mind, acting always sanely in the line of his duty. In a club house near by the governor of a great state is stupid from intoxication, and carried home by his friends. The governor represents the civilization of the state, while the gate keeper protects the company, and the public from accident. The failure of each effects civilization by the destruction of life and property, and lowering the ideals and efforts of the public to conduct the great affairs of

life. If civilization is to go on it can never be helped by feeble alcoholized conceptions of human interests. Leaders and teachers need a clear conception of the highest elements of duties or they fail. Capitalists understand that only clear temperate brains can advance their interests, but the general public pay little or no attention to the character of its leaders, who come up through the saloon, and the selfishness of alcoholic interests. The ease loving citizen votes a license to saloons, and tolerates inebriety as an evil that cannot be removed.

When his property is periled by alcoholic brains, he acts promptly, eliminating this element at once. It is not a question of license but prohibition promptly. These illustrations are numerous, and appeal to every one. They are the rocks on which government and human progress are already breaking.

We as scientific men can only sound the warning, and alarm the public of the dangers of having feeble alcoholized, inebriate leaders in government affairs. We must demand that all men in responsible situations, in legislative bodies, and in state affairs shall be free from alcoholic drinking, and alcoholic interests. That the same principle which applies in business interests, that will not risk capital in the hands and in the judgment of inebriates, shall extend to government affairs. Then civilization will march on unimpeded, and a host of evils will disappear, and the judges statement that alcohol is the greatest peril of our present progress, will be recognized as a terrible reality.

Drug Treatment for Inebriates

Every real advance in medicine has been marked by empiric stages in which the facts have been invested in mystery and pretention, and promoted by ignorant persons. The narrow materialism in practice reacted in a distinct school of medicine which claimed marvelous results from small doses of drugs applied in different ways. The principles which they taught have been accepted by rational medicine, but along higher lines. The many pathes have been revolts against present methods, and have been assumptions of great truths, but so invested with pretention and dogmatism as to repel scientific study. Hydropathy was a distinct school,

teaching the value of water and Osteopathy have taught the medicinal value of massage, claiming it as a specific means of cure. Mind cure, Christian science, hypnotism, suggestion are all similar projections of truths invested with empiricism and pressed on public attention with absurd dogmatism. These are simply psychical means of treatment of great value which are yet to be studied by the profession. The effort to make then distinct schools of study will fail, not because they are not valuable, but unless associated with other measures they are impractical.

The specific drug cures for inebriety are the same empirical waves which foreshadow the value of drugs in inebriety, and mark a distinct evolution in the growth of truths along these lines. The positive assertions and dogmatic assumptions of the value of this or that cure is the clearest evidence of its weakness. No truths of science ever require mystery or pretention to make their value known.

Recent studies of the physical conditions of inebriety indicate clearly the possibilities of cure and prevention by the use of drugs. They also show the absurdity of the specific discoveries of drugs that are curative. Such studies indicate the toxicemic states of the inebriate, in which drugs and hydropathic measures are demanded.

The neuriment perversions, the states of nerve exhaustion, the conditions of inflammation and slow degenerative processes are all conditions requiring drug measures, and the use of remedies.

At present the empirics concentrate all their efforts in suppressing the craze for drink, and believe when this is done the cure is completed. To cover up this one symptom by narcotics cannot be curative. The exciting causes still exist, and only need certain conditions to break out again. To remove the drugs and cover up their effects for a brief period is certainly a great advance, but to stop there is to fail. Inebriety is curable and preventable by distinct therapeutic measures, but they must include drugs with physical and psychical measures in surroundings that will add to their value: Ignorant quacks my the means of mysterious drugs undoubtedly send out 50 per cent. of all inmates treated for four weeks, buoyed up with the hope of a permanent cure. It is absurd to say that the patient who relaxes is wilful, and negli-

gent after this period. The cure is scarcely begun, and often the means used while covering up the symptoms have lowered the vitality and actually increased the degeneration of the patient. Later experience furnished ample proof of this.

The very fact that a large number of persons are convinced of the value of these secret remedies shows the psychic possibilities of means and remedies applied along rational lines of the permanent curability of this class of persons. If empirics are able to impress the public with faith in the possibilities of cure by their secret methods, how much more the regular profession could do by scientific care and treatment.

Inebriety and Paralysis

The continuous use of alcohol has long been recognized as a cause of general paralysis. It would appear from recent investigation that this disease is due in a certain number of cases to alcohol. Associated with it are not infrequently syphillitis and gormandizing in which meat is the principal article used. In a certain proportion of cases the use of alcohol has preceded all the other recognized causes and it is assumed that this is a leading factor in the disease. The use of alcohol is followed by toxemias, with diminution of oxygen and increase of poisoned products through the failure of proper oxidation. The vasomotor palsies which extend to the arteries of all parts of the body favor the growth of bacterial products and diminish their elimination. The normal metabolism of foods is always deranged by the use of alcohol, and it is safe to reason that an injury beginning at this point may produce a general derangement in the formation and absorption of protoplasmic matter. These conditions are found in persons who have used spirits any length of time. The sclerotic condition of the arteries and the chronic changes in the tissue and cell show the same changes which are seen in general paralysis, only in a more advanced stage. The modern theory that general paralysis follows as a result from chronic toxic infection beginning in the alimentary and respiratory tracts is supported by much evidence. From this cause, excessive developments of various bacterial forms and growths appear, and with it a diminution of the defensive bacteria

against this toxic infection. The accumulation of these toxic products enter into the circulation and concentrate either on the nerve cells, or the tissue element of the vessels and upon other parts of the body. Gormandizing, and excessive meat diet often have the same sequel, but the latter condition is frequently associated with the use of alcohol. There are reasons for believing that chronic inebriety will be found hereafter to be only another stage of general paralysis. The changes and symptoms occurring in both are often identical. Both the nerve cells and the walls of the vessels of the nervous system and brain show deposits of fibrin and degeneration. The same nerve changes are seen in the extremity in neuritis. The term "auto-intoxication very clearly describes active causes and early derangements and disturbances of gastro-intestinal character common to both inebriety and general paralysis. In both there is toxic infection and low tropic conditions which steadily increase until permanent changes occur. Another interesting fact is the susceptibility of the body to take on serious palsies dating from shocks. It is evident that this could not occur except under favoring conditions, such as the presence of toxins and feeble resisting powers. A shock of sudden palsy diminishes this resistance to such an extent that an overwhelming infection and concentration of poisons may occur. Some cases of inebriety have developed symptoms of general paralysis dating from a shock, or some violent perturbation of the nervous or gastric system. In nearly all cases of general paralysis, the use of alcohol is a prominent symptom at some time in the history of the person. Whether the desire for alcohol springs from a profound exhaustion and irritation of the nerve centers, seeking relief or from some localized poison, or oncoming disease is not clear. Investigation along this line promises some very interesting results.

Inebriety at Oxford

This staid old city and its ancient colleges are greatly disturbed by the "Searchlight Exposure" of their old drinking customs. The Bishop of London in a sermon before the under-graduates, denounced college drinking, and declared that its prevalence was a disgrace to the intelligence of scholars. He declared that in the West

End of London a man who became drunk at dinner would never be invited again, and the professional man who was seen intoxicated was greatly discounted among his better patrons. This and similar statements has aroused a bitter controversy of assertions and denials through the college Journals and the London Press, which has presented a rather lurid appearance.

Both moderate and excessive drinking seems to be a common experience from the freshmen up to the dignified professor, and even to the churchmen. Dinners and banquets in which nearly everyone becomes intoxicated, is asserted by some, and explained by others.

Finally Dr. Soutar of London, comes to the support of the Bishop. The Doctor is a well known medical man, and declares that the Bishop has in no way exaggerated the evil, also that a large number of persons become inebriated during their college career, and are shipwrecked in after life. Many of them never graduate. He also asserts that this is the direct result of their hereditary degeneration. Recruited as they are from the ranks of the wealthy and the aristocracy, the college becomes a practical school for the development of inebriety with mental and physical deterioration. The controversy still goes on and it is evident that some great reforms must follow from this illumination of what is called "respectable drinking."

The American public is also alarmed with the same conditions which exist in a minor degree in many of the older colleges of this country. Fortunately prestige and custom has a very slight hold on the under graduates of our colleges. Moderate and excessive drinking is not popular, even at banquets, and all use of spirits as a beverage is becoming disreputable among scholars.

The faculties and teachers are usually very practical men, fully alive to the dangers of moderate drinking, hence, discourage this custom on all occasions. One prominent paper calls this controversy a study of the poisoning of the wells, and the water supplies at its source. This is very significant, and we shall follow this movement with interest.

ABSTRACTS

Treatment of Inebriety

Abrights Office Practitioner awarded the second prize to the following essay by Dr. William Lee Howard of Baltimore, which appeared in that journal.

My experience has taught me that the alcohol habit, either in the form of inebriety or dipsomania, is a symptom of neurotic disorganization. There is always an instability of psychic control. This causes a constant unphysiological condition—faulty metabolism—which further aggravates the condition of the inhibitory forces. There is a constant state of unrest, morbid fear of self, and loss of control over impulses.

In the treatment of the alcohol habit it is the *individual* that must be very carefully studied and treated. In some of these neurotics there is a psychic epileptic equivalent which is expressed by attacks of dipsomania; in the neurasthenic the fearsome feeling of unrest, the "nervousness," is submerged by alcohol, the subject not having lost the sense of the ego, as is the case in the dipsomaniac.

History and heredity enter more largely into the consideration of the treatment of the alcohol habit than into that of any other form of nervous disease. These must be carefully studied. While this is being done all toxic material must be eliminated. In this preliminary treatment much judgment must be used. Neurasthenics do not well stand cathartics, and the physically unfit do not react from the Turkish or Russian baths, yet one or all of these methods must be used in getting the poison out of the nerve-cells. With a proper understanding of the individual, the alcohol can be withdrawn as rapidly as the toxin is eliminated. Bromides, chloral, morphine, etc., are not needed; in fact, are injurious. In the cases where great restlessness is prominent, the hot pack is of value. With the exception of nitrate of strychnine, use no drugs. I give the strychnine in 1-20 of a grain doses every three or four hours. All such tonics as cocoa, etc., are tabooed. It seems scarcely necessary to say that all possible and easily taken and digested food must be given. The feeding is done five or six times a day, and at night. They should be placed on a diet that contains little proteid mat-

ter, for it must be remembered that an exclusive proteid diet causes the formation of excessively large quantities of soluble peptones and albumoses, which have an exciting action on the nervous system and constitute a favorable basis for the development of multiple neuroses.

All these patients should be thoroughly impressed with the fact that they are neurasthenics, that they must recognize this state throughout the active periods of their lives, and that alcohol, instead of relieving their nervousness, aggravates it to a point that is dangerous. Don't tell your patient to "use will power" until he has recovered it. Let him understand that you know his nervous condition compelled him to take a drink or two, and that this was like a match to a keg of powder; an explosion took place and you are going to repair the damages. When he realizes that you will work for him instead of praying for him he will have confidence and hope. Use hypnotic suggestion daily for two weeks after you have put him through the process of elimination. In many cases the use of tobacco will have to be prohibited. The strychnine, 1-20 of a grain, should be used for three months. A mild purgative water must be taken twice a week, with cold baths every morning, and strict instructions given to avoid all "nerve tonics." Finally, remember, every case is a law unto itself and must be treated accordingly.

Inebriety and Drug Diseases

In volume 8, of the system, Physiologic Therapeutics, Dr. Deroun gives a very good study of Rest, Mental Therapeutics, and suggestion.

Under these heads he devotes nearly thirty pages to the treatment of intoxication, and drug habits. The following selections give a good idea of the value of this study. "Drug habits have their origin in a large number of cases, in an underlying Neuropathic constitution. Persons do not ordinarily acquire alcoholism, for instance, from the use to which alcohol is put for social or medical purposes. This may be the apparent origin of some cases, while in many patients a drug habit can be traced to the first administration of a drug by a physician; but it is nevertheless true that in a far greater number of instances the drug habit exists not because of these incidental factors, but because the nervous system of the

patient is of itself pathologic. The close relation, observed in so many family histories, of alcoholism, tuberculosis, and insanity can have but one significance; namely, an enfeebled organization with diminished powers of resistance. Frequently the neuropathic condition does not assume a definite clinical form, the patient merely presenting a tendency to neurasthenic break down, to general nervousness or hypochondria. In other cases the history suggests very strongly recurring waves of depression, analogous to those which are observed in a frankly developed melancholia."

The outline given of the action of alcohol will serve as a text for general remarks upon the treatment of the drug habits and toxic insanities as a whole. Two important facts should be prominently borne in mind: first, the underlying neuropathic constitution; and, secondly, the damage done to the nervous system and other organs by the poison. These considerations at once indicate that treatment must consist in something far more radical than the mere withdrawal of the stimulant—that a plan of procedure must be instituted which will favor as large a degree of recovery in the nervous system as possible, and which at the same time will take cognizance of the various visceral disturbances that have been induced. With these preliminary considerations, let us turn our attention to the treatment of the various drug habits and insanities of intoxication in detail.

In the management of chronic alcoholism, we are especially to consider the underlying neurasthenic or neuropathic factors, and whatever plan of treatment we institute must take these factors into account. Secondly, and of equal importance, is the detailed study of the patient's symptoms. There is almost invariably present a marked chronic gastritis. The liver also should be carefully examined bearing in mind, of course, the relation of alcoholism to cirrhosis.

The heart and blood-vessels and the urine should be similarly studied. It is necessary to point out here possible changes in the lungs, save to mention the not infrequent coexistence of phthisis and alcoholism, and the further fact that many confirmed alcoholics suffer from

chronic bronchitis. The practical point for the physician to bear in mind, is the fact that the alcoholic is a man who is ill; that he is suffering not so much from the presence of the poison, as from a diseased nervous system and from various visceral complications, slight or pronounced, as the case may be.

If the patient's circumstances permit, the best plan of treatment consists in withdrawing him from his ordinary surroundings, instituting a system of absolute isolation, and at the same time placing him under the care of a trained nurse. Such a plan as this is, in suitable cases, almost invariably followed by the most gratifying results, results which are also far-reaching and frequently permanent; the isolation of the patient gives the physician the best opportunity for the study of the morbid conditions underlying the disease, and for their appropriate treatment. *

It is remarkable in how great a degree alcoholic insanities yield to treatment, provided they have not advanced too far or continued too long. Even in cases of alcoholic dementia, so profound as to stimulate paresis, most remarkable improvement is observed.

Alcoholic paranoia alone offers an exception. In alcoholic paranoia we have to deal with a patient who has, so to speak, the paranoiac constitution; the alcohol has merely been the exciting cause of the development of the disease, the patient being already predisposed by his organization to that form of nervous degeneration which manifests itself as delusional insanity. When improvement or recovery follows in alcoholic confusional insanity, or alcoholic dementia, it usually does so only after many months of treatment. But the degree of improvement is at times remarkable, the patient becoming apparently normal, save for some persistence of nervous weakness or a degree of inability for sustained intellectual effort.

Heredity and Alcohol

At a discussion on Physical Deterioration which took place at the Leicester meeting of the British Medical Association, Dr. Dawson Williams said:

“It may be suspected that very much will depend upon

the habits of the father with regard to alcohol. The influence of alcoholism on the question under consideration is complex. The child may be doomed from the moment of its begetting; that is to say, the fetus may be tainted by the alcoholism of the father. Sabrazes and Brongnes have recorded an instance in which a robust and temperate woman married an inveterate drunkard; she had five children, of whom four died within a fortnight of birth, and the fifth before attaining the age of five years. Last of all, the husband died, and the woman married again, a robust, temperate man, by whom she had two healthy children.

“Triboulet, whose view is supported by other French writers, goes so far as to assert that alcoholism in the father has a more important influence on the offspring than alcoholism in the mother, even though continued throughout the whole of pregnancy, so that the developing tissues of the fetus are constantly poisoned by alcohol, of which its blood continually contains a considerable percentage.

“The chronic poisoning may, however, cause abortion. If the pregnancy reaches term, the infant may be weakly, surviving only a few days or weeks. Demone, who studied the history of ten families chosen at random, found that of fifty-seven children born alive, twenty-five died within the first week. If the child survive it may prove to be defective mentally or physically.

“The influence of alcohol in producing unfitness does not end with these congenital defects. The poverty due to the inebriety of the father may deprive the child of food, and when the mother is also alcoholic, it is deprived of much more. The child of alcoholic parents born debilitated, is ill-fed, ill-clothed, and ill-housed, because the money which would feed it, clothe it, and house it well, is either not earned or spent on alcohol.”

Some Notes on the Opium-Habit and its Treatment

Dr. Jelliffe, in the *American Journal of the Medical Sciences*, writes as follows:

“It would be futile to attempt, at the present time, to compute the number of people who use this drug; but there can be no doubt that its habitual use is very extensive, and its occasional indulgence is enormous.”

Opium-takers comprise all those who take the drug in different forms, as laudanum, paregoric, the extracts, etc., by the mouth, vagina or rectum; a second and very large class absorb the drug by smoking; a third class who use the drug hypodermically. Roughly estimated in New York City, its habitual use is confined to perhaps 30,000 individuals. That the drug is used to an almost unknown amount is certain, but any effort leading to the positive determination of the number of habitues must necessarily be futile. As to the treatment, it must be remembered that the habit, once acquired, is far stronger than alcoholism; hence the portrayal of the hell of a confirmed habitue cannot be too strongly painted, if, by doing so, we can have it all as a prophylactic. It must also be remembered that the habit is "paroxysmal" with some, and that others discontinue its use by change of scene and surroundings, or by an intense effort of the will.

The cardinal principles on which a rational therapy are to be founded are: (1) A substitution of different ideas by suggestion, and (b) the substitution of different sensations by other drugs.

Many other drugs have been employed to carry out this idea of substitution, but have not been of service outside of institutions or "close watching."

The details of the Macleod method are, 120 grains sodium-bromide are given in a half-tumbler of water every two hours during daytime, until one ounce has been taken in one day. It is safe to stop the administration after twenty-four hours if the patient is quite drowsy. After second day of sleep, the bromide is withdrawn. Rectal feeding is instituted.

Heroin is the next drug selected, and is used "for the blissful feeling of tranquility, accompanied by a sharpening of the intellectual faculties." All anxieties are forgotten in the pleasure of simply living. Under the use of heroin, practically all the sensations of morphia are reproduced, but there are certain points of difference. The sense of "euphoria" is not an exhilaration of the central functions, neither is it forgetfulness of external impressions, nor the joy of living in a world apart; it is simply a cessation of the craving.

The Antagonism of Strychnine and Alcohol

French believes the most important of the drugs employed for chronic alcoholism is strychnine. It is the most powerful nerve tonic known and acts upon the entire nervous system, but with a special tendency to the spinal nerves and the cardiac, respiratory and vasomotor centres. It not only renders the mind more clear and active, but even seems to strengthen the will power. It increases intestinal peristalsis, and aids elimination. Briefly stated, its basic action is almost exactly antagonistic to that of alcohol. It is a tonic and true stimulant, as opposed to an anesthetic and a paralyzant.

The system of the inebriate is relaxed in every part, paralyzed in greater or less degree, unable to carry on its functions properly. Mentally and physically the drunkard is dull, nerveless, incapable. The essence of his condition is that he has lost the power to control himself. He lacks the vigor and endurance that once were his. His mind is dulled, and his moral sense is weakened.

It is in such a condition as this that strychnine has its proper field of action. By its use the tissues are revived. As a part of its effect, every nerve and muscle is keyed to its highest pitch. The mind acts more clearly, and the man is raised out of his soddenness and indifference. The world takes on fresh colors, and life assumes a new interest. The feeling of depression and inability gives way to one of lightness and elasticity. The terrible craving for alcohol, the dull, horrible, gnawing at the stomach, that fearful, all-gone sensation, which in the drunkard's previous experience was only to be relieved by more alcohol, now begins to grow less and soon disappears entirely, while in its place there comes a sense of well-being, of elevation, of ability, of the power to accomplish, which is so unlike that false sense of confidence which comes with the first glass of an intoxicant, and so far superior to it, that the man no longer seeks to drown his grief in alcohol. His appetite for this is gone, and he no longer seeks or desires that for which but yesterday he would have periled body and soul.

These convictions were formed as the result of several years of special experience in the sanitarium treatment of alcoholism.

As specially illustrating the counteracting effect of the two drugs, the author recalls the case of a man who was a hard drinker and possessed of an ungovernable appetite, and who yet had left enough manhood and ambition to be anxious to be free from his bondage. He was undergoing treatment by the tonic method, the main element in which was strychnine, while at the same time he was allowed to drink as long and as much as he desired, in the belief that this method would produce the most satisfactory results.

For three weeks this man continued to drink to excess, notwithstanding the fact that he "could not keep it down." In fact, while the sickening effect produced by apomorphine was especially well marked, the antagonistic effect of the strychnine, upon which alone is any reliance placed for a true curative action, seemed not to be in any way manifest. At the end of this time the patient was told by the author that he should be obliged to taper off his whiskey, and withdraw it wholly in three days. No sooner was the whiskey reduced than the effects of the strychnine were made manifest, and at the end of three days his desire for whiskey was entirely gone. The next day he still had no desire for liquor, and the following one he could not have been driven to take it. Nor has he ever, from that day to this, either drank or desired to drink any more alcohol, though ten years have now passed, and he has been for several years the liquor officer of his town. (*Merck's Archives*).

Dr. Mackay, of Quebec, after twenty-five years' experience in the treatment of criminal inebriates, arrives at the conclusion that strychnine is our most valuable aid in the treatment of alcoholism, but admits that will-power is essential to successful treatment. Of some 400 cases of criminal men and women, besides others treated under the auspices and control of the Recorders' Courts of Montreal and Quebec, 60 per cent. were cured of the craving for alcohol in a period of twenty days, and for the most part they remain permanently cured.—*Intermittional Therapeutics*.

BOOK REVIEWS

A Text Book of Physiology. Normal and Pathological. For Students and Practitioners of Medicine. By Winfield S. Hall, M. D. (Leipzig) Prof. of Physiology Northwestern University, Medical College. Second Edition, enlarged, Lea Bros. & Co.

This volume is Encyclopediac in its arrangement and presentation of topics, and seems more a work for reference than for enjoyable reading. The illustrations are numerous and very good, and often more instructive than the Text. The division of the subjects is excellent and enables the reader to readily find the exact facts he is looking for. All the latest researches are mentioned and the instruments of precision by which physiological problems can be tested are given with great minuteness. The author has followed the German in both style and method of presentation, which is often confusing in the mass of facts and bewildering in their number and complexity. It would appear that the student would have to spend a much longer time than usual to pass a technical examination on this subject as presented in this book.

Hence it would seem that this work is more adapted for the library of a physician, and for consultation, rather than for elementary study. The author has shown his ability to present condensed and graphic studies of physiological subjects in many of his monographs, but in this book he is rigidly technical, and lawyer like in his statements and references.

Chapter 11th, on the Physiology of the Nervous system, will be read with great interest as giving minute descriptions of late researches, and is a most satisfactory study of the book.

Chapter 5th, on Digestion, is also a very excellent study. The chapter on Metabolism is very well presented, both in its chemistry and physiology. The impression on the readers mind is, that this book should be used as one of reference in the office of every physician. It certainly is a rare collection and grouping of facts in physiology not well known by the general practitioner.

The publishers have presented a fine volume, well illustrated in good type, and otherwise attractive.

System of Psychologic Therapeutics. Edited by S. S. Cohen, M. D. P. Blakson Son, and Co., Publishers.

Volume eight of this series, is devoted to rest, mental therapeutics, and suggestion, by Dr. Derum. Six chapters discuss fatigue, neurosis, hysteria and the therapeutics of rest. Part second, is devoted to mental diseases, and the general principles of treatment of the insane. We have copied several paragraphs showing the suggestiveness and value of the work. In part third, suggestion and mind cure, and all the various topics associated with this are presented. This volume is exceedingly valuable, and in many respects, among the most practical which have been issued. Volume seven is devoted to mechanical therapy and physical education, by Dr. J. K. Mitchell. The second part discusses physical education by muscular exercise. A concluding chapter, by Dr. Pyle, is devoted to Ophthalmic therapeutics, and presents in a very graphic way. The many disputed questions, concerning the Eye and its functions. This work like others of the series groups a mass of facts that are not to be found in any other form, and hence, its value for both the general practitioner and specialists. As its name indicates, it is a special study of the therapeutic means for the restoration and cure of disease. Without doubt this series of volumes cover a field more exhaustively and thoroughly than any other work in the English language. The clear cut, abundant illustrations add much to the volumes. The type and arrangement in paragraphs enable the reader to find any particular subject with the least possible effort. These books are therefore, graphic personal studies as well as encyclopediac presentations of all the general facts known on these subjects. We have spoken of them before, and can now add our renewed pleasure, and commendation of this great system of studies.

CLINICAL NOTES AND COMMENT

In England and on the continent the term "Temperance Hotel" appears very common in all the large cities. This shows a decided evolution of public sentiment not seen in this country. The traveling public demand home like quietness in hotels, which cannot be had where alcohol is sold, and a public bar maintained. In this country a few small hotels are advertised as temperance houses. But with few exceptions they are not attractive in many ways, whether this is the fault of the managers or the public, it is not clear.

In London and many of the great continental cities there are hotels where alcohol is not sold, and they publically appeal for patronage for this reason. Most of these hotels are crowded with persons who appreciate the comfort of a total abstinent atmosphere.

The West Central Hotel at Southampton Row, is a high class hotel of this character. It is continually crowded with the better class of business and professional men, and is a very attractive home for travelers and those who desire home comforts.

Mr. Richard J. James of the Central Temperance book room in London House Yard, Paternoster Row, publishes a booklet, containing the following short studies by four most eminent men: "Alcohol and Commercial Efficiency," by Sir Victor Horsley, F. R. S. F. R. C. S. "Alcohol in the light of Modern Science," by W. McAdam Eccles, M. D. F. R. S. Surgeon to Guy Hospital. "Alcohol and Empire Building," by Theo. B. Hyslop, M. D. M. R. C. P. Supt. Bethlehem Asylum, and "The Physical Effects of Alcohol," by Sir Frederick Treves, F. R. C. S., etc., Surgeon to the King.

Prof. William James says "An unhealthy minded person suffering from all sorts of regrets where ambitions and aspirations has been obstructed, suffers from bodily discomfort, not distinctly localized, but breeding a general mistrust, and state of depression. It is this condition that developes the thirst for alcohol, and more than half of all persons who drink, do so at first to secure the temporary anesthesia from these morbid feelings,

which had they been normal at first would not have existed."

Dr. Schofield's "Nerves in Order" is a most valuable work, bringing out the facts that the use of alcohol and drugs would not exist if the persons had healthy nerve forces, and had not drawn their vital energies down below par. The Anesthetic of alcohol and drugs cover up this sense of loss, and create the feeling of restoration and relief. Nothing can be more reckless than concealing mental and nerve bankruptcy by covering up the warnings of this condition.

A Theory of Narcosis

Dr. Walsh in a letter to Medical Notes and Queries, says: "At the first meeting of the Harvey Society for the Diffusion of Knowledge of the Medical Sciences, Prof. Hans Meyer, of Vienna, discussed the theory of narcosis which he has worked out as the result of chemical and biological investigation in this interesting field. Curiously enough, Prof. Meyer considers that the very first explanation of narcotics ever offered, not long after the introduction of ether, contains a germ of truth greater than is to be found in most of the subsequent explanations of the action of anaesthetics. Two English observers in the late forties of the last century declared that narcosis was due to the solution in the ether employed of some of the fat of the brain. They thought that they could demonstrate that in subjects dying not long after narcosis there was less fat in the brain and more fat in the liver than is the case in normal individuals. The main part of this theory is disproved by the fact that recovery from anaesthesia is too complete and too prompt for narcosis to have been the consequence of any material change in the brain substance or in the environment of the brain-cells. It remains true, however, in spite of the more than fifty years of advance since these English investigators worked out their theory that only fat solvents prove to be narcotizing agents. It was thought at one time that fat solvency on the part of the narcotic was directly proportional to its narcotic power, but this is not true, for many fat solvents may become so diluted by their own solvency in the water of

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the body as to lose their power of dissolving fat, and consequently also some of their anaesthetic faculty.

Prof. Meyer has shown by a series of carefully planned observations that the narcotic affect of an anaesthetic is as the quotient of its power of dissolving fats divided by its own solubility in water. If a substance dissolves fats very freely and is not at all soluble in water, it acts strongly as a narcotic. If it is a strong solvent of fats but readily admits of dilution by water, its narcotizing power is lessened to a very great degree and it is a low-strength anaesthetic. These observations were tested biologically by putting tadpoles in a solution of a narcotic, just strong enough to keep the animal under the sway of the anaesthetic.

With some inconsiderable exceptions, Prof. Meyer's rule was found to be quite true for some twenty narcotic drugs. Various of the narcotic substances have a higher or lower power of dissolving fat according to the temperature. Careful observation showed that fat solvency was not always increased by a higher temperature, though this is usually the case; occasionally substances dissolve fat better at a temperature lower than the ordinary temperature of the room. These facts were taken advantage of to test Prof. Meyer's theory from another standpoint. It was found that when animals were kept in a narcotic solution just concentrated enough to maintain them under the influence of the drug, they could be waked or put to sleep again at will by raising or lowering the temperature of the solution, and that this effect was in accordance with the variations produced in the fat solvency of the respective anaesthetics by the changes in their temperature. Prof. Meyer thinks then that the narcotic must be considered to act upon the lecithin contained in the brain-cells of the sensory portion of the cerebrum, and particularly to act just enough to disturb the ordinary combination that makes up these cells, so impairing the equilibrium of forces that exists within the normal cell. Any lecithin-containing cell, even among the plants, can be brought under the influence of an anaesthetic, and the sensitive plant may be made to lose entirely its so-called reflex irritability.

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TABLETS
(OPPOSED TO PAIN)
—
THINK IT OVER
THAT'S ALL

THE JOURNAL OF INEBRIETY

Simple Substitutes for Alcohol, in Sudden Sickness and Accident. By John Wishart, M. D., of the Dudley Colliery, Northumberland, Eng.

This is a little booklet giving a list of fifty or more substitutes for spirits, and giving general advice how to treat conditions which were formerly given alcohol, as a proper remedy. Copies can be obtained from Richard J. James, Paternoster Row. The same author has two very interesting little booklets, one entitled "Alcoholic Beverages, their preparations and varieties: The other "the heredity effects of Alcohol." Both written in a popular language, and intended for general readers.

Manual of insanity with special reference to criminal responsibility. By H. C. Rutter, M. D., of Columbus, O.

The author has been Supt. of several institutions for the insane, and is now director of the Ohio Sanatorium, and has had a large experience in the practical treatment of the insane. He has grouped in this book a number of very interesting studies on the questions of responsibility presented in such a fair rational way, as to thoroughly convince the reader. It is a personal study in which the authors views are made very prominent. The reader will differ with him in many of his conclusions, because they do not represent the more modern views, but he will be pleased with his strong common sense conservative statements of facts. Many of the papers are admirable studies and real contributions to the subject, and the book will be welcomed not only by his friends, but by others as an important contribution to this subject. We shall quote from it in the future numbers of the Journal. It is published by the author, and is an attractive volume of nearly 300 pages in good type and dress.

A police magistrate in St. Louis requires persons who come before him for intoxication, to sign the pledge for one year, holding over them the sentence for this time. Should they violate it a double penalty is inflicted. He is careful not to pledge the apparently incurables, and claims a large per cent. of permanent restorations.

The change in the dates of the issue of this Journal is rendered necessary by the disturbance from the printers' strike. Happily, it is a return to the original plan which began 30 years ago. The first number of this Journal appeared December, 1876, and the subsequent issues were on March, June and September, the year beginning with the December number.

We especially call attention to the classical study of the influence of alcohol on nursing women, by Prof. Bunge. This paper has been very widely noted by abstracts, but it is now for the first time published in full. Copies have been issued in a pamphlet form in England.

The conclusion of Dr. Madden's most interesting paper on *Wine and the Poets*, will be followed by another very interesting study from the same author along similar lines.

The annual meeting of the *American Association for the study of Alcohol and Inebriety* will be held in Boston June 8th and 9th. A very interesting programme of original papers will be presented. Correspondence is solicited by the Sec. Dr. T. D. Crothers.

P K

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A R

The Quarterly Journal of Inebriety

*Is the only Journal published devoted to the
medical study of Inebriety, Alcoholism,
Opium, and other drug manias.*

¶ There is no branch of medical or social science of more interest, and less understood by all classes. ¶ Every leading and professional man who would keep up with the progress of the times, should read this Journal. ¶ It comes home to everyone who is interested in this topic, full of suggestions and instruction, pointing out the practical solution of one of the most difficult problems of modern times. ¶ Established in 1876 it was the first, and is the only Journal published presenting exclusively the scientific side of this subject. ¶ This Journal occupies a field entirely new, and conflicts with no other publication, and hence has a circle of readers not confined to any one class.

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Insanity and Drink

Dr. Clouston in his last report of the Edinburgh asylum for the insane remarks as follows: Of the direct and exciting causes excessive drinking stands out well first. My last year's statistics and conclusions on this matter were so severely questioned in some quarters that this year we took unusual care to obtain correct histories of the cases. We gave the benefit of the doubt to all in whom a doubt could possibly exist. In 87 cases, or 19 per cent. of the whole, the excessive use of alcohol had undoubtedly upset the brain functions. This is 10 per cent. under last year when the percentage of alcoholics was 30. I find that the past year of dull trade has been associated elsewhere with a diminished alcoholic lunacy rate. In Ayrshire, Dr. Esterbrook points out that the alcoholic lunacy rate has fallen from 26 in 1903 to 13.1-2 in 1904. He says—"With depression of trade and diminution of employment there has been less money to spend and less drinking." Taking a scientifically accurate view of the precise effects of alcohol on the brain, and thus excluding all cases where the poison caused only an ordinary mental attack, I find that there were 67 cases or 15 per cent. of "Alcoholic Insanity" in the strict sense, that is, an acute disease with more or less paralysis or motor tremors, or vivid hallucinations of sight or vision, and mostly with increased temperature. Last year (1903) the percentage of strict alcoholic insanity was 23. The discussion of this subject last year clearly brought out the fact of the prevalence of alcoholic insanity in our cities as compared with our country populations and of its increase in recent years. Glasgow and Forfarshire were marked contrasts. It has frequently been said of late that there is an increasing tendency to excess in alcohol by the women of our poorer city populations. Our statistics seem to bear this out. Our proportion of female alcoholics has been steadily increasing until this year it reached the number 49, or 18.1-2 per cent. of the total female admissions, a number and a proportion never before attained in our history. The total number of the female alcoholics actually exceeded that of the men this year. One fervently hopes this is an accident. Drink is a potent enough cause of degeneration among our men, it will be the very death of the race if our women in large numbers take to it.

THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND NARCOTICS

THE OBJECT OF THIS SOCIETY IS

1. To promote the scientific study of alcohol and other narcotics, particularly the etiological, physiological, therapeutical, and medico-legal relations, and also the sociological and clinical aspects of this subject.
2. To gather and formulate all the facts of the disease of inebriety and other forms of narcomanias, and point out the means of cure and prevention by legal and institutional methods and other remedial and prophylactic forms of treatment.
3. To compile and make available the studies and experiences of physicians in all parts of the country who have given attention to the diseases associated with and following from alcohol and other forms of drug taking.
4. The spirit and purpose of this society is to study alcohol and narcotics in all their relations to the human economy from a medical point of view, independent of all previous theories and conclusions.
5. All regular practitioners of medicine, and others whose credentials are satisfactory may become members by a majority vote of the Executive Committee after signing the application below, and forwarding it, accompanied with the initiation fee (\$5.00) and the annual dues (\$2.00), to the Secretary of the Society.

A P P L I C A T I O N .

I desire to become a member of The American Society for the Study of Alcohol and Narcotics, and am willing to comply with the requirements of its by-laws, and promote the object of this Society.

Name

Address

Titles

Date

Address all Communications to

T. D. CROTHERS, M. D., Secretary,

194 Boylston Street, Boston.

Lectures on Inebriety

It is asserted by the best authorities, and sustained by statistical studies, that at least half a million persons are suffering from the effects of excessive use of spirits and drugs in this country. Also that the direct and indirect mortality from this source is from sixty to a hundred thousand persons every year.

The theory of disease has been practically accepted by the profession. An army of quacks are occupying this field, claiming to have discovered remedies and mysterious drugs for the cure of this disease. Over a million persons are organized in societies trying to remedy and cure this evil, its influence and prevalence has created alarm in the public mind, and all sorts of measures and means both legal and moral are being urged for its cure and prevention.

A few physicians have been urging the medical study of this subject, and creating a literature and attempting to arouse the profession to study the alcoholic and drug evils from a scientific point, and become teachers of public sentiment rather than followers as at present. Recently the Boston College of Physicians and Surgeons have invited Dr. T. D. Crothers of Hartford, to give a systematic course of lectures on this subject before the graduating class of the college. This is the first effort made by the medical colleges of this country to teach its graduates some of the facts of this most important and timely subject, and will no doubt be followed by similar courses in other colleges. The time has come when this subject must be taught to the graduate students, to enable them to meet the increasing demands for medical treatment of this class.

Dr. Woodruff's study of the Identity of Variations and Modifications, is a somewhat obscure title, for a very lucid presentation of the problems of heredity. The influence of light on these race variations is a most fascinating topic, and no one is more able to clear away the difficulties of this subject, than this author. We shall quote from this pamphlet in the future.

The October number of *The British Journal of Inebriety*, contains Sir Victor Horsley's lecture, on the effect of alcohol upon the human brain. This is a memorial address to the memory of Dr. Lees and Mr. Raper, and is one of the most graphic presentations of the subject, which has appeared in a long time. Dr. Shaw has also an excellent paper on the psychology of the Inebriate. The January number contains the Norman Kerr memorial lecture, by Dr. T. D. Crothers, and some other very interesting matter. It is a great pleasure to call attention to the excellent literature, and comments published in this Journal. The energy of the Secretary, and the officers of the society are rapidly building up a great specialty, and these early efforts will be regarded with great interest in the near future.

THE PHYSICIANS' VISITING LIST FOR 1906—

Fifty-fifth year of its publication. The Dose-Table herein has been revised in accordance with the new U. S. Pharmacopoeia (1900). Philadelphia. P. Blakiston's Son & Co.

This is one of the oldest physicians pocket-memorandum and visiting list now published. Through all the long half century since it was first issued, there has been a steady improvement in the arrangement, and tables and other matters essential for ready reference to be carried in the pocket of the physician. It has come very near to an ideal handy-pocket-volume which every physician should have with him constantly. We believe this is one of the most essential little volumes, and more frequently referred to than any other. It is good for any time of the year. Send to the publisher for a copy. of the year. Send to the publisher for a copy.

The authorities of the city of Johannesburg, South Africa, has passed an ordinance forbidding the insertion of spirit and gambling advertisements in the papers, circulars, pamphlets, or any public prints circulated in the city. Imposing a penalty of \$125.00 or two months imprisonment, for a violation of this law.

The authorities have very promptly and vigorously punished every violator of it. This is probably the only city in the world where the spirit interests are prevented from making their business prominent.

SYR. HYPOPHOS. CO., FELLOWS

Contains the Essential Elements of the Animal Organization—Potash and Lime,

The Oxidising Agents—Iron and Manganese;

The Tonics—Quinine and Strychnine; (each fluid drachm contains the equivalent of 1-64th grain of pure Strychnine).

And the Vitalizing Constituent—Phosphorus; the whole combined in the form of a Syrup with a Slightly Alkaline Reaction.

It Differs in its Effects from all Analogous Preparations; and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation, and it enters directly into the circulation with the food products.

The prescribed dose produces a feeling of buoyancy, and removes depression and melancholy; hence the preparation is of great value in the treatment of mental and nervous affections. From the fact, also, that it exerts a tonic influence, and induces a healthy flow of the secretions, its use is indicated in a wide range of diseases.

NOTICE—CAUTION.

The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, finds that no two of them are identical, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, in the property of retaining the strychnine in solution, and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing the Syrup to write "Syr. Hypophos. Fellows."

As a further precaution, it is advisable that the Syrup should be ordered in the original bottles; the distinguishing marks which the bottles (and the wrappers surrounding them) bear, can then be examined, and the genuineness—or otherwise—of the contents thereby proved.

This preparation can be procured at all chemists and druggists, everywhere