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THE ORGAN OF THE AMERICAN SOCIETY FOR THE STUDY
OF ALCOHOL AND OTHER NARCOTICS.

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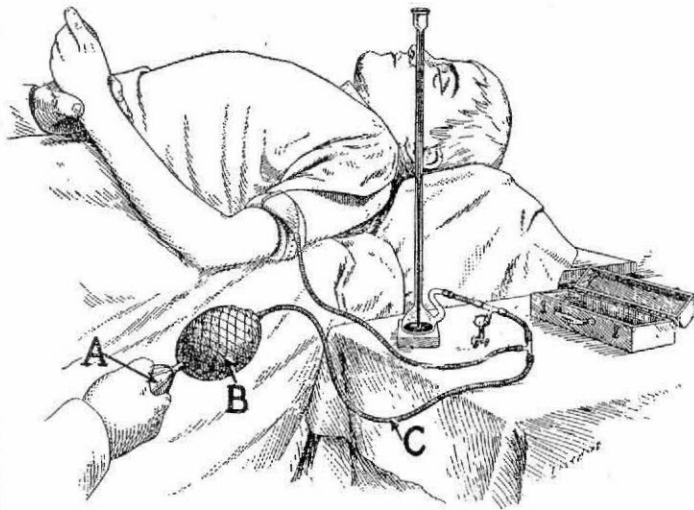
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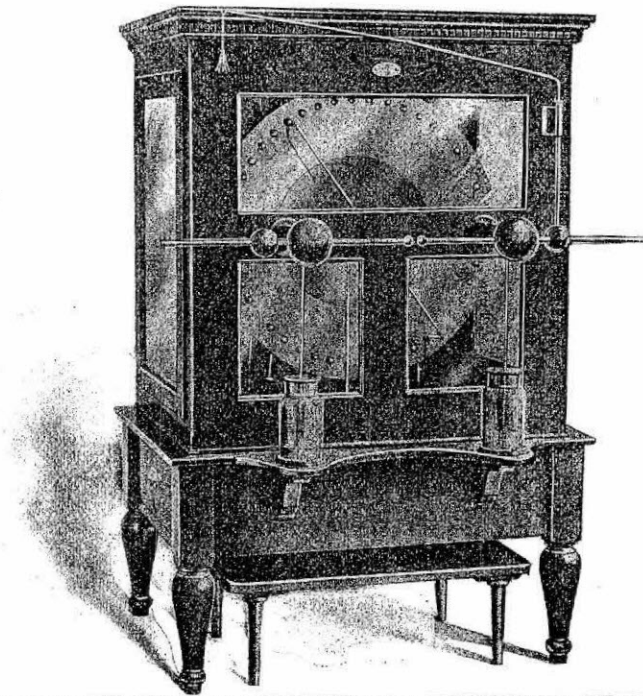
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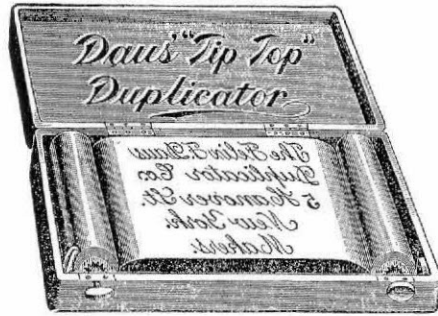
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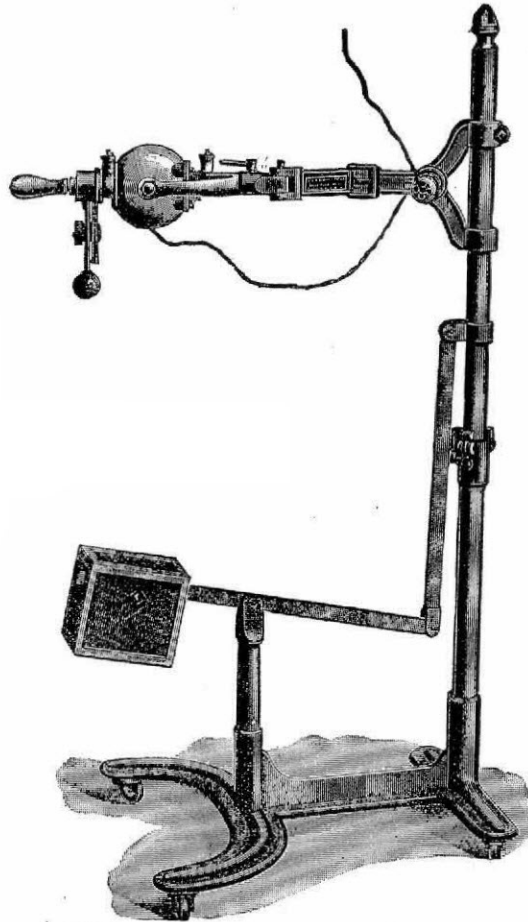
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THE RELATION OF THE PAUPER INEBRIATE TO
THE MUNICIPALITY AND THE STATE FROM
AN ECONOMIC POINT OF VIEW.*

By LEWIS D. MASON, M.D.,

Brooklyn, N. Y.

Public sentiment is comparatively easily interested in the epileptic, the consumptive, the pauper, the orphan, the sick and aged, the insane, the idiot, and the feeble-minded, and those deprived of the use of organs of sense.

Hence colonies, hospitals, sanitariums, almshouses, educational and industrial institutions are organized and sustained, largely through a sympathetic influence acting on public and private benevolence; nor do we exclude the claims of public necessity, nor fail to apply the principles of economic administration in the care of such cases.

We recognize the imperative fact that the criminal must also be cared for, on the ground of public necessity and absolute protection for the community.

* Paper read before the American Medical Temperance Association, at its regular annual meeting, held June 8 and 9, 1904, at Atlantic City, N. J.

Society must be safeguarded against the vicious, the malicious, and criminal classes.

Whatever the character of the institution or colony may be, whether eleemosynary or penal, *economy* must enter into the consideration of the case of the unfortunate or vicious classes of society; and the problem eventually resolves itself of necessity into one of finance.

The question is: how shall we do the best we can for these wards of the state at the least possible cost to the law-abiding and industrious portion of the community, the taxpayers of our commonwealth.

With the inebriate it is different. The public look upon him as the voluntary subject of a vice, and will not realize the fact that we are dealing with an irresponsible class who, at least in a large measure, have passed beyond the limit of responsibility, and a class from which the degenerate and criminal classes are so largely recruited, and from which originate, in a great measure, the criminal, the pauper, the sick, and the insane that fill our penal and charitable institutions.

Public sentiment has dealt with the inebriate in a foolish, irrational, and extravagant manner, and not with the common sense that it has applied to all other classes. Social law and order has-passed by the inebriate, refused to properly classify this species of the genus homo, simply regarding him as a social outcast and decidedly as a "*persona non grata*." He was the social problem of the past, — he is the social problem of the present, — he will be the social problem of the future, unless a modicum of common sense is exercised in regard to his care and control.

It is true that the moralist and the reformer by threats attempt to frighten him into sobriety, or by kindly acts and the instilling of hope try to lead him to a better life.

The law brands him as a criminal, and punishes him by fine and imprisonment, while public sympathy and interest may be totally indifferent or divided between the reformer and

the law, as a rule the preponderance of sentiment being in favor of the latter.

It is the old story, a "twice told tale" with which you are perfectly familiar: you cannot secure for the inebriate either public interest or legislation, which, after all, is public sentiment in the concrete, along the usual lines that affect other social conditions. Such efforts will fail as far as the inebriate is concerned.

Therefore, those who are interested in the welfare of the pauper inebriate — for my remarks have principally to do with that class — will waste their time and energies if they plead along sympathetic lines only. I do not mean that a plea on a moral, spiritual, or humane basis will not arouse a Christian public. But when you face the average taxpayer, or the "committee on ways and means" of a legislative body, an argument based on moral, spiritual, or humane grounds would simply fail. The only argument you can bring forward that would be effectual under these conditions is one based on *financial considerations and on dire and urgent public necessity*. You must appeal as a *political economist*, and show by fact and figure, that which is good business policy, and that money is saved to the state or municipality, and consequently to the taxpayer.

The most powerful appeal that you can make to the average taxpayer is any plan that will lower the prevailing tax rate; and therefore if we are at all interested in the inebriate, and desire action on his behalf, and are wise, we will approach the public as taxpayers, and then by force of public sentiment, thus enlightened by facts and figures, and stimulated by self-interest, compel favorable legislation on behalf of the inebriate. In fact this is our only resource. But the public must first be interested. The demand for economy must have always come first from a tax-ridden public. Economy, as a rule, does not begin with legislators. Public sentiment must, as it always has, compel legislative action

in any direction. With these prefatory considerations let us consider the relation of the inebriate to the municipality and the state from an economic point of view.

We can readily demonstrate that the present method of dealing with the pauper inebriate is non-punitive, non-deterrent, non-reformatory, rather the reverse, not checking, but promoting intemperance, pauperism, disease, and crime, and all their attendant and secondary evils, and, besides, all this is *enormously expensive*.

The public and the legislators, who but reflect public sentiment, are laboring under a delusion; in their own inner consciousness they have worked out, as they think, the whole problem of inebriety, but their conclusions are erroneous because their logic is faulty and based on wrong premises, and therefore the ultimate end of their deliberations worse than useless.

Let me again call your attention to and emphasize the fact that inebriety is the fertile source of crime, pauperism, insanity, and disease. At least four-fifths of the criminals and degenerates of a community may, according to English statistics, be traced to this cause either directly or indirectly. Facts go to demonstrate that it is an important factor as a cause of suicide, disease, accident, and adult male death from accident, and either directly or indirectly explains the mortality statistics of our great centers of population, especially among the adult male class, in excess above the normal death rate in an ordinary sober community.

Looking at the financial side of this problem we find that fifty per cent. of the *municipal expenditure* for our *police departments* is simply for the arrest of the drunken population of cities. Nor does this include the expense of sheltering and caring for some in prisons, penitentiaries, and almshouses, or other corrective or charitable institutions, *one-third* of their inmates on an average being either directly or indirectly of the inebriate class.

These are some of the direct fruits of inebriety. We garner the fruit, but we do not cut down the tree. We do not go to the *root of matters*. Nay, our present method promotes growth: we cultivate that which we ought to destroy, and we are rewarded — or shall we say punished? — by an abundant crop of evil, the result of the irrational and unscientific method now in vogue of dealing with the inebriate.

First, then, let us call attention to the manner in which the police department carry out the laws enacted by our legislators and administered by our magistrates; laws which deal with the inebriate in a most unscientific, irrational, and expensive manner; laws which the legislature have passed, but for which the public who elect them are primarily responsible, and the genesis of which is a fundamental error as to the nature of inebriety and proper methods for the care and control of the inebriate.

Let me point out the fact that arrests recorded on the police blotter are *cases*, not individuals. Thus, if 10,000 cases of arrest for drunkenness are recorded, we find it may represent certainly one-half or even less of individuals. In an article entitled "The Pauper Inebriate — Cases versus Individuals," read and published in 1897, we pointed out this glaring discrepancy, quoting from the experience of others on this subject, and particularly from an article published some years previously by my father, the late Theodore L. Mason, M.D., on this subject, entitled "Inebriety a Disease."

In the "report of the advisory committee on the penal aspect of drunkenness," appointed by the mayor of Boston, 1898, the following statistics point out this evil:

FORMER COMMITMENTS OF PRISONERS COMMITTED FOR DRUNKENNESS TO ALL PENAL INSTITUTIONS IN MASSACHUSETTS FOR THE YEAR ENDING SEPTEMBER 30, 1898.

	Number.	Per Cent.
Whole number of commitments,	20,222	
Number of first commitments,	8,794	43.46
Total recommitments,	11,439	56.54

Number of times previously committed:

	Number.	Per Cent.
1 time,	2,113	18.47
2 times,	2,415	21.11
3 times,	1,524	13.32
4 times,	1,021	8.92
5 times,	816	7.13
6 to 15 times,	2,701	23.61
16 to 30 times,	689	5.58
21 to 50 times,	160	1.38
More than 50 times,	50	.43

Statistics relating to persons sentenced to Deer Island (one of the penal institutions of Boston) showed that there were 8,447 committals for drunkenness, the report stating that "this number represents, however, but 5,444 individuals, consequently 3,003 were for offenses repeated within the year."

It will be noticed that in all the penal institutions the recommitments were considerably over one-half of all the first commitments.

The fact is also evident that where there were longer terms of imprisonment, as at Deer Island, the ratio of recommitments was less than those institutions in which the period of imprisonment was shorter, a fact essentially in favor of the longer term of commitments as opposed to the shorter term.

The Boston statistics also show the relation between individuals and cases, to which we have referred. Thus, 11,439 individuals were recommitted from two to over fifty times each, making at the lowest or minimum estimate a total of over 50,000 rearrests in excess of first commitments, represented by the above number of individuals at various periods during their inebriate career. When we consider that the cost to the city of Boston was eight dollars for each case committed the enormous and useless expense to the municipality is at once apparent. Nor must we forget, in addition to this direct and useless expenditure, this drifting population of drunkards during their life history swelled the records of the

many asylums, hospitals, and charitable and penal institutions, under different aliases, and when at large imposed on the charity of an indulgent public, thus contributing in many ways and at all times to the crime, pauperism, and disease statistics of our great centers of population. The following table shows the number of prisoners and the number of times committed according to the statistical report of the department of correction of the city of New York for all causes :

NUMBER OF TIMES COMMITTED.

	1	2	3	4	5	6-10	11-20	21-30	31-40	41-50	51-75
Males.....	10,325	694	143	86	47	187	32	11	26	9	21
Females.....	4,133	670	547	258	240	252	47	4	3	4	4
Total.....	14,458	1,364	690	344	287	439	79	15	29	13	25
Males.....											11,581
Females.....											6,162
Total.....											17,743

Of these prisoners 5,568 were committed for intoxication, 3,233 male and 2,335 female. We can safely assert that the recommittals, varying from one to seventy-five times, were for intoxication, with or without other misdemeanors, thus equaling if not exceeding the Boston statistics in this particular.

All statistics should have the individual record. It would simplify the record of the police department of our cities if such records would classify individuals as individuals and not individuals as cases. We would then have the advantage of an individual record, and be able to follow the prison and penitentiary record of the individual in this particular.

The following table will explain itself, and show why the same individual is so often arrested and recommitted during the year. It will be observed that the shortest term, three to five days, tallies almost with the number of prisoners committed for intoxication only :

TERMS OF COMMITMENT OF PRISONERS ADMITTED DURING THE
YEAR 1902.

	3 to 5 Days.	10 Days.	15 Days to 1 Month.	2 to 3 Months.	4 to 5 Months.	6 Months.
Male, .	3,835	2,124	918	1,641	3,052	11
Female,	1,945	1,601	309	857	1,444	6
Total,	5,780	3,725	1,227	2,498	4,496	17
Males,	.	.	.	.	.	11,581
Females,	.	.	.	.	.	6,162
Total,	.	.	.	.	.	17,743

10,732 committed for 30 days or less, and 9,505 of these for 10 days or less.

These frequent recommittals for short periods are for repeated offenses by a comparatively few persons during the year, and for intoxication only, or the same associated with petty crimes and misdemeanors, the result of the intoxication.

A little study of these statistics will explain themselves, even to the most casual observer. We will now call attention to the civic cost of drunkenness, and refer again to the Boston statistics :

THE COST OF DRUNKENNESS, AND INCOMES FROM FINES FOR
THIS OFFENSE DURING THE YEAR 1898.

It is estimated that the cost of making arrests for drunkenness in Boston is equal to one-eighth of the total cost (\$1,683,957.97) of the police department. With 26,157 arrests for drunkenness at \$8.04 each, the total cost to the city was \$210,494.74

There were 8,447 committals to the House of Correction at Deer Island for drunkenness, and the aggregate of the time served was 459,252 days, equivalent to 1,258.224 years. The per capita cost of maintenance was \$84.70, making a total equal to 75 per cent. of the whole cost, or 111,212.71

There were 107 committals to the House of Correction at South Boston for drunkenness, and the aggregate time served was 13,460 days, equivalent to 36.877 years. The per capita cost of maintenance was \$124.47, making a total equal to 7 per cent. of the whole cost, or 4,590.08

There were 1,877 committals to the Suffolk county jail for drunkenness, and the aggregate of the time served was 26,097 days, equivalent to 71.50 years. The per capita cost of maintenance was \$184.69, or	13,205.33
Total cost of drunkenness in 1898,	\$339,502.86
Income from fines,	23,490.78
Net cost of arresting persons for drunkenness and maintaining those committed to the penal institutions of Suffolk county in 1898,	\$316,012.08

In addition to the direct expense of this class to the municipality we can only refer to the burden which is imposed on charitable organizations and individuals, and the misery, waste, and destitution which follows on their trail, and which has been enacted under a *roving commission* practically furnished to them by a near-sighted and extravagant municipal policy, which has inaugurated and sustains the miserable farce of *finer and short term commitments*, a constant menace and expense to the community, a method of dealing with this class which we have stated is neither deterrent nor reformatory, but positively the reverse.

The report of the New York department of correction states: "The total number of prisoners committed for the year 1902 was 25,064. The greater part of these, 20,358, were confined in the Workhouse, Blackwell's Island, and the Branch Workhouse, Hart's Island. The remaining prisoners were in the following institutions: New York County Penitentiary, Blackwell's Island, 1,172; Kings County Penitentiary, Brooklyn, 2,534. The population at the Workhouse is a *constantly changing one*, as the inmates, who are only charged with misdemeanors, are committed to serve sentences varying from a *few days to six months*. The largest number of prisoners last year were committed for the first time, *but some have been committed as many as seventy-five times.*"

The workhouses received the majority of the committals made during 1902. The statement that the committals range

from a few days to six months, and that while the majority were committed for the first time some were committed as often as seventy-five times, is a record that tells its own story, and has short term committals for intoxication written all over it. It may be mentioned here that the *finer* collected for intoxication or other misdemeanors in New York state meet a certain proportion of the expense incurred in the board and maintenance of the prisoners in the district prisons, city prison, workhouses, and penitentiary, but were a mere trifle as a contribution to the total cost of arresting and committing the inebriate population of our city.

An unfortunate aspect of the fine system is that in a large number of instances the fine is paid by the industrious, sober, and self-sacrificing portion of the community, and not by the drunkard himself; so that the fine is literally a tax imposed on the family or friends of the inebriate, who, having suffered in many ways for his misconduct, suffer in this respect also.

It may be said that at least one-third of the prisoners in our prisons and penitentiaries are committed for habitual intoxication. This would be a low estimate if we considered alcohol also as an indirect cause of the crimes and misdemeanors for which they were committed, irrespective of committals for that of drunkenness. We submit a statistical table of leading American cities showing the average number of arrests for intoxication in these cities during the year 1902:

STATISTICS OF LEADING AMERICAN CITIES, 1902.

Cities.	Jan. 1, 1903, population.	Total number police force.	Average an- nual cost of force.	Average an- nual number of arrests.	* June 30, 1902, av. arrests for intoxi- cation.	* Licensed re- tail liquor saloons.
New York, . . .	3,682,159	7,707	\$11,566,680	145,164	71,573	10,821
Chicago, . . .	1,800,000	2,780	3,300,000	75,000	32,482	6,740
Philadelphia, . .	1,335,000	2,902	2,500,000	62,000	30,428	1,737
Boston, . . .	573,879	1,214	1,600,000	39,078	19,511	980

It will be noted that the statistics for arrests for intoxication, also number of licensed saloons, is six months earlier than the other statistics, but the record is near enough to be approximately correct.

It will also be noted that about one-half the total arrests for all causes are for intoxication.

It will also be noted that the number of arrests for intoxication pro rata to each member of the police force is 10 or +10.

According to the Boston statistics for 1898 it is estimated that the cost of making arrests for drunkenness, irrespective of board and maintenance, was one-eighth of the total cost of the entire police department.

Applying the same ratio to the average annual cost of the police department of cities we can ascertain the exact cost to each city for simply the arrest and committal of its drunken population.

When we ascertain that fifty per cent. if not more of the average arrests for intoxication are *rearrests* and *recommittals* in the same year, we can readily estimate the amount each municipality pays for rearrests and recommittals of intoxicated persons, which, on the above basis, would be one-half of one-eighth, or one-sixteenth of the total cost of our police department of each city.

In other words, if the individual was arrested once annually instead of several times the expense to the city in the arrest of its drunken population would be reduced one-half.

Those interested can apply this statement to the statistics of cities already given.

Thus New York would have saved, in 1903, one-sixteenth of its total police department expenses, or \$722,917, and Chicago, Philadelphia, and Boston a proportionate amount.

We do not estimate the increased expense of caring for short term prisoners in the prisons and penitentiaries as compared with the greater advantage and less expense of caring for long term prisoners, nor the fact that short term prisoners

can in no wise be made self-supporting when the term of commitment does not average ten days in the great majority of cases. The whole question then turns on the short term commitments and the fine system, which practically results in the majority of cases in the short term commitment of a few days. Abolish this worse than useless system by repealing the laws under which it is carried on and the problem will be solved. We are now dealing with simply a matter of dollars and cents, the financial aspect of the question. We shall refer elsewhere to the iniquity of the short term *sentence* and *finer*, and its pernicious results.

The attitude of the law and the police departments of our great cities towards the pauper inebriate, who constitutes so large a proportion of the class which come under their control, is clearly shown in these statistics.

It will be observed that the total recommitments greatly exceed the total first commitments, and average more than one-half of the whole number of commitments for intoxication, and that the total arrests for intoxication constitutes at least one-half of the total number of arrests for all causes; and this percentage applies to all the cities of the first class, whose statistics we have tabulated.

The expense of these unnecessary recommitments in the case of individuals is readily shown, and the number of times each individual was recommitted. According to the Boston statistics the arrest of single individuals for intoxication varied from two to fifty times and over, while according to the New York statistics the number of arrests of individuals varied from two to seventy-five times. We are assured that from fifteen to twenty times is not an unusual record in a single police court for the same individual, who may have passed in his inebriate career through several police courts in the same or other cities, and counted in his institutional itineracy for many cases on the blotters of many police stations. It would be extremely interesting to follow the *life record* of one of these

"rounders," or itinerant drunkards, and trace him through our various penal and charitable institutions, and then sit down and count the cost of that *single individual* to the state and indirectly to the taxpayer, not only from a financial standpoint but from every other aspect that involves pauperism, disease, and crime.

We cannot condemn too severely the miserable method under which our police magistrates deal with our drunken population. We refer to the law of fines and short term imprisonment, a system that manufactures the "vagrant drunkard," the "jail bird," the itinerant drunkard, or, in the language of the police, "the rounder." No wonder our police courts have been aptly styled "schools of vice."

In an address of the English "Howard Association," on the treatment and prevention of crime, they say that the system of repeated short sentences "is intolerable." That

"Repeated sentences of fortnight upon fortnight, and month upon month, add to the difficulties of prison management, and greatly demoralize the delinquents and their companions as a class.

"Where a single short sentence fails to deter, it is a proof that public morality and economy alike require the infliction of a longer reformatory discipline, protracted until criminal habits are effectually subdued.

"An eminent authority has recently remarked that '*magistrates who repeatedly pass demoralizing short sentences are themselves promoters of crime.*'"

Speaking of the evils of the present system the committee appointed to report on the penal aspects of drunkenness in Boston characterizes the method as follows: "*In fact, short of a public bounty on drunkenness it is doubtful whether human ingenuity could devise a system which would be as wasteful and demoralizing as the present one.*"

The same report characterizes the "rounder" as the product of the present method, as follows:

“Let no one misunderstand this pitiful wretch,—the ‘rounder,’ physically and morally debauched, *is the product of the existing system.* He represents the closing act in a moral tragedy, in which society plays the villain in the guise of justice and law, and the poor man is the victim, with the imprisonment of a hitherto respectable first offender for the first official act in the tragedy; the corrupt and compromising associations of the prison, for the second act; tainted reputation and decreased earning capacity, for the third; discouragement and relapse, for the fourth; and so on to the end of the miserable business,—first moral and then physical death.”

In further confirmation of these facts I desire to present portion of an article on the care and treatment of inebriates, by the late Rev. J. Willett, superintendent of the Inebriates’ Home for Kings County, and published in 1881. He thus writes concerning the “vagrant drunkard” or “rounder,” or “prison class” of inebriates:

“I only wish we had the means and the machinery at our disposal to take hold of the prison class. I refer more particularly here to those who have been committed and recommitted to prison from one to one hundred times, in order to save them from spending the balance of their lives in revolving from the bar-room to the bar of justice, and from thence to the prison cell. When discharged from jail, ragged and forlorn, they find themselves friendless wanderers in the streets, shunned by every passing stranger. I am aware that the popular cry is ‘Let them go to work,’ but who will employ them, when they are everywhere shunned as if stricken by pestilence? Besides all this, they are physically broken down through the effects of bad liquor and starvation prison diet. The majority of their numbers are mere wrecks of humanity, and are regarded as fair game for the policeman to hunt up and chase down for the purpose of swelling the annual return of the arrests made by him, with a view to promotion to a higher grade. On each succeeding recommitment of

the vagrant drunkard to the jail, the daily charge for his subsistence goes to swell up the sheriff's board bill, the profits on which in some counties may be safely estimated as more than one hundred per cent. *Thus the vagrant drunkard is practically reduced to a mere chattel, the legally recognized stock in trade of the police force and his jailers."*

But we must not forget that we are dealing with facts and figures, and talking not to the heart but the pocket-book of the taxpayers.

Fifty per cent. of all arrests in our great cities are for intoxication, and the arrests of fifty per cent. or more of this class are rearrests, often with a few days only between each arrest, so that the same individual is *arrested, committed, and released every few days.*

The cost to the city of Boston in 1898 was \$210,494.74 for 26,157 arrests, at a per capita cost of \$8.04 each. One-half or more of these arrests were rearrests, retrials, recommittals of persons who had been arrested from two to fifty times each.

The arrests for intoxication in New York city for year ending June 30, 1902, were 71,573, or over one-half of the total arrests; and fully fifty per cent. of these were rearrests and recommittals of the same person, who had been arrested and committed from two to seventy-five times each, and this average will pertain to all the great cities and centers of population. It may be said that half the time of the police department of our great cities — its patrolmen in arresting, its police magistrates in committing, its prison and penitentiary officials — is in controlling and caring for persons who are arrested many times during the year. If the drunken population of our cities, the class and individuals who are well known to the police, could be arrested and incarcerated only once annually, the expense of the police department of said cities would be cut down one-half, the business of which is due largely either directly or indirectly to alcohol.

In the recent words of a police magistrate, "*Find an antidote for intoxication and one-half of the business of the police courts would vanish,*" and we would say: shut up the "rounder," the itinerant drunkard, and the problem is solved; which will not only relieve our overburdened police courts but reduce the average tax rate very materially; lessen also the strain upon our various charitable and correctional institutions, which care for the "rounder" under various aliases in his institutional itineracy, to say nothing of the persistent and great demand from which a generous and sympathetic public would be relieved.

The cost of handling the drunken population of Boston in 1898 was one-eighth of the total cost of its police department, or \$210,494.74. Fifty per cent. of this expense was for unnecessary recommitments, as has been already asserted.

On the same basis it cost New York city about \$572,584 to arrest its 71,573 cases of intoxication. Fifty per cent. of this expense was for recommitments, and was also unnecessary.

This record will grow as our urban population increases.

During the milder seasons of the year our suburban population feel the burden and annoyance of the genus known as tramps, who are simply members of the great army of the drunken population of our cities on its annual pilgrimage. But although this may afford slight and temporary relief for our cities, the question is one for our great civic centers, on whom the care and expense of this class primarily and permanently rests.

You can perceive that the whole aim and drift of this paper is in favor of the *long term commitment*, not less than six months in any case, and the *accumulative sentence* of one, two, or three years in incorrigible cases or repeated offenses.

Long sentences are opposed to the miserable present system of short term imprisonment, a few days, on the average, in the larger proportion of cases, and the *fine*, which is seldom paid, and so is practically a short term commitment.

The "long term commitment," with a judicious use of the "probation method," as practiced and recommended by the Boston authorities, and the "parole system," as used in our penal institutions and insane asylums, would solve the problem of the civic care of the pauper inebriate and lessen both the state and municipal expenses as to his control.

I cannot close this paper without quoting from the following argument in favor of a long term commitment for the chronic pauper inebriate. This statement is not based on the fact that it is a method of economy alone, but also that it is the only true *method of reformation*, the only one that can benefit the drunkard. This report was made some years since; and now we advocate separate institutions for the pauper inebriate, isolation, segregation, separation from all other classes that are wards of the state, whether insane or criminal. With neither of the classes can the inebriate be properly placed and be successfully treated. Moreover, the *earning capacity* of the inebriate is on a better scale than that of the criminal, certainly equal to it, and vastly superior to the average resident of the almshouses or the insane asylum, so that he can under confinement be made to administer to his self-support. With this explanation we submit the article published some years since in a paper written by my father on this all-important subject. As the article gives in a condensed form the points I wish to present and urge, I will ask the privilege to quote it at length:

"NECESSITY FOR LONG TERM.

"A great deal has recently been written and said concerning the expediency of utilizing the chronic drunkard by establishing workshops in connection with our prisons, in which he may be able to contribute something towards his own support while in custody, and even to lay up a little capital to start with when released at the expiration of his term.

"The experience of those thoroughly acquainted with the management of penal institutions is that it is utterly impos-

sible to utilize the drunkard who is constantly being recommitted to the jail or the penitentiary unless, after repeated offenses, he be committed for a term of years. On this important subject we cannot do better than to quote from an annual report of Gen. Amos Pilsbury, then warden of the Albany Penitentiary. In speaking of this subject he says:

“‘It is for the lawgiver to determine whether imprisonment in the penitentiary is the best mode of punishment for intoxication in any case; but if it is designed to have any effect in curing the vice of intemperance, a term of six months should be imposed in all cases of second or further convictions.

“‘The truth is that nothing short of a direct interposition of Divine power can perform the miracle of suddenly converting and turning men from the error of their ways. Human agencies can only hope to accomplish the work of reform by retaining the subject under their operation until the power of old evil habits shall have been weakened by disuse, and new and good habits of sobriety and industry shall have been firmly acquired.’

“‘In a report of the Board of State Prison Inspectors (whose offices have been abolished under the new constitution), we find the following language on this subject:

“‘For the large class of convicts having sixty or less days to serve, the superintendent can obtain little or no remunerative employment, so much time being required in these cases for the necessary instruction as to leave an employer small prospect of a compensating gain. It follows, as your honorable body will readily perceive, that convicts of this class not only fail to indemnify the penitentiary against the cost of their own support, but become, for the most part, a constant drain upon the productive labor.

“‘But it must be remembered, moreover, that many of those short-time men are *committed to the penitentiary during the year over and over again*, deriving themselves nothing whatever from the transient suspensions of their liberty, while

inflicting upon the resources of the institution a steadily growing pecuniary loss.

“ ‘ Besides, this class of subjects make heavy demands on the time and the attention of our physicians, and convert our hospital in too many cases into a place of recovery from attacks of *delirium tremens* or other consequences of *habitual intemperance* and evil habits.’ ”

The consensus of expert opinion is then in favor of “ *long term commitments*,” “ *the accumulative sentence*,” with the judicious use of the “ *probation* ” method and the “ *parole*,” all of which is diametrically opposed to the present system of “ short commitments and fines,” which are neither punitive, deterrent, or reformatory, but rather the reverse, as has been said, promoting intemperance, pauperism, and crime, as well as more than doubling the municipal expense in the care of the pauper inebriate.

We submit to the tax-paying and tax-ridden public, and indirectly to our legislators, the proposition: that the money thus worse than wasted in the continual arrest and rearrest of this class could be more properly and satisfactorily spent in the care and control of the pauper inebriate in reformatory institutions, which could be erected and maintained largely by the money so uselessly squandered by the present method, and not only provide for the maintenance and control but the reformation of this unfortunate class. A consummation devoutly to be wished for, but not possible under the present system. And, besides all this, relieve our police magistrates and police force of half their present duties, involved in the ever increasing burden which the constant arrest and committal of this class entail on our police courts, and also relieve our various penal, charitable, and correctional institutions from the same individuals, who, under various “ aliases,” over and over again pass through their wards during their itineracy, which often involves a life record. We appeal to this association as we do to the medical profession throughout the

land, to inaugurate and stimulate all legislative action that shall better the care, and especially the control, of the pauper inebriate, and give him an equal chance at least with the other wards of the state, and thus help to solve a problem that has agitated the public and puzzled legislators and burdened communities from the earliest ages of civilization. We believe the solution of the problem will be found in following the advice and opinions of those experts whose experience we have endeavored to present in this paper.

Dr. Newsholine, of Brighton, England, discussed the effects of the use of alcohol on the prosperity of insurance sickness societies among artisan clubs. He found two of the most important factors of the sickness and mortality of these clubs were tuberculosis and alcoholism. Twelve per cent. of the funds of these societies was expended upon cases of tuberculosis. The sickness that came from alcoholism was ascribed to so many causes that no deductions could be made. It was found in the mortality lists that over thirty per cent. was directly attributed to the use of alcohol. He argued that moderate drinking in almost any degree diminished longevity and increased sickness rates.

Under the law of Minnesota, if a physician or surgeon, being in a state of intoxication, without a design to effect death, administers any poison, drug, or medicine, or does any other act as a physician or surgeon to any other person, which produces the latter's death, he is guilty of manslaughter in the second degree; and if, in a state of intoxication, he administers any poison, drug, or medicine, or does any other act as physician or surgeon, to any other person by which the latter's life is endangered or seriously affected, he is guilty of a misdemeanor.

THE CONFESSIONS OF A DIPSOMANIAC.

By WILLIAM LEE HOWARD, M.D.,
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"Was I insane during these attacks?" Yes; but it was a strange and weird insanity. I knew I was myself, but had no power to be myself. This appears paradoxical, but it is not. I was myself merely in the gross body form; my ego was for the time being *non est*. I was rational and lucid in act and speech; but it was not the rationality and lucidity of my real self, it was always the conduct of a personality the antithesis of my own. I would be stopped in the midst of important studies or professional work—life work—and plunged into quite a different life, which was taken up with enthusiasm, and continued to the day when I became myself again, when I returned—and here is an astonishing fact—with freshened mental powers for the work I had been forced to leave. That is the word which expresses it: forced by my other powerful personality.

Some one says: "Religion is the life of God in the soul of man;" well, what is this life that enters my soul and drags me down to the level of the beast? When it leaves I suddenly rise up to that intellectual and moral plane which is my birthright. Is it my birthright? Sometimes I think not, for in my dipsomaniacal periods I am so comfortable, so mind-free, so joyous and active, aimlessly moving from place to place, town to town, saloon to saloon, dive to dive. During these periods this slothful indolence seems natural to me. I know I am not I, yet I am content to be what I am, for there is a hazy re-

membrance that when I am myself I have hard mental work, responsibilities, anxieties, all of which my second personality is free from, and which all the wealth of the city could not tempt it to assume again. I have been free from these periodical attacks of dipsomania for several years—cured by an understanding of the cause—and now the memory of these ruinous periods is vivid in patches; yet as I write there remain lacunæ throughout the horrible ten years which memory never has filled. My thoughts now are free from remorse or fear, for in my final rise from the cavernous depths of despair to the beautiful light of hope and the possession of an unshackled mind I can convey to the world my experiences, and to the most silent and secret sufferer give hope and encouragement. I shall have to be a little retrospective, to go back to the early symptoms of uncontrollable impulses, which, had they been recognized by parents and physicians as forerunners of worse—ruinous in most cases—outbreaks of temporary insanity, would have saved me a life a disgraceful periods, of lost friends, alienated relatives, and the horror, the fear of self. That this condition was not recognized was due to that curse of Puritanism, which makes so many individuals see nothing in certain acts—in reality the objective symptoms of disease—but vice and sin, and in the acts of a religious ascetic and hysteric—also the symptoms of disease—the influence of a mysterious power, the acts of a religious maniac being governed by God, those of the dipsomaniac by the devil.

But I forgot: I said I was now sane, and yet this latter paragraph sounds something like those repeated when volubly giving philosophic orations in some dark dive to a lot of dirty parasites, who obsequiously listened for the sake of the “Come on, fellows, have another one,” which they knew would be the peroration of every philippic delivered hourly throughout the days and nights.

I was bright at school, too bright for my own good, for I did not have to spend much time in studying, and this left

me hours of idleness; for I could not even at that age, thirteen, apply my mind more than an hour to any one subject. After this short period my attempt at further studious application started my heart bounding upward with big, vigorous leaps. I grew nervous, would fidget about, have to slam down a book or desk-top, and end in leaving the room even against the teacher's orders. The impulse to get away was so powerful that if I were restrained I would strike with any weapon handy. Now I know I was insane during these periods, not legally (what a farce of learning and insult to science is the lawyer's idea of insanity) but medically insane, for I knew that what I was doing was wrong, but no power but death could stop that impulse to get away from restraint. Nothing could check the force of those impulses during childhood; nothing could check the wild rushes for alcohol after I grew to manhood, and had a wife, children, financial and moral responsibilities. No, not even on the eve of some great event which meant honor and riches, for when the dissolution of my first personality set in I would be punished, dragged away by the displacing personality. Desiring only to elude reasons I would gleefully become submerged by this other self, which cared nought but for the moral palsy and mental dissociation.

Don't misunderstand me: I did have moral suasion, kind appreciation, by one dear, good old man, — many of my readers have a warm spot for him in their hearts, — and I also once had a beating from a man whose impulses were not under much better control than mine. But this was the first and last attempt any teacher made to whip me, for I broke a quart bottle of ink over his head, was dismissed as incorrigible, and it was then that I fell into the hands of the good old man. I think he had an idea of the true state of affairs, that I needed medical attendance, not corporal punishment. For a year or so I was allowed to have my own way: I would study at short intervals, keeping well up in my class, then with gun

or rod roam the woods and pastures in solitude. Oh, how I enjoyed those solitary walks! I loved the solitude for the sense of non-irritation it gave me. I was only lonesome when with the boys.

Approaching adolescence the second phase in my psychic life began. All this period I began to realize that of the psychic side of life, even of those psychic conditions whose basic causes were physical, most physicians were ignorant. Had the doctors given a little thought to this side of human life I might have been saved from much misery and disgrace.

Every month or so a fit of morbid despondency came over me, when I would roam the town and country for hours, and upon my return tell the most marvelous stories of deeds and sights. I was a hero, a philanthropist. Oh, what did I not say! Good people were accused of being bad, bad of being good; and all the statements, everything, were told with such marvelous detail of facts and ingenious methods that they would be believed until they were proven false. Three or four days of such conduct would end in headaches and depressions, followed by attacks of wretched sickness and profuse vomiting of the bile, after which I would recover with oblivion of all I had told and acted previous to the attacks of vomiting. Fear of self, remorse, agony, only came when I realized that teachers and scholars pronounced me a liar; and when I was my real self my heart's statements of the simplest facts would not be believed.

This feeling of being misunderstood, or being considered a willful falsifier, made my days a series of misery and shame. Conditions did not improve, and my erratic conduct at school became intolerable to me and subversive to the best interests of the scholars. I was placed under tutors, and finally fitted for college. It was then I first realized what relief from my horrible periods of restlessness and fear of self could be obtained by drinking liquor.

One day the old feeling of mental and physical weakness,

the clouded brain, the wavering will, the cowering timidity, all, all were forcing me to get away from myself. Then the suggestion of a medical student, an acquaintance — for I had few, if any, intimate friends, — that I needed a stimulant was acted upon, and the glory of Heaven, the waters of Lethe, the peace and mental rest of the garden of the Hesperides, were all mine, all mine.

What joy, what ecstatic relief, what a curse, what a benefit was this discovery! How, you will ask, could it have been both, and a curse and a benefit? Curse, because when these periodical attacks of insanity came on, the secondary psychic self cried, shrieked for alcohol, alcohol in any form; and it was literally poured down my throat in quantities sufficient to stupefy and deaden the senses of most men, but only kept active the physical energies of my secondary self. There were no more headaches, no more wretched, nauseous vomiting, no more mental restlessness throughout fearful days and sleepless nights, but a roaming and purposeless period devoid of care, during which I was bright, but irresponsible in speech, yet appearing sober and sane in conversation to a stranger to my other self, the true self.

As will be readily seen, such attacks broke up studies, engagements, positions, and friendships. Its curse was the blackest ever placed on man. It was the stone of Sisyphus; for just as I had reached, through a studious and calm period, some point upward in progress this damnable incubus would, in its insatiable and uncontrollable demand for its alcoholic pabulum, roll its black mass against me, and hurl me again, bruised and torn, to the bottom of the hill.

But in what lay the benefit of these horrible attacks of insanity? The discovery I made, which I hope will redound to the future happiness and welfare of my fellow-men.

Dipsomania is a symptom of disease, not the disease itself, and, the disease being understood, the symptoms, which have ruined many a happy home, blighted many a brilliant brain,

and placed the stigma of drunkenness on the undeserving, may be kept under control, and finally entirely suppressed as the disease yields to modern scientific treatment. However, that is the medical side of the story, and this is not a place for a treatise on therapeutics.

For a time matters went on systematically: that is, I accepted my condition of alternating personalities as a case of *damnosa hereditas*, and when I felt the oncoming of an attack disappeared from my residence, or wherever my normal self was occupied, and, as we shall see, conditions made these places numerous. At first the periods would last but a few days, hence I easily accounted for my absence; but as years rolled on the periods became lengthened, until they began to lap over on to those of the normal self, and I became a useless, happy vagabond, with but dim memory for my other self and no inclination to stimulate that memory.

At college I managed to keep my condition a secret until the senior year. This is readily understood when it is remembered that the dipsomaniac never drinks except during the attacks of insanity, and it is the insanity that causes him to drink and not the drink that causes insanity. So I was known as a teetotaler, for I had but two attacks each college year, and managed to get out of town before any attack held me in its fearful grasp, though I had some narrow escapes.

I was working hard for examination, had almost finished an article for senior competition which I believe had every qualification for success, when the cursed, uncontrollable impulse came suddenly over me. It was the hour when the nervous system had reached one of its lowest points of daily resistance, between three and four o'clock P. M., that I arose from my desk with bounding pulse, flushed cheeks, and weakening limbs, and the most horrible fear of self, and locked the door. The strange and fearful dissolution of self was about to take place. "Oh, I knew it!" I cried. I would fight it out; my work had to be done in a week; I would not go out, for I

realized my great danger if I once went on to the street. Oh, how I paced the floor, arguing with my other self! We cursed each other; debated the matter in a scientific manner. I said, "No, I will stay here and work, I must stay here. I must finish this work."

My secondary self said, "True, but your nerve cells are exhausted, they must have rest. Go, go out for a walk and get something to eat and drink; then come home, and after a night's rest you will be able to work again."

"But will you let me come back?" piteously cried my fast-failing first personality. "Won't you persuade me, force me, by all the pleasurable promises of an unworried mind, of a dream of the opium-paradise without the hellish after-effects of the drug? Won't you show me that life is joy, happiness, and feverish anxiety, which penetrates every nerve of the body, which paralyzes every action of my soul? Yes, yes, that's it, I am soul-sick; I can no longer apply my mind to my subject. What's the use? I can do no more work. It only means a hot skin, dry lips, sessile tongue, and mental misery. It's useless, hopeless. O God, why should I suffer the tortures of Hell, which mental work brings, when I can have the pleasure of Heaven with mental rest? I can not stand it. Kill myself? I will unless I can escape consciousness, elude reason."

"Rest, peace, oblivion," were sounded in my ears; the words came rolling into a struggling memory, hovering over fighting thoughts; my limbs trembled, and my parched lips had their skin torn as I tried to utter words of self-reproach and curses to those who gave me life. I remember rushing down the stairs and on to the street, where I was at once forced by this other horrible self which took possession of my trembling body to the end of the town, thence up an evil-smelling alley and into a dark, opprobrious den of shame.

The low-ceiled room was dimly lighted by a smoking lamp, the cheap, wet, and foul bar, over which fouler alcoholic drinks

were served, the beetle-browed barkeeper, the mephitic atmosphere, the by-product of diseased beings, were conditions which made for me an impression of a distant view of Paradise, while the poisonous liquors were the nectars and ambrosias of the gods; and the fear of self ceased, restlessness of the body disappeared, and I stood at that bar in sweet content, elbows and arms wallowing in the wet filth, until the rays of the sun could be slightly discerned through the ragged slits in the black curtains.

So passed the second and third day, without sleep, without food, the one desire, passion, impulse controlling me being drink. Not drink for its taste, nor alcohol for the exhilaration it gives to the normal person, not for its intoxicating effects, but because it brought me mental rest, freedom from fear of others—a peculiar fear that was neither physical nor moral but of something uncertain, yet threatening me, of some past existence, which I could not drive from my vacillating memory.

Was I not justified in believing that these were periods when the soul or life of a past personality entered my somatic entity, and used it as a vehicle while enjoying its vile pleasures? Here in this vermin-infected hole, unwashed, unhungered, I was as familiar as though born and bred in the place. Every thief, bum, drunkard, and opium smoker seemed to be an acquaintance, and I soon knew the history of each and every one, held the secrets of many a robbery and “knock-out” escapade, understood the “lingo” of my companions, and entered body and soul into their lives.

Remember, I had never before been in the place, had not known such a place existed, and, although I have at present a vivid memory of the dive, I have no memory of its location.

How long I remained in the place I can not tell within a few days. The second personality left me, as it always did in subsequent attacks, at once after a deep sleep, and this sleep would follow after a few hours' abstinence from liquor, but not until every tissue in my body had been soaked, steeped,

for days, and, later on, for weeks, in the vilest spirits. I write these details to show the great difference between my periods of alternating personalities and drunken sprees. When I awoke in the dark little room off the barroom I felt fresh, strong, and young. Dissolution had been replaced by rejuvenescence. I was myself, and, with an impulse to get away from the place equally as powerful as was the other to get there, I glided out by the rear unnoticed and hurried into the country. Once there I sat and pondered, and waited for the night, meanwhile trying by constant bathing in the stream to rid myself of the stench and vermin carried away from the lupanars' hole. So suddenly and clearly had my first personality returned that I found myself appropriately repeating Juvenal's saying regarding Messalina: "Obscurisque genis turpis, fumoque lucernæ foeda lupanaris tulit ad pulvinar odorem."

Night coming on, I secretly reached my room, and got some money I had left there, packed a bag, and left town and college with all it meant to me. I was uncertain at that time of almost everything that had occurred, but I knew some explanation would have to be given for my absence, and that I could not give a coherent one I realized. But what I was in the most fear of was that some of my dive companions would recognize me on the street and greet me as the individual they knew, that other horrible, disgusting personality.

I readily secured a position upon a metropolitan paper, where I worked industriously and successfully for eight months. I was myself during this time, and my rise to a responsible position was rapid. Fear of the recrudescence of my second personality had somewhat abated, and I began to see a joyous future, a creditable career, and had marked out my work for the next few years. One morning the managing editor called me to his room, and said he had decided to intrust me with a very important and delicate mission. This involved a long journey, but if I were successful the position of the London office was mine. Could anything have been more

hopeful? Could I have had any better evidence of ability to get along in life? Oh, how merry and light-hearted I was when I went to our little flat and told the boys.

I was to leave the next afternoon on an ocean steamer. I had been paid my salary before leaving the office, and was to call in the morning for my letter of credit.

I remember how light-spirited I was during dinner, and how bright the world seemed to me as we all chatted until the boys had to go to their assignments.

(One marked peculiarity in cases of dipsomania is the height of mental and physical content just before the psychic explosion. It is always a symptom to be watched for in dealing with these cases.)

I sat up studying foreign maps until about midnight, when suddenly — Oh, horror! that old familiar sensation passed over me. I shook, I trembled, and sank into a chair. "Stop!" I cried, "stop! no, no, you can not, will not, take possession of me. See, I can study the maps all right," and as I said this I picked up the atlas. O God, what is this I see? Red, red, red all over the page, with those dancing black spots scintillating by contrast. Now they are intermingled with darting flashes of blue, purple, and green, each color sending a separate and intense pain through my heated brain. Yet they fascinate me; I no longer see aught save the brilliant colors, the darting, happy fairy-spots. My skin feels drawn like parchment, my eyes burn, my lips are glued together, and my hair feels dry and bristly. With a start I looked into the glass. It is not myself I see, for grinning in the mirror is a face upon which are the lineaments of age, the glaring eyes of fright, the yellow, dry skin of the debauchee, and the interchanging appearances of fear, joy, joy, fear, and gradually horror recedes from the burning eyes and stuporous joy and maudlin content takes its place.

I do not remember how great a struggle I made to remain in the room; not much probably, for there was little left of

my first personality, hence there were no opposing forces. My true ego was gone, driven out, submerged, poisoned to deep stupor, and my poor body was driven whither this viperous second personality willed.

The story of the next nine months is not pleasant reading. I remember the tramps' camp, the hut on the mountains (which I think were in New Jersey), and the days and nights in a cellar, where the dregs (black and white) of unfortunate humanity existed and were happy. Yes, in their slothful indolence happy as far as I could understand; and even my soul was content as long as my secondary ego controlled it. There was no perception or idea of time; such belongs to the worker, not to the happy vagabond. It was not with the lewd or distinctly criminal classes that my body possessor consorted, but with the dirty, lazy bum. Where the liquor I drank came from I do not know. I must, of course, have used the money I had in my clothes; but as nothing but the rankest and vilest spirits satisfied us, a few dollars went a long way.

What were my thoughts and memories during these periods? Did I realize that I had lost all? That from a respected and brilliant man I had sunk beneath the level of beasts, who at least wash; that never again could I regain the confidence of my employer, whom I had so disgracefully deceived? Did I realize in any manner that my prospects were gone? That I was normally dead? Did I, you will ask, have any knowledge of myself?

No, I did not. My second personality was almost, not quite, oblivious to the first. When I was myself I had different recollections of the life and habits of the second personality, all of which, however, I tried to drive away; for fear, discouragement, and remorse several times pushed me to the point of suicide. But I did want to succeed, to try again, and I was always hopeful when governed by my first personality. The reputation in newspaper work and literature my first

personality had made enabled me to always get a position, though I never applied for one in any city from which I had been driven by my cursed personality.

On account of the peculiar condition existing in my double personality it may interest the reader if I offer some explanation about alternating personalities.

I believe all phenomena to be natural phenomena, and hence explainable by natural methods of observation and induction. While some phenomena are at present unexplainable, yet there is a daily increase of our knowledge and a vast improvement in the development of human individuality, all of which argues for a clearer understanding of these phenomena in the future. I think I may state without fear of contradiction that today the referring of any unexplainable phenomena to supernatural causes belongs to a class outside of the medical and allied scientific circles.

In speaking of double personality I refer to a physical condition which disassociates the elements of the mind and then combines them into a distinct, separate, and strange personality. During this state the individual has no true recognition of his normal state. He bears a different name, has another occupation, perhaps resides in a distant town from his own, acts rationally, and is fairly successful in his new vocation. He suddenly returns to his primary self, and goes back to home and business. During the period of time he is another individual, another personality, a period of time which may last for weeks or years, and during which he has no consciousness of the existence of his normal body, or rather, no lucid consciousness belonging to that body. Under such conditions an individual has a perfect dual existence, so far as continuity of conscious events is concerned. These cases are not as uncommon as one unfamiliar with morbid states would imagine.

It is undoubtedly true that it is some physical state which causes these interesting phenomena of double and multiple personalities; but as we have no certain knowledge as to the

manner in which physical states cause certain mental states, so we are uncertain in our knowledge as to the methods by which morbid physical factors give rise to morbid psychical events. This is true in most cases, but in dipsomania I think we can trace the change in personality to certain toxic materials, due to faulty metabolism, circulating in the brain.

Whichever way we look at the subject a thoroughgoing materialistic formula must provide a material accompaniment for every apparent activity of the mind. In other words, before we can reach any rational and scientific method of provisional reasoning we must set aside the idea that the real self is an immaterial, invisible, mysterious, unfathomable something, which metaphysicians call mind and another class of non-investigators call soul.

Self can only be considered the consciousness of effort. We recognize our entity, our existence, the current elements of our inner life by our efforts. Consciousness, then, is the recognition of the thinking self. This is possible only through molecular activity of the brain elements. If these brain elements are added to or subtracted from, if they break up and reunite in a different form, we get a change of personality. This change of brain elements can be brought about in various ways. It can be brought about by disease, drugs, alcohol, hypnotic suggestions, and a physical state which it is at present difficult to satisfactorily explain.

One of the facts associated with self-consciousness is memory; and as this memory may be in abeyance for minutes or years, while a new or secondary memory takes its place, it is readily seen how such a state will result in an apparent second personality, the absence of memory destroying the individual's sense of his normal self.

While it appears on a cursory glance at these alternating personalities that when there has been a new combination of the elements of personality the other character has been extinct, a close examination will disclose a connecting link of

memory elements observable to the investigator but apparently unrecognized by the consciousness of the altered self. My case is peculiar in the fact that there is a gradual filling up in my mind daily, and there is nearly, though not quite, a connecting chain of the past events.

After three or four years of these alternating periods of hope and despair, I found my true self depressed and discouraged to the point of giving up the fight. I had been through some awful experiences of success and failure; yet every city between the Atlantic and Pacific oceans had given me opportunities to rehabilitate myself, but they were all futile. Editor after editor extended the hand of fellowship, but finally so pronounced became my unreliability that when I reached the Pacific coast I could obtain just enough space work to keep from starving. Imagine my feelings if you can when men said to me, "Look here, if you would stick to your work, if you could be relied upon to use that brain of yours, if you would only keep your work and promises, you could have the highest position in journalism. You know it; now why do you make such a fool of yourself and of those who are your friends?"

Yes, why? How little do you, who are born with an equitable nervous system, understand the innermost gnawings of psychic pain we cursed dipsomaniacs have to suffer? Accursed of vices and habits that are symptoms of disease, is it strange that when we see you pity the born cripple whose distorted limbs are evidence of his infirmity, yet will not see in our attacks of psychic epilepsy the evidence of brain distortion? Is it strange that I should have been discouraged, morbidly suspicious, at odds with the world, after these fights with this demon personality, which would take possession of me at the most important crisis of my life? Yes, this was the most heart-tearing part of it all. I had gotten so that I refused the responsible positions, would take no big assignments for the fear, the awful dread of the clutches of that slimy

other self; for — and here entered an important factor in the discovery of my disease — the greater responsibilities I had, the greater interest I took in a subject, and the keener the ability I demonstrated in working it up, the quicker, the more degrading would be my downfall. Oh, the horror of it all, to live with a brilliant intellect, but Tantalus-like, to have it always just beyond your complete grasp — friends lost, opportunities gone forever, the stigma of drunkenness preceding and following you wherever you went, and, over all, hanging the dread and fear of momentary bodily degradation.

Are there many such unfortunates? Look around, you who have had brilliant friends. Do you not recall one who would have made a great name in the musical world “only he would go on sprees”? How about another one, who was fast making a name in literature, but died in a sanitarium? “Such a pity, wasn’t it, that he drank?” Had he been club-footed you would have extended your sympathy, but because certain cells in his brain were twisted, which brought about an uncontrollable passion, a frantic desire for relief, you all said: “Isn’t it too bad he’s throwing away his life through drink?” Yes, and do you not recall some men who “dropped out of sight”?

The man who leaves his happy home and family in the morning, and on the thronged street falls down in an epileptic fit, has his head held by some sympathetic friend, a carriage is called, he is taken home where physicians render their best aid and friends their sympathy. Another man, a brilliant writer, suddenly has come over him an attack of psychic epilepsy; he sinks down also, but in a different manner. Down he goes to the gutter; he is conscious of his mere physical acts, but as helpless to control them as is the epileptic, — yet the public pities one and scorns the other. It is this stigma of drunkenness placed upon the blameless that has sent many a brilliant man down, down into the dungeon of remorse, whence he emerges to the dark cellar of forgetfulness, where

he breathes out his vagabond existence uttering curses to God and sneers at mankind.

The degrading associates, the unmoral atmosphere, the sad sight of the human wrecks I met and gabbled with, make up a composite picture of sadness and despair. In spite of the terrifying memory of a musical genius, of scientific attainments, of literary ability, of professional achievements, floating aimlessly on the scum of life's river, there breaks through a smile, forced by the many humorous incidents.

I had given up the fight; my last position in Chicago had resulted in a disgusting fiasco. Unwashed and sleepless, surrounded by a zone of insipid content, I stood at the bar of one of the dirtiest dives in Chicago, listening to a monologue by one of the most talented musicians in the country. It was a scholarly exposition of Wagner's "Der ring des Nibelungen." It was forcibly and beautifully expressed, and illustrated by tonal colors from his violin. This musically-illustrated talk would have made his fortune; but only under the condition I saw him in could he be made to talk or play, for there was not that nervous force of vital energy necessary to bring about his mental activity when the dipsomaniacal attack had passed. It was in his case the sad effects of precociousness and the ill-advised and ignorant actions of his parents, for his concert-work as a boy had used up his nervous system: he had drawn constantly on the principal, and now was a psychic bankrupt.

Then there was another genius, an organist, who had held some of the best positions in the United States, but, of course, had lost them all. He was his mother's spoiled and misunderstood darling. He had just returned from a much-advertised institution for the cure of inebriety, an entirely different thing from dipsomania, and brought with him another graduate. This organist was young, but an acknowledged genius, and as the violinist poured out his soulful agony, as the strings sang of remorse and weariness of the world, suddenly to break into the staccato of recklessness and oblivion, he stood,

glass in hand, enraptured. The trembling player stopped for a drink, in which we all, of course, joined; but before taking his the organist went into the back room, which was dimly lighted by one gas jet. Here were three or four young, tired, and homeless creatures sleeping off the effects of liquor. The trembling musician placed a dollar bill in the hand of each girl, and returned with a pleased expression, for well he knew the happiness that would follow the awakening. Poor fellow! he died in that very room while the wealth and culture of the city were waiting for him to play merry peals on the organ in a fashionable church as the bride walked up the aisle. The wedding ceremony had been rehearsed the day before, and weeks had been spent in perfecting the music to play at the wedding. Oh, but these are sad memories, not humorous!

Well, to go back to our story: The organist remained in the "Institution for the Cure of Inebriety" for six weeks. He had been promised, if he brought back a diploma certifying his complete cure, a position of great value. Upon his return he presented his credentials, and was sincere, conscientiously so, in promising to never go on another spree. But unfortunately conscience had no control over a brain periodically poisoned by the by-product of the body.

On the strength of this diploma he was given a position, and for over a year was a reliable and successful musician, and much sought by the young brides, who desired him to conduct the music at their weddings. I have mentioned the last wedding he did, or rather did not, take charge of. At the end of the year he disappeared, and had little if any memory of his acts up to the time he found himself in the town where he had received his certificate of "cured." He seemed to have had a semi-lucid period in this attack, for he carried out semi-conscious ideas. Upon reaching the town he hung his framed diploma on his back and paraded the streets, going from saloon to saloon. It was not long before he was offered a good sum by the institution to leave the

neighborhood. Thus it was that he was able to contribute to the comfort of those unfortunate girls sleeping in that back room.

About this time certificates from this "Institution for the Cure of Inebriety" had some value, and the young writer who had come into the dive this night with the organist had gotten some blank diplomas — he also was an alumnus of this "Institution" — and made quite an income selling them to the young men, who used them to satisfy anxious mothers or as a means of securing positions.

What a merry, useless, brainy, educated, irresponsible, crazy lot we were! Not a man of mediocre talent among us; not a man who could for ten consecutive months be depended upon to finish any allotted task. Not a man among us who in his normal state could be persuaded to take a glass of liquor or pass the portals of a saloon. For months at a time mentally, morally, and bodily clean, at intervals there swept over the brain of each and every individual a storm which carried the toxins of moral degradation and filth that neither shame nor want could subdue. — *Arena*.

Dionin and veronal has been used recently with excellent effect in the withdrawal stage of morphinism. A case has been reported in the *Journal of Medicine*, published at Brussels, in which the author concludes that where not more than one third of a gram of morphine is used dionin can be substituted without recognizing the difference. He believes this drug to possess a special sedative and quieting action without disturbance of the digestive, intestinal, and renal functions. In connection with veronal, its hypnotic effect is immensely increased, and, if the author's statements are confirmed, it promises to be one of the latest and best means known. These preparations can be had from Merk & Co., and deserve a wider inquiry.

RECENT CONTRIBUTIONS TO OUR KNOWLEDGE
OF ALCOHOL AND ITS ACTION ON THE ANI-
MAL BODY.*

By WINFIELD S. HALL, M.D., Ph.D., Chicago, Ill.

Address before the Society for the Study of Alcohol and other Narcotics, at
Atlantic City.

**6. The Influence of Alcohol on the Brain and
Nervous System.**

Behrens (13): "It has been proved by Kraepelin that the intellectual work is reduced by the alcohol habit; especially is the critical judgment thus reduced.

"Especially among geniuses does alcohol work its greatest damage. It seldom happens that a genius is not ruined by the consequences of the alcoholic habit, even though his family and friends are eager to attribute it to other causes.

"On the other hand these persons especially are the ones that advance art, and thus it is important above all that these should remain in their full working capacity.

"Abstinence from alcohol does not only elevate the working capacity but also increases the ability to enjoy life."

Thomson (14): "One of the most common poisons we meet with is alcohol when taken in excessive doses over a long period of time. The effects of chronic alcoholism upon the nervous system are very numerous, and hitherto have been studied chiefly from these chemical standpoints, viz.: (1) from the aspect of lesions of the peripheral nerves; (2) delirium tremens; and (3) chronic alcoholic insanity.

* Continued from p. 234.

“Mental deterioration often only temporarily shows itself, and confusion of ideas, loss of memory for recent events, suspicion, sleeplessness, and untruthfulness are among the prominent symptoms that may be observed. Hallucinations and delusions are among the chief symptoms.

“Alcohol appears to produce these symptoms by a definite action upon the nerve elements themselves. At first, no doubt, it produces functional changes which can not be recognized by the microscope, but finally definite and unmistakable degenerations can be seen.”

Dunning (15): “The early recognition of insanity of this type (alcoholic) is very important, but often exceedingly difficult. The true nature of the case is frequently overlooked because of a lack of appreciation on the part of the physician of the significance of the diagnostic points.

“As a profession we should make more careful study of chronic alcoholism, and be able to distinguish with certainty between the sane and insane alcoholic. By a firm and united stand on the part of the profession the state should be induced to provide for the prolonged restraint and control of that class of periodic insanity known as dipsomania, as well as for all types of alcoholic insanity. Knowledge carries conviction, and when once we are convinced that a man is insane as the result of excessive use of alcohol we should stand by our conviction regardless of the attempts of a shrewd lawyer to influence us against our conviction, and in spite of the popular idea that common drunkenness accounts for all the erratic doings of all the victims of the drink habit.”

Drew (16): “Of the 154 cases admitted to the state asylum during two years, 11, or 7 per cent., claimed never to have used alcohol as a beverage. Of these 11 cases 3 were epileptics and 2 were well marked cases of imbecility. This will indicate how rare it is for one who is a total abstainer from alcoholic drinks and not an imbecile or epileptic to be sent to the asylum for insane criminals in the state (Massachusetts).”

7. Influence of Alcohol on Disease and Immunity.

Flade (17) cites the following original sources:

Carl Fraenkel (Halle), p. 1174: "With the increase in the use of alcohol the number of accidents and even the severity of these injuries increases."

Crutzner, p. 1176: "The higher alcohols possess more paralyzing, the lower ones more stimulating, effect."

Ernst Rüdin, p. 1178: "Attention and concentration of mind is reduced after taking 100 grams of alcohol."

Steinhaus: "The effect of alcohol is especially marked on organs lying at the root of the portal vein."

Bronardel, p. 1179 (Bronardel emphasizes alcoholism as the most important cause of tuberculosis): "Alcoholism bears a definite relation to venereal diseases, as has been demonstrated in the relation between alcoholism and tuberculosis."

Arrivé, p. 1180, claims that drunkards are exceptionally fertile owing to the sexual irritability: Eighty-one families of drunkards had 383 children. Multiple births are more common among alcoholics; also are miscarriages and stillbirths. The death rate of alcoholic children in the first year is above normal."

Swientochowski (18): "We must deny all stimulating effects of alcohol, but must consider it as an agent which, though only in a moderate degree, acts weakening on the whole circulatory system.

"The sum total of working capacity after taking alcohol is always less than before. . . . In the beginning, after taking alcohol, the digestive fluids are somewhat more copiously secreted, but finally they are greatly reduced."

Delearde (Pasteur Institute): "Animals vaccinated against tetanus lose their power of resistance after using alcohol.

"Patients suffering from hydrophobia, and who had been previously immunized, do not lose their immunity after taking

alcohol; however, immunization is impossible if alcohol is given at the time."

Alt (19): "Case 1. Schoolteacher. By excessive smoking a pathological condition obtained, according to which the acoustic stimulus after it had reached the cortical center for hearing was not isolated here but was (owing to defective imbibition or excessive irritability of the nervous elements) led by accessory paths to the center for sight. Yellow and green colors were pleasant to his ears, blue unpleasant, and violet caused a tremulous noise in his ears. On looking at yellow-red the patient heard the tone "C." This tone or noise is only heard when the color is first seen.

"Case 2. Patient heavy drinker. Since several weeks had (1) tremors, (2) parasthesiæ, (3) pains in arms and feet, and showed an intermittent limp. Since eight days he had disturbances in sight and hearing. The diagnosis was alcoholic polyneuritis; the ocular examination showed neuritis optica retrobulbaris chronica ex abusa alcohol."

Homen (20): "The changes produced in the spinal cord by chronic alcoholism may be divided into:

- " 1. Diffuse or irregularly distributed alterations.
- " 2. Of a more systematic character.

"The latter affect first the nerve elements, and have apparently often a definite relation to simultaneously-occurring peripheral neuritic processes. In the first class are:

- " 1. Thickening of the septa and the arterial walls, and sometimes of the related tissues.
- " 2. Hyaline degenerations, especially of the smaller vessels.
- " 3. Glia thickenings.

"The systematic changes are principally seen in the dorsal tracts."

Legraine (21): "Alcohol predisposes the individual to tuberculosis by means of its paralyzing effect, which it has upon the protoplasm. To triumph over alcoholism almost means to triumph over tuberculosis."

8. Alcoholism.

Kieferstein (22): "The story concerning the harmlessness of diluted alcoholic drinks is fully destroyed. It is now obvious that the specific action of beer is only secondary, and that the same thing is true of beer as of the stronger alcoholic drinks. Alcoholic drinks in general must be considered as the scourge of humanity, and the most dangerous enemy of its development. Beer must be fought in the same manner as wine and whisky."

Roessler (27): "There is hardly any unselfish work that would produce so much good as the fight against the drink habit of alcoholic liquors."

Hoppe (24) cites the following original sources:

Hirsch'l, p. 206: "Twenty and seven-tenths per cent. of all insane suffer from alcoholic insanity."

1901 Wein. L'Mayet: "In France there were, in 1861, hardly 700 alcoholic insane; in 1898 there were 2,152 insane."

Paul Garnier, p. 211: "1880-1900 shows the tremendous increase of youthful criminals to be parallel to the increase in alcoholism."

Cramer (25): "The author favors protection of drunkards and the fighting of the habit, considering the latter as a disease of the race. He claims that this can only be obtained by taking medical care (and curing) of the drunkards.

"Institutes for curing drunkards should be erected throughout the provinces. These may be common buildings, and connected with industrial and manufacturing establishments.

"Against the general misuse of alcohol only a gradual education of the people will do much."

9. Therapeutic Uses of Alcohol.

I. EXTERNALLY.

Rosemann (26): "The true philosophy I consider to be to condemn the misuse of alcohol without prohibiting the use of the same.

"Surely it must be admitted that the conversation at the beer-table is not of the most ethical kind, and that the highest problems are not solved while drinking wine.

"Whosoever on account of an abnormal predisposition is seriously affected by even small amounts of alcohol, as well as whosoever is not able to stay within the limits of moderate use, should abstain from it entirely."

Holitscher (27): "The fact remains that in a given case a large dose of champagne or wine may act excellently, yes, even life-saving. The given case is an impending collapse of the forces, as shortly before the crisis. Binz favors alcohol as medicine in, 1st, collapse during crisis in pneumonia, 2d, impending heart sickness after (a) typhus, (b) diphtheria and other fevers."

Binz (28): "My opinion is that at present the spreading opposition of the doctors to the use of alcohol in the form of wine as medicine is paid with many a patient's life. In the days of impending collapse or inanimation many a one of them could be saved by a correct use of a good alcoholic fluid. Almost without exception this thought is seconded by the clinicians."

Saweljew (29): "Prof. N. F. Filatoff — 'In many cases of appendicitis not relieved by opium and ice an alcohol dressing may quickly lead to improvement of the disease process, and may also increase the strength of the patient.' He uses 96 per cent., and ice on top. Adolph Schmidt uses alcohol dressing in ambulatory cases, München in the many inflammations (fingernailbed, erysipelas, phlegmons, and abscesses).

"Leow uses alcohol dressing in lymphangitis, phlegmon, dermatitis, pustulosa, erysipelas, corns, and mastitis (Salzweidel's method).

"Prof. Hebra used alcohol dressing for lupuserythematosus. He applied it on wool ten times a day, and attributes the good effect to the cooling and hygroscopic powers of alcohol."

Cain (30): "Surgeon of Kane Summit Hospital — 'Let me cite my experience in surgery for the last three years, in proof of the uselessness of alcohol and the benefit of abstinence from its administration.

" 'I have performed more than one thousand operations during that time, a large portion upon cases of railroad injuries, one hundred for appendicitis, and in none of these was alcohol administered in any form either before, during, or after operation. I defy any one who still adheres to the administration of alcohol to show as good results. Equally gratifying results have been obtained with my medical cases, and I fail to understand how any observing and thinking physician can still cling to so prejudicial a drug as alcohol when he has within his reach a multitude of valuable, exact, and reliable methods for combating, governing, and controlling diseases.

" 'Owing to its delusive habit-begetting and uncertain therapy, I believe that the human family would be benefited by the substitution of other agents of its class and its entire exclusion from the field of remedial agents.' "

10. Alcohol and the Narcotics in Medicines and Furnished to the Public.

Matteson (31): "Despite adverse opinion of some, reasons good and sufficient make me think narcotic inebriety in America on the wane, and that we have come out of a condition that was critical as to the public good, because it threatened an untold number with more of sorrow, mind and body, than the world would ever know. My paper is wholly against the danger involved in the lawless sale — lawless because not safeguarded by law — of the many nostrums, in which morphine and cocaine play the largest part for harm. One of the nostrums contained $1\frac{7}{8}$ per cent. of cocaine, and any mixture having that amount is dangerous. Insanity is certain if its use be continued. Case after case of cocainism, the genesis of

which was its use by a Rhinologist, has been under my care. Such is the situation. What is the need? This: an act making it illegal to sell cocaine or morphine except per prescription, and the prescription not to be refilled save by order of attending physician; a law compelling the maker of every nostrum to print the formula on wrapper, and those containing morphine or cocaine the amount of drug in each dose."

To one who is poisoned with arsenic or strychnine, or even morphia, the sudden total abstinence or removal of the drug would seem to be the highest wisdom. The gradual withdrawal, fearing collapse might follow, would be an idiotic procedure. Alcohol is a more pronounced poison than either of the above-mentioned drugs, but it acts slower, is accumulative and deceptive; like morphia it stops the pain signals and conceals the trouble. All efforts at reducing the dose, and gradually taking it away, prolongs the trouble and makes recovery more difficult. All persons who have had experience in the treatment of these cases believe in removing the drug at once, no matter what the conditions may be. The patient may have a morbid fear of collapse, and when the gradual reduction process is carried on, it is more for its mental effect than for the shock to the system which its withdrawal is supposed to cause.

Every now and then some pro-alcoholic advocate will refer to some statistics of the British Medical Society, which was supposed to show that moderate drinkers outlive total abstainers. Years ago, by the omission of a table and the faulty grouping of some figures, a conclusion of this kind was apparently reached, but the error was quickly pointed out and the real facts established. The first statement, an error, continues to live, while the real facts attract no attention, showing the old proverb, "A lie travels on horseback and truth follows on foot."

EVOLUTIONARY PATHOLOGY OF CHRONIC
ALCOHOLISM.

By W. FORD ROBERTSON, M.D.,
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The evidence of pathology is for the most part of doubtful value, because it rarely permits of a distinction between genetic variations and somatic variations. The following, however, is, I think, valid: Selvatico-Estense mentions the case of a healthy woman married to a drunkard. She had five weakly children, all of whom died in infancy. By a second husband, of sober habits, she had two perfectly healthy children.

Sabrazes and Brengues have traced the genealogical tree of a family of three idiots. It was found that there was a history of habitual drunkenness on the paternal side extending back for five generations. On the maternal side there was no history of alcoholism, and the stock was otherwise also normal.

Bourneville has published statistics of the parental histories of 2,554 cases of idiocy, epilepsy, and insanity in children, which at least bring out one fact with unmistakable clearness, namely, that alcoholism in the male parent can play a part in the causation of these conditions.

I hold that the evidence already available is sufficient to warrant the conclusion that the germ-cells are capable of being modified by environmental influences, in regard to their potentialities of development, and that, therefore, genetic variation is the result of such influences. On the other hand, I maintain that an essential object of genetic union is to

* Continued from p. 244.

check the tendency to variation, to focus the development potentialities of ancestral lines of germ cells, and so fix the characters of the species. It is not a cause of progressive variation. All the phenomena that have been adduced in support of the opposite view are capable of being interpreted as dependent upon environmental influences.

The experiments of Vernon upon echinoderms, and of Coszar Ewart upon pigeons and mammals, prove that the age and ripeness of the germ cells have a strong influence upon certain of the characters of the offspring; but they do not prove that they are true causes of genetic variation. They rather show that the developmental potentialities of two ancestral lines of germ cells are not always blended in exactly the same fashion, and that the conditions named are capable of affecting the blending. There is no evidence that any essentially new character is introduced. Moreover, it is known that the autonomy of the male and female nuclear elements is still maintained in the primary germ cells. It is only destroyed during the ripening of the germ cells and at the initiation of embryo-formation. Therefore, in any case, such modifications of the blending of the characters of ancestral lines belong rather to the category of somatic variations than to that of genetic variations.

The results of cross-breeding are commonly thought to prove that genetic union is a cause of variation. It results in the blending of the developmental potentialities of widely separated germinal lines. No more than that is proved. It is true, the blending is not necessarily an exact combination of the two lines, nor always the same, as is shown by the phenomena of exclusive inheritance and prepotency; the essential point is that no new character is introduced. Nor is the great tendency to variation exhibited by the offspring of the first crosses in any way conclusive, because the new germ cells harbored in the cross are necessarily placed under nutritional conditions which are appreciably different from those to which their progenitors were accustomed.

Lastly, there are the phenomena of reversion or retrogression, which have been thought to lend some sort of support to the view that genetic union causes variation. Here, again, I am obliged to be heterodox. I maintain that there is no such thing as reversion, except in the merely descriptive sense of the term. To believe that there is really anything of the nature of a retrogression or slipping back in nature is simply to misread the facts. The phenomena that have been interpreted as indicative of retrogression are capable of a different explanation. Many of them are merely readaptations to environment; the rest, those occurring as the result of cross-breeding, are simply examples of convergence of ancestral lines toward the specific mean from which they have previously diverged in opposite directions. This is well brought out in the results obtained from crossing fancy pigeons, which are genetic variations from the Blue Rock. The crossing of some varieties never brings you any nearer to the Blue Rock, because they have varied in the same direction from the mean; the crossing of other varieties always results in progeny approximating in character to those of the Blue Rock, because they have varied in opposite directions from the mean. In the light of these considerations I wish to refer to what appear to me to be two fundamental errors in Dr. Archdall Reid's chain of reasoning. The first is that embodied in the statement that, "if alcohol injuriously affected the germs, the effects would accumulate generation after generation till the race became extinct." This does not in the least follow, for the contribution from other ancestral lines of germ cells may counteract the tendencies to genetic variation produced by chronic alcoholic poisoning. The second error is, "that when the elimination which has caused evolution of any character ceases, or nearly ceases, that character undergoes degeneration . . . due to atavism, to a process of reversion which step by step retraces the previous evolution till, if it be continued long enough, that more or less remote ancestor is approximated to in whom the char-

acter did not exist." He applies this to evolution against alcohol, and even refers to dipsomania as an example of "extreme reversion." I hold that these views have no scientific foundation.

The course of events as regards genetic blending and variation in the cycle of the germ cells in man is, I maintain, most probably as follows: In the zygote two ancestral lines of germ cells are united, but, as results from the observation of Ruckert, Hacker, and Beard, the union is not complete, the two nuclei retain their autonomy not only in the zygote but along the germinal track and in the primary and secondary germ cells. This autonomy is not lost until reduction of chromosomes takes place at the time of the ripening of the eggs and sperms. Until the stage of primary germ cells is past the cells are nourished chiefly by the yolk they contain, and therefore are probably at their minimum of exposure to environmental influences. All the primary germ cells are virtually of the same value, as appears from the phenomenon of like twins, which result when two of them instead of one undergo development. In the primary germ cells, though the nuclear union is not complete, there is a more or less exact focussing of the potentialities of ontogenetic evolution of two ancestral lines of germ cells, and these potentialities are realized when the germ cell undergoes development. Beyond the stage of primary germ cells environmental influences come more and more into play, and there is a possibility of genetic variations being thereby impressed upon the cells. They are probably most susceptible to environmental influences during the active proliferative changes connected with the reduction of chromosomes and ripening. The laws that govern these processes of genetic variation are a subject for investigation: they must be as definite, and are probably even more complex, than the laws that govern the reactions of somatic cells to external conditions.

As already maintained, disease is a chemico-vital reaction

to an inimical force which has broken through the first line of defense of the organism. If the organism were perfectly adapted to its environment, inimical forces therein could never break through its first line of defense, excepting as the result of accidental or intentional traumatism. This is indeed the condition closely approximated to in many of the lower animal forms and plants under natural conditions.

But bring them under the influence of a different environment, and they quickly exhibit lack of adaptation to it. Their effort is towards adaptation to the new conditions, and this they attempt to achieve, firstly, by somatic variation, and, secondly, by genetic variation. Whether there is in the genetic variation anything of the nature of an adaptation in the interests of the future ontogeny is an open question. But it is certain that under these circumstances there is genetic variation, often in several directions, and that some of the individuals subsequently developed are more adapted to the new conditions while others are less adapted. This is beautifully seen in the results of De Vries' observations upon the mutations of *Oenothera Lamarckiana*. Some of the new species were perfectly adapted to their environment; others were not adapted, and were obviously condemned to natural extinction. Now, the laws that govern vital processes are the same for the animal kingdom as for the vegetable kingdom, and I maintain that what occurred to this species of evening primrose when brought under the influence of an environment to which it was not perfectly adapted is typical of what occurs in the human subject under analogous conditions. If the environment of man was perfectly stable, or if all inimical forces capable of breaking through his first line of defense could be permanently removed from his environment, there would be perfect adaptation, there would be no disease, except such as resulted from some forms of traumatism, and there would be no genetic variation. Ontogenetic evolution would be allowed to go on untrammelled step by step in successive generations

through "the tradition of acquired modifications." Human beings, however, correspond with an environment so complex and so inconstant that there is not time for the attainment of perfect adaptation; but towards that end nature is ever striving. Its instruments are somatic and genetic variation and natural selection, by means of which individuals better adapted to the new conditions tend to survive for a sufficient time to continue the race, while those individuals who are less adapted are more liable to early elimination. The elimination takes place in consequence of the individuals being unable to adapt themselves to or to defend themselves against some inimical environmental force with which they are brought in contact. In other words, they succumb to disease. The genetic variations through which new individuals arise who are more adapted to the environment are only attained at the cost of a certain considerable proportion of genetic variations in an opposite direction, which lead to the production of individuals who are less adapted. Disease is the inevitable consequence of contact with inimical environmental forces to which there is not perfect adaptation. Such inimical forces are represented especially by pathogenic bacteria, unsuitable food, impure air, and various toxic substances such as alcohol, opium, etc., which custom or accidental circumstances have brought largely in contact with many communities of human beings.

I submit that this is the biological significance of disease. The lesson is obvious. No effort should be spared to remove from the environment of man every force that is inimical to his existence, not only for the sake of the individual but in the interests of the race. Other things being equal, just in proportion to the perfection of man's adaptation to his environment will be the rate of his ontogenetic evolution as represented in individuals of successive generations, an evolution the aim and measure of which is not really complexity of structure but correspondence with an ever wider and higher environment. Therefore I say that all the efforts of governments, societies,

and individuals to combat the exciting causes of disease are in the interests of the race as well as in those of the present generation. I believe that alcohol is in this country at the present moment one of the most potent causes of genetic variation, as it unquestionably is of somatic variation. We have not to deal merely with its direct action. As we have seen, it seriously impairs the defensive mechanisms of the individual and opens up the way for bacterial attack. Chronic alcoholism is really associated with a poly-intoxication, in which there is a primary intoxication and a whole array of consequent secondary intoxications. Among these secondary intoxications must be included effects of the poverty and destitution so frequently entailed by chronic alcoholism, and implicating not only the individual immediately concerned but often several others at a very impressible stage of their development. If chronic alcoholism is such a potent cause of genetic variation, it must in large part be responsible for the present wide incidence of diseases that depend upon defective powers and anomalous reactive qualities on the part of the individuals. Therefore I say that all the efforts that are at present being put forth to narrow what may be called the alcoholic environment are in accord with the prescriptions of modern science.

If time permitted it would be easy to show that the dictum that disease is a cause of human evolution (apart from the error involved in the use of the term "disease," instead of "exciting causes of disease") is only true in a very limited sense. The question is an exceedingly complex one; it has not the character of simplicity that Dr. Archdall Reid gives it. Take just the example of tuberculosis. We are solemnly told that our modern efforts to combat this disease are simply preparing a day of retribution for future generations, who will undergo retrogression in regard to their power of resisting the tubercle bacillus. I maintain that the conclusion is erroneous. It depends upon a belief in the myth of retrogression, and upon a premature induction as to the pathogenesis of tuberculosis.

For the present I would only mention the recent conclusions of Prof. v. Behring upon this question. On the ground of experimental observations he maintains that tuberculosis really depends upon the accident of infection through the alimentary tract during early infancy, that the bacilli enter the system and remain latent until they find their opportunity for development, and that individual predisposition is of little account. There can hardly be a reasonable doubt that these views coincide in large measure with the actual facts of the case, and that the incidence of tuberculosis is to a much greater extent than has generally been supposed a matter of accident of infection and of accident of other circumstances which temporarily diminish the resisting power of the individual and permit of a latent infection becoming an active one. Evolution against the tubercle bacillus is certainly far from being simply a question of the elimination of the inherently non-resistant under conditions of universal exposure to infection. There are good reasons for doubting if it would be appreciably advanced in modern civilized communities by even the complete and permanent abandonment of all preventive and therapeutic measures against tuberculosis. The condition of defective resistance has many factors: it is subject to modification during the life of the individual, and it is by no means always dependent upon inheritance. Infection and defective resistance are both in very large measure ultimately dependent upon accidental circumstances. Now, you cannot evolve against accident. You can only as far as possible make such arrangements as will obviate the occurrence of the accident. All the preventive measures now being taken against tuberculosis have virtually this aim, and are therefore in accordance with the prescriptions of science.

When Dr. Archdall Reid asserts that "diseases of parents do not affect *in any way*, neither for good nor for evil, offspring subsequently born, at any rate, through inheritance properly so called," that "temperance reform is impossible from the bio-

logical standpoint," that "temperance reformers have failed because they have entered into a contest with nature," and that "every scheme for the promotion of temperance which depends for success on the abolition or diminution of the alcoholic supply . . . is in effect a scheme for the promotion of drunkenness," he simply shows, it seems to me, that he has wholly misunderstood the biological significance of disease. Time does not now permit of my discussing at any length what appear to me to be the faults in his long chain of argument, and the disastrous consequences that would be entailed by the application of the measures which he seriously advises us to take in order to attain to racial evolution against alcohol. His fundamental idea that the craving for alcohol is an instinct, a special inborn character, can, I think, be shown absolutely untenable on physiological grounds. As a specific habit it has its origin essentially in environmental influences. There is no ground for believing that its origin is different in nature from that of other but comparatively rare drug habits, such as the chloral habit, the cocaine habit, the sulphonal habit, the antipyrin habit, etc. Do these cravings also arise as by-products in the course of human evolution, and are we really to believe that the history of the habit having been acquired after medicinal use of the drug is mere *post hoc* evidence? Individuals differ within wide limits in regard to the effect that the same environmental influences have upon them; but, as we have seen, such differences are phenomena of genetic variation. I hold that it is impossible that any process of natural selection can ever permanently eliminate those who are specially liable to become inebriates, because various environmental causes of genetic variation, including chronic alcoholism, are capable of producing in the next generation a group of individuals among whom there will be various degrees of susceptibility in this respect, and at one extreme there will be some who form a specially suitable soil for the planting and growth of the alcohol habit.

My study of the question forces me to the conclusion that the effects of alcoholic intemperance upon the people of this country are much more grave and far-reaching than has generally been suspected. Most people have seen with any degree of clearness only its more immediate effects. The influence it has upon the race has only been dimly suspected by a few, and they have been derided as ignorant and unscientific. The evidence of science is, I maintain, entirely on their side. Chronic alcoholic intoxication, with all the secondary bacterial intoxications that it entails, is, in my judgment, one of the most potent causes of genetic variation among the people of this country at the present day. As the result of this genetic variation, a large number of individuals are born who are less perfectly adapted to the existing conditions of life than their parents were. The general disease-incidence in the community is in consequence being increased far beyond the limits it would otherwise reach.

If these views are in accord with the facts of science, it is obvious that chronic alcoholism is a serious menace to our national welfare. I think the remedy lies broadly in the development of what Dr. Clouston has aptly termed "the health conscience" of the nation. When this has been more fully accomplished, it will be realized that we cannot afford to allow an influence like that of chronic alcoholic poisoning to work its effects upon the race. In the national interests it must be checked by some means or other.

Dr. Johnson of Hartford has taken up the pneumatic treatment of organic diseases of the heart in cabinets. The high tension and resistance is overcome by changing the atmospheric pressure. To this is added various forms of treatment, including electrical, vibratory, and hydropathic measures. This is one of the most advanced efforts in a most excellent sanitarium to restore conditions which were previously thought incurable.

THE INFLUENCE OF ALCOHOL UPON DIGESTION.*

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Gluzinski (1885), Wolff (1889), Lauder Brunton, Pawlow, Klemperer (1890), Blumenau (1890), Brandl (1892), Haan (1895), Chittenden and Mendel (1896), Robertson (1898), and other investigators, have shown that alcohol increases the flow of gastric juice. Large use has been made of this fact by those who favor the use of alcoholic beverages. It is the purpose of this paper to inquire into the exact facts in relation to the claim that moderate quantities of alcohol aid digestion, and to present the results of recent observations of my own, which I believe will be recognized as having some bearing on the question. Aiming at the greatest brevity possible, I shall not undertake to review at length the work of the several investigators who have observed an increase in the activity of the secretory glands of the stomach under the influence of moderate quantities of alcohol, only so far as is necessary to elucidate points to which I wish especially to invite attention.

The most thoroughly exact and reliable experiments which have been made are those of Pawlow; but the results which he has recorded show the effect of alcohol upon the flow of gastric juice alone, that is, his experiments show that alcohol in certain doses increases the quantity of the gastric juice, but

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no observations were made respecting the digestive activity of the juice produced. While it is true in general that a strongly acid gastric juice is possessed of active digestive properties, this is not always the case, and recent experiments by numerous observers have shown that a juice may be very strongly acid while possessed of practically no digestive activity. It has long been known that the digestive activity of the gastric juice depends upon the presence of both acid and pepsin, and it is equally well known that these two substances are produced by different sets of glands. Pawlow and others have shown that these two classes of secreting structures may be called into activity either simultaneously or independently, and have demonstrated by accurately conducted experiments the power of different substances to excite the secretion of acid or pepsin when brought in contact with the gastric mucous membrane.

Radzikowski, in a study of this subject, clearly showed that while alcohol does excite the flow of an acid juice when introduced into the stomach it is absolutely powerless to induce the pepsin-making cells to produce this ferment in an active state. In Radzikowski's experiments diluted alcohol was given by itself, food being withheld. Pawlow and Herzen, and others who have followed them, have shown that the secretion of pepsin depends upon the stimulation of the peptic glands by certain elements contained in the foodstuffs. When this stimulus is eliminated by withholding the food, as shown by Radzikowski, no pepsin is formed; hence the only effect produced by alcohol which could be looked upon as in any way encouraging the digestive processes is the excitation of the stomach to pour out an abundant acid secretion.

Chittenden observed proteolytic activity in gastric fluid obtained from a dog with a gastric fistula three hours after introducing into the stomach 200 c. c. of 37.5 per cent. alcohol; but it is most significant that the gastric fluid obtained from the same animal after the introduction of 200 c. c. of simple water was found to possess decidedly greater proteolytic properties

than that obtained after alcohol. Pawlow has shown that water alone in the quantity named will give rise to the formation of what he calls chemical juice. It would appear, then, that whatever proteolytic activity was possessed by the gastric fluid obtained by Chittenden after the introduction of a solution of alcohol into the dog's stomach was due to the water present rather than to the alcohol, the effect of the alcohol being to actually diminish the secretory activity of the pepsin-forming cells instead of to increase their activity.

Chittenden's observation agrees, then, with that of Radzinkowski, only his observation goes a step further and shows not only that alcohol does not call forth the activity of the pepsin-forming cells but actually diminishes their activity when excited by the presence of water. These facts show us the importance of not drawing too hasty conclusions, and especially make clear to us that we should not too readily surrender a position which on principle seems to be sound, even though laboratory experimentation may present opposing facts. Time must be taken for the collection of further evidence and the interpretation of facts. We may thus be led to conclusions the very opposite of those which might at first seem to be demanded.

Further, while the only claim which can be made for alcohol as a promoter of secretion is that it excites the acid-forming glands of the stomach, Haan has shown that the effect of alcohol in increasing acid secretion is not permanent, but that the temporary increase in acidity is followed after a few doses have been administered by a decrease both in the amount of secretion and also in the acidity.

Heidenhain has shown that large doses of alcohol produce an immediate detrimental effect, causing a transudation of an alkaline liquid, a process which cannot be regarded as otherwise than pathological.

An examination of the facts shows that the effect of alcohol in all doses is pathological. Pawlow has shown that

there are certain elements of the foodstuffs, particularly so-called salts, and especially the salts of meats, which stimulate the formation of acid by the gastric glands. This action is normal, and occurs regularly and without diminution of intensity, except as the result of independent disturbing influences, for many years or during an entire lifetime. How different the case with alcohol. The hypersecretion induced by its use soon disappears. According to Lauder Brunton the sensibility of the gastric nerves is blunted and the stomach fails to respond in the normal way to the physiologic stimuli of foodstuffs. There are many poisonous substances which are capable of exciting the activity of the gastric glands. It is true of all these, as of alcohol, that their effect is temporary, that in a short time the gastric nerves become accustomed to the abnormal agent and their normal sensibility is lessened, so that the actual work done by the stomach glands is diminished instead of being increased. This is the characteristic difference between a pathological and a physiological stimulus. Pathological excitation, that is, stimulation or irritation arising from contact with a body or substance foreign to the body, or not naturally adapted to supply its needs, results sooner or later in diminishing nervous sensibility, thus reducing functional activity while at the same time leading to structural changes of a degenerative character. Normal stimuli, on the other hand, do not thus lose their power, but always produce the expected result under physiologic conditions no matter how often the application may be repeated, and never give rise to degenerative changes even though the quantity administered may be increased considerably beyond the demands of physiologic necessity.

As regards the influence of alcohol upon the chemical processes of digestion the evidence is unequivocal. All observers agree that alcohol, when present in any considerable quantity, diminishes to a marked degree the proteolytic activity of the gastric juice. Chittenden asserts that when present in

very small quantities, one or two per cent., alcohol has little or no effect upon the proteolytic activity of the gastric juice, but adds that "as the percentage of alcohol is raised retardation or inhibition of proteolytic action becomes pronounced."

The injurious effects of alcohol upon the activity of the pancreatic juice was observed by Chittenden to be still more marked, two or three per cent. of alcohol "being sufficient to produce a distinct retardation of digestive action." A proportion of alcohol less than one per cent. was sufficient to produce decided lessening of proteolytic action, unless the pancreatic juice under experiment was particularly vigorous in quality. Brandy, whisky, gin, and rum were found by Chittenden to be still more detrimental to pancreatic digestion than alcohol, although their effect upon gastric digestion was essentially the same as that of alcohol. Wines of all sorts, also malt liquors, were found by Chittenden to exercise a highly detrimental effect upon the proteolytic activity of both gastric juice and pancreatic juice. This inhibitory effect was found to be greater than could be accounted for by the proportion of alcohol present, and hence must be attributed in part to extractives and other matters contained in these beverages.

The observations of Chittenden agree in this particular with those of Kretschy, who experimented upon a woman with a gastric fistula; Buchner, who found that alcohol, wine, and beer all retarded digestion in the human stomach; and Bikfalvi, who observed retardation of digestion in dogs, even when the quantities of alcohol administered were very small. Ogata observed noticeable retardation of gastric digestion with beer, brandy, and wine.

Of less practical interest, though still of some importance, are the experiments which have been conducted for the purpose of determining the influence of alcohol and alcoholic beverages upon salivary digestion. Roberts showed long ago the detrimental influence of wines and malt liquors upon salivary digestion. The inhibitory influence of these bever-

ages was not, however, attributed to the alcohol which they contained, but to the presence of acids. The experiments of both Roberts and Chittenden seem to show that alcohol itself in small quantity has little detrimental effect upon the activity of the saliva in the digestion of starch. Experiments are cited to show that alcohol powerfully stimulates the secretion of saliva, from which it would appear that alcohol might thus prove to be of service as an aid to salivary digestion by promoting the activity of the salivary glands. This conclusion, however, is erroneous, for, as will be seen from a study of Chittenden's protocols relating to the influence of alcohol upon salivary secretion, while alcohol increased the rate of salivary secretion, the simple chewing of rubber produced still greater increase, as much saliva being produced by the chewing of rubber for six minutes as was produced under the stimulus of whisky in twenty-two minutes, and under the influence of gin in twenty-four minutes. The amount of saliva produced was 17 c. c., only a little more than one-fourth the quantity which may be produced by the mastication of some dry substance, as wheat flakes, during five minutes. I demonstrated this in experiments reported in a paper entitled "Experimental Research Relating to Salivary Secretion and Digestion," published in *Modern Medicine* for February and May, 1895.

It thus appears that while alcohol excites the salivary glands to some degree, the excitation produced by it, even when taken in the form of the strongest liquors, is less than one-third that produced by the mechanical stimulus of mastication, and only about one-twentieth that produced by the property of dryness associated with mechanical movement, as in the mastication of dry food. In the presence of such powerful natural stimuli it cannot be imagined that alcohol can be needed as an aid to salivary digestion, or that it can render any possible service. If a physician imagines that his patient requires an aid to salivary digestion let him prescribe for

his patient, instead of a few sips of brandy or a glass of claret, that he shall carefully masticate a cracker, and he may be sure that in so doing he will have rendered him a real and practical service without exposing him to any possible injury.

One fact briefly noted by Chittenden I think deserving of greater attention and further study than it has received, namely, the very pronounced inhibitory effect of alcohol in all forms when added to a gastric juice possessed of feeble proteolytic power. Chittenden remarks: "The greater the strength or digestive power of the gastric juice the less is the retardation, while on the other hand, the weaker the gastric juice the greater the inhibitory action of a given amount of absolute alcohol."

As my professional work brings me in contact with a large number of persons suffering from various forms of digestive disorders, rendering necessary the administration of a considerable number of test-meals, I have opportunity to observe in the course of a year a great number of stomach fluids, and it occurred to me to utilize such portions of these as were not needed for analytical purposes in conducting a series of experiments for the purpose of ascertaining the effects of alcohol in various forms and proportions upon the proteolytic activity of natural gastric fluids of varying degrees of activity. My observations showed me at once the absolute correctness of the statement made by Chittenden that alcohol has a much more marked retarding effect upon proteolytic action in gastric fluids of weak activity than in those in which the ferment is strongly active. With stomach fluids of weak activity I found that a very small proportion of alcohol, even so little as one per cent., entirely destroys proteolytic activity; and on the whole the effects produced by very small doses of alcohol with human stomach fluids are quite as marked as those produced by much greater quantities in the experiments made by Chittenden, employing artificial digestive fluids and gastric juice obtained from dogs.

To determine the degree of proteolytic activity, I employed the method of Mett. In this method small glass tubes filled with egg albumen, which has been hardened by dipping them in hot water, are submerged in the gastric fluid and placed for twelve hours in an oven maintained at 100° F. The degree of proteolytic activity is estimated by the length of the column of coagulated albumen which has been dissolved out of the tube. This is measured in millimeters. The average for normal stomach fluids is four millimeters. The following is a summary of some of the results which I have obtained in this study. I may mention incidentally that the number of cases from which the averages were made is from thirty to fifty:

In the first series of observations the average proteolytic activity of the stomach fluids employed was 6 mm. After the addition of one per cent. of absolute alcohol the activity was reduced to 2 mm. Under the influence of five per cent. absolute alcohol the proteolytic activity entirely disappeared.

In the second series the average proteolytic activity of the juices examined was found to be 6.5 mm. The addition of one per cent. absolute alcohol reduced the average to 1.2 mm. With a five per cent. solution of absolute alcohol the proteolytic activity was reduced to zero.

In the third series rye whisky was employed. The average proteolytic activity of the gastric fluids was 4.25 mm. The addition of one-half of one per cent. of whisky reduced the activity to 2.3 mm., of one per cent. to 1.8 mm., and of five per cent. to 0.2 mm.

In the fourth series port wine was added to a number of gastric fluids having an average proteolytic activity of 7.71 mm. One per cent. port wine reduced the activity to 4.75 mm.

The actual retarding effect of alcohol upon proteolytic activity does not appear from the above figures, however, as it has been shown by Borrisow that the relative proteolytic activity of two digestive fluids is indicated, not by the number

of millimeters observed in Mett's test, but by the square of the number of millimeters.

Comparing the squares of the figures obtained in the first series, we find the effects of one per cent. absolute alcohol to be actually represented by 36 without alcohol as compared to 4 with alcohol, or one-ninth.

In the second series the reduction is still greater, the figures standing 42.25 to 1.44, one-thirtieth.

In the case of whisky the numerical relation is as follows: without alcohol, 18; with one-half of one per cent. whisky, 5.29; with one per cent. whisky, 3.24; five per cent. whisky, .04; or practically zero.

These observations having been made upon gastric fluids obtained from human stomachs the findings have, it appears to me, much greater significance than results obtained with gastric fluids obtained from dogs and artificial fluids prepared from pepsin and hydrochloric acid. The recognition of the fact that alcohol, even in small quantities, greatly retards proteolytic action when added to a feeble gastric juice, at once stamps this drug as pernicious and dangerous for use by persons suffering from feeble digestion. If those whose digestion is feeble are certain to suffer damage from its use, even in so small quantities as one-third of an ounce with an ordinary meal (one per cent. of two pints), it is clearly evident that there can be no occasion whatever for the use of alcohol as an aid to digestion. Those with strong digestions do not need it, and those with weak digestions are damaged by it.

Some years ago I reported before this association the results of a series of studies which I had made of the effects of alcohol upon gastric digestion, in which the alcohol was given in connection with an ordinary Ewald test breakfast. At that time Mett's method of determining the rate of proteolytic activity was not available. I have made some new observations recently by the same method, the results of which I herewith report.

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In a young man, P——, nurse, age 24, in excellent health, the following figures were obtained:

	Ewald Test-Meal.	Ewald Test-Meal with two ounces brandy.
Total acidity, . . .	.198 gms.	.204 gms.
Total chlorin, . . .	.372	.602
Free hydrochloric acid,	.150	.072
Acid combined chlorin,	.074	.168
Fixed chlorides, . . .	.148	.362
Maltose,	3.226	2.646
Dextrin,	1.382	3.942
Pepsin coefficient, . .	4.00	0.00 after 32 hrs.

Comparison of these figures shows that the acidity of the gastric juice formed under the influence of brandy was not materially increased, the difference being only .006 gms. Free hydrochloric acid was diminished, the amount after brandy being less than half that without the brandy. The total chlorin was very considerably increased, but this was due to the large increase in fixed chlorides. The smaller quantity of maltose in proportion to dextrin shows an interference with salivary digestion. But the most marked difference is the total arrest of proteolytic activity. The Mett's tubes showed no digestive action, although left in the stomach fluid for thirty-two hours, more than double the usual length of time. The amount of alcohol introduced with the test-meal by the addition of two ounces of brandy was sufficient to constitute a proportion of ten per cent. of the total stomach contents. This proportion must have been considerably reduced by absorption by the end of the hour, when the gastric contents were removed; nevertheless there was still sufficient alcohol present to absolutely inhibit proteolytic activity.

In another subject, H——, the following figures were obtained:

	Ewald Test-Meal.	Ewald Test-Meal with one ounce brandy.
Total acidity, . . .	.200 gms.	.160 gms.
Total chlorin, . . .	.460	.376
Free hydrochloric acid, . . .	.138	.108
Acid combined chlorin, . . .	.016	.016
Neutral chlorin, . . .	.066	.040
Fixed chlorides, . . .	.240	.212
Pepsin coefficient, . . .	4.00	1.00

A glance at these figures shows that the total activity of the stomach is diminished to a remarkable degree. The total secretion of chlorin was decreased more than 20 per cent. by the brandy. The amount of free hydrochloric acid was diminished nearly 22 per cent. The pepsin coefficient was reduced from 4 millimeters, Mett's tube, to 1 millimeter, which means an actual reduction of digestive vigor in the proportion of 16 to 1.

In another subject, C——, the pepsin coefficient was reduced from 4 millimeters to 2.25, which represents a reduction in the proportion of 16 to 5.

A very noticeable and instructive fact brought out by Prof. Chittenden's very carefully conducted experiments, and one to which the attention of the public should be especially called, is that wines have a much more decided effect in retarding digestion than might be inferred from the amount of alcohol which they contain. He found, for example, that three per cent. of beer, sherry, or claret, that is, one ounce in an ordinary meal of two pints, was found to be sufficient to retard proteolytic action. In the face of the fact that two-thirds of a tablespoonful of alcohol, or two tablespoonfuls of light wine, or beer, is sufficient to retard digestive activity, it is evident that alcohol cannot be commended in any form as an aid to digestion, and that it would be well for human beings to exercise the same wisdom which was manifested by laboratory dogs, which could be induced to take alcohol only through a

gastric fistula, positively refusing to swallow it. There is scarcely a doubt that if alcohol were really a wholesome substance, one capable of aiding the digestive process and promoting nutrition, dogs as well as other animals would be instinctively led to take it readily; but these sagacious creatures, whose instincts are less perverted than those of their human masters, obstinately refuse to voluntarily swallow a substance the properties of which indicate to them its poisonous character. Here certainly is a lesson.

In conclusion, I wish to express my appreciation of the extreme candor and conscientiousness with which Prof. Chittenden presents the results of his exhaustive researches in relation to the influence of alcohol upon digestion. In summing up the results of his observations he does not hesitate to say: "We believe that the results obtained justify the conclusion that gastric digestion as a whole is not materially modified by the introduction of alcoholic fluids with the food. In other words, the unquestionable acceleration of gastric secretion which follows the ingestion of alcoholic beverages is, as a rule, counterbalanced by the inhibitory effect of the alcoholic fluids upon the chemical process of gastric digestion, with perhaps at times a tendency toward preponderance of inhibitory action."

The weight of Prof. Chittenden's great authority is clearly against the habitual use of alcoholic liquors, in which position he stands in accord with the great majority of scientific investigators who have given attention to this subject.

The Health Food Co., of 61 Fifth Ave., N. Y., provide a peculiar form of diabetic bread foods, which have great value to all who suffer from acute indigestion, diabetes, and other troubles. These foods are now placed on the market at drug stores and other places, and have a rare value which our readers will appreciate. See advertisement in this issue.

Abstracts and Reviews.

INEBRIETY AND ALCOHOLISM IN SWITZERLAND.

*By DR. B. LAQUER, Wiesbaden, Germany.

The following very interesting extracts are taken from the paper of Dr. B. Laquer, giving facts about the efforts of the government, temperance societies, and private asylums in the suppression of the drink evil and the treatment of its victims. The great length of the article prevents our publishing it at present, but we hope to draw from it many very startling facts for future studies:

"The principal liquor produced and drunk in that country is wine, although in some parts of it brandy is distilled from grapes, as well as from potatoes and grain. This has caused so much drunkenness that the government and a number of prominent citizens have become alarmed. The amount used for liquors in Switzerland was 264 million marks, for a population of three million, while Germany with a population of 58 million uses 3,000 millions worth of liquors.

"In 1885 the government took a monopoly on the manufacture and sale of brandy. Ten per cent. of the profit was to be used for preventing drunkenness and for treating and curing the victims of drink.

"The use of brandy was by this monopoly lessened some, but the use of wine increased from 38 quarts per person in 1884 to 69 quarts in 1898. During the years 1889 to 1902 the

*Translated by B. E. Hockhart.

drinking cost the government about 8,000,000 francs for asylums for inebriates, jails and prisons for drunkards and criminals who had committed crimes while in a drunken state.

"Switzerland has now thirteen such institutions, with 317 beds, or one bed for each 10,000 of the population, while Germany has 28 asylums, with 750 beds, or one bed for each 75,000 of the population, and England has 14 asylums, with 213 beds, or one for each 200,000 of the population. This does not include any private institutions.

"All the asylums in Switzerland are either government institutions or are under the control of the government. The first idea to open such an institution occurred to some mission society, and they opened one in 1840. The next movement was made by the Swiss Moderate Society, in 1877; this is now the total abstinence society called "The Blue Cross." In 1884 Miss Nicol opened up an asylum at Trelex, under the supervision of The Blue Cross Society.

"The first institution opened by the government was one called Ellikon, and was situated in Zurich. The third was Blumenau, also in Zurich. This was for women, and was started in 1895. In the same year another asylum for women was opened up in Bern.

"The next one that was opened was Vonderfluh, in Larnen, and this was the first asylum in the Catholic part of the country. Most of those institutions were for poor people; but in the year 1898 a company bought the Castle Hard, in Ermatingen, and there opened an asylum for rich alcoholics.

"Etagnicres Asylum, in Lausanne, belongs to a company, but the canton puts its patients there and pays for them. There are two classes of patients there, one paying five francs a day and the other class paying two francs a day. After this asylum was opened there were a number of others founded, among them Pontarcuse, in Boudry. This is owned by the Swiss Society, being an institution for the cure of alcoholism, and is managed by fifteen commissioners.

“Not all of the institutions have a physician as manager and superintendent, but every one has a residing physician. The physician takes charge of the regular and medical treatment, but not the management of the other duties of the house. These are conducted by the same persons who make the rules concerning meals, work, etc. In the institution at Trelex the use of tobacco is prohibited. It is impossible for a patient to leave this institution without permission, for they have not charge of their own clothes. The patient's letters are opened and read by the superintendent, and any visitors must get a special permission to see any patient. The worst trouble is to get suitable work for the inmates of these hospitals, especially the males.

“Intrigues and conspirations among the patients against the enforcement of the rules and regulations occurs everywhere, and though the strongest control is maintained it sometimes happens that a patient will smuggle in some alcoholic liquor. In Canton there is a law by which drunkards can be sent to an asylum without their permission or against their will, but so far this has not been of any benefit. To make the treatment successful the will of the patient must not object to it, and the relations between the physicians and the officers on one side and the patients on the other must be one of friendship.

“The location of the asylums in Switzerland is the very best. They are all far away from the cities and such places that may tempt the patient to leave. The surroundings of the institutions are very fine and beautiful everywhere. In the erection of the buildings and furnishing of the rooms it has always been remembered that the inebriates are sick people, and they have been adapted to please the patients.

“It has also been remembered that the asylums are not penitentiaries, and therefore the buildings have been made light and pleasant, and such that the patients can have every possible chance of liberty. All who are not in bed must take their meals together, and therefore a large dining-room is

provided. The sleeping rooms are, as far as possible, situated on the sunny side of the building. The superintendent's room is so located that he can have easy access to any part of the house. Every patient in the same class get their rooms exactly alike. As a rule no institution is built for more than 40 or 50 patients. In some places the bedrooms are so fixed that two or three persons have but one room, but each with a separate bed. The furnishings are very pleasant, and there are always pictures on the walls.

In the summer-time every one must do farm work if possible, and even in the winter much out-of-door work is provided. All the housework is done by the patients. There are a number of shops on the place, where different things are manufactured and many trades are learned.

The treatments used are:

1st. Total abstinence from the time the patient enters the building.

2d. Good nourishment of simple but healthy diet.

3d. Regular work.

4th. Healthy influences on the mind, especially religion; also educational work to make the patients total abstainers in the future.

The following table shows the number treated and cured in the ten most prominent institutions:

1.	Tilgerhytte,	cured, 339;	uncured, 339;	pr. ct. cured, 50
2.	Trelex,	" 81;	" 461;	" 15
3.	Éllicon,	" 250;	" 352;	" 4.5
4.	Nuchtern,	" 67;	" 112;	" 37
5.	Blumencan,	" 33;	" 34;	" 50
6.	Weisholsh,	" 30;	" 25;	" 54.5
7.	Fonderfluh,	" 44;	" 19;	" 70
8.	Pontareuse,	" 2;	" 4;	" 33.3
9.	Schloss Hard,	} Existed too short time.		
10.	Etagnicres,			
	Total,	cured, 864;	uncured, 1,346;	" 39

Those who are cured by the treatment are total abstainers. Those who are moderate drinkers after leaving the institution are called improved, and are recorded among the uncured.

At the asylum Ellicon a society is formed among the patients, called "Sobrieties." When they leave they are still members, and look after each other.

Next to the asylums the different temperance societies have done the most to check the alcohol habit, and not less than fourteen such societies exist.

"Der Alkoholgegnerbund," with thirty-four unions and 41,384 members.

"The Catholic Abstinence League of Switzerland."

"The Independent Order of Good Templars."

"The Blue Cross of Switzerland."

"The Swiss Teachers' Total Abstinence Society."

The students unions:

"Helvetia," for grammar schools.

"Libertas," for high schools.

"The Catholic Students' League."

"The Ladies' Society (W. C. T. U.)."

In all those societies there are about 30,000 members. Fourteen papers and magazines are the spokesmen in the public press for the total abstinence movement.

Another way by which the work is performed is by the opening up of restaurants and hotels where no liquors or wines are served or sold; a number of such places have been opened during the last few years.

One institution that has done a great deal of good is "The Swiss Abstinence Secretariate." It was instituted by the forming of a union among the different societies. Since the year of 1902 Prof. R. Hercod has had charge of it. It has especially done good by publishing and recommending good literature, and by having suitable paragraphs published in the general press.

At last Switzerland has a great number of prominent authors and scientists who have taken up the alcohol question and are treating it in their works.

ALCOHOL LIKE MORPHIA AND CHLOROFORM.

Passing from the muscular system to the nerves we find judgment, reason, and self-control were all damaged to some extent by alcohol, even by the smallest quantity they would take. He could not refrain from quoting his old teacher, Professor Huxley, who was not a total abstainer, and therefore perhaps his verdict was all the more valuable. He was asked if he found alcohol a brain stimulant. "When I have to do original brain work," replied the professor, "I always decline to have it; I become a total abstainer for the time being. But Professor Huxley went further; he said: "I would much sooner take a dose of arsenic than alcohol." Professor Huxley was right, for alcohol was a more serious brain poison than arsenic. The physiological conclusion was that alcohol was a narcotic poison like morphia and chloroform. The first stage was excitement, which people mistook for stimulation, and even medical men translated excitement into stimulation. But excitement passed away quickly, depression followed: then paralysis, coma, and death. It seemed unnecessary to say to that audience that alcohol was not a food. It made neither bone, brain, blood, nor biceps. On the contrary it acted as a poison and an irritant.

Alcohol was one of the greatest factors in the production of disease. It acted in two ways, by setting up fibrous degeneration and fatty degeneration; and fat in the wrong place was one of the worst things they could conceive. Alcohol was also responsible for derangement of the stomach, liver, kidneys, arteries, the heart, skin, nerves, epilepsy, hysteria, neurasthenia, and, what was more, insanity. Thus the number of diseases produced by alcohol was legion, and they were all of a most

serious character, and many of them were, after developing a fair way, absolutely beyond medical skill in the way of recovery. Besides special diseases there were general diseases, like gout and consumption.

It was only in recent times that they had discovered there was such a thing as alcoholic tuberculosis. They heard, at the London congress on tuberculosis some two or three years ago, Professor Brouardel state that alcohol was the most potent factor in the production of tuberculosis they knew of, and they would recognize its magnitude when they were told that 60,000 people died every year in this country alone from consumption in one shape or another. As alcohol was one of the most important factors in consumption, they would see how seriously it affected the health of the nation.

At that stage they might ask him to define moderate drinking. He could not. As their knowledge of the medicine grew, moderate drinking defied definition. Fifty years ago ten ounces of alcohol per day would come within the category of moderation. More recently this amount was cut down to two ounces daily, and now pathologists told them one ounce per day taken regularly was by no means harmless. If they asked a moderate drinker to confine himself to one ounce a day he would laugh at them. Max Gruber, Professor of Hygiene in the University of Munich, said: "I find there are absolutely no scientific grounds for indicating a given amount of alcohol as harmless and a matter of indifference if it is given habitually. On the contrary it seems to me to be in the highest degree probable that the regular use of a much smaller amount than one to one and a quarter ounces does harm to the vast majority of mankind." He (Dr. Rutherford) was firmly convinced that it was the paramount duty of the medical profession to inform their patients and the public that so-called moderate drinking could not be indulged in without damage to the offspring, and to the race. — *Extract from Dr. Rutherford's lecture in Medical Temperance Review.*

THE PSYCHIC EFFECT OF THE ELECTRIC CURRENT.

The following extract from Dr. Cohn's book on "Electro Diagnosis," reviewed in this number, is very significant, and we commend it to all our readers as a simple intimation of its great value as a teacher in this field:

"It seems highly improbable from the very beginning that the electrical current which produces such mighty physical and chemical effects outside of the human body, and which has so many important physiological relations to the body itself (especially to the nervous system), should remain entirely without effect on diseases of the body, and especially on those of the nervous system. Numerous physiological experiments have demonstrated the effects of the electric current on the healthy body (contraction-exciting, vasomotor, refreshing, electrotonic, etc.); such effects, moreover, are not required for curative use by the sick body. The daily practical experience of medical authorities who have recognized certain electrotherapeutic methods as successful, either empirically or supported by certain theoretic considerations, enforces this demonstration; and, in addition, there are certain recent concrete cases wherein the application of the usual current-strengths (without suggestion) has produced a specific healing effect. There are to be mentioned: (1) E. Remak's series of exact clinical experiments in radical paralysis, which by their number prove incontestably that a certain method of treatment shortens the healing period; and (2) experiments on animals, in which the psychic effect does not figure, and in which artificially produced disease (paralysis, R. Friedlander) seemed to be recovered from more rapidly with the application of the electrical current than without the same.

"If we survey all that has been and is said in explanation of therapeutic results, we must distinguish two things which may be accepted as certain, namely, (1) that, besides the psychic effect, in the body, effects on the blood vessels and

on nerve excitability, as well as muscle contractions, and (2) that it also produces changes in the molecular life of the tissues.

"In regard to which of these effects is to be expected in a particular case and with a special method, and whether the effect will be the desired one, a curative effect, there are unequivocal and undisputed facts in only the rarest cases, so that in spite of all hypotheses we have no other resource in methods than empiricism, the experience of critical authors and practitioners, and our own. At the same time one or another of the hypotheses given above may occasionally serve as a foundation for special methods. Only in a few cases can the therapeutic indications and contraindications be given with a degree of certainty."

ALCOHOL A PROTOPLASMIC POISON.

The following is an extract from Dr. Rutherford's address at Bolton, England, at a medical conference:

"The first physiological conclusion was that alcohol in the smallest dose was a protoplasmic poison and not a stimulant, impairing motion, nutrition, and reproduction where it did not destroy. Those facts were not made for illustration but for argument, and were full of suggestion in regard to human life and activity, and in reference to the reproduction and development of the race. They must be reminded how alcohol acted deleteriously upon the various organs of the body. The blood was poisoned and not fortified; the white and red cells, the oxygen carriers, the vitalizers, the sanitary police and scavengers of the body, were impaired. They had always heard that the heart was stimulated by alcohol, but it had now been proven to be the reverse. By the use of alcohol liability to disease and accidents was increased. This was established by army statistics, and by the fact that life and accident insurance companies gave special terms to total abstainers. That life was

curtailed by alcohol was also proved by the tables of those companies which divided their policy-holders into moderate drinkers and total abstainers. That, he thought, was the most conclusive proof that alcohol was a cumulative poison that any medical man or any scientist could bring before them, and it was beyond the professor to contradict it or to bring any argument to refute it. Alcohol also diminishes muscular power. A great social, economic, and industrial fact was the loss by the workingmen of the country of one-fifth of their time in the factory or workshop."

PAPERS ON THE TREATMENT OF ALCOHOLISM.

The *Therapeutic Gazette* for August publishes a symposium on methods of treatment of alcoholic cases in the hospitals of New York, Philadelphia, and the Danvers Insane Asylum. These papers are of interest, showing the changes in the profession regarding the alcoholic cases and the more rational methods of treatment than in former times. The first author, Dr. Collins, gives some very peculiar divisions as follows: One class are called frank delirium tremens; a second class are noted for agitation, unrest, apprehensiveness, with an insight into their condition; a third class are characterized by amnesia, slight confusion, psychical and physical inertia. In the treatment the following plans and purposes are mentioned: to maintain the patient's vitality; second, to overcome the motor unrest and emotional agony; third, to secure sleep. Alcohol is removed at once, but should there be any cardiac or pulmonary failures it is used freely as a stimulant. Hot baths and hot packs are given. Hyoscine is considered a valuable sedative. Trional, veronal, and paraldehyde are also given freely. The need of elimination is recognized, as well as the necessity of varying the therapeutics in each particular case.

In the second paper Dr. Johnson considers the immediate treatment of persons on the verge or suffering from delirium

tremens. Spirits are withdrawn at once, and sharp elimination is given. He has found that apomorphine is of great value for its relaxing and sedative effects. Calomel and salines are also used. He believes that highly concentrated liquid nourishment is of great value. Chloral is given until sleep is produced. Hyoscine is not regarded as valuable. Baths are used freely. He makes the statement that very few negroes ever have delirium tremens. In New York only two cases appeared out of 13,000 admitted to Bellevue. In 1,655 cases admitted to the Philadelphia Hospital only six negroes had mild attacks of delirium. He believes that the treatment should be conducted in dark rooms where there is great quietness.

The third paper, by Dr. Mitchell, gives his views of the treatment of alcoholics among the insane. He asserts that from 15 per cent. to 25 per cent. of all admissions to insane hospitals can be traced to alcohol as the prominent etiological factor. In his opinion the indications for treatment are to lessen motor excitement, sustain strength, promote elimination, and induce sleep. He is uncertain about the sudden withdrawal of alcohol, but is inclined to believe it is the best course. Hot baths and packs and other hydrotherapeutic measures give excellent results. He is sure that no hypnotic has any specific effect, doubts the value of trional and opium, thinks that hyoscine with morphine may be valuable. He makes a strong plea for the detention of persons in the hospital long after the subsidence of the delirium, and has some faith in the influence of the pledge and temperance societies, and believes that the will power, if thoroughly roused and stimulated, would prevent relapses in the future. He also believes that about 20 per cent. of these cases show active suicidal tendencies. He is quite confident that there is no specific drug for cure or prevention, despite the widely advertised statements to the contrary.

Each of these authors recognize the need of individual treatment, in which elimination is a very large part. From our

experience extending over a quarter of a century in Walnut Lodge Hospital, the treatment most satisfactory is in elimination and rest. The patient is poisoned and starved, and when this condition is removed recovery follows.

SOCIAL CAUSES OF ALCOHOLISM. By W. C. Sullivan, M.D., Medical Officer H. M. Prison, Pentonville, England.

The *Journal of Mental Science* contains a suggestive paper on the above topic by Dr. Sullivan. He attempts from statistical studies to show that there are differences between drunkenness and alcoholism; also that there are two types of drinking, which he calls luxury drinking and misery drinking.

Several interesting tables are given of statistics of deaths from alcohol and cirrhosis of the liver; also of arrests for drunkenness and suicidal attempts, and the comparative rates from alcoholism and liver diseases, together with relations of alcoholism to special industrial conditions. The following is the conclusion of his studies:

"Examining these tables, we find they repeat in a clearer and more definite way the results suggested by our comparison of drunkenness and alcoholism in the counties. More particularly they confirm the view that these two phenomena are in a very large measure independent. Thus it will be noted that while the agricultural and mining districts present respectively the minimum and the maximum development of drunkenness, they appear practically equal in regard of alcoholism, from which both are free; in both the rate of suicidal attempts is very low, and the comparative mortality figures from alcoholism of coal-miners and of agriculturists is the same, and is lower than that of any other industrial group.

"We can most clearly interpret these results by taking as our guide the distinction between the two fundamental types of drinking. In the agricultural districts the conditions of life

do not favor either luxury or misery drinking: though the labor is badly paid and arduous it is done in the open air, does not demand sudden spurts, does not involve the bad hygienic surroundings that beset the slum-dweller of the towns, therefore there is little industrial drinking. On the other hand, there is small margin for convivial excess. The remoteness of the public house in a thin and scattered population discourages both forms of drinking. Under these circumstances we find that in the agricultural counties drunkenness and chronic alcoholism, as measured by suicidal attempts, are both rare, and the death rates of agriculturists from alcoholism and from liver disease is a minimum.

"In the mining districts we have a well-organized, well-paid form of labor: wages are high, employment tolerably steady, hours of work relatively short, hygienic conditions fairly good, and, most important, there is little female labor, so that the women are able to look after the feeding and home comforts of the family. All the circumstances, therefore, are against misery drinking. This relative well-being in a population of low culture is certain to produce convivial excess. In these mining districts we see an enormous development of drunkenness, greater than is reached in any other part of the country. But we find a minimum of chronic alcoholism: the mortality of coal-miners from alcoholism alone and from alcoholism and liver disease together is the same as that of agriculturists, and the rate of attempted suicide is even lower than that in the agricultural districts.

"In the manufacturing towns we have conditions of labor which are necessarily very mixed, but which in the average compare unfavorably with those in the mining districts. In most of the trades the workers are less well organized, hours of labor are longer, the hygienic conditions during work and in the homes of the workers are inferior, and there is a large amount of female labor with its attendant disorganization of family life. All this makes for industrial drinking; and partly

from the same reasons as in the mining districts, and partly because misery drinking necessarily leads to secondary development of luxury drinking, the convivial form is also well marked. In these towns, therefore, we find a rate of drunkenness which is fairly high, though still less than half that in the mining district, and we find a rate of attempted suicide which is very high, nearly three times that in the mining counties, and correspondingly we find that the comparative mortality figures for alcoholism in such large groups, for instance, as the textile workers and the metal workers, are respectively nearly two and three times as high as in the group of coal-miners. At the seaports we have the least favorable conditions of labor. Besides the merchant seamen, whose mode of life and traditions do not make for temperance, there is in these towns a large infusion of unskilled casual workers, whose occupation demands sudden spurts of muscular effort, whose housing conditions are bad, whose pay is low, whose work is irregular and at times excessively prolonged. There are no restrictions on the constant drinking of this class of laborer, such as the employer imposes during working hours on men who have to do with machinery. Further, the seaports have a large element of women engaged in prostitution, a form of industry which strongly tends to misery drinking. In the seaport towns accordingly, while drunkenness is still a little below the level of the prosperous mining districts, chronic alcoholism reaches an enormous development. Two groups representative of seaport life are the merchant seamen and the dockers, and both rank high in the alcoholic scale, the latter showing a death rate from alcoholism which is surpassed only by the liquor trade group. Of course it is partly true that dock labor and similar forms of unskilled work are the refuge of the unfit, and that these drunken habits were acquired elsewhere, or they are the type who readily become drunkards.

“The divergence between chronic alcoholism and drunk-

enness, which is so striking in the regional distribution of these phenomena, is less apparent in their periodic variations. It is, however, traceable at times in a want of correspondence between the movement of drunkenness and the movement of other social facts which are known to be more or less importantly related to alcoholism. An interesting instance of this sort is pointed out by Sir John Macdonnell in his admirable introduction to the criminal statistics of 1899. He observes that, though the record of prosecution for drunkenness was 15 per cent. higher than in the preceding year, there was a decrease in crimes of violence and other offenses which might be supposed to be intimately connected with drunkenness. It was a year of great prosperity, in which failures were the fewest during the previous decade, in which the revenue showed a large surplus, wages advanced, and there were few strikes. He adds: 'It would appear that for the present drunkenness is apt to be a concomitant for high wages and good trade.' We may infer from these facts that the increased drunkenness of 1899 was mainly due to luxury drinking, and that it did not lead to an increase in homicidal crime. It is, of course, chiefly in its bearing on the question of prevention that this view of the social causes of alcoholism has most practical interest. The distinction between convivial and industrial drinking being essentially one of origin, it obviously implies a corresponding difference in the methods suited to deal with either form.

"Primary convivial excess is very much more curable; it belongs to the effervescent time of life, and not uncommonly subsides spontaneously with maturer years; its age-curve approximates pretty closely to that of other expressions of the expansive tendency, such as crimes of acquisitiveness. Its prevalence depends, too, in a large measure, on social ideals and customs, and therefore changes with the degree of culture, and can be modified by educational and religious influences. The sobriety of the educated classes in this country at the

present day as compared with their drunkenness in the eighteenth century is a familiar example of such a progress in manners.

“With industrial drinking it is entirely different. So far from having any tendency to spontaneous arrest it is usually aggravated by advancing age, and it is not amenable to the moral and educational influences that can control luxury drinking, but, when brought into previously sober communities, it weakens or destroys the efficacy of such influences, so that with the spread of chronic alcoholism and its usual results there comes also a growth of convivial excess. Thus, for instance, in northern Italy and in parts of Spain, within recent years, the introduction of industrialism has been accompanied by a rapid development of alcoholism, an increase in alcoholic insanity and alcoholic crime, and in drunkenness, in strong contrast with the traditional sobriety of the Latin culture.

“Summary. — In conclusion, we may sum up the results of our inquiry in the following propositions:

“1. In considering the social causes of intemperance, which are by far the most important, it is necessary to distinguish two opposed types of drinking, viz.: the drinking that goes with conditions of relative luxury, and finds its most frequent expression in ordinary convivial drinking, and the drinking that goes with conditions of relative misery, of which bad industrial circumstances are the most considerable factors.

“2. Convivial drinking may, and often does, lead to drunkenness, but, at least in its pure form, does not tend very much to chronic alcoholism. Industrial drinking, on the other hand, while leading also, though less immediately, to drunkenness, tends rapidly and fatally to chronic intoxication.

“3. From a statistical point of view, therefore, while chronic alcoholism always implies the existence of drunkenness, drunkenness by no means implies the existence of chronic alcoholism. In England this divergence between the two phe-

nomena is best seen in the prosperous mining districts, which by reason of their prosperity are at once more drunken, but less alcoholic, than any other part of the country.

"4. The graver social evils that are in any important degree caused by alcohol are related to the chronic intoxication, and are, therefore, mainly due to industrial drinking.

"5. While educational, religious, and similar influences can control the excesses of convivial drinking, they have but little action on industrial alcoholism, which can only be checked by raising the standard of living, and, in a minor degree, by such methods as restricting the facilities for obtaining alcohol during work hours, providing hygienic substitutes, and so forth."

THE THERAPEUTICS OF MINERAL SPRINGS AND CLIMATES. By I. Burney Yeo, M.D., F.R.C.P. Chicago: W. T. Keener & Co., 1904.

This is a manual devoted particularly to the study of mineral springs and mineral waters and baths; also to the climate and climate resorts in Europe. It is a general subject which American physicians are practically unacquainted with, and yet no country in the world will in the future be found to have greater diversity of climates and health resorts, as well as mineral springs, than America. Already physicians are beginning to appreciate the value of these means in the treatment of disease, and Dr. Yeo's book will prove a mine of wealth, not only in pointing out the value of climates and mineral springs abroad, but suggesting the possibilities which can be utilized here of new therapeutic agents, at present practically unknown. This book will be of immense help to physicians in advice to patients who go abroad for health. Among the valuable chapters one on sea and mountain air is particularly useful, another on the value of mineral springs in diseases

of the circulatory system. A third is on the influence of mineral waters on diseases of the nervous system. Another valuable chapter is on the modes of application and action of mineral waters; also on the classification of different springs and their mineral constituents. This is a very valuable book for the library, containing facts that are not accessible from any other source. The publishers have presented an attractive work, in large type, copious index. We commend the volume to all our readers.

UNCONSCIOUS THERAPEUTIC; or the personality of the Physician. By Alfred T. Schofield, M.D., M.R.C.S., etc., Hon. Physician to Friedenheim Hospital. Author of "The Unconscious Mind," etc. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1904.

Dr. Schofield has become famous for his graphic and popular studies of diseases of the mind and nervous system. Very few authors are able to group the facts of science, particularly in neurological fields, and popularize them so as to be readable to laymen. This book is a study of the psychical side of a physician's work, and a study of what the physician should be to become a great power in the community. In the limits of nearly 300 pages he has grouped a great many facts, some of which are new, and many are new statements of facts known a long time, but all written in so graphic and cheerful a tone as to give the book a charm. Such a work is a veritable tonic, and will be very helpful to all readers who would like to be familiar with many of the by-ways and avenues that lead to success. The specialist will enjoy this book, not only for its suggestiveness but for its extreme optimism and clear common sense views in this age of empiricism. The fact that all the other works by the same author have passed through many editions is a promise that this work will

also be very popular. The book is particularly attractive for the marginal topics, which enable the reader to take it up at any point and follow the author with keen enjoyment. The publishers have issued a volume of clear type and attractive binding.

ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS. By Dr. John Cohn, Berlin, Prussia. Translated from the second German edition and edited by Dr. Scratchley of New York. New York and London: Funk & Wagnalls, 1904.

This book has gone through two editions in Germany, which is in itself an evidence of its practical value. It appears to be a practical grouping of a course of lectures given to students and advanced scholars on the principles of diagnosis and therapeutics in electricity. The first part is an explanation of the apparatus and the laws of electrical action and methods of investigation and reactions of the muscle and motor nerves; the second part is confined to therapeutics, giving the galvano and faradic methods and apparatus; also describing franklinization and teslitation. In the appendix some newer applications of electricity are mentioned. The subject seems to be treated with great clearness and technical accuracy. The German descriptive method of minute details is very evident, but this is an advantage to the student. The illustrations make many disputed points quite clear; and the book is undoubtedly a most excellent contribution to the study, and one that will live a long time in the office and classroom. To all persons who use electricity this book will have especial value in giving information in a condensed form not accessible in any other work. The publishers have brought out a fine work, and we predict a very large sale for it.

A TEXT-BOOK ON STATIC ELECTRICITY. By Hobart Mason, B.S., E.E., late Assistant in Electrical Engineering at the Polytechnic Institution of Brooklyn, etc. New York city: McGraw Publishing Company, 114 Liberty St., 1904.

Dr. Mason has condensed in 150 pages a very clear, scientific presentation of the principles and applications of static electricity. The first chapter describes the general phenomena of electricity; the second discusses the laws and general principles of the electrostatic field; the third describes capacity, or the measure of electrical power; the fourth chapter gives some very interesting facts and diagrams on measurements and comparison of capacities; the fifth chapter is devoted to instruments and studies of the electrometer; the last chapter will be read with great interest by every one owning a machine. It deals with high potential static generators, and also describes the different machines, giving many facts in a very condensed form.

This is a very practical work, and every institution using electricity should have this text-book as a guide and a study. The purpose of this book is to combine simplicity with exactness of statement and avoidance of details that are not easily comprehended by the general reader. We commend this book to all our readers.

The new society for the study of alcohol gives promise of being warmly welcomed by an increasing number of persons interested in its purposes and objects. The possibility of branch societies being organized in different cities seems already clear, where special studies of alcohol and its diseases can be made. The annual meeting of the national society can gather up the results of its researches and present them to a larger audience. We urge our readers everywhere to interest themselves in this subject and form local societies, where the subject can be talked over to the satisfaction of all.

We take pleasure in reprinting Dr. Howard's realistic paper on the confessions of a dipsomaniac, published in the *Arena*. While it may seem an extreme presentation and study of only a few cases, it is by no means an over-drawn picture of what occurs in a number of persons who can be seen in almost every community, only many of this class, who are endowed with such hypersensitive brains, become insane early, and are unable to reason and talk of their condition. Dr. Howard has done good service in bringing out this side of the psychosis of inebriety, and we hope to present our readers with more of his studies in the future.

The *Homiletic Review*, published by Funk & Wagnalls, gives a very clear picture of the movements in the religious world from month to month. There is no magazine more pleasing to one who is concerned in the great moral movements of the age. Many of its articles are models of clear, graphic thinking, both stimulating and instructive to the reader.

Reports indicate that all the institutions, including insane asylums, where inebriates are treated, have an unusual number of patients this season. The supposed curable cases, who are patrons of the irregular institutions, are urgent in their efforts to obtain relief, and the recent victims are appearing in great numbers, anxious to secure relief and be saved.

The *Arena*, under the charge of Dr. B. O. Flower, has come into great prominence during the last year, particularly for its high-class contributions. We commend it to all our readers as one of the most stimulating and eminently fair journals, discussing current topics of the day. Every scholar and thinker should read this journal.

The *Popular Science Monthly* is so well known and so widely circulated among scholars and thinkers that we can not add anything to our frequent reference to it, "as one of

the best and most valuable monthlies that comes to the office of all its subscribers." It is published by The Science Press, of Garrison, New York.

Dr. Walter Lindley, the well-known editor of the *Southern California Practitioner*, has recently been elected dean of the University of Southern California, at Los Angeles. This is a very pleasant tribute and mark of respect, which he has won by his great skill and learning.

The *Review of Reviews*, under the care of Dr. Shaw, gives the best historic review of events from month to month printed in the English language. It is impartial, broad, and liberal. We commend this journal as one of the most satisfactory of all the monthlies published.

The Puntton Sanitarium, for nervous invalids, at Kansas City, has been enlarged during the past year to meet the increased demands, and under the management of the eminent Dr. Puntton it is one of the best private homes in the West.

The *Scientific American*, a weekly journal giving the latest facts in science and mechanics, is a great teacher and a journal of immense influence. No physician can afford to be without it. It is published by Munn & Co., of New York city.

The *English Journal of Inebriety* presents some very excellent papers, and we congratulate its editor on the skill he has developed along a new line of study requiring great discussion and discretion.

Modern Medicine and *Good Health*, two journals edited by Dr. J. H. Kellogg, at Battle Creek, are most valuable and helpful to every reader. We heartily commend them to all our friends.

Editorial.

SIGNS OF CHANGE.

Twenty years ago very few reports of insane asylums mentioned alcohol or intemperance as a cause of insanity. During the past year nearly every report of both English and American hospitals give this as an active cause. Some of them seem to consider it very prominent, and report from 30 to 60 per cent. of all persons admitted as insane from this cause. Others report from 6 to 20 per cent., and seem to be in doubt as to how they can classify this cause alone, in the production of insanity.

One man who has been at the head of an institution a great many years deplors the fact that intemperance should be recognized as a cause of insanity. He cites the experience of ages to prove that all use of spirits is vicious and immoral, and believes it should not be dignified by the term disease; and another authority objects to the words "intemperance" and "alcoholism" as distinct causes in the production of mental and physical disease.

Most of the superintendents make little or no reference to this term, using it in the tables without comment. In all this there are evident signs that the subject is coming into prominence and forcing a recognition among persons in charge of asylums.

The next step will be to discriminate how far alcohol is the active cause in mental diseases, and how far it is a symptom of such troubles. It is well known in medical circles that the craving for alcohol suddenly appears in degenerate persons, or in persons who have suffered from some profound disease, injury, or mental shock. In such instances the use of alcohol is simply a symptom, and, while it greatly exaggerates and con-

concentrates the degeneration, it ought not to be called the disease itself. Some low state of vitality or profound exhaustion has been covered up by the narcotic action of alcohol, and so impresses the system and creates a demand for a renewal of this form of drug. After a time feeble and nervous systems settle into distinct forms of mania or melancholia, which seems to have been produced by the action of alcohol, but in reality alcohol only developed its condition and tendency which existed before.

There are a certain number of cases whose early prolonged use of spirits have been followed by well-marked changes in the brain centers and conditions, termed insanity. These may be properly classified as due to alcohol. In all probability a certain number of the cases in these reports would have developed into some other form of insanity if alcohol had been withheld. Important changes in classifications will undoubtedly be seen in the future reports of institutions.

In a number of instances the most extraordinary conduct has appeared in persons of previous good sense and judgment, and those who had been moderate drinkers for years. The only explanation was that some defect of the brain had obscured their former good judgment and inability to discriminate and realize the consequence of their acts. Thus a noted banker, whose judgment and conservatism was very marked, suddenly displayed credulity and childishness and became a victim for sharpers who used coarse and apparent methods.

A judge gave a very strange decision, so contrary to his former life and experience that it was a wonderment to his friends. These lapses occurring in persons who have used spirits for years are undoubtedly palsies or defects from the accumulative action of alcohol. A noted clergyman who presided at the opening of a saloon is the latest illustration of brain failure and brain defects. In this case his previous

habits of the use of spirits, together with his age, make it very evident that this erratic act is the fault of the brain and not of the heart. His intentions and motives were good, but his discernment and wisdom had lapsed, a blur had come over his mental vision, and what seemed clear and consistent to him was an unaccountable insanity to all his friends.

In a paper read before the Medical Editors' Association I pointed out the fact that in the literature of today, both medical and general, there was strong evidence of the spirit and drug taking of the authors. This fact being new was sharply contradicted. Along with the denials many correspondents have sent examples which sustained the assertion. We hope in a future issue to print some of these footmarks of the effects of drugs and spirits. In the meantime it is a pleasure to call attention to the rapid evolution going on in the journals, both scientific and temperance. The quality of the papers are higher in tone, more accurate in expression, and broader in their conceptions of facts. The narrowness of the past few years is disappearing, and the extravagant presentation of opinions has almost entirely disappeared.

Along the lines of temperance work many clear-cut, dispassionate presentations of fact are common in each issue, and the literature is rising all along the lines of this work. A number of temperance journals are edited by women with great ability and scientific skill. We receive over thirty of these in exchange, and are pleased to note that many of their opinions reappear in the dailies and other journals, frequently without quotations, showing that they are used as a part of the reform literature of the day. For a long time the JOURNAL OF INEBRIETY has been both pained and flattered by the republication of the articles, which first appeared in its pages, with and without reference to the author or the journal in which it first appeared. Quite a number of paragraphs go the

rounds of the medical and lay press which were originally printed in the JOURNAL. Sometimes they are dressed up in different company, as the product of other authors; again they stand out boldly without authorship. When these papers are quoted as the product of foreign authors we are pained, and when a translation is made from German or French, in which a large part of an article by an American author is used to represent new matter, it is a source of regret; but somewhere these errors will be corrected, and at least the thought will have a wide publicity.

We have received during the year a number of communications extolling hyoscine in the treatment of morphinism, particularly during the withdrawal stage. When this treatment was first mentioned, nearly two years ago, careful tests were made of its value at Walnut Lodge Hospital with very unsatisfactory results. Two other experiments were made in other institutions by careful observers, with the conclusion that while it might be a valuable drug in some cases it was an uncertain and dangerous one and inferior to many other well-known remedies. Recently a physician taking large quantities of morphia insisted on having the hyoscine treatment under my care. Acute delirium followed on the third day, and lasted twenty-two days. The prostration was intense, and the recovery was protracted. This, compared with the use of other drugs, was so markedly inferior as to throw great doubt upon its value in the withdrawal stage. Another very good man believes that mandragora has almost a specific value in the withdrawal stage. On inquiry one of the leading druggists in New York informs us that there is no mandragora on the market, and even if it could be had it is an inferior preparation of atropia. In this confusion of chemical experience it is unwise to give prominence or indorse any specific plans or drugs, for the reason that it is misleading and may produce harmful results. Some years ago atropia was very

highly praised and used very freely in these cases. Lupulin, cannabis indica, and other drugs have had very warm advocates, and in certain hands have been very useful; but its value as a universal remedy is doubtful. In all probability hyoscine and other remedies may be found very useful and valuable in many cases, but it would be unsafe to urge them as specifics in all instances.

The inebriate who constantly reasons that he can stop at will and needs no external help is in a delusional state and should be regarded with great suspicion. The president of a national bank, who had no scientific knowledge of the mental states following the use of spirits, demanded of the cashier in his bank the reason why he did not stop the use of spirits. The reply was that he could at any moment, and that he had full power to do so. The answer was, "Resign your position and leave the bank at once, and prove by a year's abstinence from drink that you possess this power, and we will take you back."

The man resigned, but of course failed to be abstinent for a year. This oft-repeated assertion of ability to stop, which is seldom exhibited for any length of time, shows its delusive character. It is the same mental symptom seen in the lower courts, where the victim pleads with the judge to give him his liberty and promises that he will never drink again. The same promise is made at every arrest, and is no doubt an honest impression on the mind of the victim at that time. In a recent case, where an assault had been committed under the influence of spirits, the victim made the mistake of pleading with the judge that he could have kept away from the use of spirits if he had willed to. The judge, acting on this suggestion of ability, tripled the sentence.

The insanity of such statements ought to be recognized and the victim treated accordingly.

The inebriate who has been treated in the various specific cures for periods of from three to four weeks, and relapsed after each treatment, becomes discouraged. The family physician finally, who for the first time is consulted, sends him to a reputable institution. He brings with him all his bad experience and false conceptions of his condition and the methods for relief. He insists on having full liberty, and expects that some drugs will be given to prevent the drink craze. When told that he must be carefully guarded, and remain a long time under the treatment, he insists that this is selfishness of the manager and not the actual needs of his case. The application of rational treatment is regarded as of little value, and if tempted he relapses; after a troubled period of a few weeks he goes away severely condemning the manager and the measures used. Later he enters another institution, where he is given narcotics, and in four weeks goes out under the impression that he is cured. He relapses as usual, but finds out that he can be comfortable on drugs; then decides that all institutions are failures. The last stage of this man is worse than the first.

Some Danish physicians who have formed a total abstinence society have published the following warning notice, which is posted at the railway stations and in public places so that it can be read by everyone:

"To the Danish People:

"Alcohol is a stupefying poison. Alcohol is the cause of many mental diseases, and most of the crimes. Every seventh man in Denmark dies of drink. Never give children alcoholic drinks. Alcoholism breeds tuberculosis and sexual diseases. In the struggle for temperance abstinence is the only weapon. Abstinence never injured a man. Sure is the hand and clear is the thought of him who never drank spirits. If you wish to be happy, prosperous, have a home of your own, and be respected, become a total abstainer at once."

Dr. M. Legrain, the director-general for the insane asylums in the department of the Seine, France, and also superintendent of an asylum near Paris, has lately been delivering a course of lectures in Sweden under the auspices of the Grand Templar Lodges. Dr. Legrain's eminence as a writer on insanity and inebriety makes him a great authority, and this call to deliver a course of lectures on alcohol in a foreign country shows a great advance of public sentiment. Less than fifteen years ago it was thought to be impracticable to invite the late Sir Benjamin Richardson of London, Eng., to deliver some of his famous lectures on alcohol in this country.

Each advance of science reveals the marvelous growth of poisons going on in the human body, where they are produced in large quantities and imperfectly removed. The fluids which surround the brain cells are injured by these poisonous substances, both asphyxiating and paralyzing the neurons and lowering their activity. When the food is retained in the stomach, and digestion is impaired and retarded, a great variety of symptoms indicate this condition. Mentally the person is irascible, despondent, and pessimistic. The inebriate is a good type of poisonous conditions; favoring soils for a rapid production of poisons grow with every glass of spirits. The effort of nature to overcome these poisons, and its partial success, is a source of wonder wherever the conditions are studied.

Dr. Albert Brunner, in his annual report of the patients received in 1902 at the hospital for tuberculosis at Trieste, Italy, makes this statement: "Of 506 patients received during the year, 371 were inebriates, 133 moderate drinkers, and only two total abstainers." — *B. G. Hockhart.*

Clinical Notes and Comments.

INEBRIETY: ITS PATHOLOGY.

Dr. Enlind in a recent number of the *Medical Record* has this to say on this subject:

"Before discussing the question of alcoholism further, it would, perhaps, be wise were we to differentiate between the terms alcoholism and dipsomania. An alcoholic patient becomes insane because he drinks, while a dipsomania patient is already insane before he commences to drink. In dipsomania there is an established pathological state of affairs that impels. It is a diseased condition of the cerebral tissues, coupled with a so-called 'highly-strung' nervous system.

"It can be said, therefore, that alcoholism, rather than being a disease itself, is really a condition produced as a consequence of the action of alcohol on the system, or, in other words, a state of chronic alcoholic poisoning. This same condition of affairs may be said to exist in the system as a consequence of the indiscriminate use of drugs.

"The true method of dealing with this condition lies in paying attention to those possible deficiencies which are at the root of the desire for the liquor or drug.

"Our foremost pathologists and scientists have a clear recognition of the truth that the habits herein discussed arise from manifestations of acute pathological changes, and that these morbid changes are profound, whether they exist in the kidneys, the minute cerebral arteries, the spinal cord, multipolar cells in the cerebral cortex, or in the nerve cells in general.

"We are very often apt to be too general in our statements in reference to these changes, satisfying ourselves with the

tortuosity of the vessels of the pia mater, the adhesion of the pia mater to the cerebral cortex, subarachnoid effusions, sclerosis of the cord, sanguineous effusions, extravasations and infractions, degeneration of the walls of the arteries, and the alterations in the consistency of the cerebral tissues.

“All of these changes do occur, and are of importance as clinical evidence. But even here we must not stop, because as we further investigate we will discover changes still more decided, more so than even the marked molecular degeneration, leading up to the partial destruction of the cortical cells, as well as destruction of axis cylinder fiber elsewhere.

“The principal considerations are the chemical and histological changes brought about by these poisons in nerve tissues. To fully appreciate these changes we must remember the importance in the constitution of nerve tissue of cholesterin, in large quantities and always in combination with the various fatty bodies found in nerve tissue, and which are unstable, capable of many complex degenerations, and all richly permeated with blood.

“Particular attention should be paid to the following two facts, viz.: that cholesterin is itself an alcohol, and that the fatty bodies found in nerve tissue (of which lecithin is chief) are phosphorized bodies, in which phosphoric acid is combined proximately with glycerin. These fatty bodies, in combination with neurin and ammonia compounds, contain nitrogen; therefore, chemically speaking, we have an alcohol in combination with phosphorus, glycerin, nitrogen, and ammonia, and all in close relationship.

“By this relationship nerve impulse is generated, as, for example, the electric currents which start muscle impulse and contractility.

“All of these elements — cholesterin, lecithin, protagon, and neurin — are highly unstable, and the least disturbance of the delicate balance is the first incident of disease. The very slightest deviation from the normal proportion of the ele-

mentary constituents of the nervous tissue must be followed by altered physical conditions. In the author's mind there exists no doubt but that alcoholism is pronounced in producing these morbid changes in the structure of nerve tissue, thus interrupting the nerve balance.

"Nature fully intended that the nerves should have to contend only with the normal quantity of alcohol of the cholesterin. Interference, therefore, with the normal proportion, and the disturbance of the various elements by alcohol, accomplish a degeneration. This fact should be thoroughly comprehended. Alcohol degeneration is the sequence. The alcohol in the cholesterin exists in exactly sufficient proportion to determine normal nerve health. Change that normal proportion by the excessive use of alcohol and the relationship which the unstable compounds preserve is overthrown, degeneration ensues, and we then have the disorder commonly known as alcoholism."

Two years ago an epidemic of what was thought to be acute rheumatism, but later proved to be neuritis, appeared in Lancashire and Yorkshire counties of England. The deaths which occurred attracted much attention, and the government appointed a commission of experts to determine the causes. It was finally traced to the beer used. The sulphuric acid used in the preparation of brewing sugar was made from pyrites, and this contained large quantities of arsenic. Several large firms which supplied the brewers with sulphuric acid and glucose were sued for damages, and eventually failed. Several analyses made by chemists of invert sugar, which was used by the brewers, were found to contain $1\frac{1}{2}$ grains to 9 grains of arsenic per pound, principally of arsenious oxide. Per gallon of beer this amount varied from $1\frac{1}{2}$ to 3 grains. Before these facts were understood at least 10,000 people were complaining of symptoms which were treated as chronic

alcoholism, cirrhosis of the liver, and neuritis. For a long time disturbances of the heart had been noticed, which were ascribed to alcohol. The malt which was used was dried by gas coke. This was found to contain arsenic, which was directly deposited in the malt. Coke was used for this purpose because of its cheapness. One of the large firms which had made brewing sugar from pyrites also manufactured a table syrup from the same substance, which contained equally large quantities of arsenic. Analysis showed one grain to the pound of syrup; the whole stock, amounting to nearly 100 tons of invert sugar and syrup from this source, was destroyed, and the firm became bankrupt. These developments have turned the attention of chemists in this country to the various beers on the market, which are found generally dangerous, although they do not contain the same quantity of poison. The failure of such a large number of English brewers has startled the trade in this country, and extraordinary care is being used to prevent poisons from appearing in the beers.

REAPING PTOMAINES.

A great many people seem to think that it matters little what kind of material goes into the building of the human structure. They feed on thorns and expect to pick roses. Later they find they have sown indigestion, and are reaping ptomaines.

It's a wonderful laboratory, this human body. But it can't prevent the formation of deadly poisons within its very being. Indeed, the alimentary tract may be regarded as one great laboratory for the manufacture of dangerous substances. "Biliousness" is a forcible illustration of the formation and the absorption of poisons, due largely to an excessive proteid diet. The nervous symptoms of the dyspeptic are often but the physiological demonstrations of putrefactive alkaloids.

Appreciating the importance of the command, "Keep the Bowels Open," particularly in the colds so easily taken at this time of the year, coryza, influenza, and allied conditions, Dr. L. P. Hammond of Rome, Ga., recommends "Laxative Anti-kamnia & Quinine Tablets," the laxative dose of which is two tablets every two or three hours, as indicated. When a cathartic is desired, administer the tablets as directed and follow with a saline draught the next morning before breakfast. This will hasten peristaltic action, and assist in removing at once the accumulated fecal matter.

ALCOHOL ON INFANT MORTALITY.

The following extract is from Dr. McCleary's paper on the above subject, printed in the *British Medical Journal*:

"The influence of alcoholism on infantile mortality has an important antenatal aspect. By experiments on animals and observations on the human subject Nicloux has demonstrated that alcohol passes freely from the maternal to the fetal circulation, and he points out the importance of the toxicity of alcohol on an organism whose nervous system is in process of formation.

"Of the toxaemias alcoholism deserves the most careful consideration. Ballantyne holds that there is 'a very considerable volume of opinion, with some statistics to strengthen it, that parental inebriety leads to sterility, to abortion, to premature labor, and to dead births.' Brouardel and other French writers attach much importance to alcohol as a cause of interrupted pregnancy. Arrivé investigated 1,648 conceptions, furnished by 402 poor working-class families in Paris. He arranged the families in three groups: (1) alcoholic, in which alcoholism was manifest in one at least of the parents; (2) tuberculous; and (3) group indifferent, in which no definite influence adverse to the progeniture could be detected.

The percentage of premature births in Group 1 was 3.58, as against a percentage of .064 in Group 3; while the percentage of abortions was 11.54 in the alcoholic, 9.78 in the tuberculous, and 6.61 in the "indifferent" group. The opinion is prevalent that female intemperance has increased of late years in this country, and certainly a considerable rise in female death rate from chronic alcoholism has taken place during the last twenty years."

Lieutenant Rengt Boy, of the Swedish army, has conducted some very interesting experiments on the effects of alcohol on soldiers who were practicing sharpshooting. Dr. Ribing, a prominent professor of physiology, assisted in these experiments. Both guns and revolvers were used, and several trial tests were made by persons who were total abstainers, or had not used spirits for at least three days before the trial. In this way a general standard or estimate of the skill of the person was obtained; then one ounce of alcohol was given, and from a half to an hour later the experiment was made of their shooting ability. In other experiments alcohol in the form of wine or beer was taken the night before, or early in the morning on the day of the test. It was found that the ability to hit the mark was lessened from twenty-five to forty per cent. in all cases. The use of the revolver showed the greatest effects in diminution of the skill, steadiness of nerve, and eyesight. In no instance were men able to shoot with the same accuracy as those who had abstained. Groups of six men were tested: those who had no spirits for two or three days, and those who had taken spirits within twenty-four hours. A comparison was made of the results, which show great superiority in those who had not used any spirits. The conclusion reached from these experiments was that alcohol in any form diminished the capacity of accurate shooting in the soldier nearly half, also that a single glass of wine registered its effects in his diminished

accuracy as a marksman. All soldiers and gunners were more or less disabled and unfit to do accurate work after using wine or beer, although not conscious of it at the time. — *B. G. Hockhart, Hartford, Conn.*

We have noticed in several issues the *Todd Electrical Static Machine*, manufactured at Meriden, Conn., and we take pleasure in calling anew attention to its value as a therapeutic agent. No institution for the treatment of disease is complete without one of these valuable machines. It is difficult to single out a machine and compare its qualities with that of another, but we can say clearly that this machine has been in constant service under our care for nearly two years, and that it has proved both efficient and powerful, requiring no repairs, and is practically one of the most important agents in the treatment of nervous diseases. We urge all our readers to send for circular of the Todd machine and make a practical examination of its virtues before purchasing elsewhere.

Bovinine, like Tennyson's "Song of the Brook," goes on forever. Other drugs come up and go down, but year after year *Bovinine* keeps well up to the front among the great reconstructive remedies of the day. In chlorosis and anæmia, and some of the distressing dyspepsia, this remedy stands alone, and can be given with great certainty of producing most excellent effects. It is also useful in other diseases. In brief, it is a safe tonic to carry around with you for general debility, weariness, and nervous exhaustion.

The *Chattanooga Vibrator* is undoubtedly the very best machine for this purpose on the market. The firm issues a bulletin monthly, giving news of its value and the art for its use. They not only make the machines but they compile the literature and assist to study and understand the scientific principles of treatment.

The well-known superintendent, Dr. Butler, of Alma Springs, Mich., has resigned for the purpose of carrying on literary work in Chicago. Dr. Butler is editor of the famous health journal named *How to Live*, and professor in the Dearborn Medical College, and a very active, busy man, and a leader wherever he goes.

The famous German firm of *Farbenfabriken of Elberfeld Co.*, New York city, have put on the market some of the most valuable synthetic drugs of modern times. We have frequently mentioned many of these, and tried some clinically, finding them beyond question and of the greatest value.

The Theatrical Music Supply Co., of No. 44 West 28th Street, New York city, will send a copy of the famous song and chorus "In Summer-time Down by the Sea," by A. L. Doyle, for twenty-five cents. This is one of the great productions of the year.

Dr. Jolowicz has used *Veronal* in a large number of cases and found its effects more pronounced as a hypnotic than any other substance used. He believes it is one of the most valuable hypnotics we have. Merck & Co. of New York city are the manufacturers.

We never tire of calling attention to *Fellows' Hypophosphites*. In many respects it is a tonic of great value, as well as a most pleasing drug to take. It is doubtful if any other drug on the market has been of such permanent value as this.

Listerine, so well known as a non-toxic antiseptic, has become an almost national remedy. The same firm has recently placed on the market a soap having healing properties, which is really a new departure in medicine along very attractive lines.

The *Rio Chemical Co.* are selling large quantities of *Celerrina*, a well-known tonic and nerve stimulant. This remedy has been before the world a great many years, and has a large circle of friends.

Kennedy's *Extract of Pinus Canadensis* is a valuable agent in chronic diseases of the mucous membranes, and admirable for the removal of morbid discharges of every kind.

Frelich's Tonic, a well known medicine used for nearly thirty years, is coming into everyday use. We have found it very valuable in our work.

Battle & Co., of St. Louis, are doing great service by pressing on the market *Papine*, a preparation of opium and other equally valuable narcotics.

The *Wheeler's Tissue Phosphates* have been on the market for a great many years as a most reliable remedy in dyspepsia and exhaustion.

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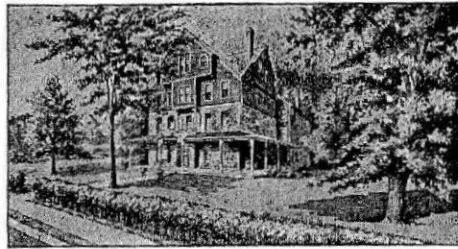
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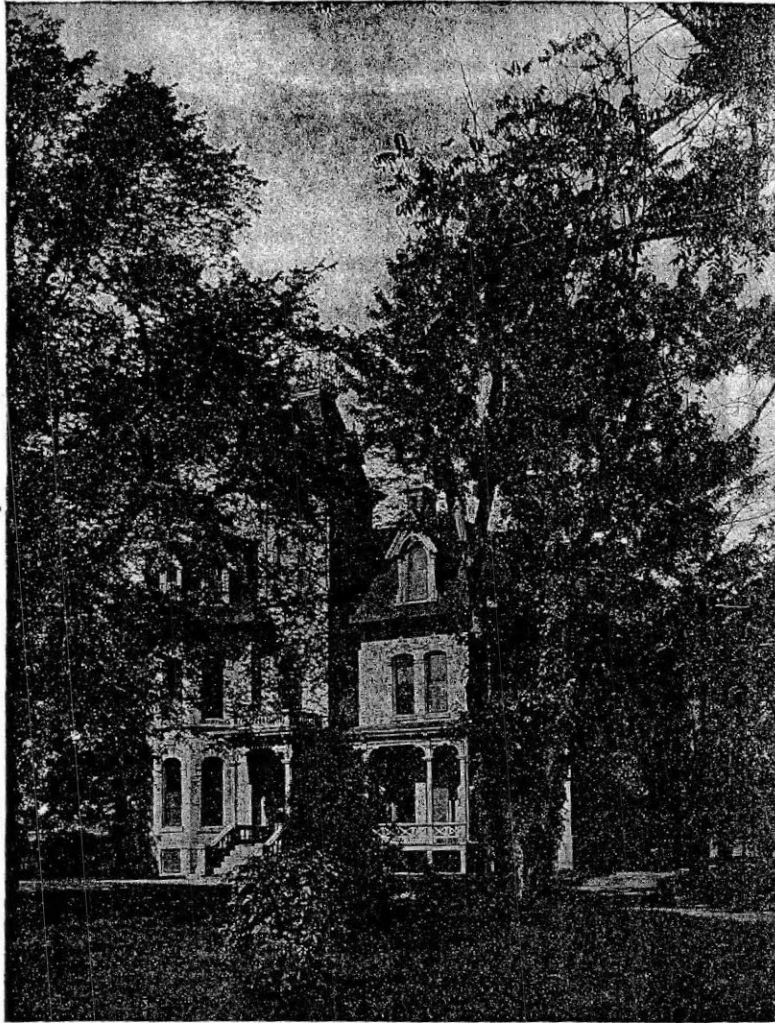
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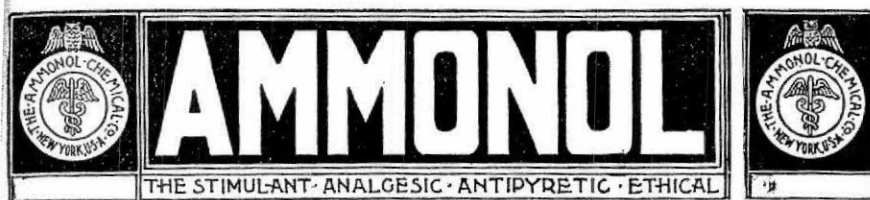
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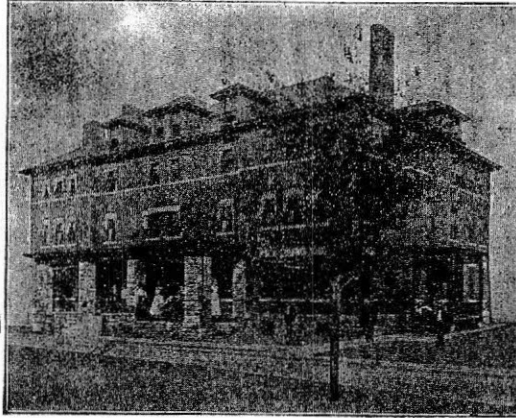
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