

THE FIRST AND ONLY JOURNAL DEVOTED TO SPIRIT AND DRUG NEUROSIS
 Volume 31 Number 3 ESTABLISHED 1876



THE JOURNAL OF INEBRIETY

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

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Alcohol : How It Effects the Individual, the Community and the Race		

RICHARD G. BADGER, PUBLISHER, 194 BOYLSTON STREET, BOSTON
 Entered as second-class mail matter Nov. 1, 1909, at the post office at Boston, Mass.

THE JOURNAL OF INEBRIETY

AUTUMN, 1909

STATISTICS OF ALCOHOLISM AND INEBRIETY

BY DR. ARTHUR MACDONALD, WASHINGTON, D. C., HONORARY
PRESIDENT OF THE THIRD INTERNATIONAL CONGRESS
OF CRIMINAL ANTHROPOLOGY, OF EUROPE.

BEFORE entering upon a statistical consideration of alcoholism, I desire to make a few remarks by way of introduction.

It is generally admitted if you give whiskey to the American Indians, they soon act like crazy men. That is, they are new soil and unaccustomed to alcohol just as they are to measles which, I understand, is quite fatal to them. On the other hand, the Latin races have become so accustomed to the use of alcohol that drunkenness among them is at a minimum. Now, the Americans seem to me to stand about midway between the maximum susceptibility of the American Indian and the minimum susceptibility of the Latin races. The American is in a dangerous position if he uses alcohol, for experience seems to show that he is more liable to lean towards the maximum rather than the minimum susceptibility. Thus the so-called moderate drinker is more or less a myth for he drinks immoderately altogether too often.

Americans, perhaps, need stimulants less than any civilized people, for our climate and our life with its changeableness, uncertainty and haste are stimulants enough without adding more artificial ones. The safest course for the American is to abstain entirely from alcoholic drinks. But it is sometimes said that there is much intemperance in eating and in drinking tea and coffee, for instance. Doubtless there is, but such intemperance does not cause a man to beat his wife or maltreat his children. There are many evils in the world, but when they become so enormous as

alcoholic intemperance, heroic measures are justifiable. For many boys in reformatories and similar institutions have told me that fear of a whipping by drunken parents made them leave home and shift for themselves.

While personally I have always abstained from alcoholic drinks, yet I often feel inclined to favor what some call extreme views when I see not only the direct but the almost numberless indirect evils from the use and resultant abuse of alcohol; so that I repeat what I have stated in another place, that it is better to forego the social, intellectual or physical pleasure from any luxury or non-necessity than to aid in the physical, moral or social ruin of a fellowbeing.

Though I spent a number of years on the Continent, and during vacations studied the slums of large cities and other social evils, I do not remember of seeing but one public drunkard, and his mother tongue was English. There is, however, enough public drunkenness on Continental Europe, as we shall see, but it is nothing to be compared with what one can observe daily in Great Britain or this country.

As an illustration of this difference, the proprietor of a large hotel in London in answer to the question why he employed so many foreign waiters, said to me, "If I should employ English, Irish or Americans and there should come a holiday, so many would go on a spree that the next day my guests would have to wait on themselves."

"MAN AND ABNORMAL MAN"

SENATE DOCUMENT NO. 187, 58TH CONGRESS, 3D SESSION.

Method

In taking up the statistics of alcoholism it is my purpose to confine this study as much as possible to alcoholism itself, omitting the numerous subjects with which it is so closely related. This, however, is not always possible since in some countries the statistics have been gathered as subsidiary to other subjects rather than for alcoholism itself. In quoting the special statistics of different countries the endeavor has been to use only official sources of the most trustworthy character. A list of these is given at the end of this article.

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Table A

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Belgium
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Scotland
United Kingdom
Germany
Sweden
Switzerland

Italy
General Average

United States

Table 1

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As a preliminary to the special statistics of different countries, I give the following general table:

Table A. Drunkenness as General Cause of Insanity, Suicide, Crime and Deaths in the World.

In this table based upon Mulhall, are given the per cents of insanity, crime, suicide and deaths due to drunkenness in different countries of the world. There seems to be more uniformity in the figures for insanity, ranging from 10 per cent (Prussia) to 20 per cent (Norway), and suicide, where the percentages are somewhat similar; that is to say, drunkenness causes about as much insanity as it does suicide, except in Russia where it causes 38 per cent of suicides and in Norway 20 per cent of insanity. As a cause of deaths and crime drunkenness is more than twice as potent as insanity and suicide; the percentages for deaths running from 24 (Italy) to 106 (Sweden) and for crime from 31 (Sweden) to 80 (Belgium).

Many statisticians believe that in general the official returns for drunkenness are very much below the reality.

	Per cent of insanity caused by drunkenness	Per cent of suicide caused by drunkenness	Deaths per million inhabitants from drink yearly	Per cent of crime caused by habits of intemperance	Drunkenness as cause of insanity and suicide: proportion of men to women
England	14	12	40	43	75 - 25
Ireland	12	..	56	..	..
France	14	12	23	..	74 - 29
Prussia	10	14	..	..	88 - 12
Denmark	11	..	..	74	82 - 18
Finland	12	..	..	..	..
Norway	20	..	40	..	..
Holland	16	..	..	..	..
Austria	14	..	..	..	89 - 11
Belgium	..	8	80	80	72 - 28
Russia	..	..	..	..	..
Europe	..	15	..	..	..
	(men)	..	..	..	..
Scotland	28	..	60	..	..
United Kingdom	..	..	43	..	..
Germany	..	..	70	44	..
Sweden	..	..	106	31	..
Switzerland	..	..	85	..	..
	(men)	..	..	..	..
Italy	12	..	24	..	..
General Average	..	..	..	54	80 - 20
	(men)	..	..	..	..
United States	26	..	..	..	..

United States

Table I gives the per cent distribution of prisoners committed during 1904 for drunkenness, by sex and also the per cent according to nationality.

The North Atlantic and North Central divisions show the largest per cent. The high per cent of women prisoners, as compared with men, is striking.

The small per cent of commitments for drunkenness in the Southern and Western states must be considered in relation to the fact that in those states there is much more leniency and also fines are relatively more frequent than imprisonment for drunkenness.

As to natives and foreign born, Ireland (49.8%), Canada (48.3%), Scotland (42.8%) and England and Wales (38.5%) furnish the highest per cents of drunkenness in order mentioned. The lowest are Mexico (2.7%) and Italy (7.3%), being of the Latin race, which generally is more moderate in its use of alcoholic drinks.

Table 1.
U. S. Census (1904)

Continental United States
North Atlantic Division
South Atlantic Division
North Central Division
South Central Division
Western Division
Natives
Foreign Born
Austria
Canada
England and Wales
Germany
Ireland

20.7
36.2
10.2
48.3
38.5
17.9
49.8

Italy
Poland
Russia
Scotland
Sweden
Mexico
Other Countries

Per cent of Prisoners committed for drunkenness 1904.

Total	Male	Female
23.2	22.0	35.9
32.3	30.7	44.3
5.0	4.7	7.5
21.6	21.4	24.8
3.8	3.7	4.8
6.3	5.4	25.5
		7.3
		18.1
		10.8
		42.8
		34.5
		2.7
		23.8

Table 2.
REGISTRATION STATES

REGISTRATION STATES	United States (Continent)			AGGREGATE			MALES			FEMALES		
	Total	Cities	Rural	Tot.	Cit.	Ru.	Tot.	Cit.	Ru.	Tot.	Cit.	Ru.
1900	6.6	8.8	3.4	10.6	14.1	5.7	2.6	3.7	1.1	3.7	5.1	0.9
1890	8.1	11.0	3.6	12.7	17.1	6.2	3.5	5.1	0.9			
1901	6.0	7.2	3.1									
1902	6.1	7.2	3.3									
1903	6.7	7.7	4.0									
1904	5.8	6.8	3.4									
1905	6.0	7.6	3.8									
1906	6.4	8.2	4.0									
1907	7.6	9.8	4.4									
Annual Averages: 1900-04	6.2	7.3	3.4									

Table 2 shows for the registration states in the aggregate and for the cities and rural districts the death rates from alcoholism per 100,000 % population for 1890 and 1900 to 1907. There is a decrease compared with 1890 (8.1). From 1900 to 1907 the per cent of deaths have not varied greatly, except in 1907 there is an increase of about one per cent. The rate is much less for the rural districts for all years.

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Table 3.

Drunkenness in United States for 1905
Cities of 300,000 or more population
100,000 to 300,000
50,000 to 100,000
30,000 to 50,000
Totals

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From other tables of the census for 1900 the death rate from alcoholism in the registration states was highest in Rhode Island (10.5) and lowest in New Hampshire and Maine (2.2).

As to parentage, the death rate is highest among those whose mothers were born in Ireland (17.7), in Scotland (9.7) and in England and Wales (8.3), and lowest in those whose mothers were born in Italy (0.7), in Russia and Poland (1.7) and in the United States (2.4).

As to age, the census shows the death rate to be higher for alcoholism among those 45 years of age (15.4) than among those 15 to 44 years of age (8). At 45 years of age and over the death rate of males (26.4) was more than five times as high as the death rate for females (4.6). The greatest proportion of deaths occurs from 35 to 39 years of age. Deaths of males largely exceed deaths of females.

The proportion of deaths due to alcoholism are greatest in the Pacific Coast region (8.1), the Cordilleran region (6.6) and the Middle Atlantic Coast region (4.7), and lowest in the South West Central region (0.7) and the Southern Interior plateau (0.6).

The title "alcoholism" in the international classification includes acute and chronic forms, but does not include certain organic lesions resulting from the use of liquor such as cirrhosis of the liver.

Table 3.

Drunkenness in United States for 1905	Drunkenness		Total arrests for all offenses	Total arrests for all offenses children	Per cent of arrests for drunkenness	Per cent of arrests of children
	No. of arrests	Chil- dren No. of arrests				
Cities of 300,000 or more population	249,040	934	669,329	14,044	.37	.06
100,000 to 300,000	61,225	520	195,151	8,043	.31	.06
50,000 to 100,000	72,831	702	186,815	7,435	.33	.09
30,000 to 50,000	52,998	710	161,279	4,757	.32	.14
Totals	436,514	2866	1212,574	34,279	.35	.08

From this table (3) based on the census for 1905 the per cent of arrests for drunkenness is, for all registration cities 35 and for children 8. The largest cities of (300,000 population or more) show the highest per cent (37). A striking fact is that the highest per cent for children is in the cities of the smallest population (30,000 to 50,000).

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Drunkenness in England and Wales.

According to the British expert, it would seem that the consumption of spirits follows the movement of trade, increasing when times are prosperous and decreasing when times are bad. The reverse is generally true of crimes against property. The four years, 1873-4-5-6, were the greatest drinking years of the past two generations. It was also a time of exceptionally good trade.

Drunkenness is doubtless the cause of much crime and is the accompaniment of many others, but, according to the same expert, the theory of close correspondence between crime and drunkenness should be viewed with caution.

The table 4 below gives the proportion to population of prosecutions for drunkenness and assaults for the last ten years. As far as the crime of assault is concerned it does not correspond to that of drunkenness since 1896, though in the previous decade, from 1885, it showed the closest affinity.

Year	Prosecutions for drunkenness.	No. per 100,000 population.	Prosecutions for assault.	No. per 100,000 population.
1896	187,258	608	73,109	237
1897	193,276	620	73,074	235
1898	202,498	643	72,387	230
1899	214,298	672	71,240	231
1900	204,236	634	65,579	203
1901	210,342	645	64,115	197
1902	209,908	636	61,422	186
1903	230,180	690	58,576	175
1904	227,403	674	54,971	163
1905	219,276	642	52,811	155

Drunkenness in Large Cities

The table below (5) gives the statistics of drunkenness in the large cities of England and Wales. In all the cities except Leeds there is with variations a tendency to increase in drunkenness since 1890. The figures in Liverpool are remarkably high, with great fluctuations. One reason for this may be that Liverpool is a seaport town.

	LONDON	LIVERPOOL	BIRMINGHAM	LEEDS	CARDIFF
1890	537.42	2392.97	630.27	436.50	550.37
1891	534.96	2193.51	651.31	503.93	634.00
1892	527.69	1752.66	635.54	430.58	553.67
1893	553.92	1554.51	566.14	366.14	796.15
1894	576.65	1115.27	596.59	356.26	1040.37
1895	566.16	1052.65	531.72	312.73	940.65
1896	629.83	794.61	640.61	336.43	1040.98
1897	735.48	806.38	756.07	379.25	978.70
1898	838.51	684.77	805.14	446.45	696.41
1899	846.86	621.33	723.95	402.94	770.08
1900	779.16	658.49	633.17	361.01	600.61
1901	769.62	630.45	638.91	423.16	353.42
1902	777.41	738.63	545.27	526.96	208.99
1903	891.31	1047.28	643.86	606.91	253.40
1904	898.26	1076.26	714.92	549.16	120.31
1905	859.55	1056.92	668.66	538.33	135.25

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Most Drunkenness on Saturday

The general statistics give little as to circumstances of persons arrested for drunkenness as age or time of apprehension, but the table (6) below showing number of arrests for each day of the week in Liverpool for drunkenness is probably of no exceptional nature. This table (6) shows that about one-third of the total number were arrested on Saturdays.

Day of Week.	Apprehension.	
Sunday	1904	1905
Monday	505	529
Tuesday	1202	1280
Wednesday	906	925
Thursday	863	764
Friday	713	705
Saturday	834	825
	2585	2482
Total	7608	7510

Ireland

The official statistics of Ireland, as indicated in table (7) below, show that cases of drunkenness (including drunkenness and disorderly conduct) and assaults, although decreasing in number constitute 51.4 per cent of the total offences committed. The number of cases of drunkenness amounts to 76,860, being 43.2 per cent of all offences committed. Cases of assault have decreased and cases of drunkenness have decreased in the last ten years.

	Assaults	Drunkenness Drunk and Disorderly
1896	24027	90343
1897	23123	94238
1898	21800	94279
1899	22065	98401
1900	19994	97457
1901	18590	88295
1902	18598	91276
1903	17490	85902
1904	16666	81775
1905	16463	79968
1906	16055	77262
Gen. Average 1896-1905	19877	90153
1907	14624	76860

Scotland

Table 8 gives the figures relating to drunkenness and breach of peace of persons proceeded against in the years 1897 to 1905.

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53.42
98.99
3.40
5.25

There is an increase up to 1901 and since then a decrease. There is also a deduction of the number of women from what there were seven or eight years ago.

In the opinion of the Scotch statistician offenses of drunkenness vary with the amount of employment available, especially for rough labor. If this be true, it might be well to find if great muscular fatigue of itself tends to produce a more or less keen desire for alcoholic stimulant in a person who has not been regularly and properly nourished by good food.

Table 8. Scotland.
Persons Prosecuted for Drunkenness and Breach of Peace.

Year	Males	Females	Total
1897	70944	20025	99969
1898	72275	31290	103565
1899	82058	30389	112447
1900	79104	28965	108069
1901	80741	27907	108648
1902	75568	26856	102424
1903	71261	24420	95681
1904	68217	23740	91957
1905	70461	24307	94768

Australia

Table 8 A gives the number of convictions for drunkenness and the number per 100,000 inhabitants for the years 1901 to 1906 for Australia and New Zealand.

In Australia there is a decrease but in New Zealand an increase, with a decrease in 1905 but increasing again in 1906.

Convictions for drunkenness are the best test we have of relative sobriety of a country, but the ages are not the same for all countries. A state may have a larger proportion of adult males. Occupation also effects the result, since those employed in strenuous callings are more likely to indulge in drinking. Distribution of population is a factor also as the probability of arrest is greater in densely populated communities. The attitude of the police and public generally in regard to the offense is another factor.

Sometimes statistics for drunkenness are supplemented with those of relative consumption of alcoholic drinks. This may mislead unless we consider the consumption of non-intoxicating beverages as tea and coffee. In Europe, for instance, tea and coffee are consumed but little compared with Australia, which is one of the greatest tea drinking countries in the world.

Australia
No. per 100
New Zealand
No. per 100

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Table 8 A. Convictions for Drunkenness.
Number and per cent of convictions for drunkenness.

	1901	1902	1903	1904	1905	1906
Australia	50375	48019	46543	45490	46240	45843
No. per 100,000 pop.	133.4	124.5	119.3	115.1	115.1	112.2
New Zealand	9306	9582	10408	11275	10699	11629
No. per 100,000 pop.	119.6	120.1	126.9	133.4	123.0	129.8

France

According to the judicial statistician of France the figures in this table (9) giving the number of prosecutions for drunkenness since 1873 must be taken with some caution as indicating the amount of drunkenness, for, generally speaking, the enforcement of the law is far from being vigorous, but is variable, indifferent, intermittent and arbitrary, yet they have considerable value for these inequalities cannot be the same in all parts of the country, so that they will more or less balance each other; so that while not exact, they probably indicate the general direction correctly.

Table No. 9. Prosecuted for Drunkenness.

1873	59347
1874	86418
1875	98482
Am. Averages	
1876-80	75026
1881-85	67155
1886-90	59420
1891-95	62154
1896-00	58979
1901-05	56334
1906	52025
1907	75227

From 1873 to 1875 there was a large increase, then a decrease with variations until 1907, when a large increase is indicated.

Austria

Table 10. Austria. Per cent of Alcoholics in Insane Asylums.

Year	Male	Female	All
1894	5.65	0.76	3.51
1895	6.85	1.89	4.61
1896	8.49	0.83	4.91
1897	9.44	0.18	5.21
1898	11.70	0.78	6.36
1899	6.58	0.30	3.36
1900	10.33	0.61	5.49
1901	8.81	0.51	4.48
1894-1901	8.64	0.70	4.78

In table 10 are given the per cent of alcoholics in insane asylums from 1894 to 1901. There is a general increase up to 1899, and in 1900 another increase.

Table 11. Austria.

Drunkards	Annual average No. of convictions.
1876-80	303.3
1881-85	490.2
1886-90	561.4
1891-95	611.4
1896-00	988.2
1901-05	1420.6

Table 11 gives the annual average number of convictions of drunkards for periods of years from 1876 to 1905, showing a general increase, and especially large increase in the last period of 1901 to 1905.

Christiania

Table 12. Christiania, Norway. Arrests for Drunkenness.

	Total	Per 1000 population
1890	10096	70
1891	11602	77
1892	11496	74
1893	12876	80
1894	12611	75
1895	13526	77
1896	19249	105
1897	21521	111
1898	19583	94
1899	22176	101
1900	20381	90
1901	17083	75
1902	13474	59
1903	13390	58
1904	11705	52
1905	9884	43

This table 12 gives the number and proportion of arrests for drunkenness in Christiania for 1890 to 1905. There is a general decrease, with large increases for certain years. In 1896 and 1897, for instance, there are large increases. The explanation is that 1895 marked the end of an economic depression in Norway. Good wages enabled the workmen to indulge more in drinking.

Belgium

Table 13. Number Convicted of Drunkenness.

Years	Communities of 100,000 inhabitants or more	Communities of 25,000 to 100,000 inhabitants	Communities of 10,000 to 25,000 inhabitants	Communities of less than 10,000 inhabitants
1899	9418	1908	4281	5511
1900	9865	2344	4819	6216
1901	10631	3170	5698	7661
1902	10731	2745	5714	7557
1903	9194	2376	5296	6050
1904	8525	3457	3644	6610
1905	8892	3303	3957	5703
1906	8732	3613	4282	6261
1907	9411	3940	4394	6696

Table 13 gives the number of sentences pronounced against those guilty of being drunk in a scandalous or dangerous way, either to themselves or others, since 1899 to 1907 in Belgium.

In the large as in the smaller communities there is a general increase in drunkenness up to 1902 and an increase in 1903.

Canada

Table 14.

Year	No. of Convictions for drunkenness.	No. of Inhabitants to each conviction.
1890	14045	341
1891	12997	345
1892	11415	428
1893	11651	424
1894	11558	430
1895	11558	434
1896	11295	449
1897	10586	484
1898	11259	460
1899	11086	473
1900	1221	444
1901	12727	422
1902	3324	408
1903	16532	335

The convictions for drunkenness (Table 14) in the period 1894-1900 averaged 11,370 a year. In ten years comparing 1894 and 1903 the increase in convictions for drunkenness is more than 40 per cent.

Buenos Aires

There has been a decrease, with variations of arrests for drunkenness in Buenos Aires from 1898 to 1907, as indicated in Table 15.

Table 15.

Year	Arrests for drunkenness	Year	Arrests for drunkenness
1898	22238	1903	12558
1899	20793	1904	13370
1900	18010	1905	13490
1901	17190	1906	13117
1902	17043	1907	15468

Chili

In table 16 are given the number and per cent of drunkards sentenced to prison in Chili according to the month of year for 1907. In October and November the largest per cent of drunkards are sentenced to prison.

Table 16.

	Per cent per month 1907	No. of Inebri- ates sentenced to prison in 1907	Proportion of Inebriates for every 100 criminals entering prisons		
			1905	1906	1907
January	8.84	2842	51.08	49.92	52.67
February	7.05	2108	51.44	50.44	52.62
March	6.06	1812	49.22	46.45	53.72
April	7.85	2346	56.23	58.54	58.70
May	8.07	2410	55.74	52.30	59.33
June	6.94	2074	55.83	49.04	57.27
July	8.63	2578	52.05	46.11	60.60
August	9.57	2860	56.51	46.94	62.99
September	7.58	2265	51.91	46.15	61.41
October	10.05	3001	48.08	52.99	64.42
November	9.17	3001	55.28	56.49	62.06
December	10.12	3023	51.77	59.25	61.46
	100.00	29850	52.88	51.40	59.07

Drunkenness and Crime

There is no doubt among statisticians of the close relation between drunkenness and crime. It has been long observed that on holidays, market days, days of a fair or on whatever days alcohol is consumed more than on other days of the week that certain crimes or misdemeanors are more frequent.

In Belgium it is estimated that from 25 to 27 per cent of crime is due to alcoholism; in Holland three-fourths of crime against persons and one-fourth against property. In France, Germany and England, according to various authorities, there are forty to fifty drunkards among every one hundred criminals.

Legrain in a recent study of 2,500 alcoholics found 66 per cent, or two out of three, had committed deeds that could be prosecuted. As to the nature of their crimes 21 per cent had been violent against others, 17 per cent were vagabonds or beggars, 10 per cent had made threats, etc.

Recent Investigation by France

In 1907 the Minister of Justice of France began a new investigation of crime and alcoholism, requiring the courts to report (1) all crimes committed under the influence of drunkenness and (2) whether the offender was an habitual or an occasional drunkard.

The results are given in the following tables (17, 18 and 19):

Tab
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Nature
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Table 17.
(France, 1907)

Nature of Crime	Crimes committed under influence of drunkenness		Indicted			Per cent of each kind
	No.	Per cent of each kind	Habitual drunkenness	Occasional drunkenness	Total	
Violation and crime against chastity	105	30	42	128	170	42
Murder	78	26	38	55	93	26
Assault and Wounding	69	34	29	80	109	47
Incendiarism	30	21	22	17	39	25
Assassination	22	11	22	16	38	17
Theft	20	3	24	135	159	12
Parricide	5	29	4	3	7	30
Counterfeiting	..	..	3	6	9	..
Abuse of confidence	..	..	2	2	4	..

Table 17 shows for 1907 the proportion of crimes caused by the abuse of alcohol; distinguishing also between habitual drunkards and occasional drunkards as to their participation in crime. It is violence which is the special characteristic of crime from drunkenness, such as assaults and wounding and immoral brutality. Acts that require meditation, as abuse of confidence or counterfeiting, are least frequent among alcoholics. Alcohol is a very important factor in crimes of the greatest gravity.

If now we consider crimes of lesser gravity it will be found, as indicated in the next table (18), it is often the cause of rebellion against authority, outrages; in brief, violence against the agents of authority.

The offense or misdemeanor is the characteristic of modern criminality. Many are caused by alcoholism, for the offender desires to procure the means for drink or needs stimulants for accomplishing certain acts, or he goes to the saloon where evil-doers congregate and prepare for their deeds. The majority of scenes of criminal violence originate in saloon quarrels and accidental fights after drinking.

Table 18 gives the number of cases brought before police courts in 1907. It will be seen that about one-third of rebellion and outrages against authority were caused by the abuse of alcohol. About one-fourth of acts of brutality against persons and violent depredation of property are due to alcohol. The table applies only to offenses due

directly to alcohol and therefore does not include those offences, which, though committed by habitual drunkards, have not drunkenness of the offender as a determining cause. About one-sixth of the offences against morals are due to drunkenness.

Table 18.
Police Courts
(France 1907)

	No. of infractions judged	Offences committed under influence of alcohol	
		Number	Per cent of each kind
Rebellion	4343	1470	33.9
Outrages	16645	4938	29.6
Destruction of enclosures	4213	902	21.4
Assaults and wounding	33230	6863	20.6
Violation of children	38	7	18.4
Offence against chastity	2637	445	16.8
Destruction of trees	252	36	12.7
Violation of domicile	358	48	12.3
Threats, written or verbal	796	84	10.5
Offences against liberty of work	235	18	7.6
Fraud against restaurants	1409	75	5.3
Theft	41470	1240	2.9

Occupation and Criminal Alcoholism

Table 19 gives the relation of occupation to criminal alcoholism in France as indicated by the correctional tribunals.

Correctional Tribunals

Table 19.

Occupations	Total No. of arrests	Alcoholics and Drunkards		Percent of arrested persons judged	No. per 100,000 population corresponding profession.
		habitual	occasional total		
Fishing	1891	194	370	564	29.7
Agriculture	48816	2420	5443	7872	16.1
Miners	6821	280	1640	1938	28.7
Industrial (transformative)	45320	2302	6356	8658	19.1
Management and transports	25005	988	2784	3772	15.0
Commerce	11899	282	913	1195	10.0
Liberal professions	1099	6	7	13	1.1
Personal domestic service	7491	151	405	556	7.4
Public service	468	10	34	44	9.4
Proprietors, landlords	3717	46	116	162	4.3
Without profession	18742	151	405	556	2.9
Without calling	17428	889	1502	2391	13.7
Prostitutes	2308	134	417	551	23.8
	191108	7871	20401	28272	

It will be seen from this table (19) that the occupation of fishing gives the highest proportion of alcoholic delinquents in relation to the number judged and to corresponding population. It is a general observation that work on the sea predisposes especially to alcoholism.

Next to the economic alcoholism, Alcoholism poor, goes divides at the morgue families and The first special effect through it as possible idea of the mission of condition, visible and for this is the refusal

Table 20. quents in centers of vice is spr maritime to

Table 20.
(France)

Urban population
Rural population
Without domicile

From table to different first offenders 1.32 per cent

Next to the fisherman come the miners, who furnish the second largest proportion of victims of criminal alcoholism.

Alcoholism flourishes in the wretched squalor of the poor, goes into the saloon and by subterraneous passages divides and emerges into the hospital, the prison cell and the morgue. It compromises the future of the race, ruins families and becomes a permanent cause of crime.

The figures given in the tables are official, and special efforts were made by the French Government through the Minister of Justice to make them as exact as possible. Yet such figures can only give an inadequate idea of the real part that drunkenness plays in the commission of crime, for it can create in the individual a morbid condition, often latent, predisposing to crime without visible indication, and thus escape notice. Another reason for this inadequacy is the indulgence of authorities and the refusal of witnesses to testify.

More Criminal Alcoholism in Cities

Table 20 shows a larger proportion of alcoholic delinquents in the cities than in the country. It is the great centers of industry which are seriously effected. But the vice is spread also in the country, especially in the small maritime towns, which have a bad reputation.

Table 20.
(France)

	Total of arrested persons judged	Delinquent Drunkards		
		Total No.	per cent judged	No. per 100,000 of corresponding population
Urban population	84351	13397	15.8	83.9
Rural population	75425	11754	15.5	51.0
Without domicile	31331	3121	9.9	

Belgium

From table 21 which follows, the relation of drunkenness to different forms of crime is given. It will be seen that first offenders, on the average 13.97 per cent for men and 1.32 per cent for women, either were convicted of drunk-

eness or had committed the crime while drunk. For those previously convicted the figures are very much larger, being on the average 40.33 per cent for men and 7.91 per cent for women. As might be expected, the influence of drunkenness on offenses against public order (36.75%), public morals (15.98%) and destruction of property (25.35%), is most potent.

Table 21.

Belgium (1903)	Per cent of Offenders			
	Male		Female	
	Not before convicted.	Con- victed before	Not before convicted	Con- victed before
Counterfeiting	13.79	18.52	8.33	
Crime & offenses against public order	36.75	62.65	10.26	24.07
Crime & offenses against public safety	18.23	34.04	1.10	5.97
Crime & offenses against public family	7.11	29.36	1.14	7.14
Crime and offenses against public morals	15.98	46.90	6.03	22.41
Murder	6.25	13.33		
Wounding	10.31	35.15	0.54	5.84
Robbery or housebreaking	12.05	51.04		20.00
Theft	6.29	33.56	0.44	4.36
Bankruptcy	1.20	17.95		
Fraud and abuse of confidence	4.87	28.71	0.66	8.33
Incendiarism		37.50		
Destruction of property	25.35	51.69	8.00	25.68
In general	13.97	40.33	1.32	7.91

Germany

Among 32,837 prisoners in prisons and reformatories in different parts of Germany 13,706 were alcoholics, that is 41.7 per cent.

In table 22 it will be seen that a high per cent of drinkers are convicted of wounding, resistance of government (76.5%) and offenses against morality (77.0%).

Table 22.

Germany. (Zuchthausn)	All	Number of		Occa- sional drunk- ards	Drunkards		Per cent
		Alco- holics in general	Per- cent		Per cent	Habitual drunk- ards	
Murder	514	237	46.1	139	58.6	98	41.4
Robbery	898	618	68.8	353	57.1	265	42.9
Theft	10033	5212	51.9	2513	48.2	2699	51.8
Wounding	773	575	74.4	418	72.5	157	27.3
Incendiarism (Gefangnisn)	804	383	47.6	184	38.0	199	52.0
Theft	3282	1048	32.0	666	63.5	382	36.5
Wounding	1130	18	63.4	581	81.1	135	18.9
Robbery	48	28	58.3	16	47.0	12	43.0
Resistance of Government	852	499	76.5	445	80.0	254	11.0
Housebreaking	411	223	54.2	210	94.2	18	5.8
Offenses against morality	200	154	77.0	113	73.3	41	20.5
Fraud, etc.	786	194	24.7	117	57.2	83	42.2
Incendiarism	23	11	48.0	5	45.4	6	54.6

Table 23.

Years
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Sweden

Table 23. Per cent of Drunkards among those newly committed to imprisonment.

Years	Convicts		Other Prisoners	
	Men	Women	Men	Women
1887	69.8	9.3	73.7	.....
1888	70.6	8.4	71.7	.....
1889	74.4	12.8	74.0	.....
1890	71.0	8.0	72.0	.....
1891	71.4	9.9	70.0	.....
1892	74.4	13.6	69.7	.....
1893	69.7	10.6	71.8	.....
1894	67.7	12.0	72.4	.....
1895	67.7	9.1	74.0	.....
1896	69.8	14.0	72.7	.....
1897	71.6	18.2	72.8	.....
Total	70.6	11.7	72.3	12.3

In Sweden drunkenness has been a subject for investigation by the Government for a number of years.

Of the 24,398 men from 1887 to 1897 in Sweden newly imprisoned 17,370 or 71.2 per cent were lead to crime in connection with the misuse of alcoholic drinks. Of the 3054 women imprisoned 360 or 11.8 per cent were similarly lead to crime.

Switzerland

In a careful investigation of drunkards in the prisons of Switzerland it was found 9.8 per cent of the men and 2.7 per cent of the women owed their imprisonment *directly* to drunkenness; that 25.9 per cent of the men and 10 per cent of the women were through drunkenness as a principal cause lead to crime. But drunkenness as a potent factor in leading to crime showed 38.0 per cent for the men and 28.7 per cent for the women.

Table 24.

	Men convicted		Women convicted		Both sexes	
	No.	%	No.	%	No.	%
Drunkenness alone cause	437	9.8	24	2.7	461	8.6
Drunkenness principal cause	715	16.1	66	7.3	781	14.6
Drunkenness accompanying principal cause	537	12.1	...	...	537	10.1
Drunkenness accompanying cause	...	...	165	18.3	165	3.1
Drunkenness under causes not mentioned	2754	62.0	645	71.7	3399	63.6
ALL	4443	100.0	900	100.0	5343	100.0

For larger, 91 per fluence 75%), property

Convicted before

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Russia

In Russia drunkenness has been considered one of the chief causes of crime. In 3226 criminal cases in the courts at Kasan 1885-94, 42.68 per cent were connected with drunkenness. In 10,000 criminal cases at St. Petersburg drunkenness played a part in 44.9 per cent. Of 13,687 persons committing capital crimes 47.3 per cent were alcoholics.

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DIPSOMANIA—ONE OF CIVILIZATION'S PROBLEMS

BY WILLIAM LEE HOWARD, M. D., PH. D.

THE modern school of psychology, which is founded upon physiologic knowledge, is turning to the systematic investigation of *periodic* drunkenness as a symptom of poisoned brain and nerve tissue.

Up to a comparatively short time ago periodic inebriety has been considered a vice—a weakness of will power and lack of moral stamina. The remedies have run the gamut from prayers to prisons. Pledges, punishment and Puritanism have always pleaded for their sole power to correct what is now well known to be symptoms of disturbed physiologic conditions, and not, *per se*, vicious intentions or habits.

The different forms and manifestations of periodic inebriety are as numerous and varied as the causes producing them—that is, the indirect causes of bringing about the various phases. The real cause is always the same—unstable nervous mechanism.

This condition may be an inherited one—it may also be an acquired one. In either case the result is the same—a disturbance of the balance of the outgo and intake of the necessities of the body. It is in reality a chemical process in which deleterious by-products are not eliminated.

A particular disease caused by this disturbance that calls for popular knowledge, is *dipsomania*. This symptom of disorganized nerve and brain cells is ruinous to its victim unless early corrected. The disease is on the increase among those who live the life of mental rush and worry.

It is undoubtedly true that tipling—the habit of daily drinking alcoholic beverages, is decreasing. Man now values his mental powers more than ever. Sobriety is found necessary for success, and there is no longer that leniency toward the drinking man which formerly existed. That factor which makes for clear thinking holds in check the otherwise careless man.

The drinking *habit*—the occasional slips into overindulgence, does not directly concern the physician or the psychol-

ogist. It is the ruinous disease *dipsomania* that is increasing among our brain workers and is now acknowledged to be as much a social problem to solve as tuberculosis or epilepsy, that must be controlled. It is in fact a more serious problem because its victims are mostly of the brain working class. It is one of the results of the rushing, pushing and moving world today.

In plain, untechnical terms the cause of the disease dipsomania is as follows:—

In order to have a perfectly adapted physiological machine, the waste products must all be eliminated through their different exhaust channels. The human body is a complicated machine, whose motive power throughout all its parts—from brain cells to muscular movements—is controlled by chemical processes.

The various exhaust pipes for the poisonous by-products are the lungs, skin, kidneys, intestines and many smaller organs placed throughout the body. The intakes are the lungs, stomach and skin.

When this mixture is properly adjusted so that the intake and outgo are chemically balanced, we have the perfectly moving machine—a wonderful machine moving without worry, chafing, noise or effort.

Let there be any slight waste product left in the body and its accumulation soon causes one of many defects in the normal functions of the brain or in the mere animal activities. Should there be on the other hand a greater outgo than intake there comes a physical failure of the functions, followed by an exhausted body and brain. The ultimate result of either state is a pounding of the human motor. If the conditions have not been recognized in time to correct the trouble, the human machine is stalled by life's roadside and finally carried off to the junk pile—the asylum for the insane, or the grave.

Among brain workers there exists an exceptional amount of activity in the nervous tissues. This makes them highly sensitive to every molecule of poison passing through them. The physical worker rapidly eliminates his body poison through the activity of lungs and skin. Also his nervous tissues and brain cells are not so sensitive to the effects of these

poisons. This is one of the cases where a man can get drunk on Saturday night and be able to do his labor Monday morning. This is seldom found. When found to have a mental state, he is a physical worker.

There exists among men a craving for stimulants. It may be seen in the young who go into the woods for gam-
tion to rest and dream.

Now let the brain be fatigued after it has been accumulating in the constant activity, and pain comes over him and there comes over him a craving for comfort. He craves men-
pulses to get away from the
cotics are what he craves.
One glass starts the poi-
higher, exhausted brain
second personality obtruc-
vidual started on a spree—
of dipsomania.

This ambulant drinker
of poisoned brain cells.
weeks, but finally returns
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Each attack weakens the
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poisons. This is one of the reasons why a laboring man can get drunk on Saturday night and be fit to go on with his labor Monday morning. In this latter class dipsomania is seldom found. When it is seen in this class the man is found to have a mental structure above his fellow laborers—he is a physical worker through circumstances.

There exists among most of us a craving at certain periods for stimulants. It may take the form of a longing for sweets in the young woman, the uncontrollable desire to go into the woods for game, the desire to travel or an inclination to rest and dream. All these are normal stimulants.

Now let the brain be flooded with the poisons that have been accumulating in the man who has had his brain cells in constant activity, and paid no attention to bodily exercise, and there comes over him a state of unrest, lassitude, discomfort. He craves mental relief—has uncontrollable impulses to get away from this restlessness and worry. Narcotics are what he craves, and a glass of whiskey is taken. One glass starts the poison circulating in his brain, his higher, exhausted brain centers become inhabited, the second personality obtrudes itself and we have the individual started on a spree—he is now suffering from an attack of dipsomania.

This ambulant drinker now demonstrates the symptoms of poisoned brain cells. He will disappear for days or weeks, but finally returns to his work and have no desire for liquor until again his brain cells become surcharged with poisons.

Each attack weakens the power of resistance, augments the basic cause and finally the unfortunate individual lands in the asylum or sanitarium. Misunderstood, blamed and cast out, he frequently ends his horror in suicide; a victim of disease as much as the carefully cared-for typhoid or epileptic patient.

The recognition of the fact that dipsomania is a disease and not a vice is fast taking hold of medical men and philanthropists. Massachusetts has established a hospital solely for the study and treatment of dipsomania and several other states are fast following the example.

Every man who has had in his employ a number of men—high class artisans or confidential clerks—has had the problems of dipsomania to solve.

A man endowed with active brain, trained in his speciality, or demonstrating a decided ability along certain lines, is generally the unfortunate and misunderstood victim of dipsomania.

Among those who have not carefully considered the conditions surrounding these periodical "sprees," the individual is called a drunkard or a "spreerer"—both ideas and terms unjust to the unfortunate.

In twenty years' experience in dealing with "men who live on their nerves" ninety per cent of the dipsomaniacs I have treated have been brain workers.

Let it be thoroughly understood that in this article I have no brief for that anti-social being, the degenerate, the chronic alcoholic bum or the bar-room habitué. These form a class by themselves, mentally and morally degenerate, the useless junk of humanity whose only place is civilization's dump.

Strictly speaking dipsomania is a psychical epilepsy. We all know something about *physical* epilepsy. Physicians have long made exhaustive studies in this disease and laymen have nobly contributed funds for continuance of these studies and for the building of colonies for the epileptics.

When a victim of this common epilepsy falls frothing on the street his writhings and muscular contortions are watched with sympathy and understanding. He is carefully taken to the hospital and treated as one suffering from a real disease.

Now, let the man whose brain is surcharged with poison made in his physical laboratory suddenly have an attack of psychical epilepsy—dipsomania—with its symptoms of an insane desire to wander away and consume enormous quantities of liquor meet with the same care and sympathy?

Not among the masses—as yet. But nevertheless, progressive scientists have come to realize that this latter form of epilepsy is no less a disease, and, what is better, is, in the majority of cases, curable.

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Dr. Osborn, Superintendent of the State Hospital for Dipsomaniacs, Iowa, voices the opinion of most medical men when he says:—"It is a reproach to us that only jails, work-houses and faith cures are available for the unfortunate dipsomaniac. This condition prevails not only in public minds but in the medical profession. He is regarded as a nuisance, a willing offender against society, and not entitled to hospital treatment, but rather to be confined in jail until he has recovered from the immediate effects of his debauch. Why not imprison the typhoid fever patient? Is it because he unwittingly gets his poison from contaminated water, while the dipsomaniac gets another poison from a different source? Surely it is no less a disease and no more of a crime than epilepsy."

Quacks have understood this matter better than the pedantic physician and those possessing arrogant scholasticism. They pick out cases of dipsomania and offer powders and liquids whose only value is the purgative they contain. These "certain cures" for drunkenness are given to the distracted mother or suffering wife with directions to give immediately "to the drunkard upon his return home. He will not drink again, for months, anyway, after taking this specific for drunkenness—it is a perfect remedy against the habit—Look at these grand testimonials—all genuine" repeats the wise one.

Of course he abstains from liquor as the months pass on. Now the wise one gets a heartfelt testimonial—in these cases genuine and easily obtained. "God Bless you, Doctor," ring out the believing ones until another attack comes over the diseased man. But even here the faith of the last temporary "cure" hangs on, and upon his return to the bosom of the family the wonderful "remedy" is once again put to its deceptive use.

Let me repeat that the difference between the disease psychic epilepsy, whose symptoms are demonstrated by an insane impulse to consume enormous quantities of liquor, and common drunkenness, is this:—In dipsomania it is the disturbed brain cells that govern the impulse for narcotics, for alcohol, this latter narcotic being most readily obtained. In drunkenness it is the constant, daily, monthly

and yearly consumption of alcohol that gradually produces a real diseased condition of brain and body. In this latter case it is a deliberate, willful tampering with a poison. The drunkard does not care—he likes it. The dipsomaniac in his normal health abhors it and will not touch it.

The degenerate, the individual of evil surroundings and no moral or intellectual training, prefers the life of a loafer to the life of activity. He will hang around and drink as much and as often as opportunity offers—will do odd jobs to get the price of a drink, and patiently wait until it is obtained.

Not so with the dipsomaniac. When the attack comes nothing on earth or in heaven will stop him from consuming anything in the form of narcotics. Cologne from his wife's bureau, alcohol from the laboratory jars, even if they contain pathological specimens, Jamaica ginger, morphine, chloral, cocaine, patent medicines, crooked or straight whiskey, are all and the same to his insane impulse.

I've had brainy, refined men and women rushed to me by train and carriage not daring to let go of understanding friends, and beg, tearfully plead, not to let one of their horrible attacks start on its career. I have had these unfortunates confined where not an ounce of alcohol or any narcotic could be obtained, yet seen these individuals physically suffer and mentally alienated for days and weeks. Drunk, insanely drunk from the poisons in their systems which deliriously cried out for alcohol to relieve their terrible sufferings.

Do such unfortunates need help, scientific assistance, or recriminations and jail?

Many of the cases of "men who drop out of sight," many of the strange facts connected with double personality and the disappearance of men for days from their accustomed domestic and business surroundings, can be traced to attacks of dipsomania.

Most observant men know of these cases, many come into personal contact with the victims, and not a few have suffered through them.

Why is it that a man holding a good position, capable of earning large wages or a big salary, suddenly throws aside

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one or the other, leaves home and deserts wife, children and friends for a long debauch? Why does such a man disappear completely, for a week or month?

You say of such a man:—"What a fool! He lost a good position; ruined his prospects through drink. Why; he could have had almost any position if he'd remained sober." Then you remark that the man was not a drinking man; that he did not frequent bar-rooms, did not associate with drunkards or low companions—that he was a good husband and father, a faithful employee, and again you wonder as you say:—"What a fool!"

The man is neither a fool nor a drunkard, but one over whom there comes a periodical dissociation of personality—an insane period during which self is submerged, honor blotted out and all ideas of responsibility temporarily absent.

Such an individual disappears for weeks or months. A search for him in places where he is usually to be found is fruitless. He is now an entirely different person, an altered individual, and goes where *this* individual finds congenial companions and surroundings.

Typical examples of such cases are to be found in the heroes of Sir Gilbert Parker's novel, "The Right of Way," and in Dr. Weir Mitchell's "Circumstance." These two noted novelists understand scientifically the details of double personality as demonstrated in the disease dipsomania.

Double personality is a physical condition which dissociates 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 another 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, 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. It is generally due to some foreign substance on or circulating through the tissues of the brain. Poisons from the body, as I have explained, and in rare cases, a blood clot or bone pressure.

A pen picture of the dipsomaniac will be readily recognized and perhaps help to place outside the vicious line of drunkenness some of your friends and employees and show you that these persons need treatment for exhausted and unstable nervous systems—not prayers for reformation.

You notice, perhaps, in your best worker a slight restlessness; a noninterest and unusual desire to quit work. If he has been with you long you are suspicious and determined should he "go off" again, never to take him back.

A few days before the irresistible, savage, overpowering impulse to drink exerts its full force, the individual is irritable and inattentive to his duties. The struggle, the painful demands for alcohol are too powerful for even a person conscious of the fearful results to stand against. One drink only will he take to relieve the awful restlessness.

He steps into a saloon, an act which a few days before he would have considered degrading. The one drink is taken, after which there does not appear to be any limit to the amount of alcohol he is capable of consuming. His craze for something to quiet him is savage, uncontrollable. He will drink in one hour a quantity that would make four men beastly drunk. Yet he does not stagger. Now hours pass as minutes. The diseased one becomes voluble, boasting and self-contented. He delivers philippics and enters into polemical discussions with his bar-room companions. In this condition he becomes a menace to the interests of his employer—to himself. After a while he begins to wander—to move on as a different individual.

He does not act like a drunken man, but the higher centers of his brain have become paralyzed. All sense of his former self became in abeyance when he finished the

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first glass of liquor—an entirely different state of affairs as seen in the true drunkard.

No food is taken, and as midnight comes on he departs with his newly made acquaintances to some all-night hole that is a palace to him, the parasites being his willing knights. A short doze on a dirty sofa and the morning will find him without physical or mental energy to leave the rum hole. In this contented state he will remain for several days.

Now, either one of two conditions is certain to occur. He recovers physical energy and starts on a new career with total forgetfulness of his real self, or, if the brain cells have recovered from their poisoned condition, he goes back to his former place.

It may occur to the reader to ask how he recovers so quickly from the effects of the enormous amount of alcohol he has been taking. Just here is one of the great differences between inebriety and the disease, dipsomania. Without going into technical details, I may say that my working hypothesis is, that the alcohol taken does not in reality reach the tissues of the body, but acts only as an antidote to the poison; that as soon as this effect takes place the cause of the temporary insanity is removed and the man returns to himself. When the phenomena of second personality is demonstrated it is due to some of the brain cells having been deeply affected by the poisons and the injury remains for the time being.

In ordinary cases the return to the normal is comparatively rapid. There is no recollection of the time passed or places where the insane one has been. He desires no liquor now, and has neither thought nor idea of ever wishing for a drop of alcohol. This is not the moral determination of the drunkard never to drink again, not the sickening, repulsive, abhorrent feeling of the inebriate for alcohol due to excess, but a condition of psychical contentment.

Such is a general outline of this pathologic condition now recognized as the disease *dipsomania*.

These subjects of psychical epilepsy are brilliant workers, steady men, socially popular and respected. No suspicion will be attached to them until the outbreaks become frequent.

Their first two or three attacks are skillfully hidden—"they go away on business, or they need a rest."

I believe many railroad and steamboat accidents, apparently unaccountable, could be traced to insidious attacks of this disease, due to an overworked nervous system.

A thorough understanding of the dangers that lie in giving positions of responsibility to the dipsomaniac, should be the possession of every business man. The employer recognizes the drunkard, the man who occasionally drinks too much and the alcoholic incompetent, as persons not fit to employ, but with the dipsomaniac he will be deceived until, perhaps, it is too late.

I know of some employers who let valuable men go on these periods of insane ravings, believing it is the only way to retain their services. I warn all such that each attack weakens the earning power of the individual and ultimately will destroy it completely.

No responsibility, financial or otherwise, should be intrusted to the dipsomaniac even if the attacks come but once a year. You are dealing with a progressive disease; each attack depletes the power of judgment. Promises well meant fall before the rush of the brain disturbance and will force is abolished. No injury to others is contemplated, yet unconsidered actions have full sway and the victims finally ruin friends and themselves.

The infliction is insidious, deceiving; it creates the most plausible excuses and constructs adamantine lies.

The true dipsomaniac is generally an honest man. He will serve his employer faithfully; is not a speculator or spendthrift and lives an honorable and moral life. That is, all these attributes belong to the man you employ; but when the dissociation of personality begins, when the brain elements are broken up by the accumulation of the poison in the system, he is another individual and all sense of responsibility ceases for the time being.

His danger to you is in his talk, for he knows not what he says, neither does he care who hears. His promises are like the wind, coming and going in all directions. If he is under agreement to carry out certain work, whether worth a dollar or thousands to him, it all goes for naught.

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Men of talent and genius most frequently demonstrate the symptoms of dipsomania. The musician, the artist, the writer, the doctor and the preacher are those who come to the specialist for help. But these men form a class by themselves as far as responsibility goes.

An employer is sometimes the victim of this disease. In such cases it has appeared late in life and without forewarning. It has been the ruin of many. It is the cause of foolish buying, of impossible contracts, of ideas of exaggerated powers—in the engineer of an impulse for reckless speed—of ignoring orders.

In cases where the attacks of dipsomania have made their appearance late in life and the subject does not recognize their awful significance, there is a real brain disease—tissue changes. This disease is incurable.

In some cases I am acquainted with, the business man was well aware of his liability to attacks of dipsomania and prepared accordingly. One man of large interests recognized the on-coming of the storm days ahead. He would then place his affairs in the best condition, put a normal man in charge, say he was going on a business trip and disappear. He so arranged matters that no checks or other demands for money would be honored. Under another name he would remain in a distant city, living in the slums, and wait for the return of his normal self.

I know the case of a man who was an invaluable inventor to a large manufacturing firm. He had attacks of dipsomania once or twice a year, and nothing but his rare abilities had kept him out of jail, for he was constantly followed by those interested in his secrets. He finally studied his case with the same thoroughness he did his mechanical details and plans, and became convinced of his periodic attacks of insanity. An agreement was made by which when he became restless, sleepless and lost his desire for food, he would be escorted to a private sanitarium and remained confined until the attack was over. Only by this method were his valuable secrets and services retained.

EPILEPSIA ALKOHOLICA

BY HEINRICH STERN, PH.D., M. D., OF NEW YORK, EDITOR
OF ARCHIVES OF DIAGNOSIS

MORE powerful than the Pope in the darkest periods of medieval ages, more potent than the strongest bonds of solidarity, more arbitrary than any religious decree has ever been, alcohol holds its sway over the entire world and rules indomitably the fate of nations and of man. The influence of alcohol, conquering the mightiest and overwhelming the fittest, was deified, for humanity in its childhood, at the dawn of civilization, idolized and worshiped all, which to it was invincible, impenetrable and mysterious: Alcohol has exterminated tribes, caused the degeneration of nations, created unhappiness and suffering, spread destitution and misery, and exerts its baneful influence even upon the unborn progeny.

Long-continued indulgence in alcohol produces, among the somatic symptoms, dyspepsia and gastric catarrh, fatty and atheromatous degeneration of blood-vessels, heart, liver and kidneys, hyperesthesia, anesthesia, and, in a few advanced cases, hemianesthesia. It produces sensory disturbances, as of vision, loss of pupillary reflexes, subjective noises (ringing and tingling); motor disturbances, as tremor, gross or fibrillary twitchings of the tongue, disturbances of speech; in grave cases, epileptic neuroses, and finally paralytic conditions of the muscular system. Among the psychic symptoms occurring as the result of excessive use of alcohol are gradual decrease of memory, confusion of judgment, impoverished imagination, decrease of moral sense (complete moral degeneration in very advanced cases) and morbid irritability.

Such is the somatic-psychic result of chronic alcoholism. These changes are more or less pronounced, and are dependent in their degree of severity upon different facts, among which I may enumerate the form of alcohol beverage and chemical type of alcohol used, the duration of alcoholic poisoning and resistance of the individual constitution and environment. The mildest type of chronic alcoholism is represented in the drinker who indulges in alcohol

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beverages more on account of habit than of desire. This species of habitual drinker is often for a long time enabled to attend to his vocation, and with the exception of a chronic gastric catarrh and occasional attacks of hemiplegia and vertigo, no other bodily symptoms of alcoholism may be detected. The more advanced types of alcoholism, however, present in addition thereto a train of neurotic symptoms such as tremor, paralysis, epilepsy, and disturbances of intellect. One symptom, though, every stage and every degree of chronic alcoholism possesses in common, and that is the defect of the moral sense, the progressing decay of morality. In the beginning it is not easily detectable and often is recognizable only in the indifference toward family ties, in inattention to the demands of refinement, in the relaxation and cessation of former ideal aspirations, and in a too yielding and condescending disposition. Toward the latter stages of alcoholism there is complete decay of ethical sense and of morals.

This alcoholic degeneration which, *per se*, does not necessarily indicate a well-defined disease of the mind, is the basis of the real psychosis. Chronic alcoholism, especially in its initial and less-advanced stages, often only predisposes the drinker to neuroses of intellect, and makes him particularly susceptible to contagious and infectious diseases. In severer cases of alcoholic poisoning we find the vitality and resistance completely undermined, and we meet with grave disturbances of psychical life. These disturbances are all of a toxic origin and are pronounced cachectic phenomena, which, though not solely and absolutely characteristic of alcohol poisoning, occur always in typical forms after abuse of alcohol, thus suggesting their dependence upon the toxic influence of the latter. In the train of alcoholic degeneration we notice a number of distinct types of psychoses, among which are delirium tremens, delirium tremens febrile, alcoholic melancholia, alcoholic mania, alcoholic dementia and alcoholic epilepsy.

Alcoholism in its acute and chronic form, may become an important etiologic factor of epilepsy, and before proceeding further, I may be justified in explaining in a few

words that "epilepsy," according to our present state of knowledge, implies, (1) loss of consciousness with tonic-clonic convulsions of one or more muscles of the body—the so-called *grand mal*; (2) loss of consciousness without or with only very slight convulsive movements—*petit mal*; and (3) certain phenomena acting as equivalents to the typical symptoms. Epilepsy, like fever or cough, is only a symptom, and not a disease *per se*. For the sake of convenience it may be subdivided into two great classes, *viz.*, epilepsy caused by traceable organic disease, and epilepsy which may be termed idiopathic. I further divide symptomatic epilepsy into that form caused by anatomic changes—*molecular epilepsy*, and that caused by toxic influences, toxic epilepsy, and classify idiopathic epilepsy as being not traceable to anatomic substrates of pathologic change, or to toxic influences. The idiopathic type is an affection of the vasomotor center in the medulla oblongata (probably also of the center in the cortex cerebri) and is dependent for its manifestations upon an increased irritability of the same; and we may term this type a vasomotor neurosis.

Symptomatic epilepsy—the type produced by organic lesions or by chemic influences—does not resemble the idiopathic type. Some observers have noticed, however, that the more deviating and atypical the seizures are, the more both types resemble each other, and that in some cases all phenomena of the idiopathic type also occur in the symptomatic form, and *vice versa*, in certain cases the lines of demarcation between the two types are finally obliterated. Such cases have been recorded by Meyer, Levy, Hirt, Landouzy, Sireday and Adamkiewicz.

And now let us see what different authors have to say about the etiologic relation of alcoholism to epilepsy. Schule says, "Much greater and more pronounced are the injurious results of chronic alcoholism. This is manifested in two ways, (a) on the blood, the corpuscles of which change the coagulability of the fluid being increased, and (b) on the nerves whose functional activity first become stimulated, then over-excited and finally paralyzed. In grave cases we find here the motility neuroses of epilepsy." Portal

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states, "Experience has proven that not only children but adults after excessive use of food stuffs—and especially of alcoholic beverages—have become epileptic. Tissot and other observers of this type of epilepsy have found some cases where the seizures lasted only during the time of the acute indigestion, but they report other cases in which, after the indigestion had disappeared, the attacks recurred and become more frequent and violent." Magnan asserts, that those acute alcoholics who have epileptic seizures nearly always indulge in absinthe. He thinks that those in whom acute alcoholism occurs, and in whom the epileptic symptoms do not appear, are users of wine or brandy. Nothnagel says, "Although not so frequently as generally supposed, certain causes seem actually to be the etiologic factors of epilepsy. The first place among these causes belongs to the habitual drinking of great quantities of alcoholic liquids, in other words, to dipsomania. *Epilepsia potatorum* has long since been recognized. The seizures of the latter, leaving aside the complications and violent symptoms of alcoholism in the intervals, are nearly analogous to the attacks of ordinary epilepsy. . . . The first appearance of the seizures does not always precede the other grave symptoms of alcoholism, but the epileptic seizures may even introduce the whole train of symptoms characteristic of that condition. The first seizure occurs now and then just after a heavy intoxication, at other times, however, at such a period when, on account of certain reasons, total abstinence had been observed; in still other cases an external accidental influence effected the first insultus." Nothnagel, in his further explications, disproves Magnan's assertion that the epilepsy of drinkers is caused only by the excessive indulgence in absinthe, and he shows that although comparatively little absinthe is consumed in Germany, the *epilepsia alkoholica* is not of rare occurrence in that country.

Hamilton states, "Alcoholic epilepsy I do not regard as being the rare affection some authors consider it. In cases of prolonged saturation, where perhaps there are no other symptoms of chronic alcoholism, I have found it perhaps associated with the trance state (cataleptoid)

or appearing in the psychic form. . . . Alcoholic and absinthe epilepsies are usually preceded and followed by symptoms indicative of profound saturation. Alcoholic epilepsy is symptomatic. The meningeal thickening of alcoholic origin may be the pathologic basis of very intractable paroxysms."

Westphal observed epileptic seizures in individuals who only manifested an epileptic condition during an attack of delirium tremens.

Forel noticed that, "Whiskey drinkers, especially, develop *epilepsia alcoholica*, which is curable through abstinence." Demme says, "From cases occurring during a period of twenty-eight years at the Jenner Hospital for Children, we have collected a series of published observations; partly from the twenty-second, partly from the twenty-seventh yearly report, which confirms the truth of the conclusions, that the artificial increase in arterial tension produced through the influence of alcohol is full of risk and is irrational. There are cases of epilepsy and chorea in older children not affected with hereditary alcoholic influence, in which, according to the history of the case, the copious and steady use of alcoholic drinks was unquestionably responsible for the seizures; the etiologic importance of the alcohol in these cases is proved by the fact that after the complete withdrawal, while under hospital care, without the use of medicine, the epileptic attacks ceased, and the chorea was cured within a comparatively short time. With reference to the question as to whether in childhood the more serious illnesses are directly influenced by the early use of alcohol, I repeat that, in accordance with our observations, there is no doubt that marked excesses in the ingestion of brandy, also of wine, may lead to general epilepsy, certainly one of the most serious and obstinate diseases of the nervous system. Fortunately, however, this result of alcoholism is of rare occurrence."

The observations of Dr. James Edmunds are also appropriate in this connection. These demonstrate the probability of the sequence of convulsions and other forms of brain irritation after the plentiful use of alcoholic drinks.

given by mothers and nurses for the purpose of quieting the infant.

Alcoholism, however, is not only a possible etiologic factor of epilepsy in the case of the subject himself, but also of epileptic or epileptiform affections in his offspring. I do not say that the acquired epilepsy of the parent *per se* is transmitted to the children or to the following generations, but I do assert that the alcoholic degeneration (which is not merely a symptom but a traceable somatic deterioration) under certain conditions is apt to produce again in the progeny the epileptic symptom of the parent, and this even occasionally in a more pronounced and aggravated form. In other words, the inherited alcoholic degeneration predisposes the offspring to an early epilepsy.

Krafft-Ebing says: "It is probable that otherwise mentally sound and sober parents if coitus and intoxication accidentally concur, beget imbecile and even idiotic, or epileptic-idiotic children." Hitzig states that the offspring of drinkers inherit as great if not a greater tendency to diseases of the nervous system than the children of nervous parents or those of unsound mind; such children, he says, die from convulsions and other epileptic conditions very early in life, more frequently even than do the children of nervous parents.

Demme, during a period of twelve years, acquired accurate knowledge of the private circumstances of ten families belonging on the one hand to the drinking, on the other to the temperate class. Thus of fifty-seven children of habitual drinkers there were only ten, or 17.5 per cent in normal condition during their childhood, while of the sixty-one children of the temperate families, 50 or 81.9 per cent were in a normal state in their youth. Out of the fifty-seven children of the drinkers, twenty-five died during the first weeks or months of life, some from lack of vitality and some through eclamptic seizures (edema of the brain and its membranes). Six children were idiots, five children remaining almost dwarfish. Five children, as they grew older, became subject to epileptic attacks. One boy was afflicted with severe chorea, which terminated in idiocy. Five children had congenital diseases. Two

of the epileptics referred to were themselves alcoholics as a result of hereditary transmission; the outbreak of their trouble was directly connected with pronounced acute alcoholism and was directly continuous with it.

Schule remarks: "The instances of epileptic children begotten during intoxication, which were procured by Demeaux, Flemming, Ruer and others, are not only testified to by their sad frequency, but are also proved experimentally by the birth of healthy offspring if the father in the meantime became freed from his passion." Tiedman is of the opinion that children generated during intoxication will suffer from such incurable nervous disease as epilepsy, and he thinks that posterity suffers for the sins of the fathers. Wilson states that the descendants, without possessing a special appetite for strong drink, and in the absence of certain specific, morbid manifestations, are singularly liable to mental and nervous diseases, especially to convulsions and epilepsy. Torget is of the opinion that chronic alcoholics always beget epileptic children, while an acute and accidental intoxication of the father at the time of coitus would not produce such a result in the offspring.

Although epilepsy due to alcoholism is a well-recognized fact, the literature upon this subject is quite scarce, and wherever I have found quotations alluding to that condition they invariably have been only of an abbreviated nature. It seems to me that either sufficient attention has not been given by otherwise careful and painstaking observers to the epileptic symptom of alcoholism, or that they have considered the latter such a well-proven fact that they have deemed it unnecessary to present conscientiously prepared statistics or to attempt pathologic explanations.

Alcoholism—especially in its chronic form—is rather a typical condition of somatic and psychic deterioration than a clearly defined disease, a condition which is characterized by lesions of the nervous system and the viscera, by grave disturbances of nutrition, and by pronounced intellectual and ethical deterioration. Congestive and inflammatory processes, sclerosis, steatotic and atheromatous degeneration, affect the different tissues and organs

of the body and produce their specific and typical train of symptoms. Hence, the epileptic symptom of alcoholism is the outcome of chemic or anatomic changes.

Although alcoholism produces easily recognizable anatomic changes, which in turn may again give rise to epilepsy or other symptoms of degeneration, I hold that those chemic alterations of the composition and vital energy of the plasmic units, which we cannot definitely comprehend at the present day, and which in this instance are brought about by the influence of alcohol, are the principal causative factors of the type of epilepsy in question and of kindred neuroses. The nutritive exchange of the cells in an organism saturated with alcohol is impaired. The normal vital activity of the plasmic unit, its inherent ability to affect chemic change, is partly or totally suspended, is paralyzed, if physiologically, and poisoned, if chemically, viewed. This is especially true of the cells of the nerves, and if nerve matter and nerve tissue becomes in any way impaired, serious consequences will result in the nervous system as well as in the system at large.

Anatomic changes may be the result of impaired molecular nutrition, but long before these are developed and are recognizable, chemic changes must necessarily have taken place. We must turn to physiologic and pathologic microchemistry, therefore, and not to mere pathologic anatomy, if we wish to trace the very beginnings of degeneration. That the chemic changes due to alcoholism, even if no anatomic degeneration has taken place, are alone capable of producing the neuroses of alcoholism, as epilepsy, is my firm conviction, although I cannot conclusively demonstrate it to-day.

Concerning the symptomatology of *epilepsia alkoholica*, I wish to state that while in some cases epilepsy is only of secondary importance, being merely an occasional symptom of the alcoholic condition, it is necessarily of the utmost value and consequence in such cases, in which the other symptoms of a former alcoholism have disappeared or are obliterated, for *epilepsia alkoholica* will persist as long as the epileptic seizures continue, as it originated as a result of alcoholism. The latter, in the meantime,

may apparently have been obliterated. The general characteristic indications of the condition of acute or chronic alcoholism, plus the symptoms of epilepsy in its *petit* or *grand mal* or equivalent variety, are also the characteristic features of *epilepsia alkoholica*. However, these symptoms do not all appear together. During the paroxysms the epileptic features are easily recognizable, while during the intervals the symptoms of alcoholism may more or less present themselves. In many cases, during long intervals, especially, there are even no characteristic evidences of alcoholism. The *petit* and *grand mal* varieties, the first with a comparatively long-continued unconsciousness, were the conditions met with in my cases. I have not as yet seen a case of alcoholic epilepsy in the state of the epileptic equivalent.

I am able to report five cases of pure alcoholic epilepsy which have occurred in my private practice. This number may seem large but certainly is not unusually so in this region, for I contend that *epilepsia alkoholica* is of much more frequent occurrence than practitioners in general are led to believe. If the physician spares neither time or labor in minutely studying the previous history of his alcoholic patients, he will soon be convinced that the convulsions and unconsciousness will possess an epileptiform or a genuine epileptic character in many instances.

CASE I.—H. W., male, aged 41, of German extraction, married, musician, comes from a healthy stock. With the exception of the usual exanthematous diseases of childhood, he had never been sick, and showed no symptoms of any organic affection. In his thirty-seventh year he suffered from the strain of incessant work, and to prevent collapse he resorted to the excessive use of alcoholic stimulants. One night, when playing in an orchestra, he had what he considered a "fainting spell"—a loss of consciousness of about one minute's duration. After that time he experienced severe headaches, occasionally continuing for three days, and kindred attacks, sometimes two or three in succession. During this period, in which he continued to drink, his wife noticed a progressing *debilitas memoriæ* and a slower and more retarded manner of speech.

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also occasional paroxysms with loss of consciousness and consequent stupor. The deprivation of alcohol, and a general antialcoholic treatment improved the patient to such an extent that he now has, on an average, only about one seizure in two months, the attack being of the nature of *petit mal*.

CASE II.—J. P., male, aged 49, German, unemployed, married, father of three healthy children; parents were healthy and lived to old age; no neuroses in other members of the family. The patient did not remember ever having been sick. Examination revealed irritability in the epigastric region and internal hemorrhoids. Six years before I saw him the patient, on account of reverses in business, contracted the alcohol habit. He occasionally drank until he became unconscious and remained in a lethargic condition for thirty hours or longer. About a year afterward, typical epileptic paroxysms set in. These always occurred after a well-marked prodromic stage of headache and vertigo, and were ushered in by an aura epileptica of a sensorial nature, the patient experiencing a sensation of something rising from the stomach to the pharynx.

I happened to be present during about sixty attacks of this nature, each one invariably being preceded by the characteristic epileptic cry. Unconsciousness, tonic-clonic convulsions, cyanosis, grinding of the teeth, foaming at the mouth and post-epileptic stupor and weakness characterized the attacks. On account of spasmodic contractions of the urethra after the paroxysms, I had to resort occasionally to the use of the catheter, the introduction of which was difficult. Analysis never revealed the presence of any abnormal urinary constituents.

At the present time the patient is well nourished. Tremor is present in hand and feet, speech is very slow and incoherent, and there is occasional aphasia. Progressing amnesia, deterioration of intellect and loss of will power are marked. The epileptic attacks, though rarer, continue, but three or four always occur in succession—within six or eight hours. Sooner or later the patient may be the subject of epileptic dementia.

CASE III.—On June 1, 1895, I was called to see J. A., female, aged 45, Irish, married, mother of eight children who are all alive. Personal and family history good. The patient complained of "sour stomach" and "sick headache." A superficial examination convinced me that she had been drinking, which she admitted. Family affairs had driven her to the use of whiskey, the first dose of which she had taken two days previously. After prescribing a powder containing acetanilid, bicarbonate of soda and citrate of caffein, I left her. Toward evening of the same day I again was summoned. I found the patient in a state of somnolence. The attendants told me that she had had a "fit and twitchings all over the body." Soon after she awoke and regained her senses, but within a few minutes she had a second attack, which was undoubtedly of an epileptiform type. During the night she had two similar seizures. The occurrence of previous epileptic paroxysms was absolutely denied by the family and by the patient herself. The following day she felt quite comfortable, although complaining of slight vertigo and a burning sensation in the urethra during micturition. The epigastric region was tender on percussion, congestion of the liver and gastrohepatic catarrh being present.

On June 2d an analysis of the urine demonstrated the presence of mucin and alkaline phosphates in excess, and of acetone (C_3H_6O) and diacetic acid ($C_6H_{10}O_3$). On June 4th there were traces of acetone and diacetic acid, and on the 6th the urine was perfectly normal.

The patient discontinued the use of alcohol until the middle of March, 1896, when she indulged freely again. On the 18th of that month she had an epileptic seizure similar to those which occurred during the previous June. On March 20th, 24th and 25th the attacks recurred. On the latter day I observed some characteristic features of alcoholism, there being tremor and trembling of the tongue, great impairment of the appetite and digestion and obstinate constipation. Amnesia, semi-unconsciousness, hallucinations, great fear and a suicidal tendency, which were reported to me, convinced me that her state was

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one of melancholia alkoholica. The hallucinations continued and were of a religious character. This condition lasted for about two weeks, during which time she refused all nourishment but milk. The urinalysis showed an excess of alkalin phosphates and traces of acetone and diacetic acid.

From July 16th to July 26th the epileptic seizures recurred at intervals, the tremor, incoherent language, melancholia and defective memory continuing. During the night of September 5th I was summoned to the patient and found her lying on the floor breathing heavily and totally unconscious. Her eyes were staring and wide open. From that time until October 6th she was more or less unconscious but had some lucid intervals of very short duration. During a fortnight a quasi-continuous convulsive epileptic condition prevailed, the patient having as many as fifteen daily seizures. Repeated urinalyses revealed the presence of acetone and diacetic acid. After being in a profoundly comatose state she finally died on October 6th. The family did not permit an autopsy.

CASE IV.—G. H., male, aged 38, American, merchant. Individual and family history good. This patient had a peculiar habit of going once a month "on a spree," and generally stranded in some suburban town, from whence he came back to the city a sober man again. In March, 1895, during one of his whiskey excursions, he suddenly developed symptoms which seemed peculiar and strange to the trained eye of the innkeeper at whose place he stopped, and that evening he was brought to my house and left under my care. During the night he had a specific attack of epilepsy. Physical and psychical examinations on the next day revealed the presence of flabby muscles, deficient reflex irritability, a fresh wound on the tongue, from biting, extreme nervousness, restlessness, insomonia, a very slow manner of speech, and a morbid state of dreariness and discouragement. The urinalysis showed an excess of phosphates.

Energetic anti-alcoholic treatment (partly of a moral nature) resulted in a perfect cure of the alcoholic condition, as well as of the epileptic symptoms. The patient

become a total abstainer and has remained so ever since. He is now a man of 250-pounds' weight, healthy, vigorous and ambitious.

CASE V.—M. H., female, aged 40, German, spinster, weakly developed, first came under my care about two years ago. Her former physicians had ordered her to take cognac as a general tonic and stimulant. She thus contracted a moderate liquor habit. When first seen she complained of dizziness, migrain, disturbed vision, neuralgic pains in the dorsal region of the spine, forgetfulness, aphasia, and occasional unconsciousness. She explained that "a peculiar sensation would come over her and she would faint." I repeatedly had occasion to be present during some of these attacks, and I am convinced that they were epileptiform, resembling *petit mal*. She had her first seizure about three months after her medicinal indulgence in alcohol. Previous epileptic attacks were positively denied. The use of alcohol was forbidden and the attacks became less frequent. The patient has had no seizure for the last eight months.

The earliest period at which any of my patients have first been attacked with alcoholic epilepsy has been during the thirty-seventh year, and the latest period during the forty-fifth year. The number, however, is too small from which to draw any deductions as to the period of life in which *epilepsia alcoholica* most frequently occurs. Case III, interesting in every respect, is particularly so on account of the absence of glucose and the unfailing presence, after the attacks, of both acetone and diacetic acid in the urine. To my mind, there is no doubt that the occurrence of acetone and diacetic acid in this instance was due solely to alcohol, particularly so as the patient at those periods had no desire for food at all and sustained life with small quantities of milk only.

This is more convincing when we consider the relationship of alcohol to acetone and ethyl-diacetic acid.

Ethyl acetate, $C_2H_5O.C_2H_3O$, is prepared by distilling an acetate with sulphuric acid, H_2SO_4 , and alcohol, $C_2H_5.OH$. Metallic sodium dissolves in ethyl acetate, with formation of sodacetoxetic ether and sodium ethylate.

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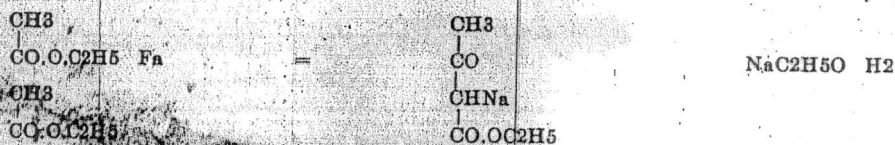
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If acetic acid is added to the solid product, acetic ether (ethyl-diacetic acid) $\text{CH}_3\text{CO.CH}_2\text{CO.O.C}_2\text{H}_5(\text{C}_6\text{H}_{10}\text{O}_3)$, separates as an oily liquid. Ethyl-diacetic acid under the action of alkalies takes up water and decomposes into acetone, alcohol and carbon dioxide, $\text{C}_6\text{H}_{10}\text{O}_3 + \text{H}_2\text{O} = \text{C}_3\text{H}_6\text{O} + \text{C}_2\text{H}_6\text{O} + \text{CO}_2$.

Alcohol, in my opinion, caused acetonemia and diacetemia in the case of the third patient. One or the other or both of these conditions may possibly have been the direct etiologic factor or factors in the epileptic attacks. However, there is no doubt that the long-continued comatose condition before the final catastrophe was due to diacetemia, or to a very kindred condition.

As to the prognosis of *epilepsia alkoholica*, I can only say that it depends entirely on the alcoholic condition of the system. As for the treatment, the usual antidotes for alcoholic poisoning and saturation should be administered.

From a medico-legal standpoint, *epilepsia alkoholica* should prove very interesting. While alcoholic intoxication, according to the prevailing laws, does not excuse from legal responsibility, the peculiar epileptic consciousness, or rather unconsciousness will, at least it has done so in one or two instances on this side of the Atlantic. The great cardinal factor, alcoholism, is not recognized by our antiquated system of justice as a legal cause of irresponsibility, but the mere occasional symptom of that condition, *epilepsia alkoholica*, if brought forward as a defense, would, in all probability, be recognized as such.

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ALCOHOL—A DECEPTIVE POISON

BY R. M. MCMILLEN, M. D., WHEELING, W. VA.

THE whole process of nutrition from the ingestion of food to the excretion of waste matter is accompanied by a series of changes that we call metabolism." "To interfere with metabolism is to interfere with life."

"Prof. Kassowitz calls attention to the fact that through its narcotic and poisonous effects upon living protoplasm alcohol stops and decreases oxidation of the protoplasm."

"All life activity is accompanied by oxidation and all oxidation by waste."

"A real food promotes muscular, glandular and nerve activity and its oxidation maintains body temperature. But alcohol disturbs muscular, glandular, and nervous activity, and its oxidation does not maintain body temperature," therefore, it is not a food.

"Dr. Hunter has clearly shown that alcohol given to animals taxes the oxidation capacity of the liver to the limit and left the organisms defenseless against bacterial or other toxic substances."

"Prof. Kassowitz says that the investigation of the past year confirms the view that alcohol acts as a poison on all living protoplasm, in weak solutions, irritating it; in stronger, paralyzing it; in still stronger, destroying it." He further says that "German scientists have been unanimous in maintaining that alcohol is not a food."

In typhoid fever as in many other diseases, we regard the administration of alcohol absolutely dangerous. Its action is so deceptive that it may seem to do good while its deleterious action is still going on. By its paralyzing the vaso-motor nerves and causing dilation of the capillaries and veins it bleeds the patient, as it were, in his own veins, and may seem to produce favorable results in the temperature and in other symptoms, just as blood-letting used to do.

The amount of haemoglobin in the blood is always reduced in typhoid fever, and as alcohol deprives the red

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corpúscles of their function to carry oxygen, it further eliminates oxygen, the life-giving agent, from the blood and tissues.

As we would neutralize the poisonous and deadly action of the *Bacillus Typhosis* in typhoid fever, we must not give alcohol for it robs the white blood corpúscles of their phagocytic action by diminishing their ameboid movements. Alcohol causing an increased amount of carbon dioxide in the blood, retards its coagulation, and renders one suffering with typhoid fever more liable to a hemorrhage.

In Lobar Pneumonia the deceptive action of alcohol is shown by causing a soft, easily compressible pulse, and possibly lowering of temperature, but as this picture goes on and we have cold hands and feet, clammy perspiration and progressive prostration due to the toxic action of the alcohol and pneumococcus, both having a similar action weakening the heart by paralyzing the vaso-motor centers.

In pneumonia we always have "increased respiration due to toxamia; limited air space causing improper aeration," and the blood, too, is loaded with deadly micro-organisms.

We, under these conditions, do not want further to impoverish the blood by giving alcohol which so affects the red corpúscles as to prevent the oxyhaemoglobin readily to part with its oxygen or to cripple the white corpúscles so that they cannot "form antitoxins" and "surround foreign bodies and protect tissues."

The writer has observed a case of advanced pulmonary tuberculosis where pure whiskey was being given supposedly to prolong the life of the patient, and to make him more comfortable. In this case the alcohol was causing active delirium, very rapid pulse, marked cyanosis, hands, fore-arms, and feet cold and blue. When the whiskey was withdrawn the heart-action improved, hands and feet becoming warm, delirium ceased and cyanosis disappeared.

The use of alcohol in any stage of tuberculosis robs the patient of any chance that he may have to recover, and renders healthy persons more liable to contract it. We believe the use of alcohol to be absolutely harmful in any disease due to micro-organisms.

Alcohol inhibits the vaso-motor system causing dilation of all the capillaries and veins and producing a sense of body heat which is not real.

The deceptive action of alcohol is particularly shown by its causing one to imagine that he is strong mentally, when he is actually shorn of his judgment and he at once proceeds to talk glibly and as he thinks fluently and eloquently, but the careful observer can see that his power of reason and judgment is impaired. Its deceptive action is also shown by the fact that he thinks himself to be possessed of Herculean strength, when the truth is that he is much weaker than he was before his judgment was taken away.

This idea of alcohol imparting strength and giving power of endurance is still prevalent even among people who do not use alcohol in any form. They seem to have overlooked the fact that as small an amount as two ounces of pure brandy will in two hours have reduced a man's strength one-third.

Therefore, if we want our soldiers to be strong in battle, clear in judgment, and able to protect our country against a foe, who knows that their army is stronger because its soldiers are temperate, we must not ration alcohol to our soldiers in any form. If we do and defeat should come, in our humiliation we might well follow the example of the once world's champion prize fighter, who, when he was defeated, cried like a child and said that "it was whiskey that did it"—"it was whiskey that did it."

Dr. C. E. Woodruff, U. S. A., after a careful survey of the conditions obtained in the Philippines, declares, "beer, by reason of being conducive to colic, diarrhoea, headache, loss of appetite, and general distress, he regards it as distinctly harmful."

The war between the Russians and the Japanese affords another striking example of the value of abstinence from alcohol. It shows that in time the degenerate alcohol consuming races will be overcome and eliminated by the more temperate races."

In this connection the writer would mention the fact that besides the injurious effects of the alcohol in beer there is contained a certain amount of turpentine which

is extracted from the rosin that the containers are lined with; therefore, with every drink of beer a dose of turpentine is a necessary attendant, which causes irritation of the kidneys and ultimately brights disease.

Alcohol being a narcotic poison and having a selective action on the nervous system, "lowers the susceptibility and sensitiveness of the nervous protoplasm" so that larger and larger quantities are required to satisfy the ever increasing thirst that it produces, while all the time the will power is becoming weaker and the judgment more and more impaired.

This deceptive and seductive action goes on until it causes a mania for narcotism or intoxication. In Belgium this physical disease, or mental unsoundness, or dipsomania called narcomania by the late Dr. Kerr of London, is regarded as a variety of insanity.

One of the most deplorable features connected with the question of alcoholic misuse is that it visits upon the helpless and innocent offspring the sins of their intemperate parents."

1st generation—Moderate drinkers.

2nd generation—Drunkards.

3rd generation—Epileptics, suicidal and homicidal tendencies, insanity and idiots.

4th generation—Undeveloped intelligence, sterility, and extinction of the race.

5th generation—There is none.

"Visiting the iniquity of the fathers upon the children, upon the third and upon the fourth generation." God's warnings to his children given in love, yet in His wisdom He knows the end to physical endurance.

ON THE EFFECTS OF COFFEE AND THEIR REMEDY

BY WALTER WESSELHOEFT, M. D., CAMBRIDGE,
MASSACHUSETTS.

ALTHOUGH the deleterious effects of the persistent use of coffee are now generally conceded, the profession at large has been slow to realize a fact long known to careful observers and those dealing largely with sensitive and neuropathic individuals. Only within recent years, since laboratory research has seized upon every article of consumption and sought explanations for every functional and structural alteration of health, have the effects of coffee been subjected to scientific investigation. Researches on the subject are now so exhaustive, its literature so extensive and the injurious action of coffee on the majority so fully attested, that further evidence is no longer called for. But for those who judge from their own immunity, apparent or real, that coffee is a harmless beverage, we note some of the most common and indubitable consequences of its use.

The primary reactions of coffee are generally those of the central nervous system, and of the circulation. Secondary effects are seen in the muscular tissue and the digestive tract, and in functional and structural changes in the urinary system. These are not the only tissues possessing a selective proclivity for this poison, but they most promptly and most certainly respond to its stimulation. The earliest and most familiar effects are felt in an exhilaration, a genial glow or warmth, with acceleration of the pulse and respiration, heightened flow of thought, courage to meet the problems and duties of the day, an early desire to relieve both rectum and bladder, a shortened time reaction on sensory impressions and increased arterial tension, a quickening of all functions so effectual in overcoming all the discomforts following insufficient or imperfect sleep or the results of common errors in diet and other minor transgressions.

Unfortunately this is in the moderate coffee drinker in fair health, it is this complex pleasing sensation which tends to fasten the habit which is nothing less than a surrender to self-indulgence.

This habit may continue throughout long life without perceptible injury in those of a placid, unimpressionable disposition. The excitation of the nerve centers in these is both transient and superficial in a sense, and the elimination of the exciting agent rapid. But with the majority, especially with those of a nervous temperament, the habit is not born without a culminative effect and secondary phenomena. The first and most familiar of these is wakefulness, or light, unrefreshing sleep, with disturbing dreams. Some six or eight hours after the primary exhilaration the stirred muscular fiber loses its tone, giving a sense of fatigue caused by a lessening of the excitability or responsiveness of both motor and sensory tracts of the chord, accompanied by restlessness and the physical symptoms of irritability, depression, inability to think clearly, or to form resolves promptly.

There are cold extremities and retarded, irregular heart's action with a sense of general pulsation commonly attend the wakefulness at night. All these sensations may exist for years in a mild form, but they constantly call for a redoubled expenditure of volitional force to meet the exigencies and duties of daily life followed by a corresponding degree of fatigue, and necessarily suggests recourse to the pleasing stimulants by which for the moment, the unhappy feelings are banished.

The descent towards enslavement by the habit is now easy and rapid. Without coffee the day's work is not contemplated save with misgivings and disinclinations. Habitual wakefulness makes still greater demands on the will power to overcome the depression and indisposition to assume responsibilities; in fact, to preserve reasonable self control. Many experience a condition bordering on melancholia, particularly in the later hours of the day or on awaking too soon after midnight. The slight sense of coolness following the first glow and the cold extremities increase to the point of great discomfort, paresthesias sets in, in the form of local numbness or a sense of coldness over extended areas on the back and elsewhere with marked tremor of the hands and uncertainty of their motions. The

condition now presents a true picture of neurasthenia, of irritable weakness in a common form.

With the discontinuance of the use of coffee these symptoms disappear, usually in the order of their occurrence. With persistence in the habit further inroads upon the organism become apparent. The digestive organs suffer from the effects of the lower nervous tone, the irregular and enfeebled heart's action with the loss of normal arterial tension. The portal circulation grows sluggish, its veins distended; constipation sets in, followed by piles; and, in women, by leucorrhœa and other signs of passive pelvic congestion. Capricious appetite, achylia gastrica flatulency, abdominal distention, all the marks of nervous dyspepsia, migraine and headaches of various forms, and, finally, chronic congestion of the kidneys with cystic catarrh, complete the picture of utter nervous breakdown.

This is not overdrawn. Many clinicians of authoritative standings attribute to the use of coffee consequences far more grave than those enumerated. Eichhorst claims that the coffee habit produces arteriosclerosis and he is supported by Leyden and Mendel; Surgeon-General Nicolai mentions forms of spinal degeneration and proliferation of connective tissues in the kidneys and other organs as the effects of coffee. Goldscheider attributes to the same cause not only heart neurosis, but grave structural lesions, while Virchow repeatedly warns against the use of coffee as a deceptive and pernicious stimulant, possessing no nutritive values and especially harmful to nervous people and he warns against its use by nursing mothers, since the caffeine is thrown off by the mammary glands.

To determine whether the caffeine alone or other constituents of coffee give rise to the disturbances following its use, experiments have been instituted that have resulted in wide differences of opinions, but the anti-caffeinists have shown most conclusively that the alkaloid is the *materia peccans*. Nicolai, with his assistants, Prof. Lehmann, and Drs. Newman and Wilhelm, have given the subject exhaustive studies by means of various tests and control tests with the coffee of commerce, with coffee de-

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prived of its caffeine, with pure caffeine and the caffeine of coffee-oil.

These parallel experimental tests pursued with great circumspection and self-sacrifice, demonstrate most clearly where the cause of the injury lies. It has been demonstrated in Germany and other European countries that it is possible to extract from the coffee bean the offending substance without at the same time depriving the infusion of its savor and aroma.

In the preparation of this article the raw coffee beans are exposed in perforated drums to the action of superheated steam. This causes the hard cellular structure of the bean to swell and soften and the cell membrane of the individual cells to become penetrable to certain solvents of the caffeine. These solvents are either benzol, chloroform and allied substances, which are guided through the drums after the softening process is completed. The caffeine is thereby volatilized and made to escape to the amount of 9-10 of its volume. The remaining tenth for some reason not yet disclosed proves insoluble and unvolatilizable and is left behind, possibly in an allotropic form in which it remains inactive, or, at all events harmless.

Certain waxy, resinous and oily substances are expelled with the caffeine to the advantage of the commercial and hygienic value of the bean, since it is owing to these that rancidness sets in when coffee is kept in store, causing general deterioration, harsh taste and impure flavor. After the extraction of the caffeine the beans are dried and roasted with great care to the exact point of evolving the empyreumatic and setting free the essential oils, on which the fine taste and aroma of coffee depends. The whole process constitutes so great a triumph of chemical technic and applied science that from this point of view alone, it cannot fail to excite both interest and admiration.

The chief value of the process lies in the production of the pure coffee—not a substitute—which, while it retains all the desirable attributes of the original article, is wholly free from harmful properties.

A few cases from practice and experimental tests, such as throw much needed light on many therapeutic questions,

and may be conducted without elaborate technic and apparatus, will serve to show that the discomforts and disorders following upon the habitual use of coffee are attributable to its caffeine.

CASE I. Heavy man, age seventy, vigorous health, but somewhat neurasthenic. Advised to give up the habitual morning cup of coffee, which was distinctly affecting his heart's action, causing troublesome arrhythmic pulsation, vertigo on rising, dyspnoea and precordial pains on active exercise, especially on fast walking or mounting stairs, in addition to insomnia and much nervous irritability.

Dec. 30th. Throughout the forenoon is conscious of missing the daily stimulus with increasing sense of heat in head, oppression, palpitation and migraine-like headache. Great wakefulness at night with restlessness and extreme irritability; constipation and frequent desire to pass water with unusual flow of urine. This condition lasted several weeks, growing gradually less.

Nov. 30th. Began the use of caffeine-free coffee. Morning cup produced a slight glow and exhilaration, but no other sensible reaction. The continued use has been followed by no return of the old coffee symptoms.

By other members of this family similar experiences followed. All noted a marked improvement in sleep and lessening of lassitude by day.

CASE II. Prof.—, age fifty-five, thin, spare and highly nervous man, dyspeptic, suffers from frequent attacks of headaches, continuing often for twenty-four to thirty-six hours. Has long been unable to drink coffee but uses tea habitually. Constipation, feeble appetite, insomnia. Distinct signs of sclerosis of the coronary artery; angina-like attacks on rapid walking and all bodily exertion. Urine normal, but indications of prostatic enlargement with irritable bladder and frequent micturition at night.

To discontinue tea, substitute caffeine-free coffee. At the end of a month headaches much better, sleep less disturbed, bowels more regular; can exercise more freely. General improvement, especially in the urinary disturbance.

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CASE III. Mrs. —, age 28. Primigravida, ten weeks. Extremely nervous, irritable and restless with utter prostration; repugnance to food, great sleeplessness, constipation. Has used castor almost daily. Every exertion causes extreme prostration with depression and weakening. Frequent dull headaches, nausea, rarely vomiting. Urine normal, refuses food, but digests what she forces down. Craves coffee which for years she has been unable to take by reason of its disturbing effects.

The usual diatetic and hygienic measures bring no relief. Tried caffeine-free coffee. Whether the effect of suggestion or the satisfying of the craving, the whole condition promptly changed for the better; appetite, sleep, digestion and strength improved in most satisfactory manner, and what is of special interest, no ill effects followed the continued use of caffeine-free coffee twice daily.

CASE IV. Mr. —, age seventy-three. Pronounced hypochondriac and neurasthenic although in good bodily health. Has abandoned all active business, chiefly from the sense of disability with increasing depression and loss of interest in all matters outside of his own health. Nervous dyspeptic, suffers extremely from flatulency; bowels regular; urine normal, but marked bladder irritability by day and night without signs of prostatic trouble. Strength fair but shuns exertion; tremor of hands and imperfect control of fingers. Sleep satisfactory though interrupted by bladder irritability. Heart's action regular, respiratory functions perfect even on rapid walking up hill. Cold extremities even after exercise and local paresthesias, chiefly in form of extended cold areas on back, felt at night under heavy bed clothing and unrelieved by hot bottles.

Has been for many years addicted to the daily use of the strongest coffee to which may reasonably be ascertained many of the symptoms enumerated, and a marked aggravation of a constitutional predisposition. No persuasion, advice or threat will induce him to give up his coffee, to weaken it or to change his brand. On substituting surreptitiously the caffeine-free article, he takes his usual amount without the least suspicion of change and with unabated enjoyment. Gradual improvement in bodily

health in many nervous and urinary symptoms after comparatively slight preliminary aggravations from sudden discontinuance of the habitual stimulus.

Psychic condition unchanged owing to degenerative processes in the brain.

The interest in this case centers mainly about the fact that the patient detected no change in the flavor or aroma of the new coffee, although when away from home his complaints about unsatisfactory coffee are the rule.

CASE V. G., aged four. A healthy, vigorous child of cheerful, active disposition, but the offspring of neurasthenic parents. Functions all normal, sound sleeper. January 28. Pulse 76. Urine passed regularly at about four hour intervals. Never disturbed at night. January 29. 7.30 a. m., four ounces of caffeine-free coffee of cook-book strength with milk and sugar. Plays about as usual throughout the forenoon without signs of restlessness or nervous irritability. In fact, no change in conduct observable. Pulse 76, urine about every four hours, sleep at night undisturbed.

A long list of similar experiences might be added to those already available from distinguished observers. These from my own notes are typical and bear testimony to the salubrity and unchanged flavor of the coffee deprived of its alkaloid.

If, as we are assured on high authority, preventive medicine is to be the chief aim and duty of the profession, dietary measures and articles must receive more attention on the part of the general practitioner.

From this point of view the substitution of a safe article, for a harmful one in general use should arouse an interest and invite careful and extended investigation by all entrusted with the preservation as well as the restoration of health in families and individuals.

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INSANITY OF INEBRIETY

BY T. D. CROTHERS, M. D., SUPT. WALNUT LODGE HOSPITAL,
HARTFORD, CONN.

TO call all persons who drink spirits to excess, alcoholics is misleading. This term gives the impression that the condition present is a specific toxic state due to alcohol alone.

A study clinically often indicates that the use of spirits follows head injuries, infectious fevers, shocks, sunstrokes or some distinct drain and condition of profound exhaustion, therefore it is only a symptom, which very likely increases the original condition.

The term inebriety more accurately describes some pathological condition for which alcohol is the most grateful narcotic. Here spirits are simply a symptom of some previous degeneration and diseased condition.

Clinical studies show that a very large percentage of drink and drug neurotics have had a previous history of degeneration and disease before the spirits were taken. Historically the fact of disease was recognized long before insanity was thought to be other than spiritual madness.

The insanity of drinking men is a very old subject. The theory still exists that the early use of spirits is a moral condition, and so-called vice, and only after spirits have been used to great excess is there any possibility of disease.

A scientific study indicates the error of this theory, and that there is a distinct insanity in the use of alcohol which should be recognized. The periodic drinker, who after distinct periods of abstinence uses spirits to great excess is undoubtedly a maniac, suffering from circular insanity.

The sudden onset and its convulsive control resembles epilepsy and in many of the cases the relation is very close. Often the periodic drinker will have a distinct prodrome marked by insomnia, headache and great irritability and other very distinct symptoms of mental and physical change.

He does not recognize these as precursors of a drink storm and appears to have no consciousness that they will culminate in an impulse to drink that is uncontrollable.

Many persons of this class from experience recognize that these psychopathic symptoms will end in alcoholic excess.

They show a reasoning mania in provision for these attacks, arranging their business, regulating their surroundings even when perfectly temperate and free from any impulse, knowing that the drink storm is sure to come.

It is noted that many persons are greatly exalted, up to the point of delirium in many ways at this period or depressed, and become melancholic, then suddenly the impulse breaks out and all these symptoms pass away.

The duration of the free interval is often very exact as to time, and this resembles circular insanity. The patient's health continues good and there are no symptoms of mental disturbance up to within a few hours of the insane impulse to drink.

The duration of the drink storm is also remarkable as to length. In many cases both the onset and duration of the drinking period can be predicted with certainty.

The startling changes of character and conduct within an hour are additional evidence of the insanity. Thus a previously moral exemplary man suddenly after a few drinks of spirits becomes a criminal, an imbecile, immoral and treacherous to the last degree. His criminality lacks continuity and is of the impulsive delusional character. On the subsidence of the drink craze these peculiar symptoms disappear and he becomes a normal man in character and conduct.

The use of spirits develops delusions, hallucinations and melancholia which subside when the paroxysm is over as quickly as it begun. Often the history of the periodic drinker indicates a marked heredity and a defective brain and nerve organization, which is increased by strains and drains of business, predisposing the nerve energies to convulsive activity.

Another phase of insanity equally prominent and of most fascinating interest is that seen in persons who use spirits regularly either in so-called moderation or to excess. The cumulative action of alcohol on the physical and psychic centers of the brain has not been studied very clearly.

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Clinically the steady user of spirits develops very marked symptoms of insanity. There is an exalted ego and delusions of strength in power, which, whenever practically tested are found to be wanting. Experience and failures make no impression, but only increase a form of parietic exaltation and delusional confidence in his ability and capacity to reason and act.

Later delusions of suspicion and want of confidence in his nearest relatives and friends, particularly the infidelity of his wife and the treachery of his children appear. His memory fails. His reasoning on matters outside of his every day vocation is childish and simple. He becomes markedly credulous or skeptical on matters that previously did not attract his attention.

His value in positions of trust and responsibility is irregular and uncertain. He works fitfully, and when occupying a responsible position is either discharged or placed in a position where his judgment can be corrected.

Whatever opinion may be entertained by his friends or associates in the business world, he is considered irresponsible, degenerate and uncertain.

Another symptom of insanity comes into great prominence in some instances. This is marked by a great failure to recognize the consciousness of right and wrong, duty and responsibility. His mentality has changed. There is feebleness, concealed delusions and preversions of judgment manifested in conduct, varying widely from its former condition.

The sensory activity show palsy and great diminution of former acuteness. There are marked organic changes which are shown in the failure of nutrition, irregularity of the heart's action, loss of endurance and general vitality.

The modern instruments of precision can measure these abnormal conditions with great certainty. The feebleness of memory, the slowness of the mental operation, the faults of judgment and sensory discriminations and mental feebleness of reasoning with high tensioned arteries and other conditions can now be mapped out with great certainty, yet many persons classed as periodic or moderate drinkers are not recognized as coming under the head of insanity.

It is literally an insanity of the parietic type with both exaltation and imbecility. At certain stages these symptoms are so marked that they cannot be questioned. There is a beginning to this which escapes the attention of most observers. There is anaesthesia and diminished functional and organic activity.

There is also a gradual increasing shadow creeping over the mentality. The fine shadows, the uncertainties and doubts which attend all human transactions escape the notice of a drinking man, and he imagines they do not exist. The more alcohol he uses the more positive things appear.

His condition is one of increasing anaesthesia, manifest in the rude grasp of the hand, loud voice, and exaggerations of manner as if to assure himself of the reality of his senses. He is constantly becoming more and more incapable of receiving accurate knowledge of persons or events, and the impressions he gets are imperfect, incordinated and not accurately understood.

All these are simply the early stages of insanity. For a time he may act and reason along accustomed lines with automatic sanity, but place him in new conditions and his mental defect and real condition will show itself.

This form of insanity is very pronounced in America and is based on the continuous strain and drain incident to the changing conditions of the country. It is neurasthenia, fatigue and brain exhaustion. Then spirits to cover up this condition with more pronounced brain and nerve debility. Then follows irregular life, irregular conduct, strange reasoning, delusional and delusive activities, acute organic information and death.

The last disease is supposed to be the cause of death. In reality the man was alcoholicly insane, beginning from exhaustion, or perhaps with spirits, and his conduct was that of a psychopath and mental defective.

A certain small number of cases of this kind commit crime and die in prison. A larger number go on to extreme stages, become demented and parietic and end their days in the insane asylum. A still larger number die from acute organic disease which comes on unexpectedly and terminates rapidly.

The public recognizes that these persons are classed among the border liners, or persons who lived in the penumbra region of insanity. The fact that they do not go to extreme stages gives the impression that they cannot be called insane according to the strict meaning of the word, and yet this is wrong.

They constitute a class of as thoroughly insane persons in many particulars as the inmates of insane hospitals. There can be no doubt that the anaesthetic effect of alcohol gives certain form and direction to this condition, which is not yet recognized in medical circles.

Medico-legally it is a question of the highest practical interest and the effort to mark out boundary lines between sanity and insanity results in great confusion and positive errors. Thousands of these insane people are punished by death and imprisonment for life simply through ignorance to recognize the real conditions.

There is no subject more intensely practical for the medical man and no field calling for exact grouping of the facts and the laws which govern their rise and progress, than this, the insanity of inebriety.

THE NORMAN KERR MEMORIAL LECTURE

THE third Memorial Kerr Lecture on The Influence of Alcohol on Immunity was delivered by Prof. Laitinen, M. D., of Helsingfors at the Victoria and Albert Museum at London on July the 20th.

The following is an abstract of this lecture which will be published fully in some future number.

I stated in a paper read at the last International Congress on Alcohol, held in Stockholm in 1907, that alcohol, even in small quantities, causes a diminution of resistance of red blood-corpuscles against a heterogeneous serum. I also then stated that I had begun a series of further investigations relating to the question as it concerned the human body. The result of these researches up to the present time I now present in this Norman Kerr Memorial Lecture. The persons experimented upon numbered 223, beginning with myself. They were of different classes and ages. There were medical professors and other physicians, University fellows, students of both sexes, hospital nurses, school teachers of both sexes, waiters, and other men and women of the working class. My studies have been directed to an investigation of the following points:—

1. I sought to ascertain whether the resistance of human red blood-corpuscles against a heterogeneous normal serum or an immune serum can be diminished by the use of alcohol.

2. I have studied the action of alcohol in drinking and abstaining persons on the hæmolytic power of blood-serum over heterogeneous red blood-corpuscles (rabbits). I have studied not only the hæmolytic power of the human blood-serum, but also its power of precipitation in the presence of rabbit-serum, with a view to ascertain if the reaction between a known dilution of rabbit-serum and a certain dilution of serum of alcohol-users and non-drinking persons is different or not, and if the reaction is more apparent with the former or with the latter.

3. The resisting power of serum obtained both from alcohol-drinking and from non-drinking persons was further tested by human blood, with the object of discovering whether any difference in reaction existed between the same immune serum and the two kinds of human sera above mentioned.

4. I have studied the problem as to whether the hæmolytic complement in the blood-serum of alcohol drinking and non-drinking persons is altered in any way by alcohol.

5. The bactericidal power of blood-serum from both alcohol-drinking and non-drinking persons was determined by some experiments.

The above experiments have given the following results:—

1. The normal resistance of human red blood-corpuscles appears to be somewhat diminished against a heterogeneous normal serum or an immune serum by the consumption of alcohol, provided that tolerably large equal, or nearly equal, numbers of drinkers and abstainers of both sexes be examined, and the average of resistance be taken on both sides: this last-named precaution being necessary because the resistance of red blood-corpuscles from different human beings varies largely. The difference is often greater when using weaker dilutions than when using stronger dilutions of lysin.

2. These experiments have shown the normal hæmolytic power of human blood-serum to be less in the case of alcohol-drinkers than in that of abstainers.

3. The precipitating reaction between a solution of 1 per cent human blood-serum and different dilutions of immune serum (obtained by immunising the animals with human blood-serum) was greater in the case of drinkers than in that of abstainers.

4. The complement action of human blood-serum, according to these experiments, was greater in the stronger dilutions (0.4 to 0.04) and less in the weaker dilutions (0.02 to 0.0004) in the case of drinkers than in that of abstainers; it was not, however, much affected.

5. These experiments have also shown that the bactericidal power of blood-serum against typhoid bacteria was less in the case of drinkers than in that of abstainers.

It seems clear, therefore, that alcohol, even in comparatively small doses, exercises a prejudicial effect on the protective mechanism of the human body.

EDITORIAL

The International Anti-Alcoholic Congress

This Congress held in London the last week of July was noted for its official recognition and Government patronage. There was something very significant in the conservative government of Great Britain promoting and welcoming a gathering of reformers from all over the world to discuss the evils of spirit drinking.

Over fifty delegates who were officially appointed by the different governments of the world were present and comprised prominent officials, diplomats, doctors, scientists and clergymen. Other delegates from societies, churches and reform organizations numbered over 400, and those who were registered as members exceeded 1400, so that this was by far the largest congress or gathering ever held to discuss the alcoholic problem.

The wisdom of the managers of this and former congresses was apparent in refusing to pass any resolutions or conclusions, or endorse any theories or dogmas as a whole, made it a very independent body. There was no formal declarations, conclusions or resolves.

It was a great general discussion of the subject in which each one was at liberty to present widely divergent views. About 40 formally prepared papers were read. As abstracts of each one appeared in three different languages, it was possible to follow the authors and know what they were saying.

Free discussions were permitted, some of them very exciting. Most of the papers were very elementary and were restatements of old facts, some in great detail, facts that have been accepted for years. Several statistical papers were equally heavy, and many authors wrote as if the audience was entirely ignorant of the general facts concerning alcohol and its effects.

The medical papers, although contributed by distinguished men, were very disappointing, particularly in their excessive conservatism, and laboratory minuteness to clear up non-essential facts. Some of them were marred by personal statements, and negative conclusions that confused rather than cleared up the subject.

The Norman Kerr Lecture was technical and involved laboratory studies of great minuteness. While it is pleasing to recognize scientific exactness in the statement of facts, to make prominent technicalities and state general conclusions in such a negative, conservative way is wearisome and distressing.

Much of the matter presented at this Congress was additional evidence of previous conclusions and paraphrases of what has appeared many times before. Some of the matter was advanced studies which will form the basis for new work in the future.

The Congress as a whole was remarkable for the national interests it created, and the distinguished men who came to determine and study the new facts and methods for a better understanding and prevention of the evils of alcohol.

Evidently a great advance has taken place in public opinion, which was recognized by the British Government in the public receptions by the officials and the large space devoted to its proceedings in the daily press.

The medical press of both Great Britain and the Continent published abstracts and general reviews, all asserting that it was the beginning of a great new movement in which the medical profession were to take a very active part in the future.

The next meeting will be held at The Hague, by a special invitation by the Queen of Holland, and will be equally formal and official in its management and conduct.

Senate Document No. 48

No event in the history of our Society will attract more attention and bring our work into greater prominence than the Government publication of the papers read at the Semi-annual meeting held at Washington, D. C., in March of this year, entitled

SOME SCIENTIFIC CONCLUSIONS CONCERNING THE ALCOHOLIC PROBLEM AND ITS PRACTICAL RELATIONS TO LIFE

This meeting was projected in the ordinary way, and the various authors prepared and read their papers without any thought of more than the usual publicity in THE JOURNAL OF INEBRIETY and other journals.

The extraordinary prominence given to the meeting by the daily press suggested that if the papers could be issued as a public document it would be very useful in the present stage of revolutionary change, concerning the use of alcohol.

Senator Gallinger of New Hampshire who is a well-known physician, recognized the value of this work and offered a resolution in the senate asking that it be made a public document and 5000 copies be printed for general distribution.

This was passed. Thus after nearly 40 years of existence, the transactions of our society have suddenly become of such value as to be sent out to the public through the members of Congress and Senators as a part of the great world's history. Some of these papers have been published in the Journal and much of the matter has appeared before, but its grouping in this form will have an additional and educational value on public opinion beyond any present conception.

While we congratulate ourselves on this most unexpected opportunity to address an audience of the nation, we should be stimulated to do better work, and present more exact conclusions in the future, and realize that our society has come into national prominence in a far wider sense as a teacher and leader than ever before.

Alcohol: How it Affects the Individual, the Community and the Race, by Henry Smith Williamson, M. D., L.L.D. Published by The Century Company of New York, 1908.

This little book of less than 150 pages appeared in the McClure Magazine last year and attracted a great deal of comment. It is now published with additions and is one of the very best compilations of facts concerning the alcohol problem which has appeared from the American Press.

Horsley's book on Alcohol on The Human Body has become the most famous of all recent publications, and this work promises to exceed it in graphic presentation and a popular condensation of the leading facts recognized by the scientists, concerning the effects of alcohol.

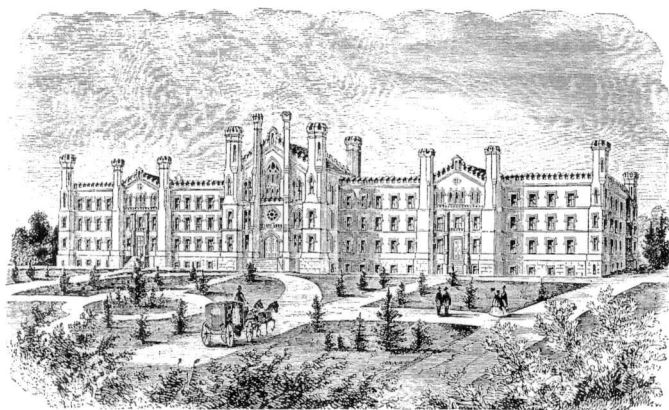
The judicial balancing of disputed facts, and the fair statement of the differences constitute a very charming part of the volume. The author's skill as a compiler both in proportion and accuracy of facts is unusual and this book is the best illustration of the value of such work. We commend it as one of the most practical text books on the scientific side of the question that has been written, particularly concerning alcohol.

The diseased condition of the drinking man of course is another subject, upon which a separate volume might be issued, equally startling and practical. We urge our readers to add this book to their library as one of the valuable contributors.

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• *J. Edward Turner, M. D.*



The New York State Inebriate Asylum



This monument is made of Westerly granite, 5 1-2 feet high by 4 feet in width. The bronze tablet is 2 x 3 feet, and the whole is mounted on two pedestals in the center of a lot overlooking a large section of the country, and is both commanding and impressive.

The inscription is as follows:

JOSEPH EDWARD TURNER, M. D., 1822-1889. Founder and Superintendent of the First Inebriate Asylum in the World at Binghamton, New York. 1858-1866. The first physician to put into practical operation the treatment of inebriety as a disease. By the methods he instituted, thousands have been redeemed, humanity blessed, and the principles of Christianity advanced. To perpetuate his memory, and mark his resting place, this stone is erected by the American Medical Society for the Study of Alcohol and Other Narcotics. A. D. 1909.

"The memory of the just is blessed."



Woman's National Hospital

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