MORAL.—M. Monetary. D. Domestic.
INTELLECTUAL = I.
PULSE.—R. Regular. I. Intermittent. D. Dicrotic. F. Feeble. B. Bounding.

For further notes see overleaf. An asterisk in any column would mean refer to notes or a number.

The Relation of Alcoholism to Suicide in England, with Special Reference to Recent Statistics.

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IN the following paper it is proposed to study the influence which alcoholism exerts upon suicide in this country, so far as that influence can be traced in recent statistics of the movement of these social phenomena. Our discussion will aim more particularly at determining the *rôle* which alcoholism may have played in the late increase of suicide in England, and at establishing the distinctive characters which constitute the type of alcoholic suicide.

Before, however, entering on the proper matter of our inquiry, it will be desirable to refer briefly to the views of some of the chief authorities who have dealt with the question of the alcoholic influence in suicide. It is premised, of course, that these introductory remarks have no pretension to be a complete summary of the extensive literature of the subject—an essay far beyond the limits of this paper.

Introductory.—In the classic work in which he fixed the clinical outlines of alcoholism, Magnus Huss(1) indicated among the characteristic symptoms of the disease its special proneness to the development of suicidal tendencies. "I venture to assert," he says, "that the suicidal impulse is a more frequent accompaniment of the melancholia of drunkards than of melancholia from other causes; and, further, that amongst the uneducated classes suicide frequently follows on the disordered emotional tone, which, sooner or later, results from the abuse of alcoholic liquors." All subsequent clinical observation, whether directed primarily to suicide or to alcoholism, has confirmed the accuracy of this statement.

Naturally, the community being but the aggregate of its

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individual members, it is self-evident that if alcoholism be prevalent in adequate extension, a similar relationship of phenomena should be in some measure traceable on the larger scale of statistics. Inquiries to test this inference have been numerous, but the results reached by observers have not exhibited the unanimity of clinical experience.

On the one hand, some authorities have maintained that there exists an exact correspondence between the geographical distribution of the two phenomena, and also between their variations in different periods in the same country. This position in its most extreme form was notably defended by J. L. Casper.(2)

The majority of observers, however, have adopted a more moderate view, and, regarding alcoholism as only one amongst several causes of suicide, have contended that the two phenomena, though not exhibiting in their variations in time and place an absolute parallelism, yet show an approximate correspondence sufficient to justify the inference of their relationship. This is essentially the opinion held, for instance, by Lunier,(3) Morselli,(4) Baer,(5) Westcott,(6) Ferri,(7) Grotjahn,(8) though some of these authors differ considerably in their estimate of the degree and significance of the correspondence.

Lunier, whose views are in the main adopted by Morselli, found in the different departments of France that a high average consumption of alcohol was invariably accompanied by a similarly high rate of suicide. The general validity of this observation is, however, open to doubt. Baer, whose authority on the question is unique, has demonstrated the absence of a similar correspondence in Prussia, and cites also as a counter argument the case of Sweden, where decrease in alcoholism has failed to arrest the upward movement of suicide. His opinion leans to a more moderate valuation of the alcoholic influence, though still counting it as the most important of the individual factors of suicide.

Grotjahn, who envisages alcoholism mainly as a direct result of the condition of the proletariat under the capitalistic *régime*, while admitting a certain coincidence in the regional and periodic distribution of the two phenomena, regards their relationship as that of co-effects of a common cause.

While all these authors agree in assigning to alcoholism some part in the causation of suicide, there are others who

dissent altogether from this point of view, and who question whether this agency has any effect at all considerable enough to influence the statistical movement of suicide. This position has been advocated by Colojanni ([9]) in Italy, by Durkheim ([10]) in France, and to a certain extent by Strahan ([11]) in England.

Durkheim in particular has elaborated this thesis; regarding suicide as a phenomenon exclusively dependent on the state of the collective consciousness of the social group in which it occurs, he denies to more elementary factors, such as insanity or alcoholism, any extensive influence. In support of this view as regards alcoholism he has endeavoured to show that, contrary to the opinion of Lunier, the geographical distribution of suicide in French departments presents only a very imperfect correspondence with that of the various standards of alcoholism—the *per capita* consumption of alcoholic liquors, the frequency of arrests for drunkenness, the amount of alcoholic insanity.

This mode of argument is, however, open to the reply which Ferri effectually addressed to the similar contention of Colojanni, viz. that it would prove merely that alcoholism was not the sole cause of suicide, it would not prove that it was not among its causes. Further, the fallaciousness of the method is glaringly visible in the very maps on which Durkheim relies; thus the chart showing the departmental consumption of alcohol exhibits, as he himself admits, a certain correspondence with the chart of suicide, insufficient, however, in his opinion, to support the idea of causal relationship; yet, as a glance at his maps will show, this correspondence is actually closer than that observable between this same chart of alcoholic consumption, and the chart representing the distribution of alcoholic insanity.

On the whole it may be asserted that the balance of evidence and argument leans to the observers who have taken the intermediate position, and who look upon alcoholism as one of several causes of suicide, its absolute and relative importance differing in different places and at different epochs. This is the point of view which we shall adopt in our inquiry, our attention being practically limited to the relation of the two phenomena in England and at the present time.

Recent Movement of Alcoholism.—We have first to inquire

what has been the tendency of movement in alcoholism in this country of recent years.

This is a point, the determination of which is beset by very considerable difficulty, due more particularly to the absence of any adequate measure of alcoholism. From our standpoint that word must be taken to mean the *ensemble* of the morbid results of alcoholic excess, and therefore the selection of any one of these results as a standard necessarily involves a risk of fallacy.

How real this risk is will appear at once from the comparison of a few of these possible standards. Thus in the mortality returns of the Registrar-General we find that the number of deaths attributed to intemperance, which amounted to 35 per million in 1867, has risen steadily in successive periods, and in 1897 stood at 76 per million, an increase in thirty years of over 100 per cent. The record of coroners' verdicts of "death from excessive drinking" shows a similar increase. On the other hand the number of convictions for drunkenness has in the same period undergone considerable decrease relative to the growth of population.

Now it is obvious that, as a measure of alcoholism, the Registrar-General's returns have for us a greater validity than the statistics of drunkenness; apart from the intrinsic sources of fallacy in these latter, due to the exclusive consideration of the acute intoxication, there are clearly abundant elements in local and general variations of public opinion, police efficiency, prison accommodation, and the like, which influence the official recognition of drunkenness. This might even conceivably be so to such a degree as to make a high rate of drunkenness indicative rather of keen public spirit than of abnormal intemperance in a community. We may, therefore, conclude that the mortality from alcoholism is a better guide than the frequency of arrests for drunkenness.

We may also regard the question from another point of view; instead of seeking our measure of excess in its results, we may seek it in its cause; we may estimate the movement of alcoholism by the variations in the amount of alcohol consumed. The following table, taken from the appendix to Mr. Whittaker's admirable Memorandum, published with the report of the Licensing Commission, gives the average *per capita* consumption of beer and spirits in the United Kingdom for the years 1842–98. The figures are summarised in five-year periods.

Consumption of Spirits and Beer per Head of the Population from 1842 *to* 1898.

	Spirits.		Beer.
1842–46	·89 galls.	...	20·0 galls.
1847–51	1·00 „	...	21·0 „
1852–56	1·06 „	...	22·1 „
1857–61	·96 „	...	23·8 „
1862–66	·92 „	...	27·1 „
1867–71	·99 „	...	28·9 „
1872–76	1·22 „	...	33·3 „
1877–81	1·11 „	...	29·4 „
1882–86	·99 „	...	27·3 „
1887–91	·97 „	...	28·7 „
1892–96	1·00 „	...	29·9 „
1897	1·03 „	...	31·4 „
1898	1·05 „	...	32·0 „

Thus it will be noted that in the case of both these forms of alcoholic liquor the *per capita* consumption has of late shown an upward tendency so marked as to bring the figures for recent years almost up to the level reached in the early seventies, when, coincident with the feverish industrialism of the period and the enormous multiplication of licences, English drinking habits attained their highest point.

Now on the score of accuracy we may take it that these statistics have distinct superiority, owing to the *rôle* of liquor taxation in the national revenue; but we have to observe that, as a measure of excess, they are open to certain fallacies. In the first place, their reference to alcoholism is governed by the question of the distribution of the liquor consumed.

As Mr. Whittaker points out, the immensely increased consumption of tea—in 1897 four and a half times per head what it was in 1842—and the growth in the numbers of total abstainers in the country, are two considerations which suggest strongly that the alcohol-consuming section of the population is at present relatively smaller than some years back, and that, therefore, a moderately increased rate *per capita* of the whole population may really involve a largely augmented consumption by actual drinkers. And we have also to bear in mind that the power of resistance to the drug is a varying quantity, and probably tends to diminish in a population where a high degree of alcoholism has prevailed for a long time.

When due weight is given to these considerations, it will appear probable that the relatively slight upward tendency shown by our figures represents really a large increase of

alcoholism. And this impression is confirmed by the steady progression of the mortality from intemperance, to which we have already referred.

Accordingly, without attempting to express the fact numerically, we may take it as established on the available statistical evidence that alcoholism has decidedly increased in this country of late years.

Recent Movement of Suicide.—The next point with which we have to deal is the recent movement of suicide.

The returns of the Registrar-General show that in England there has been a steady increase in the suicide rate during the last three decennial periods. Thus the proportion per million inhabitants, which in the decennium 1861–70 stood at 65, rose in the following decade to 70, and in the decade 1881–90 amounted to 77, representing an increase of over 18 per cent. on the figures for the first-named period.

The validity of these statistics has, however, as we are all aware, been recently called in question. Sir John Sibbald, arguing from the remarkable constancy of the rate of suicide by hanging—the mode of death relation of which to self-destruction is least doubtful—has contended that the apparent increase in the total suicide rate is merely a result of faulty registration, whereby cases which in former years would have been reckoned as accidents, are now included under the rubric of suicide. This consideration would apply especially to cases of drowning and poison, the forms in which the alleged increase has been most marked.

Against this ingenious theory, however, we have to set the fact that in another category of suicidal manifestations, viz. attempts to commit suicide, there has been a similar and even more decided increase. Thus in the period 1867–71 the number of cases of attempted suicide amounted to 35·5 per million inhabitants; in each succeeding quinquennial period it stood higher, and in the period 1892–96 it rose to 57·9 per million, an increase of over 78 per cent. on the first-cited figures.

Now statistics of suicidal attempts are not open to the same risk of erroneous registration. They are, no doubt, liable to other fallacies; it is obvious, for instance, that their detection will be easier in dense populations; and it may be that there is now greater readiness than formerly to report and prosecute in these cases. Such possible qualifying influences, however, would

only apply to the earlier years, and could not explain the steady progression in the last decade. We may, therefore, affirm with some confidence that the increase in the frequency of these cases represents a real growth of suicidal tendency; and though, as we shall see later on, there are decided reasons for thinking that the causation of suicidal attempts is by no means entirely identical with those of the majority of actual suicides, nevertheless these two phenomena have sufficient factors in common to render it improbable that a large increase in the one should not be accompanied by some increase in the other. Hence we may consider that the concurrence of the evidence derived from these two sources goes far to confirm the validity of both.

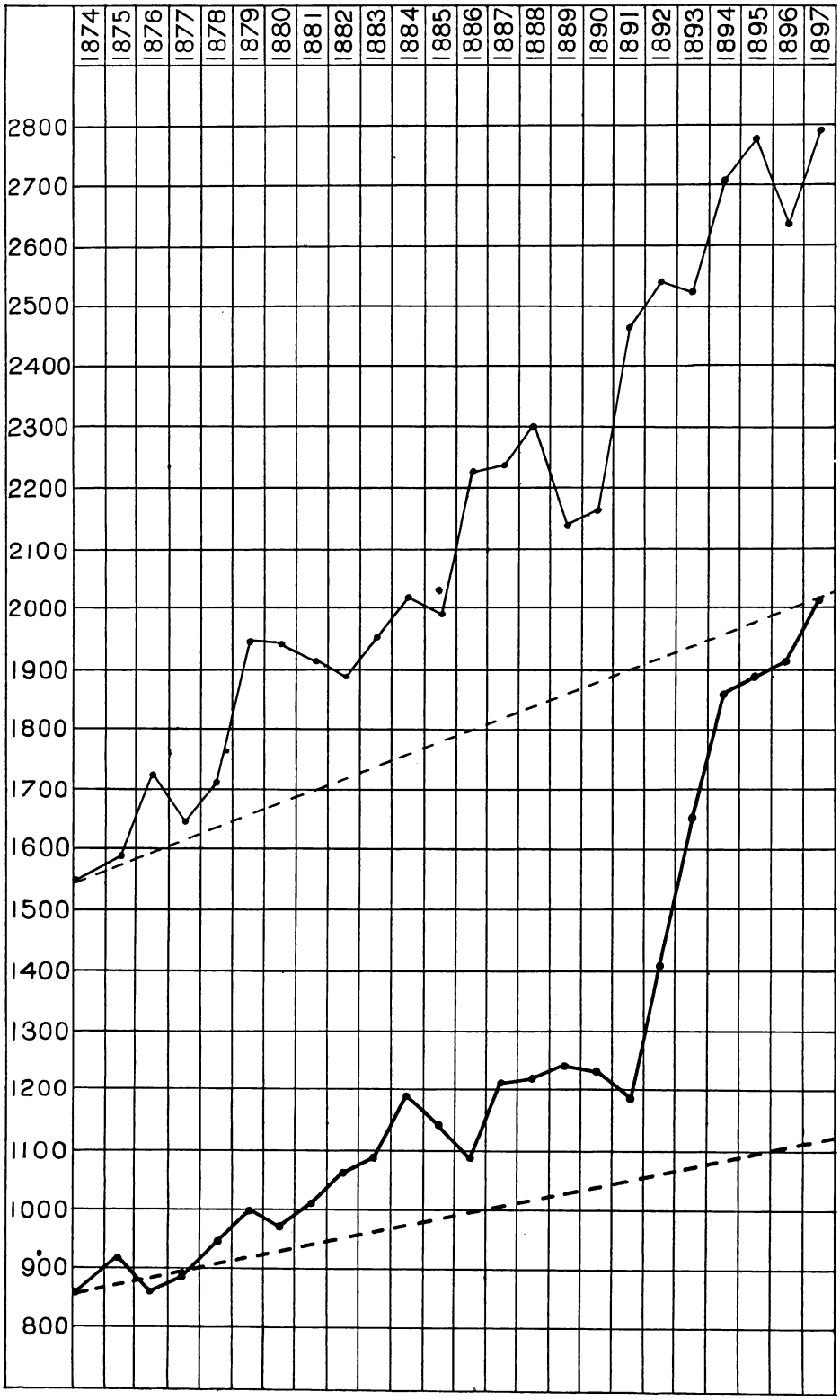
The extent of that concurrence, and the importance of the recent increase of suicide, is shown in the appended diagram, taken from the Criminal Statistics for 1893 and brought up to date; it presents the movement of actual suicide and of suicidal attempts from 1874 to 1897, and the estimated movement of population in the same period.

Two points are clearly brought out in this diagram, viz. firstly, that suicidal tendencies have grown in a degree entirely out of proportion to the increase in population; secondly, that their growth has been much more considerable in the category of suicidal attempts than in that of actual suicides.

Comparison of Actual and Attempted Suicide.—In the absence of any evidence to the contrary, it would appear natural to ascribe the increase in these two forms of suicidal manifestation mainly to the operation of the same cause, a cause, therefore, which plays an overwhelming part in the genesis of abortive attempts, but which is much less importantly related to the production of actual suicide.

The first step towards the detection of this cause will be to inquire whether suicidal attempts present any peculiar features when compared with the mass of actual suicides. This is the point which we propose to deal with in this section.

In the study of suicide in different civilised countries it is of common knowledge that, besides those climatic, racial, and political influences which are special to each nation, there exist other factors whose operation is traceable as a constant force of definite direction in every community. Broadly speaking we may say that of these universal factors the most important are age, sex, season, and religious cult. It is in regard of these



To illustrate Dr. SULLIVAN's paper.

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SUICIDAL ATTEMPTS, SUICIDES, AND PROSECUTIONS FOR DRUNKENNESS IN THE COUNTIES OF ENGLAND.

The figures represent the average proportion of cases of each category per 100,000 of the estimated population during the years 1891–5; and the counties are arranged in the order of the decreasing frequency of suicidal attempts.

	Suic. attempts.	*Suicides.*	*Drunkenness.*
Metropolitan District	12·80	10·50	657
Warwick	8·01	10·07	491
Southampton	7·64	8·40	294
Worcester	6·63	8·38	735
Northumberland	6·24	9·92	1802
Northampton	6·07	12·09	311
Lancashire	5·90	9·10	970
Nottingham	5·69	10·68	521
Lincoln	4·76	10·21	487
Leicester	4·58	10·56	324
Somerset	4·51	8·71	221
Gloucester	4·24	7·65	337
Berkshire	4·23	7·96	285
Sussex	4·17	11·24	268
Kent	4·15	10·88	297
Cheshire	3·96	7·96	609
Dorset	3·90	8·84	227
Devon	3·66	9·46	316
Oxford	3·66	8·37	133
Hereford	3·62	7·42	443
York	3·52	8·59	505
Stafford	3·36	8·17	685
Derby	3·34	8·68	521
Buckingham	3·24	8·64	231
Shropshire	3·21	9·48	758
Monmouth	2·48	6·28	654
Hertford	2·22	6·77	248
Wiltshire	2·18	5·51	132
Suffolk	1·99	11·50	145
Durham	1·98	7·15	1302
Norfolk	1·96	8·54	172
Westmoreland	1·81	9·99	293
Cumberland	1·80	7·80	704
Surrey	1·68	11·01	283
Bedford	1·62	8·10	219
Huntingdon	1·45	10·16	132
Cambridge	1·29	8·29	111
Essex	1·14	9·49	224
Rutland	·96	7·74	137
Cornwall	·93	4·90	204
[Wales	2·2	5 17	798]

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factors, which operate within the limits of the social group, that we may best compare the two categories of suicidal manifestation. Unfortunately the information furnished in this country concerning both actual and attempted suicide is so extremely meagre that the comparison of the two phenomena, even in these few points, is not free from difficulty.

We shall first consider them in relation to sexual incidence. In actual suicides in England the average proportion of females is 25 per cent.; in suicidal attempts the proportion, calculated on the accessible figures for the years 1893-97, is 27·1 per cent. That is to say, the sexual incidence in suicidal attempts differs but slightly from that in actual suicide; hence we may infer that in this respect the factors entering into the causation of the two phenomena either are identical, or, if different, operate in such similar direction and extent as to produce practically identical effects.

We obtain a very different result when we investigate the relation of the two suicidal categories to age.

Unluckily in the criminal statistics which deal with suicidal attempts, and in the returns of the Registrar-General which deal with actual suicide, age groups are classified on different systems, and it is consequently impossible to place the figures in complete parallelism. They present, however, a contrast so marked as to appear vividly in spite of this difficulty.

Thus in the mortality returns of adult males it is found that the proportion of suicides by persons aged over 45 years is 55·6 per cent., the period of maximum incidence being the decade 45—55. On the other hand, amongst adult males tried at assizes and quarter sessions during the last five years for attempting to commit suicide, the proportion aged over 40 years was only 46·7 per cent., and the period of maximum incidence was the decade 30—40. A similar contrast is found as regards females; the maximum incidence in suicides of that sex is in the decade 35—45, while in attempts to commit suicide it is in the period 21—30. Hence it appears that abortive suicidal attempts differ widely from actual suicides in that their predominant cause tends to operate at a relatively early age.

In regard of seasonal influence the results of comparison are negative; actual suicide and suicidal attempts increase with equal regularity from winter to summer, and decrease from summer to winter.

The fourth important influence which we have mentioned—the form of religious cult—cannot be directly investigated, owing to the absence of information on the point in respect of both varieties of suicidal tendency; we may attempt, however, an indirect comparison of the phenomena by reference to suicide in Ireland, where the religious conditions are different. Without going into details, we may summarise the facts with regard to that country by stating that, while in Ireland, as in most predominantly Catholic countries, the rate of actual suicide is very low, that of suicidal attempts is relatively high, and in recent years has even been considerably in excess of the rate of actual suicide. For instance, in the year 1896 attempted suicides reached the proportion of 37 per million inhabitants, while suicides amounted only to 28 per million. And this excess has been comparatively much more decided in the Catholic provinces than in Ulster. From these facts we may most reasonably infer that if, as seems probable, the low suicide rate of Ireland be due to the influence of Catholicism, that influence is, relatively, ineffectual against the causes which determine suicidal attempts.

Another point to which considerable interest might have attached is a comparison of the modes of self-destruction in actual and in attempted suicide, but the statistics of the latter phenomenon give no information on this subject. In a series of personal observations, too few, of course (only 143 in number), to carry much weight, there was noted a marked predominance of drowning and poison (57·3 per cent.) over hanging (7·6 per cent.). This is a reversal of the conditions found in actual suicide, where hanging is the chief method resorted to; but it is interesting to observe, in connection with the earlier age incidence of suicidal attempts, that the prevalence of hanging in actual suicide is normally least marked in the early age groups. Wagner ([12]), by figures drawn from the Danish statistics, has shown that while the proportion of suicides by hanging steadily progresses in each age group above 15 years, the reverse obtains for drowning and for poison. And the same condition is found in English suicides; for instance, in the years 1890-91 amongst male suicides in England the proportion in persons aged under 45 was, in suicides by hanging 33·5 per cent., drowning 47·5 per cent., poison 50·0 per cent.

To sum up, therefore, the results of our comparison of actual

and attempted suicide, we find that these two phenomena do not appear to differ in regard of seasonal distribution and sexual incidence; that they probably differ in their predominant form, hanging being more frequent in actual suicide, more impulsive methods in suicidal attempts; that they most probably differ in their reaction to religious influence, which is potent in actual suicide, insignificant in suicidal attempts; and that they differ clearly and decisively in regard of age incidence, suicidal attempts being related to early, actual suicide to later age groups.

Age Incidence in Alcoholic Suicide.—Now the tendency to occur at a relatively early age, which we have found to be the chief distinctive feature of abortive suicidal attempts, is also a characteristic of a special group of actual suicides, viz. those dependent on alcoholism.

In the occupational groups dealt with in the returns of the Registrar-General, there are several which present a very high rate of alcoholism and a corresponding frequency of suicide. These are more particularly the groups related to the liquor traffic, or those where the social conditions lead directly to alcoholic excess.

In these groups we may safely regard the suicide as a consequence of the alcoholism, since there is no evidence of the special operation of other causes capable of originating an abnormal degree of suicidal tendency.

From Dr. Tatham's tables for the three years 1890-92 we may select the following as examples of such alcoholic groups: —Publicans, butchers, coach and cab service, commercial travellers, hairdressers, and musicians. In the period named these groups furnished 404 cases of suicide by persons aged over twenty-five years. Of these 220 (54·4 per cent.) occurred before the age of forty-five years. The normal average proportion of suicides below that age being, as we have seen, 44·4 per cent.

To demonstrate the significance of this contrast, and to avoid possible fallacies due to differences in the age constitution of the groups, we may compare the suicide rates per million living at each period in this composite alcoholic class with the corresponding figures for all occupied males:

	25–	35–	45–	55–	65–
Occupied males . .	137·1	214·2	307·6	421·8	553·1
Alcoholics	249·5	404·0	405·3	622·1	869·6

The meaning of the figures will be better seen if we translate them into terms of a single standard. In the following table this is done: the suicide rates per million living in each age period of the composite alcoholic group, of publicans taken as a purely alcoholic class, and of agriculturists taken as a typically non-alcoholic class, are shown in percentage relation to the corresponding rates for occupied males:

	25–	35–	45–	55–	65–
Occupied males . .	100	100	100	100	100
Alcoholics . . .	181·9	188·6	131·7	147·4	157·2
Publicans . . .	260·3	246·8	166·9	156·2	100·9
Agriculturists . .	64·2	68·8	70·6	78·1	86·6

In this table, comparing the two groups preceding with the two following the age of forty-five, we observe that it is in the former that the alcoholic influence is chiefly perceptible. In the composite alcoholic group the excess over the average suicide rate rises to more than 80 per cent. in the earlier groups, to only 37 per cent. and 47 per cent. in the two later groups. And the contrast is still more vividly apparent when it is made between the opposed groups of publicans and agriculturists. In the earlier age periods the deviation from the standard is at its maximum; in the decade twenty-five to thirty-five in the class where alcoholic influence is least active the suicide rate is more than 30 per cent. below the average, in the class where that influence is most potent it is more than 150 per cent. above the average. In each successive age group this influence is less perceptible, and in the last group—above the age of sixty-five—the suicide rate in agriculturists is only 14 per cent. below the average, while that of publicans falls to a figure practically identical with the standard.

This is not a merely casual feature of the last census figures. The same result is obtained if we examine earlier statistics. For instance, in a paper read by Dr. Ogle ([18]) before the Statistical Society, figures are given showing details of the age incidence of suicide in various occupations during the six years 1878–83. Calculating from his figures we find that compared with the total male suicide rate taken as 100, the suicide rate amongst publicans amounted to 271·6 in the vicennial age period twenty-five to forty-five, while falling to 168·5 per cent. in the period forty-five to sixty-five.

We may take it as proved, therefore, that suicide due to alcoholism is characterised by a tendency to occur at a relatively early age, thereby contrasting strikingly with suicide from other causes, but approximating to the type of suicidal attempts.

Alcoholism the Predominant Cause of Suicidal Attempts.—The next stage of our inquiry will be to determine whether the resemblance of suicidal attempts to alcoholic suicide is the result of an identity of origin.

Clinical evidence, as I have endeavoured to establish elsewhere ([14]), tends to prove that the abortive suicidal impulse is chiefly dependent on alcoholism, that it is related in its most typical form to a state of cerebral automatism developed by a bout of drunkenness supervening on a chronic intoxication. Thus as compared with the mass of actual suicides these attempts differ in their issue because they differ in their origin; they depend on a cause which evolves the suicidal impulse in the conditions least favourable to its realisation.

There is an *a priori* probability that this view, derived from a special and limited field of observation, has yet a general validity. It is, in fact, difficult to see how any large proportion of suicidal attempts could fail of execution unless they were made under the influence of cerebral conditions interfering with the normal power of co-ordinated action; and, further, the only agent of sufficiently wide-spread activity to produce these conditions on the requisite scale is alcoholism.

We have just noted how fully this hypothesis of an alcoholic origin would harmonise with the peculiarities of age incidence in suicidal attempts. We have now to inquire whether the other characters of these attempts are equally consistent with that view.

First, with regard to sexual incidence; we have found that the female contribution to suicidal attempts amounts to 27·1 per cent. This figure is very near the judicial estimate of female drunkenness, 29 per cent. If, therefore, alcoholism is the main cause of attempts to commit suicide, and if its influence in that respect is equal in the two sexes, the proportion of women among attempted suicides would be normal.

In the influence of season, again, the facts accord with our hypothesis; as we have seen, the seasonal distribution of suicidal attempts corresponds with that of actual suicide; there

is an exactly similar correspondence with the seasonal distribution of alcoholic insanity.([15])

Similarly the apparent independence of religious conditions, and the tendency to the more direct and simple methods of execution are characters which would belong naturally to suicides of an impulsive type.

In all these points accessible to inquiry we find, therefore, that the facts are most consistent with the theory which attributes suicidal attempts mainly to alcoholism.

Rôle of Alcoholism in the Recent Increase of Suicide.—Now, as we have already indicated, there is a *prima facie* probability that the same agent which has produced the increase in the abortive manifestation of suicidal tendency is also largely responsible for the slighter coincident increase in actual suicides.

If this view be correct, then the increase in actual suicide should in its characters conform to the type of the suicidal impulses of alcoholism, that is to say, tested by what we have found to be the main distinction of that type, it should be most marked in the earlier age groups.

From the decennial period, 1861–70, to the decennial period 1881–90, the increase in the suicide rate per million inhabitants amounted amongst males to 19·1 per cent., amongst females to 8·3 per cent. How was this increase distributed in the age groups?

It is in the years from twenty-five to sixty-five in men, and from twenty to fifty-five in women, that the vast majority—considerably more than three fourths—of suicides occur, and the variations of the age groups comprised in that period are decisive of the general tendency in the statistical movement.

To determine the question at issue we may, therefore, take as a central point the age of forty-five in men and thirty-five in women, and we may examine the variations from the earlier to the later decade in the suicide rate per million inhabitants living in the two age groups preceding and the two following these ages.

The result is given in the following table:

Increase of Suicide-rate per Million Inhabitants living in each Age Group from 1861–70 *to* 1881–90.

	Age.		Increase.
Males	25—35	...	24·7 per cent.
	35—45	...	20·3 ,,
	45—55	...	17·5 ,,
	55—65	...	15·9 ,,
Females	20—25	...	25·8 ,,
	25—35	...	20·0 ,,
	35—45	...	24·5 ,,
	45—55	...	1·2 ,,

Thus it will be noted that of the four groups whose numbers entirely dominate the statistics of suicide, it is the earlier ages —those in which we find the maximum incidence of suicide from alcoholism—that have been most influenced by the recent increase in suicide.

And an alcoholic origin would probably explain also the other peculiar character of that increase, the character on which Sir John Sibbald bases his doubt of its reality, namely, its predominance in suicides by drowning and poison.

For, as we have already pointed out—and the experience of attempted suicide confirms the idea—it is obvious that these methods have a more natural relation to impulsive suicide than has, for instance, the more elaborate process of hanging.([16]) And we find indirect evidence in the same sense in the facts regarding suicide in Ireland. There, as we have already indicated, suicides, particularly in the Catholic provinces, are rare, while suicidal attempts are relatively frequent. Corresponding with this fact we note that, while differing widely from England in other respects, Ireland is only a very little less alcoholic than that country.

It appears probable, therefore, that owing to the absence of other factors, alcoholism occupies a relatively important position in the causation of suicide in the Catholic provinces of Ireland as compared with the northern province, or with England.

Now, contrasting suicide in Ulster with suicide in the rest of Ireland we find that in the four years 1887–90 the proportion of suicides by hanging amounted in Ulster to 32·1 per cent. of all suicides in that province, in the rest of Ireland to 23 per cent.

Hence we may assert that such evidence as is available points to these modes of suicide as the predominant expression of alcoholic genesis, and, therefore, the limitation of the increase

in suicide to these methods does not so much impugn the accuracy of the statistics as it supports the theory of augmented alcoholic agency.

Alcoholism and Suicide in the Occupational Groups.—Having examined the statistical evidence referring to the connection of alcoholism and suicide in the population as a whole, we have now to complete our inquiry by the investigation of their relationship in social groups—groups defined either by similarity of occupation or by geographical distribution.

We shall consider in the first instance the former class, concerning which the mortality reports of the Registrar-General afford us very direct information.

The following table, extracted from Table IV of Dr. Tatham's Report, shows in a series of the larger occupational groups the "comparative mortality figures" for suicide, alcoholism, and diseases of the liver, this latter being the form under which alcoholism chiefly masquerades in the registration of non-pauper patients. The groups are arranged in the order of their decreasing alcoholism.

Comparative Mortality Figures for Alcoholism, Hepatic Diseases, and Suicide in the Occupational Groups.

Group.	Alcoholism.	Liver disease.	Suicide.
Publicans	94	174	29
Costers	36	29	14
Butchers	35	56	23
Musicians	29	38	23
Cabmen	28	33	20
Bagmen	23	47	15
Transport Service	21	27	15
Domestic servants	17	29	25
Medical men	14	60	41
Shopkeepers	14	31	17
Labourers	14	21	13
Occupied males	13	27	14
Barristers	12	55	18
Tailors	12	31	15
Bakers	11	39	19
Metal workers	11	29	13
Building trades	11	23	13
Watchmakers, etc.	9	35	25
Shoemakers	9	20	13
Scholastic	8	21	15
Textile manufactures	7	23	16
Miners	4	18	9
Agriculturists	4	17	10
Fishermen	3	24	12
Clergymen	2	18	7

As a glance at these figures will show, there is a certain general correspondence between alcoholism and suicide in the different groups, this correspondence being very much more evident in the classes where alcoholism is above the average for occupied males. The only striking exceptions to this rule are the groups of medical men and watch and instrument makers—whose suicide rate is, through the operation of readily imagined causes, abnormally high—and the group of costers, who, though highly placed on the alcoholic list, are not above the average in suicide. The relatively low rate of liver disease in this group, and the usual readiness to predicate drunkenness of a coster, are considerations which suggest that alcoholism in this class is over-estimated.

The interpretation of the facts regarding the other groups is fairly obvious: alcoholism being an important cause of suicide, its prevalence produces a relatively high suicide rate, *cæteris paribus;* on the other hand, as it is only one of several causes, its decrease does not involve a diminution of suicide beyond a certain point, as other factors of suicide continue to operate.

The same fact may be brought out in another way. If we take a large occupational group in which alcoholism is frequent, and if we subdivide it into local groups, then it will be found that the variations of the mortality from alcoholism in these sub-groups are accompanied by corresponding variations in the mortality from suicide. On the other hand, if we submit to the same process a group in which alcoholism is not specially prevalent, we find no such correspondence between the variations of the two phenomena in the sub-groups. The following table of mortality figures for alcoholism and suicide in local groups of publicans, taken as an alcoholic, and of coal miners, taken as a relatively sober occupation, exhibits this point very clearly.

Alcoholism and Suicide in Local Groups of Publicans and Coal Miners.

	Alcoholism.		Suicide.
Publicans	94	...	29
London	127	...	34
Industrial districts	93	...	27
Agricultural	69	...	21

	Alcoholism.		Suicide.
Miners	4	...	9
Durham and Northumberland	5	...	8
Lancashire	5	...	13
York, West Riding . . .	4	...	14
Derby and Nottinghamshire . .	2	...	12

Regional Distribution of Alcoholism, Suicide, and Suicidal Attempts.—For our purpose the occupational group with which we have just dealt is in several respects superior as an unit to the regional group, which we have now to consider. In the first place the effort to determine the local distribution of alcoholism is impeded by the difficulty that we have no reliable measure of the intoxication in the regional unit. The police returns of the number of prosecutions for drunkenness are the only semblance of such a measure, and we have already seen how utterly inadequate they are for the purpose. And the objections which lie against their validity as a test of the alcoholism of the country taken in its entirety hold even more strongly against their use in the comparison of its different regions.

A further source of fallacy resides in the fact that, in so far as territorial divisions correspond to differences in social and industrial conditions—and that from our point of view should constitute their value—these conditions are themselves disturbing factors in the problem, and that in many ways. On the one hand, drunkenness and abortive attempts to commit suicide are events more likely to attract the attention of the police in areas where the population is dense, and hence it is quite possible that statistics may underrate their frequency in the more thinly-populated areas. On the other hand, if it should appear that suicide, actual or attempted, is really more frequent, and drunkenness more rife in districts where special industrial conditions prevail, then it might very reasonably be contended —and the argument undoubtedly expresses part of the facts— that the alcoholism in these districts stands in no casual relation to the suicide, but that both are results of the industrial environment.

If we give due weight to all these qualifying considerations, it will appear abundantly clear that the results furnished by this particular method of inquiry must be regarded as of very secondary and relative value, useful at most in so far as they may control evidence gained from other sources. For that

end, and not as possessing much intrinsic value, we include them here.

I have prepared maps, based on figures taken from the Criminal Statistics, 1891–95, showing the distribution of suicide, suicidal attempts, and drunkenness in the English counties during these five years.

The indications offered by these maps are somewhat vague, and such general tendencies as can be traced in them are largely tempered by exceptions. Certain main points can, however, be made out.

In the first place, if we direct our attention to the regional distribution of suicide and attempted suicide, we note that the correspondence between these two phenomena is only partial, that it is fairly evident where suicidal attempts are frequent, very imperfect where these attempts are rare. This result confirms the conclusion which we have already reached on other grounds, viz. that the factors which govern the origin of suicidal attempts play a much less important *rôle* in the causation of actual suicide, and that consequently while their activity, as shown by the frequency of these attempts, involves some increase in the rate of actual suicide, their absence or diminution does not necessarily produce a corresponding fall in the suicide rate, as the other causes of suicide persist.

If we now regard the distribution of drunkenness in connection with the other phenomena we find, as the considerations already cited would lead us to anticipate, that these maps give even more uncertain results. In general, however, drunkenness appears to correspond more with attempts than with actual suicides; this holds true at least in the lower figures, that is to say, with a low rate of drunkenness attempted suicide more usually rules low, while actual suicide not uncommonly rules high. It will further be observed that attempted suicide and drunkenness are chiefly found in counties which include large urban areas, while they are rare in agricultural districts, where, on the contrary, actual suicide may be fairly frequent. And if we take the urban districts alone, we find that in these centres of alcoholism suicidal attempts may even increase to such a degree as to be more frequent than actual suicides, though the latter also rule very high. This is the case, for instance, in London, Liverpool, and Manchester. The influence, of course, of the special circumstances of town life other than alcoholism

is a factor which detracts somewhat from the value of this evidence; nevertheless, it retains considerable significance by reason of its harmony with the facts from other sources.

Conclusion.—We have now reached the term of our inquiry, and from the results which we have obtained we are in a position to formulate a fairly definite statement of the relationship of alcoholism to the movement of suicide in England.

We have found that the recent increase of suicide has coincided with a considerable development of abortive suicidal attempts. These attempts, in such of their characters as are ascertainable, have approximated to the type of alcoholic suicide, thereby confirming the clinical evidence which attributes to alcoholism the chief *rôle* in the genesis of abortive suicidal impulses. Further, we have found that the most important of these characters—earlier age incidence—has also marked the recent increase of actual suicide.

For these reasons we may regard it as most probable that this increase of suicide has been in a large degree related to the influence of alcoholism, an influence which in the same period—as mortality statistics attest—has tended to augment.

And we may also draw a larger inference; out of the fragments of evidence of various origin which we have examined in the course of our inquiry we may construct the type of alcoholic suicide as a special variety, with characteristics distinguish it from suicide of other causation.

The chronic intoxication by alcohol, as we observe it clinically, produces generalised disorders of visceral function throughout the economy, whence there results an alteration and disturbance of those organic stimuli which form the ground-work of our personality, those stimuli whose activity, as Maudsley ([17]) puts it, "is even of more consequence in determining the tone of our feeling or of our disposition and the character of our impulses than that activity which follows impressions received from the external world."

The depressed emotional tone thereby induced prepares the suicidal impulse, which in the more typical instances issues in action when a supervening increase of the intoxication has still further lowered the level of function in the enfeebled brain, and has proportionately exalted the influence of the organic stimuli in the cerebral processes.

As compared, therefore, with cases of deliberate and co-ordi-

nated suicide due to other causes, alcoholic suicide is found to be more impulsive, more directly and immediately related to organic conditions in the individual.

And when we pass from the clinical to the statistical standpoint—when, instead of isolated cases, we envisage alcoholic suicide as a social phenomenon,—the consequences of this special mode of evolution appear with equal definition.

Thus we find that the factors—those notably of the social order, or operative as such—which dominate other forms of suicide are of comparatively small account, or are of different account in the suicide dependent on alcoholism; and hence the characters which these factors impress upon ordinary suicide are frequently lacking, or are obscured in the alcoholic form.

So far, no doubt, as some of these factors are of a nature to further alcoholic excess at the same time that they further suicide, they co-operate in producing alcoholic suicide. This holds true, for instance, of seasonal influence, and in respect of it alcoholic suicide shows no divergence from ordinary suicide.

The relation is similar, though not perhaps essential, as regards sexual incidence; alcoholism is a potent factor only in about the same fraction of the female population as that exposed to the ordinary social causes of suicide, and for that reason, and probably for that reason alone, the sexual incidence of the suicide which is alcoholic does not markedly differ from that of the suicide which is not alcoholic.

In religious cult we have, on the other hand, a social factor of decided influence on non-alcoholic suicide, but relatively insignificant—within the limits of the Christian sects—as regards alcoholism. We find its action also insignificant on alcoholic suicide; the forms of Christian belief comparatively immune from ordinary suicide are by no means protected from the self-destructive impulse arising from alcoholism.

Finally, in age we have a factor whose influence on alcoholic suicide is not merely not co-operative with its influence on ordinary suicide, but is of directly opposite effect. In the relation of age to ordinary suicide—a relation in part, at least, of the complex social order—the forces which make for suicide grow with the years; their zenith is in the phases of decadence. It is otherwise with alcoholic suicide; the visceral disorders from which issues the suicidal impulse of the drunkard react with greatest potency on the affective *ego* in the period of fullest

vital activity. Hence it is in respect of this influence that alcoholic suicide and ordinary suicide exhibit their utmost variance; the earlier age groups—the years of active manhood, where normally the suicidal bent is slight—are those where alcoholic suicide reaches its highest development. From that point it sinks in importance, until in advanced life its influence is hardly traceable as a distinct force.

Thus the evidence of statistics is in entire harmony with the inferences of clinical experience. The impulsive suicide of the alcoholic, characterised as a phenomenon of the individual by obscuration of consciousness and absence of deliberation, is similarly marked as a social phenomenon by a relative independence of the ordinary factors of suicide, by an obscuration, as it were, of the more complex activities of the collective consciousness.

It is probable, of course, that this differentiation is not absolute in the social any more than it is in the individual instance; as the dream consciousness of the individual varies under different conditions in its degree of independence of the waking consciousness, so, also, doubtless the movement of toxic suicide in a given community is not entirely uninfluenced by the factors which govern social activities of a more deliberate order, including ordinary suicide; that is to say, the state of the collective consciousness, as reflected in these activities and in the organised forces which lie behind them, may react also in greater or less extent on the direction of the impulsive acts of the alcoholic, which would tend, for example, more towards suicide than towards homicide when and where suicide was normally more prevalent, and *vice versâ*. The varying degree and character of this reaction probably account in part for local and periodic differences in the correspondence between alcoholism and its suicidal expression, and in the divergence between the latter and ordinary suicide.

In general, however, these influences which we have just considered are slight and partial; they never suffice to obscure in the statistical view the special characters of alcoholic suicide—the characters which indicate that the relation of that phenomenon is to the forces which govern alcoholism, and not to the forces which govern suicide.

(1) Magnus Huss, *Chronische Alkoholskrankheit*. Ubersetz, von G. van dem Busch, Stockholm, 1852.—(2) J. L. Casper, *Uber den Selbstmord und seiner*

Zunahme, Berlin, 1825.—(3) Lunier, quoted by Morselli.—(4) Morselli, *Il Suicidio*, Milan, 1879.—(5) Baer, *Der Alkoholismus*, Berlin, 1878.—(6) Wynn Westcott, *Suicide*, London, 1885.—(7) Ferri, *Sociologie Criminelle*, edit. française, Paris, 1895.—(8) Grotjahn, *Der Alkoholismus*, Leipzig, 1898.—(9) Colojanni, *L'Alcoolismo*, Catania, 1887.—(10) Durkheim, *Le Suicide*, Paris, 1897.—(11) Strahan, *Suicide and Insanity*, London, 1893.—(12) Adolph Wagner, *Die Gesetzmassigheit, etc.*, Hamburg, 1864.—(13) *Journal of the Statistical Society*, 1886.—(14) "Alcoholism and Suicidal Impulses," *Journal of Mental Science*, April, 1898.—(15) Baer, "Einfluss der Jahreszeit auf die Trunksucht," *Berlin. klin. Wochenschr.*, 1899.—(16) It may be noted that in another variety of toxic suicide, that related to pellagra, drowning is the method almost always employed; hanging is very exceptional. (Roussel, quoted by Ritti in article on suicide in *Dictionnaire des Sciences Medicales*, Paris, 1884.)—(17) Maudsley, *Physiology of Mind*, London, 1876.

Concerning Irresponsibility in Criminals. By CHARLES MERCIER, M.B.Lond.

MR. WHITEWAY'S paper on this subject in the last number but one of the JOURNAL is very interesting to medical men as an indication of the view taken by an enlightened legal mind, and it is especially interesting to us as proving that all legal minds are not so steeped in mediæval notions of responsibility as some medical men are apt to suppose. It contains, however, statements that must not be allowed to go unchallenged, and it pushes the doctrine of irresponsibility further than I, for one, should be prepared to follow.

The statement that it is common knowledge that recently a general paralytic was received into an English asylum from a prison, with the marks of a flogging still fresh upon him, is incorrect. Such an incident may have occurred, but its occurrence is not common knowledge; and if Mr. Whiteway has any proof of the fact, the proof should have been adduced; for, although Mr. Whiteway seems to have a brief to fall foul of all our arrangements for dealing with criminals, from their birth to their final exit upon the scaffold, there are other people who, if less interesting, are not altogether outside the pale of our sympathies. Prison officials are, after all, God's creatures as well as criminals, and a charge brought against them should be substantiated or withdrawn.

Mr. Whiteway is of opinion that Mary Ansell should have been excused from the consequences of her crime on the ground that, although not herself insane, she had several insane rela-