A Note on the Influence of Maternal Inebriety on the Offspring†

WC Sullivan, M.D.

Stewart Scholar in Mental Disease, R.U.I., Deputy Medical Officer, H.M. Convict Prison, Parkhurst

The object of the following paper is to present the result of a number of observations touching certain aspects of the question of habitual inebriety, notably the role of maternal alcoholism as an agent in race degeneracy.

It has been observed by most authorities who have studied the various classes of individuals characterised by their incapacity to adapt themselves to normal social conditions, that these classes are largely recruited from the offspring of the alcoholic. This holds true whether that incapacity depends on the most glaring states of organic degeneracy, such as idiocy, or on those slighter forms of mental inferiority which appear to exist in at least a considerable proportion of habitual criminals and prostitutes.

Thus, to quote a few of the more recent observations on this point, alcoholic parentage was noted by Bourneville¹ in 62 per cent. of a series of 1000 idiots examined by him; by Marro² in 46 per cent. of criminals; by Penta³ in 30 per cent. of criminals; in the Swiss prisons⁴ for juvenile offenders in over 45 per cent. of the inmates; by Mme Tarnowsky¹ in 82 per cent. of Russian prostitutes.

To observations of this kind it has been objected, and with some justice, that, as parental drunkenness is one of the most easily traced antecedents, it tends to figure disproportionately amongst the causes assigned in such inquiries; and in many cases it may get the credit of determining in the stock a degenerative tendency which really existed prior to it, and of which, in fact, it was merely a symptom.

To avoid this source of fallacy and to estimate more truly the importance of parental alcoholism amongst the factors which make for the deterioration of the stock, it is desirable to adopt an opposite standpoint, and to take as the end of investigation, not alcoholism in the ancestry of the degenerate, but degeneracy in the descendants of the alcoholic.

It has seemed to me that an inquiry from this point of view into the history of the offspring of the female criminal alcoholic might not only be of interest as a contribution to the study of that particular social category, but might also furnish results applicable, with certain reservations, to the general question of the influence of parental alcoholism.

For this purpose I have selected from the female population of Liverpool Prison, amongst whom habitual inebriety is very prevalent,⁵ a series of cases of chronic drunkards who have borne children; and from the history of these children, and more particularly from the indications given by the infant mortality, I have sought to illustrate the mode in which the maternal intoxication appears to have reacted on the development of the offspring.

In the selection I have endeavoured, as far as possible, to choose cases in which alcoholism occurred uncomplicated by other degenerative factors. Thus I have excluded from the series all cases in which there was a history suggestive of constitutional liability to tubercular diseases, and all cases where there was a suspicion of syphilis. I have further eliminated the subjects of markedly neurotic type who, by their specially early and violent cerebral reaction to alcohol, by their heredity, and by the presence of other psychic anomalies, were clearly to be attached to the class of the degenerate sensu strico.⁶

This process of selection avoids the more obvious sources of fallacy in such inquiries; but, of course, the general validity of the results still remains necessarily qualified by limitations due to the special characteristics and conditions of the class from which our cases are drawn.

Without discussing these characteristics in detail, it will be desirable to recall the fact that several of them are of a nature to aggravate the transmitted influence of the intoxication. Thus prison drunkards belong, for the most part, to the lowest social grade, where even moderate alcoholic indulgence implies diminution of other food supply; further, their excesses are, as a rule, persistent and intense. Another peculiarity met with in individuals of this class, and one which probably favours the transmission to the offspring of the influence of the intoxication, is the special susceptibility of their nervous system to the effects of alcohol.

In the absence of statistics establishing the relative frequency in normal subjects of the different

localisations of alcoholic lesions in the economy, it is impossible to offer a definite estimate of this susceptibility, but it is unquestionable that in the criminal, as in the insane alcoholic, the nervous manifestations of the intoxication occur with notable frequency, while non-nervous disorders are relatively rare and secondary.6

This fact is, no doubt, an expression of that peculiarity of organisation in virtue of which these individuals' intoxication tends to issue in obtrusive disorders of conduct.

In the cases comprised in our series the special nervous localisation of the poison was very marked; thirty-one of the women had suffered from one or more attacks of alcoholic delirium, while twenty-four others, without actual delirium, had occasional visual hallucinations. Suicidal impulses, disorders of cutaneous sensibility, cramp in the extremities, were noted in a considerable number of cases.

The same determination of the poison to the nervous system with comparative immunity of the other tissues, was equally notable in the case of alcoholic relatives of our patients.

Of course, with a view to the special object of our inquiry, cases were chosen in which the inception of the drink habit was either prior to or coincident with the commencement of the procreative career, at least not later than the first confinement.

The intoxicants consumed were in the form of beer, whisky, and rum; as a rule the patients drank any sort of liquor they could get.

(a) Mortality of Infants of Female Inebriates. – Amongst the 100 women of our series, twenty were able to give details of female relatives also of drunken habits, who had had children. Of these 120 female inebriates were born 600 children, of whom 263 (44.2 per cent.) lived over two years; 335 (55.8 per cent.) died under two years, or were dead-born.

(b) Infant Mortality in Sober and Drunken Branches of the same Family. – With a view to testing how far the high infant death-rate was in any way related to the maternal drunkenness, we may adduce for comparison the infant mortality in a number of sober families. Twenty-one of the women observed were able to give details regarding female relatives, sisters or daughters, of sober habits, who had contracted marriages with sober males, and had borne children. The drunken and sober families contrast as follows:

Drunken mothers (21 cases) 125 children, of whom 69 (55.2 per cent.) died under two years.

Sober mothers (28 cases) 138 children, of whom 33 (23.9 per cent.) died under two years.

Thus the death-rate amongst the children of the inebriate mothers was nearly two and a half times that amongst the infants of sober women of the same stock.

Of course it has to be borne in mind in considering these figures that the high mortality shown, in so far as it is attributable to alcoholism, is not solely the result of the direct influence of the intoxication on the organisms of mother and child, but is also in part a consequence of the malign modification of the environment due to the parental vice.

This latter unessential mode of influence varies in its gravity according to the normal milieu of the individuals concerned, and in the class from which our cases come is at its maximum.

We cannot accordingly assign a general validity to our statistics on this point without making full allowance for the social factor.

(c) Progressive Death-rate in the Alcoholic Family. – On the other hand, within the limits of a given class, the infant death-rate may be taken as a fairly accurate index of the transmitted influence of the parental intoxication. In this way we may use it to test the force of that influence at different stages of the parental alcoholism. For that purpose we shall class the children according to the order of their birth, and we shall compare the death-rates in the different groups so obtained.

In eighty cases in our series, omitting instances of mixed paternity, the number of children reached or exceeded three.

Grouping these as we have indicated we get this result:

<table>
<thead>
<tr>
<th>Cases</th>
<th>Dead or dead-born</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st born</td>
<td>80</td>
</tr>
<tr>
<td>2nd &quot;</td>
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<td>3rd &quot;</td>
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<tr>
<td>4th &quot;</td>
<td>64</td>
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<td>5th &quot;</td>
<td>47</td>
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<td>6th &quot;</td>
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<td>7th &quot;</td>
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<td>8th &quot;</td>
<td>17</td>
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<td>9th &quot;</td>
<td>13</td>
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<tr>
<td>10th &quot;</td>
<td>8</td>
</tr>
</tbody>
</table>

The significance of this table will be better seen if we state the results in percentages. For this purpose, to secure a sufficiency of numbers, it is necessary to combine the figures of the smaller groups:

<table>
<thead>
<tr>
<th>Cases.</th>
<th>Dead and dead-born, per cent.</th>
<th>Dead-born, per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st born</td>
<td>80</td>
<td>33.7</td>
</tr>
<tr>
<td>2nd &quot;</td>
<td>80</td>
<td>50.0</td>
</tr>
<tr>
<td>3rd &quot;</td>
<td>80</td>
<td>52.6</td>
</tr>
<tr>
<td>4th and 5th born</td>
<td>111</td>
<td>65.7</td>
</tr>
<tr>
<td>6th to 10th &quot;</td>
<td>93</td>
<td>72.0</td>
</tr>
</tbody>
</table>
These figures illustrate very clearly the progressively augmenting character of the influence of the mother’s alcoholism. From that point of view it is especially noteworthy that the rate of still-births shows almost as marked a tendency to regular increase as does the death-rate amongst children born alive.

The type of alcoholic family suggested by these results – a type characterised by decrease of vitality in the successive children – is fully realised in many of our observations. For example, in one instance the three firstborn children are healthy, the fourth is of defective intelligence, the fifth is an epileptic idiot, the sixth is dead-born and, finally, the reproductive career ends with an abortion. In another case, after a first-born child surviving to adult life and a second which dies of an infectious disease in childhood, we have two infants dying of convulsions in the first few months of existence, and after these a still-born.

(d) Influence of Early Development of Drink Habit. – In confirmation of the results just cited, we find a sensibly higher infant death-rate in cases where the maternal inebriety has developed at an early period. In thirty-one of the women drinking habits were well established at least two years before the first pregnancy. Of the 118 children born of these women, seventy-four died in infancy or were dead-born, a death-rate of 62.7 per cent., as compared with a death-rate of 54.1 per cent. for the rest of the series.

(e) Influence of Sober Paternity. – In only ten cases of our series (omitting instances of mixed paternity) were the fathers of the children of sober habits. This is, of course, too small a figure on which to base any conclusions. In these ten cases (fifty-seven infants) the death-rate (57.8 per cent.) was practically the same as that of the whole series. If this result were confirmed by adequate figures it would suggest that, as regards the vitality of the offspring, the influence of maternal drunkenness is so predominant a force that the paternal factor is almost negligible. Such a conclusion would harmonise with the known facts regarding the gravity of inherited syphilis.

(f) Influence of Inebriety of Preceding Generations. – In thirty-nine of our hundred cases the parents of the women were, as far as ascertainable, of sober habits. Of these thirty-nine women were born 210 children, of whom 57.1 per cent. died in infancy or were still-born. The death-rate amongst the children born of the remaining sixty-one women – who gave a history of parental alcoholism on one or both sides – was 56.2 per cent. – that is to say, practically the same as in the infants of inebriate ancestry.

Of course, our method of selection excluded distinct manifestations of neurotic taint, and hence eliminated those cases in which parental alcoholism had exercised a serious influence. Accordingly the women of inebriate ancestry who figure in our statistics would be those who had suffered very slightly, if at all, from the action of the parental intoxication. The inference from our figures, therefore, is that, unless the fact of the drink habit were to be regarded as an evidence of hereditary influence – a purely gratuitous assumption – then their degenerative taint, if existent at all, was too feeble to exercise an appreciable effect on the death-rate of their offspring, being lost in the overwhelming importance of the direct intoxication of the maternal organism and of the embryo.

(g) Influence of Intervening Circumstances. – For obvious reasons it is possible to detect only a very small number of even the grosser and more obtrusive conditions which exercise a special intervening influence on the normal course of maternal inebriety, and tend to exaggerate or to moderate its detrimental effect. In a number of our cases, however, it was possible to trace the operation of at least two such conditions of opposite tendency, viz. on the one hand the existence of a state of drunkenness at the time of conception, on the other had enforced sobriety owing to imprisonment during a part of pregnancy.

With regard to conception in a state of drunkenness, it is a condition concerning which, of course, positive information can only be obtained in a limited number of cases. There can be but little doubt that it is an event of frequent occurrence in the class with which we are dealing, and the small number of our instances is no index to the actual importance of this factor. So far as they go, however, our observations as to this point are suggestive. In seven cases the condition was noted, and in six of these cases the children died in convulsions in the first months of life; in the seventh case the child was still-born. In four instances the child conceived in drunkenness was the firstborn, and in two of these cases subsequently born children survived to adult life. As we have seen that in the alcoholic family the earlier born child has a relatively good chance of life, these cases seem to indicate the decided influence of the factor in question. It is further to be noted that in three of the four cases this first pregnancy occurred before marriage. Possibly we should not be in error in attributing to conception in drunkenness a certain influence in the causation of the high death-rate of illegitimate children.

As to the second circumstance which I have mentioned – imprisonment during pregnancy – it is obvious that it can exercise a perceptible influence only in cases in which the incarceration extends over a considerable period of pregnancy, and occurs at a stage of the maternal career when the organic changes of alcoholism are not too far advanced. These conditions are, however, rarely united; as a rule, the graver offences which entail long imprisonment are related to a chronic alcoholism; while very rapid relapses, involving frequent short imprisonments, occur also at a late stage of the drunkard’s life, and are not, moreover, in their favourable effect at all to be compared with a single long term of seclusion.

Owing to these limitations, the determining of the reality of this influence hardly lends itself to
statistical inquiry; it is rather to be established by the
details of individual cases. In the clinical notes ap-
pended to [the original publication of] this paper
will be found a number of such cases. In one,
where drinking habits had lasted about ten years,
after four children dead-born or dying in infancy, a
fifth child survives, the mother having spent all but
the first fortnight of the pregnancy and having given
birth to the child in prison; a difference of paternity,
however, qualifies, perhaps, the value of this instance.
In another, where the drinking habit dated from the
first confinement, the first child lived, the second and
third died in infancy; the mother spent at least two
months of her next pregnancy in gaol, and the fourth
infant survived.

Similarly, after the death in infancy of the first
child, the mother serves eight short sentences in the
early part of her second pregnancy, and then a longer
sentence embracing the two last months of gestation;
she is confined before release, and the child survives
and develops healthily. On the other hand, though
the woman was in prison during the last five
months of her second pregnancy, and was confined
before the end of her sentence, the infant died of
convulsions at the age of a few months; in this
case, however, the mother’s drinking habits had com-
menced at the age of eleven years, fourteen years
previously.

(h) Frequency of Epilepsy in Surviving Children. – In
the conditions of our inquiry it was, of course, impossible
to ascertain with any approach to accuracy what
proportion of the surviving children were nervously
defective. We may, therefore, limit our attention in
this respect to the determination of the frequency of
major epilepsy in our heredo-alcoholics, as the symp-
toms of that neurosis render its recognition
practicable.

Of the children comprised in our series, 219 lived
beyond infancy, and of these nine, or 4.1 per cent.,
became epileptic. This proportion is extremely high as
compared with authoritative estimates of the fre-
cquency of epilepsy in the general mass of the popu-
lation. Thus Bruce Thompson puts the ratio of
epileptics to the population of England at less than
1 per 1000; while the very liberal calculation of Rayer
gives the proportion of 6 per 1000.

On the other hand, our ratio is lower than that
given in other published statistics of epilepsy in the
children of the alcoholic. Thus Legrain in his obser-
vations noted 12.5 per cent. of epileptics amongst
such children surviving infancy; and Demme in thirty-two surviving children of ten drunken families
found five (15.8 per cent.) cases of epilepsy.

Both these observers, however, included in their
series cases in which alcoholism was associated with
neuropathic heredity and with other degenerative
taints. It is further to be noted that a number of
the children counted in our statistics as non-epileptic
had not yet reached the age at which epilepsy most
frequently appears; some of these children may quite
probably have developed the neurosis later.

Finally, the infant death-rate noted by Legrain and
Demme (who do not specially distinguish cases of
maternal alcoholism) is very much below that in
our series; it is possible that their lower death-rate
was in part compensated by a higher ratio of degen-
eracy, including epilepsy, in the surviving children.
From this aspect the enormous infant mortality in
the class we have examined may be to some extent
a matter of advantage to the community.

(i) Mode of death. – Of the 231 cases in our series, in
which the children died under two years of age, the
mode of death in 140 cases (60.6 per cent.) was stated
to be by “convulsions,” convulsive symptoms being
also present in a number of the others who died of
the common diseases of childhood.

The term “convulsions” is, of course, used in such a
very vague and expansive fashion in assigning the
cause of death in infancy that it is not easy to
attach a definite value to these figures. It is probable,
however, that in a fair proportion of the cases the
occurrence of this symptom is to be attributed to dis-
orders of the nervous system directly due to the par-
ental intoxication. The known influence of alcoholic
parentage in the ætiology of epilepsy – to which we
have referred above – would testify in this sense.

It is noteworthy that no less than ten out of the
hundred women in our series lost one of their chil-
dren by violent deaths – through overlying in drunk-
eness, scalding, burning, injuries in drunken brawls,
&c. As an illustration of the character of the milieu
created by alcoholic parentage this is sufficiently
vivid.

Conclusions. – The observations which we have thus
briefly analysed enable us to form a fairly clear idea
of the mode in which maternal inebriety reacts upon
the offspring.

We are familiar with the fact, clearly established by
Morel, that the chronic alcoholism of one or both
parents frequently appears as the first moment in the
degenerative career of a family; that it represents a
state of artificial degradation of the organism, capable
of transmission in augmented force to the descend-
ants, and culminating in some four generations in the
extinction of the stock.

In the case of maternal inebriety we have the same
mode of action to consider, but with it, and very
much more potent, we have the continued toxic in-
fluence exercised on the developing embryo through-
out pregnancy. The brilliant researches of Fère21 in
the field of experimental teratology have sufficiently
demonstrated the gravity of this influence.

We have, further, to bear in mind the possible effect
of alcoholic excesses during lactation.

Lastly, reinforcing all these modes of influence, we
have the detrimental effects, positive and negative, of
the deterioration of the milieu as an indirect conse-
quence of the mother’s drunkenness.
Applying these considerations to the interpretation of the facts which we have noted, we may advance these propositions:

(1) Maternal inebriety is a condition peculiarly unfavourable to the vitality and to the normal development of the offspring. Its gravity in this respect is considerably greater than that of paternal alcoholism.

(2) While its influence, particularly as measured by the test of infant mortality, appears to be exercised in considerable degree indirectly through deterioration of the milieu, a large part also depends on the primary action of the poison. The reality of this latter mode of influence is evidenced by the tendency to still-births and abortions, by the high rate of epilepsy in the surviving children, by the prevalent mode of death, by the effects of modifications of the intoxication.

(3) This primary influence of alcohol is due in part to the permanent effects of the poison on the maternal organism, inducing a transmissible degenerate condition; in part to a direct toxic action on the embryo, owing to continued excesses during pregnancy and lactation.

(4) The first of these modes of primary influence is, by its nature, permanent, with a tendency to increase. The second mode, while tending also to a constant and constantly increasing operation, is susceptible of temporary augmentation or diminution.

(5) Under these combined modes of influence the normal tendency of the family with alcoholic maternity is towards a type the inverse of the syphilitic family; that is to say, the firstborn children are normal, then come more or less defective children who live beyond infancy, then children dying in infancy, then still-births, and, finally, abortions.

(6) Deviations from this type are probably due in many cases to oscillations in the intensity of the second mode of influence. Deviations originating in this fashion may be seen, for instance, in the death in infancy of the earliest born children of the family as a result of conception in drunkenness, and in the survival of late born children when the mother has been imprisoned during part of the pregnancy.

It is hardly necessary to point out in conclusion the evidence which these observations furnish as to the social gravity of female inebriety, and the social profit in its removal. In suppressing the female drunkard the community not only eliminates an element always individually useless and constantly liable to become individually noxious; it also prevents the procreation of children under the conditions most apt to render them subsequently, if they survive, a burden or a danger to society.

Notes

1 Compte-rendu de Bicêtre de l’Année 1896.
2 Quoted in Kurella, Naturgeschichte des Verbrechers, 1893.
3 Jacquet, L’Alcoolisme, Paris, 1897.
4 During the year ending March, 1898, of 7240 females committed to Walton Gaol, 6212 had been in prison previously, and of these 2290 had served upwards of twenty terms of imprisonment (Report of H.M. Commissioners of Prisons). Recidivism in local prisons practically implies habitual inebriety.
6 This nervous susceptibility which is manifested in sensibly equal degree by all levels - cerebral, bulbar, and spinal - of the nervous system is, of course, in itself no evidence of neuropathic constitution, as is, for instance, the special cerebral reaction of the degenerate (vide Magnan, op cit.) As a matter of fact, amongst prison drunkards, those whose habit can be attributed to neuropathic disposition are not many.
8 Quoted by Lombroso.
9 Dégénérescence Sociale et Alcoolisme, Paris 1895.
10 Quoted in Grotjahn, der Alkoholismus. Leipzig 1898.
12 Féré, La Famille Néuropathique, 1894.