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ALCOHOLISM

A CHAPTER IN SOCIAL PATHOLOGY

BY

W. C. SULLIVAN, M.D.

MEDICAL OFFICER IN H.M. PRISON SERVICE



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TO

SIR EVELYN RUGGLES-BRISE, K.C.B.,

Chairman of the Prison Commission,

UNDER WHOSE ENLIGHTENED ADMINISTRATION
SCIENCE AND HUMANITY HAVE BECOME THE GUIDING
PRINCIPLES OF THE ENGLISH PENAL SYSTEM,
THIS WORK IS RESPECTFULLY

DEDICATED.

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P R E F A C E

THE object of the following essay is to give, in as concise a form as is compatible with clearness and accuracy, a summary of the fundamental data of the drink question, having regard more particularly to the connection of alcoholism with industrial conditions. The predominant importance of this latter aspect of intemperance is, as a rule, very inadequately recognised in the discussion of the liquor problem in this country; and in the practical schemes that most commend themselves to the temperance reformer little, if any, account is ever taken of it. In this fact lies the *raison d'être* of the present volume, which, it need hardly be added, is designed merely to point out the omission, and has no pretension to repair it.

In dealing with so vast a subject it would obviously be impossible, without burdening the text with notes, to give exact references to all the writers whose works have been laid under contribution. In most instances, however, where statements are made on the authority of individual observers, it will be found that the source of information has been indicated sufficiently to enable it to be readily traced in the 'Bibliographie des Alkoholismus' of Abderkalden

(Berlin, 1904: Urban und Schwarzenberg), which is familiar to most students of inebriety. To that invaluable work, and to the treatises of Baer and of Grotjahn, I have to express my deep obligations. For the material embodied in the historical sketch of alcoholism I have been chiefly indebted to Bertholot's 'Histoire de Chimie,' to Cunningham's 'History of English Industry and Commerce,' and to Lecky's works. In the chapters on the physiological action of alcohol, on drunkenness, and on chronic alcoholism, the 'Psychologische Studien' of Kraepelin, Maudsley's 'Pathology of Mind,' and Lancereaux' articles in Raige-Delorme's 'Dictionnaire de Médecine' have been of special assistance. And, of course, in dealing with the social and industrial conditions of the labouring classes Mr. Charles Booth's monumental work has been constantly consulted.

For valuable advice and assistance in revising the proofs I have to thank my friend and colleague, Dr. J. H. Parker Wilson.

Finally, I have to express my special indebtedness to the Prison Commissioners, who have allowed me to make free use of the opportunities afforded by my official position. It is on the study of the human documents of alcoholism which have thus been brought within my reach that this essay is mainly based.

W. C. SULLIVAN.

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ALCOHOLISM:

A CHAPTER IN SOCIAL PATHOLOGY.

CHAPTER I.

INTRODUCTORY AND HISTORICAL.

THE word "alcoholism" is used currently in two meanings: in the narrower sense, to indicate the intoxication of the individual organism by alcohol, being then further distinguished as acute or chronic; and in a wider sense, without qualification, as a synonym of the drink question, to indicate the group of problems which depend on the prevalence of alcoholic excess in a community.

The use of a single word to subserve these two meanings, though liable at times to cause some misunderstanding, has the very decided advantage that, as the original connection of the term is with individual pathology, it keeps constantly before the mind the close relationship of the individual to the social aspects of alcoholism. And this is, in the study of the drink question, a matter of the first importance; for the beginning and the end of that

question, the causes which lead to alcoholic excess and the effects which follow from it, alike find their explanation in the state of organic function in the drinker. The origin of alcoholism is in the power that alcohol possesses of inducing certain modifications in that state; and the social conditions which lead to the various forms of excess are operative in the long run through their influence in making such modifications desirable. And, as the immediate action of alcohol on the organism thus accounts for the causation of excess, so its more remote effects, shown in the tissue changes of chronic intoxication, are the source of those morbid impulses and those degradations of function which are the essential elements in the graver social results of intemperance.

For this reason the study of alcohol and alcoholism in the individual is the proper and natural introduction to the study of alcoholism as a problem of sociology. That is the plan which it is proposed to follow in this essay. The first portion will be devoted to an analysis of the physiological action of alcohol, and more especially of its influence on mental and muscular function, and to a discussion of the acute and chronic intoxications and their influence on conduct. The facts set out in this part of the inquiry will then be taken as a guide in the second and third parts of the book, the former dealing with the social and industrial causes of alcoholism, and the latter with its relation to the different social phenomena in whose origin it plays a more or less important part.

Before entering, however, on the proper matter of our inquiry, it will be desirable to recall very briefly something of the history of the subject, and more particularly to indicate the chief phases in the gradual development by which intemperance, from being little more than an expression of individual vice, and as such mainly interesting the moral teacher, has grown to the magnitude of the grave problem which to-day confronts society in every civilised country. A very summary account of the essential facts in this evolution will form the subject of the present chapter.

Alcohol, by which ordinarily is meant ethylic alcohol, is the distinctive constituent of what are known as alcoholic drinks, and is a product of the fermentation of saccharine fluids.

As may readily be imagined from the ease with which the process of fermentation can come about in nature, the preparation of intoxicating beverages from fruit juices is practised by most savage peoples, and its knowledge was one of the earliest acquirements of the race. "The palafits or Lake Dwellings of Clairvaux and of Switzerland show that during the neolithic epoch the inhabitants of central Europe possessed already a fermented drink prepared from raspberries and from mulberries. The investigation of the palafits of Bourget (Savoie) and of various stations round the Alps proves that the use of this raspberry or mulberry wine continued during the bronze age. On the southern slopes of the Alps the palafits intermediate between the prehistoric and the protohistoric show the use of another fermented liquor, dogberry wine. Finally, a little more to the

south in the terramares of the plain of the Po, going back to the first bronze age, we ascertain the existence of the true wine of the grape" (G. de Mortillet).

Whether the vine and the art of wine-making came from East to West, or, as more recent research seems rather to indicate, travelled from West to East, they are found at a very early period in the civilisations of antiquity, associated with legends suggestive of remote and Divine origin, as in the Hellenic myth which represents the vine as a gift of Zeus to Dionysus.

In antiquity the use of wine, or of the artificial wines that replaced it where the culture of the grape was impracticable, seems to have been mainly convivial. In civilisations low in the scale of civilisation there was then, as now, a strong tendency to excess, while in societies which had reached a higher level of refinement the virtue of moderation was at all events esteemed, if it was not always practised. Drunkenness, no doubt, appears to have been neither very rare nor very strongly reprobated even in the best times of Greek civilisation; but its grosser forms were at least discouraged by tradition; the drinking of undiluted wine was accounted a barbarism, and though intoxication was often a result of the symposium, it was not its aim. And to some extent, at all events, the Romans before the decadence followed the same traditions.

The decline of the empire, however, and the dominance of the barbarians of the North brought coarser habits into vogue, and drunkenness of a bestial sort became the ideal of pleasure in wine.

Evidences of this grossness of taste are to be found in abundance in the social records of Western Europe throughout the Middle Ages; and nowhere are they met with more frequently than in the history of this country. Already at the time of the Conquest the drunken habits of the Anglo-Saxons were notorious, and the Norman invaders, though by contrast they gained a reputation for relative sobriety, do not appear, if we may judge from the references of contemporary critics in the twelfth and thirteenth centuries, to have lagged very far behind the subject race in Bacchanalian prowess.

But although in the writers of this time, both in England and elsewhere, we read very often of Gargantuan excesses, and may even in isolated cases be able to recognise descriptions of alcoholic disease, it appears clear that on the whole, at all events amongst the masses of the population, mediæval drinking, as would accord with its purely convivial origin, must have been essentially of an intermittent and occasional character.

And to this we may perhaps attribute, at least in part, the fact that despite the frequent and vehement rebukes which it drew from the moralists and religious writers of the period, this general intemperance did not apparently lead to any restrictive or penal measures. It is true, of course, that in a relatively rudimentary state of society and with a low standard of manners we should hardly look for any elaborate legislation to promote sobriety; but it is, nevertheless, highly probable that had there been any wide development of alcoholism among the common people,

such as we meet with later in history, it would have been quickly recognised as an evil calling for legal repression.

We may, accordingly, conclude with a fair measure of assurance that in this country up to the time of the Tudors occasional drunkenness was the main part of intemperance, and that the habitual use of intoxicants as an aid in labour, which is the chief factor in modern alcoholism, had not yet come into vogue; or, as we may express it by the aid of two terms, which are to some extent self-explanatory, and which, so far as they need definition, we shall have to discuss in detail later on, we may say that mediæval drinking was purely convivial, and not industrial.

It was not, in fact, until the break up of feudalism, and the reorganisation of society on the capitalistic basis, that the necessary conditions for this graver form of intemperance came into being.

And it so happened that those latter changes coincided with an event which may very well have contributed to bring into prominence the attractions of alcohol as an industrial stimulant. This was the vulgarisation of the process of distilling spirits, which the Arabs, probably in the thirteenth century, discovered by applying to wine the methods and apparatus of the Græco-Egyptian alchemists. The striking properties of the aqua ardens led at once to enthusiastic views of its value as a drug: Arnold, of Villanuova, in his treatise 'de Conservanda Juventute' (ca. 1309) hails it metaphorically as the aqua vitæ or elixir of life.

Its preparation soon ceased to be a secret of the laboratory ; and by the end of the fifteenth century the manufacture of brandy had become an important branch of industry in the wine countries. In the following century improvements in the technical methods, and more particularly the utilisation of fermented grain as a source of alcohol—a discovery of the German Libavius—caused a rapid extension of the trade ; and as spirits could now be produced at a cost that brought them within the reach of the common people, their employment as a stimulant in labour quickly came into vogue. In the middle of the fifteenth century, indeed, brandy was supplied for this purpose to the workers in the Hungarian mines ; and some years later we hear of its distribution to the English troops serving in the Low Countries.

This latter fact is of special interest from our present point of view ; for it is to the drinking tradition brought home by these soldiers that Camden attributes the growth of intemperance which was a prominent characteristic of the closing years of the sixteenth and the early part of the seventeenth century in England. Presumably, however, their example, if it had any real influence, must have acted mainly as a stimulus to the national beer-drinking, for it seems improbable that they introduced any extensive use of spirits ; English distilleries, according to Lecky, were insignificant until the time of the Revolution, and French brandies were, of course, too highly priced for popular consumption. In any case, however, it is unnecessary to assume that

this extraneous influence had anything like the importance which Camden assigns to it ; it seems much more likely that the increase of intemperance to which he refers was connected with the natural growth of industrial drinking consequent on the new economic conditions which, as contemporary legislation shows us, were emerging at this time. Already, earlier in the century, as we learn from an enactment of 1555, the weaving industry was passing into the capitalistic phase, and complaints were being made of evil clothiers "engrossing the looms into their hands and possession, and letting them out at such exorbitant rents that the poor artificers are not able to maintain themselves." And in other trades the same transforming influences were at work.

These signs of the coming of the modern industrial system were accompanied also by a very significant change in the legal attitude towards intemperance, which was now treated for the first time as a serious social evil. The Licensing Law of Edward VI (1551), ushering in the long series of similar enactments which stretches down to our own day, was designed, according to its preamble, to remove "the intolerable hurts and troubles to the Commonwealth of this realm which do daily grow and increase through such abuses and disorders as are had and used in common ale-houses and . . . tippling houses." We know, however, that convivial drunkenness was a fairly common trait in the manners of the people long before this date ; and that though it was often severely censured by the moralists, it had not been found necessary to make it the object of restrictive

legislation in an age that was by no means chary of interference with liberty. It seems reasonable, therefore, to suspect that the new attitude betokened by this and other subsequent laws must have been determined by some considerable change in the circumstances or the character of the national intemperance, whereby its possibilities as a source of danger to the community were either increased or at all events rendered more conspicuous. And such a change might naturally be looked for in the growth of the labouring class—whose discontents are so prominent a feature in the history of the sixteenth century; the conditions under which this class lived were of a kind peculiarly apt, on the one hand, to further the substitution of industrial drinking for pure convivial excess; and, on the other, to aggravate the more obvious consequences, direct and indirect, of the increasing intemperance. And the subsequent course of events fully confirms this view. Thus throughout the seventeenth century, with the development and extension of the capitalistic system, the evidences of a widespread alcoholism become increasingly frequent and pronounced. And the industrial origin of this growing intemperance is strikingly indicated by the fact that the classes of the population in which the habits of excess reached their highest degree were exactly, as at the present time, the unskilled labourers of the sea-ports. The worst offenders, for instance, in the way of drunkenness and disorderly conduct dealt with by the summary jurisdiction of the Commissioners of Revenue under the Commonwealth were the Thames watermen

and the porters and carmen of the quays, whose representatives to-day are the class most addicted to alcoholism in the labouring population of London. The practice of industrial drinking was not, however, confined to the manual workers, for even the Puritan divines of the time were said to assign "the great pains they were to take or had taken in preaching" as an excuse for their liberal potations in the vestry.

Towards the end of this century a further impulse was given to the national intemperance by the liquor policy of the Government of the Whig Revolution, which made distillation practically free, and so led to the partial substitution of spirits for ale as the ordinary beverage of the people. This change was followed by an enormous increase of alcoholism; and in the first half of the eighteenth century the results of intemperance, in disease, crime, and pauperism, were appallingly evident in London and in smaller towns. According to Smollett's well-known description, the gin-shops in the Metropolis hung out painted boards inviting people to get drunk for a penny, and dead drunk for twopence, and offering them straw for nothing. There were computed to be 20,000 of these shops within the Bills of Mortality; and it was said that 100,000 persons in London lived on practically nothing but liquor.

It seems probable, however, that the intemperance of this period, though owing its wild excesses to the special opportunities offered by the free trade in spirits, was essentially no more than an aggravation of a regular practice of industrial drinking. This may be inferred from the fact that its evil

effects were chiefly observed in the proletariat of the towns. The petition of the Middlesex magistrates, for example, in support of the Gin Act of 1736 expressly singles out journeymen and apprentices as the classes particularly addicted to this sort of excess.

And from other references in contemporary writers it is sufficiently clear that even at that early stage of the modern industrial system the use of alcohol, whether in the form of beer or spirits, as a stimulant for muscular work, was firmly established. Franklin's account, for instance, of the habits of the London printers about 1724 is a perfect epitome of the theory and practice of industrial drinking (*vide* Chap. VI, p. 102).

On the essential causes of this form of alcoholism none of the many changes in liquor taxation or in the Licensing Laws, which were made in the course of the century, could be expected to have very much effect. The worst evils of the earlier Hanoverian period were, it is true, abated in a considerable degree by the legislation of the Pelham ministry, and the overt intemperance of the country was doubtless thereby brought back to something nearer its old level; but, despite this improvement in manners, the tradition of industrial drinking, in which lay the danger of the future, persisted unchanged, and its fostering conditions continued to develop.

Up to this period, however, these conditions were absolutely and relatively very limited in their force and in their extension. In 1740 the population of the whole country was only a little over 6,000,000,

and it had reached this figure at a comparatively slow rate of progress. The people were for the most part engaged in rural occupations, and the chief industries were mainly domestic in character and primitive in method. Roads were bad, canals did not exist, industrialism was still in its infancy.

The second half of the century saw a total transformation of this state of things. A rapid succession of discoveries in science and industry revolutionised the conditions of work. Machinery drove out manual skill, and around the centres of motor power grew up big manufacturing towns, where the workers were gathered into factories for the long hours of their monotonous labour, and herded for the rest of the time in vile slums to sleep, feed, and procreate. By the end of the Napoleonic wars the population had risen under these conditions to over 10,000,000; in 1821 it amounted to 14,300,000. In the large centres of industry in the north, and in the great seaports of the north-west the increase was enormous.

This development of the factory system, reinforced by the conditions of slum life, naturally brought about a rapid extension of industrial drinking, which was the more serious in its results in that it affected both sexes and all ages. Of its character and degree we find ample evidence in the first half of the last century. Thus Dr. Kay, writing of the state of the cotton operatives in Manchester in 1832, after referring to their bad and insufficient diet, in which potatoes formed a large element, adds that it was a frequent practice for these workers to use spirits in tea as a stimulant during the hours of labour. And

another observer at about the same date, Mr. R. Gregg, describing this class, states that "the pernicious practice of mixing a large proportion of spirits in every cup they take prevails to an inconceivable extent among the manufacturing population at every age and in both sexes." And he adds that opium was also largely used as a stimulant in the same conditions. The overworked and brutally used children in the factories adopted the same habits, and it was said that gin was dealt out to them at the drinking shops in special measures suited to their tender years.

With this abuse of alcohol as an industrial stimulant there went, of course, a corresponding development of convivial excess, and such leisure as the brutalised labourer enjoyed he spent, not unnaturally, in getting drunk as often and as profoundly as his means would allow him.

It is from this time that we may date the full growth of the tradition of industrial drinking amongst the English working classes, which, as we shall see later in this essay, is still dominant in most of the forms of skilled and unskilled labour at the present day. And here, accordingly, on the threshold of our own times, we may bring to a close this brief review of the history of the drink question in England. The social and economic changes which have since occurred, numerous and far-reaching as they doubtless are, have not altered the fundamental factors of the problem with which we have to deal. The circumstances of the manual worker are, it is true, vastly better in our time than in the palmy days of

the industrial revolution, and his alcoholic tendencies have no doubt shown some corresponding modification. The higher wages, the cheaper food, the shorter hours of work under better sanitary conditions, the restrictions on female and juvenile labour, the increased stringency of the Employers' Liability Acts, and other influences of the same kind, which have wrought so marked an improvement in the status of the working classes, have necessarily weakened in some measure the forces that make for industrial alcoholism.

In their essential character, however, these forces have undergone but little change. The drinking habits created by their more vigorous operation in the past can still find a sanction for their persistence in the attenuated activity of the same causes in the present. And it is, in fact, as we hope to show in the course of this inquiry, through the constant influence of these causes in keeping alive the drinking traditions that industrial alcoholism has maintained its hold on this country, and that despite the general progress in manners and in national prosperity, despite the efforts of legislation and of moral and religious enthusiasm, the national intemperance is still in the position of a grave and urgent social problem.

CHAPTER II.

THE PHYSIOLOGICAL ACTION OF ALCOHOL.

ETHYLIC alcohol is the essential constituent of all the alcoholic beverages, and for our present purposes may be regarded as the sole important agent in the production of their immediate and remote effects on the organism.

Of course, in the various forms of liquor this alcohol is associated with numerous other bodies, many of which have distinctive modes of action; but for the most part the proportions in which these bodies are present are so small that their influence may be treated as practically negligible. There are, it is true, some exceptions to this general rule; it is notorious, for example, that the deleterious effects of absinthe are due even more to the convulsive poison of the essential oil of wormwood than to the alcohol which is its vehicle; and a similar remark would apply to other *apéritifs*, such as vermouth and bitter. Again, when the rectification of trade spirit has been imperfectly carried out, it is quite possible that the amount of the heavier alcohols which remain may be so large as to modify considerably the type of the intoxication.

Under existing circumstances, however, at all events in this country, such exceptional cases are relatively few, so that in a general survey of the question they may be left out of account without risk of material error, and it may be assumed that we have to do with ethylic alcohol alone, and that the only difference between the several alcoholic beverages is a difference in dilution. It is for the sake of the ethylic alcohol which they contain that these beverages are taken, and all the main effects of their use and abuse can be got from ethylic alcohol in its purest form. There are only a few points on which this assumption needs to be qualified, and these it will be more convenient to discuss incidentally later on.

The present chapter, therefore, will deal exclusively with the action of ethylic alcohol, and more particularly with its influence on nervous and muscular function, and, in relation to the latter, with its value as a food. Its effects on other functions are, from our point of view, of subordinate interest, and concern us only or chiefly in so far as they are connected with and enter into its action on the brain. Its stimulation of the heart, for instance, is important, not so much in itself, as because it is one element in the general exaltation of motor and secretory function which alcohol produces, and which is, indeed, the physical counterpart of the characteristic sense of well-being that is the most notable and familiar effect of drinking. And this applies also in a large measure to its influence in promoting the muscular and secretory activity of

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the stomach, though in this case the direct value that alcohol thereby acquires as a condiment also plays an important *rôle* in determining its habitual use by the classes of the population who have to live mainly on unpalatable or insufficient food. Broadly speaking, however, it is only with its action on the nervous system and with its influence on volitional muscular work that we need occupy ourselves when considering the physiological basis of alcoholism.

On these questions a good deal of light has been thrown within recent years by the application to their study of exact experimental methods, and the new material so acquired will form the chief part of the data for this discussion. Of course, it will be readily understood that the conclusions to which this sort of evidence can lead are for the most part merely probable. The questions at issue are of such complexity that it is very difficult to devise experiments for their solution that will not be open to many and grave fallacies; the effects of slight differences in technique or of peculiarities in individual reaction are likely to show on an exaggerated scale, and hence to produce discordant results; and even when the results are agreed on their interpretation will still depend on physiological principles regarding which the sharpest and most radical differences of opinion prevail.

None the less, when due allowance has been made for these difficulties, the experimental evidence to which we refer does permit us to formulate fairly positive views on some points; on others it enables us

at least to establish with a moderate degree of assurance the balance of probabilities ; while even on the most obscure questions it is of considerable value in helping to define the issues. And its importance in all these ways will, no doubt, be decidedly increased when wider experience shall have fixed the best technical methods, and when, above all, by the multiplication of experiments, we are enabled to form some idea of the range and character of individual variation in susceptibility to alcohol. This is a point of the first importance, for nothing has been better established by these investigations—in agreement, indeed, with common experience—than the fact that the amount, direction, and duration of the influence that alcohol exerts on the several functions differs enormously in different persons. For that reason we cannot be very sure of our position until further research has shown us, not only what is beyond doubt the dominant type of reaction to the drug in respect of each mode of function, but also what is the relative importance numerically of the different groups which exhibit a departure from that type. Pending the fulfilment of these conditions, which will obviously demand much time and labour, we have to bear in mind that many of our conclusions must retain something of a provisional character.

Having said this much by way of preface, we may now pass to the consideration of the experimental evidence, and we shall first deal with that which relates to the action of alcohol on the simple mental processes. This question has been investigated more particularly by Professor Kraepelin and his pupils of

the Heidelberg school, and their results have very generally been confirmed by observers elsewhere. The methods employed in these experiments are those customary in psycho-physical research, and are fully described in the special treatises of experimental psychology. Essentially the mode of procedure consists in ascertaining the speed and character of various mental exercises, and then observing how far they are modified by the administration to the subject under examination of various doses of alcohol. The operations include the measurement of reaction time—*i. e.* the length of time between the application of a sensory stimulus to the individual under examination and his reply by a preconcerted signal; the estimation of the acuteness of perception, as shown, for instance, by the recognition of letters, syllables, or figures presented to the sight for very brief periods of time; the determination of the rapidity and accuracy displayed in such exercises as reading aloud, adding rows of figures, committing figures to memory, and so forth.

By these researches certain facts of alcoholic action seem to have been clearly established, which we may summarise in the following propositions:

(1) Below a minimal dose, which varies within wide limits in different individuals, and possibly to some extent in the same individual under different circumstances, alcohol has no effect on psychic processes.

(2) Above this minimal dose its effects vary in kind and degree with the amount of alcohol taken.

(3) The most constant effect of moderate doses is a stimulation of psycho-motor function, so that voluntary movements are easier and quicker (Kraepelin, Rüdin). For this reason simple reaction-time is generally shortened, the greater rapidity of its motor part overbalancing the prolongation of its sensory period; motor images predominate in the association of ideas, so that words are connected by similarity of speech processes rather than by similarity of sense; and exercises, such as reading and writing, are done with increased speed. In resistant subjects this psycho-motor stimulation may be the only perceptible effect after even fairly large doses of alcohol. Rüdin, for instance, in four individuals who served as subjects for his experiments, found one on whom a dose equivalent to 90–100 grammes of absolute alcohol (as much as would be contained in four pints of ale) produced no result beyond a quickening of the motor speech associations.

(4) This psycho-motor excitation lasts only a short time, and is succeeded by depression. Kraepelin with doses of 50 grms. absolute alcohol found that the phase of stimulation lasted about half an hour. With larger doses the duration of the phase is shorter, the paralytic effect of the drug showing itself earlier. On the other hand, at all events in some instances, small doses seem capable of causing stimulation with no appreciable degree of subsequent depression.

(5) The motor stimulation is directly perceived by the individual, and is felt as a sense of increased energy. This feeling is the origin of the common belief in the strengthening action of alcohol, and is

thus one of the chief causes of the general use of alcoholic liquors.

(6) On sensory functions the action of alcohol is depressant. This has been shown clearly with regard to simple tactile, visual, and auditory impressions and is apparent also in the case of muscular sensations in the diminished accuracy of fine motor adjustments.

(7) The intellectual processes which can be tested show a similar reaction. Very moderate doses of alcohol decrease speed and accuracy in adding figures, in committing numbers to memory, in logically associating ideas, and so forth.

(8) The depression of sensory and intellectual function seems generally to last a considerable time, probably as long as twenty-four hours in some individuals (Wlassek, Rüdín). In more resistant subjects it is much briefer (Partridge). In cases where the effect of the drug is fairly persistent there is, with daily doses, a summation of the depressant action, which will then be perceptible even some days after its use has been discontinued.

(9) The subjects are not conscious of the impairment of sensation and reasoning, but, on the contrary, believe that their mental keenness is increased.

(10) Owing to the dulling of sensation, disagreeable impressions are less felt, and this fact contributes, with the stimulation of motor and secretory activity, to give rise to that feeling of well-being which is the most signal and constant effect of alcohol.

The excitant action of alcohol on psycho-motor function, which is one of the salient results brought out by the investigations we have just discussed, is,

of course, one, and, as we shall see later on, probably the most important element in its influence on muscular work. This influence, however, is so complex, and the several modes of alcoholic action that go to form it are so intimately connected, that it is more convenient to deal with the question as a whole, and in most of the experimental work on the matter this method has, in fact, been followed.

The bulk of the work to which we refer has been done with one of the many forms of ergograph, an instrument invented by Mosso for the study of fatigue. In this instrument the arm and hand of the subject under examination are encased in a rigid frame, so that no portion of the limb can be moved except the middle finger, to which a weight is suspended. A pen attached to the tip of the finger is put in contact with a recording cylinder revolving at a regular known speed, and the subject contracts the finger at a fixed rhythm, each contraction being accordingly registered on the cylinder by a corresponding elevation in the tracing. It is found that when the contractions succeed one another at a shorter interval than ten seconds they decrease regularly in range until a point of exhaustion is reached where the finger ceases altogether to move; a complete tracing of this kind is termed an "ergogram."

Now, the characters of this ergographic tracing, which are fairly constant in the same individual under the same conditions, show certain modifications when these conditions are altered, as they are notably by the administration of various drugs. By giving, therefore, various doses of alcohol and observing the

resulting alterations in the amount and character of the work done as shown in the ergographic tracing, it is possible to gain some notion of the extent and manner in which the drug influences muscular effort. Of course, as in other psycho-physical inquiries, diversity of method and the personal equation of the subject act as disturbing factors, so that on several points there are conflicts of evidence which it is difficult to reconcile. On the main facts, however, there is a very fair measure of agreement, or, at all events, a sufficient preponderance of testimony to warrant a definite conclusion.

This will be clearly seen in the following summary of the more important investigations dealing with the matter :

One of the first of these inquiries was carried out by Lombard Warren, who found that a dose of 32 c.c. of whisky, or its alcoholic equivalent in the form of claret, increased the power to do volitional muscular work. This effect came on within a few minutes, lasted sometimes as long as an hour and a half, and was not followed by any depression. When the electric current was substituted for the stimulus of volition there was no gain in energy with alcohol.

A more detailed investigation was made by Frey, who arrived at the conclusion that the action of alcohol differed according to the condition of the muscle, that it had a depressing effect on unfatigued muscle, lowering considerably the force of the individual contractions, while it stimulated fatigued muscle, as was shown by its prolonging the duration of the working period. These results Frey explained

by supposing that in unfatigued muscle alcohol acted purely by depressing the peripheral excitability of the nervous system, while in the case of fatigued muscle it was used up as food, its combustion furnishing the muscle with fresh energy. In Frey's experiments only very small quantities of alcohol were used, 5 to 10 grms. of absolute alcohol diluted with water, or equivalent amounts of beer or wine. Such a dose, it will be noted, would correspond to very much less than half a pint of beer of the strength of 4 per cent., or to a little more than half a nip of rum or spirits. Frey did not find that the stimulant effect was succeeded by any reactive weakness.

In a later paper on the question, published in reply to some adverse criticisms of his earlier work, Frey to some extent abandons his first view as to the different effect of alcohol on fatigued and unfatigued muscle, but adheres to his position that the stimulant action of alcohol is not followed by any phase of depression. He asserts further that the favourable effect on working capacity persists for as long as two or three hours.

One of the critics of Frey's first paper, Destrée, repeating his experiments with similar doses, found that alcohol increased the power of muscular work whether the muscle was fatigued or not, but that the stimulation was very brief, and was succeeded by a fall in working capacity which far outbalanced the initial gain.

Rossi observed that 80 grms. of rum caused an increase in energy followed by a decrease. With

smaller doses—25 grms.—this secondary decrease did not always occur.

In Tavernari's experiments, made on two individuals who were first fatigued by walking exercise before the ergographic *séance*, it appeared that 50 grms. of Marsala (equivalent to 10 grms. of absolute alcohol) was followed by a distinct gain in working capacity, shown chiefly in an increase in the number of contractions. In one of the subjects 400 grms. of Graz beer (equal to 18 or 20 grms. of alcohol) had practically the same effect as the Marsala; in the other individual it produced hardly any influence on the curve. Tavernari found, in contradiction with Warren and most other observers, that the stimulant effect of alcohol was equally distinct with electrical excitation.

Scheffer in his experiments did not take complete ergographic curves, but measured the amount of work done in successive series, each consisting of a definite number of contractions. He found that 10 c.c. of absolute alcohol diluted with water increased the working capacity if given within fifteen minutes of commencing work, but caused a decrease if administered earlier. This result he referred to the onset of a secondary paralysing action of the drug. Scheffer further investigated the effect of alcohol on muscle in the frog deprived of its brain, and found that small doses caused an increase in energy as long as the muscle nerve-endings were intact, but that this effect disappeared when they were paralysed with curare.

Partridge experimented on himself and on another

subject with an improvised ergograph, using a method similar to that of Scheffer, viz. measurement of the work done in series each made up of a fixed number of contractions. He found that in his own case 45 grms. of an alcohol of 33·3 per cent. strength had practically no effect, and that 90 grms. caused an increase in energy during the first half-hour of work, followed by a decrease in the succeeding half-hour. On his companion 60 grms. had a purely depressing effect, causing a decided fall in the output of work.

Oseretzkowsky and Kraepelin, whose study of the question is the most careful and exhaustive that has yet appeared, have cleared up some of the points left in obscurity in the earlier investigations. They found that with doses ranging from 15 to 50 grms. of alcohol there was a notable gain in working capacity, which on analysis was seen to depend almost entirely on an increase in the number of contractions in the ergogram. The force of the individual contractions, on the other hand, showed at most a slight initial rise followed by a regular fall. The stimulant effect thus apparent in the prolongation of the working period lasted about forty minutes, and was then succeeded by a phase of depression.

Féré in several series of experiments obtained similar results—that is to say, a decided increase in working capacity, lasting a short time and followed by a decrease in energy which more than compensated the initial gain. And he further found that this stimulant action was distinctly greater, and

the subsequent depression less, when the alcohol, instead of being swallowed, was merely retained in the mouth during the experiment. From this he inferred that the increase in energy was due to a reflex stimulation through the nerves of taste.

It is clear, then, from the foregoing review, that the majority of observers are agreed that alcohol in small doses increases the output of muscular work as measured by the ergograph, and further that it does this mainly by prolonging the working period. This effect is evidently due to the influence of the nervous system, since, according to nearly all the experiments (except Tavernari's), it is not perceptible when the muscles are excited by electricity. While the number of contractions is thus increased by alcohol, the force of the individual contraction is either unaffected or is at most momentarily increased.

As to the time during which the stimulant effect of the drug is perceptible, it seems generally admitted that, though probably varying within pretty wide limits, it is in all cases relatively short. And it may also be taken as clearly established by the greater weight of evidence that the phase of stimulation is usually followed by a period of depression which more than counterbalances the initial gain in energy.

As to the interpretation of this stimulant effect there is some difference of opinion. Kraepelin apparently regards it as a result of a direct excitation of the psycho-motor cells of the brain; others, on the contrary, attribute it to a lowering of the activity of the higher centres which ordinarily control the motor area, and see in it, therefore, merely

an initial stage of the essentially paralysing action of alcohol; while, as we pointed out above, the experiments of Féré suggest that, though of the nature of a true stimulation, it depends, not on the direct action of the drug on the brain cells, but on its reflex influence through the sensory nerves of the mouth and stomach.

In ordinary work, of course, in addition to the amount of muscular effort, we have to take into consideration the sensory element involved in the varying degree of accuracy of perception and movement that the particular task may demand; and as we have seen that these sensory functions are generally depressed by alcohol, it is obvious that such advantage as may be derived from the motor stimulation will in these circumstances be proportionately discounted. Experiments to test the effect of alcohol from this practical point of view have been made, the most remarkable being those carried out by Aschaffenburg on a group of four composers working at their trade. The working time on four successive days of the experiment was divided into quarter-hour periods, and at the close of the first of these periods on the second and fourth days 200 grms. of a Greek wine containing about 18 per cent. of alcohol were administered. On the other days no alcohol was taken. On contrasting the work actually done with the amount which, allowing for the probable gain through practice, it was calculated ought to have been done, it was found that in all cases alcohol seemed to have lessened the performance—that is to say that the interference with the sensory element in this skilled

work was sufficient to outweigh the stimulant action on the motor side. There was a good deal of difference in the effect on the several men, the actual loss in work appearing rather more evident in one individual whose drinking was ordinarily confined to occasional bouts of convivial excess. This latter detail is of some interest, for it illustrates a point to which we shall have occasion to refer later on, namely the bearing of the individual reaction to alcohol on the custom of industrial drinking. We shall find that in trades where that custom is in vogue there are very usually a certain number of workmen who, in contrast with their fellows, are pure convivial drinkers, and never try to work on liquor. And on inquiry it is generally ascertained that, like this compositor and like the second subject in Partridge's experiments, these men are exceptional in their reaction to alcohol, and derive no stimulation from it, or are so unfavourably affected in their sensory functions that they find its net influence decidedly detrimental.

So far we have dealt almost entirely with the effect of alcohol on the nervous element in muscular work, and have only referred incidentally to its direct relation to muscular energy. This latter question in a great measure belongs to the larger problem of the food value of alcohol, and can, therefore, hardly be regarded as admitting of any final answer in the present state of physiological knowledge. All that the available facts enable us to do is to limit the number of possible solutions, and perhaps to indicate, though rather uncertainly, their relative degrees of probability.

Of these facts the best ascertained is that alcohol, when taken in moderate doses, is entirely consumed in the body. In the latest investigation of this point, that carried out by Atwater, it was found that 98 per cent. of the amount administered could be so accounted for. It is only when an excessive quantity is taken that any portion of it passes out of the body unchanged and can be recovered from the excretions.

From the fact that it is oxidised in the system, it has sometimes been rather hastily inferred that alcohol, quite apart from the question whether it is also a poison, must certainly be a food, and more particularly a source of muscular energy. Such a conclusion, however, is not by any means of certain validity. It is, on the contrary, quite conceivable that a substance, though readily oxidisable in the body, might lack other essential attributes of a true food, and that its potential energy might not be available for muscular function. And there is, in fact, a good deal of experimental evidence which suggests that such substances do exist, and further, that alcohol is one of them. It has been shown, for instance, that malic and other fruit acids, which are absorbed as such into the circulation, and are oxidised in the economy without being integrated in the living tissues, though they yield heat, fail to replace the food stuffs which are so assimilated by the organism, and that when they are substituted for such food stuffs they do not maintain the body weight. These substances are what, in the language of one school of physiology, are termed pure thermogens, as dis-

tinguished from true foods or bio-thermogens, such as fats, carbohydrates, and proteids, which become incorporated in the anatomical elements and supply their vital needs.

Now, alcohol seems to occupy a similar position to that of the pure thermogens. Except to an inappreciable extent—about one tenth according to the experiments of Lallemand and Perrin—it does not become fixed in the tissues, but circulates in the blood. And it appears also to have the characteristic of the pure thermogens that, unlike fats and carbohydrates, it does not protect proteid—that is to say that when it is substituted in equivalent amount for part of the carbohydrate in the ordinary diet, there is an increase in the nitrogenous waste, indicating the using up of some of the proteid of the body. On this point, however, the evidence is not entirely accordant. On the one hand the careful researches of Miura, which are in essential agreement with the earlier results of Stammreich, would support the view expressed above; they showed that when a portion of the carbohydrate in the regular diet was replaced by an isodynamic quantity of alcohol—a quantity, that is to say, of equivalent combustion value—there was an increase of nitrogenous excretion which was even greater than that which ensued when the carbohydrate was simply reduced to the same extent without any addition of alcohol. This latter result Miura attributed to the direct disintegrating influence of alcohol as a protoplasmic poison. On the other hand, the experiments of Atwater show that in some cases, though not invariably, there is no increase in nitrogenous

waste on a partially alcoholic diet, and since this occurs when the subject of the experiment is doing hard work, as well as when he is at rest, Atwater believes that under the circumstances it is probable that the alcohol has really served as a food, and has furnished the energy for muscular effort. In this connection, however, we have to remember that such an absence of nitrogenous waste, when it does occur, may be due, not to the alcohol replacing the carbohydrate as food, but to the narcotic influence which the drug exercises on some of the organic activities. The probability of this being the true explanation is strengthened by the fact, to which Kassowitz has drawn attention, that a similar effect can be produced by the administration of other narcotics, such as opium, in quantities so minute—*e. g.* a milligramme of morphia—that the value of their combustion cannot possibly be a factor in the result.

Moreover, the presumption that alcohol is a pure thermogen and that it does not serve as a source of muscular energy is supported by evidence of another sort which has been brought forward by Chauveau. This observer proceeds from the fact, obvious to anyone who looks at their chemical formulæ, that the combustion of alcohol (C_2H_6O), as compared with that of an ordinary carbohydrate such as starch ($C_{12}(H_2O)_{10}$), requires more oxygen, or, in other words, yields a lower proportion of carbonic acid (CO_2) to the oxygen absorbed. Hence when part of the carbohydrate in the diet of a working animal is replaced by an equivalent amount of alcohol, if the latter body is really utilised for the supply of

muscular energy, it is to be anticipated that there will be a corresponding modification in the respiratory exchanges, and that the ratio of expired carbonic acid to inspired oxygen will be less than before. Chauveau experimented in this way with a dog, substituting alcohol for one third of its usual carbohydrate diet, and found that there was no such change in the respiratory quotient during the animal's working hours; he inferred accordingly that the alcohol did not furnish any portion of the muscular energy expended.

And certain researches with the ergograph in man point in the same direction. Schumberg, for instance, has investigated the effect of alcohol on muscular effort when the subject by hard work at the lathe had previously used up much of the nutritive material in his blood. He found that under these circumstances alcohol failed to produce any increase in energy, while in the same individual when unfatigued it caused, as in the experiments of other observers, a notable rise in the output of work. From this he concluded that its action was merely that of a nervous excitant, that it facilitated the discharge of the muscular energy derived from the food stuffs proper, but that it was itself incapable of furnishing such energy by its oxidation.

On the whole, then, we may say that, so far as any opinion can be expressed on a matter of such obscurity, the weight of evidence seems to favour the theory that alcohol does not serve as a source of muscular energy, and that its use as a stimulant for work depends altogether on its excitant action on

the psycho-motor centres, and has no relation to its food value. If this theory be correct it may help to explain the tendency, to which we shall refer later on, to select beer rather than spirits as the chief form of liquor in industrial drinking; the considerable quantity of carbohydrates (averaging about 4 per cent. in ordinary ale) in the former beverage would on this assumption give it a manifest advantage in a diet for muscular work.

If, on the other hand, the alternative view be the true one, and if alcohol is in the full sense a food stuff, and, therefore, capable of replacing other food stuffs to some extent in a labouring diet, it is evident that its attractions would be considerably enhanced thereby, particularly for those classes of workers whose habitual fare is largely constituted of bulky and indigestible carbohydrates. For if it is such a food its energy value should be exceptionally high, being, for instance, much above that of starch or sugar. Thus the combustion of one gramme of absolute alcohol will furnish 6980 calories, the calorie or centigrade heat-unit being, it will be recalled, the amount of energy required to raise the temperature of one gramme of water one degree. A gramme of water-free bread, on the other hand, will yield only 4351 calories and a gramme of water-free potato 4234 calories. Assuming, therefore, for alcohol an energy value corresponding to its heat equivalent, and expressing the relation in English measures and English units of force, we should conclude that the labourer whose daily allowance of "four ale" contains about 5 oz. of absolute alcohol

will derive from the alcohol alone, and without taking account of the carbohydrates with it, an energy of 1355 foot tons, or about as much as he would get from $\frac{1}{2}$ lb. of water-free bread; so that his beer will allow him to reduce his intake of ordinary bread by nearly 1 lb., giving him in lieu a beverage agreeable to the taste, acting as a condiment, and with its nutritive matter in a readily assimilable form. Or, to state the matter in another way, if we take du Chaumont's estimate, which puts the amount of potential energy in the diet for an ordinary day's work at 4300 foot tons, then we see that the beer ration we have cited can furnish nearly one third of this total sum of energy. As a modification of his normally coarse and ill-cooked diet this substitution of alcohol is likely to recommend itself to the labourer as an unmixed advantage.

To conclude this chapter, we may briefly sum up the main results of our discussion of the relation of alcohol to muscular work. We have seen that in moderate doses its excitant action on the nervous system facilitates the discharge of energy, so that the working period is prolonged and the output of work is thereby increased; further, that, owing to the transitory duration of this effect and to its usual replacement by a state of lowered activity, frequent renewal of the excitant influence becomes necessary if work is to be continued. We have also noted that, at the same time that it stimulates motor function, alcohol has a sedative action on sensory function, one result of which is that it dulls the disagreeable sensations to which the excessive amount or the unpleasant

conditions of labour may give rise : it acts, in short, as an industrial anæsthetic in paradoxical association with its action as an industrial stimulant. And, finally, we have seen that it is possible, though on the whole unlikely, that in addition to possessing this influence on the nervous system—which in any case is its most important quality from this point of view—alcohol may also have the properties of a true food, and may by its decomposition in the body contribute to the supply of muscular energy.

CHAPTER III.

DRUNKENNESS.

IF, instead of the small doses whose action was discussed in the last chapter, large quantities of alcohol are taken at once or within a short period of time, a state of acute intoxication ensues which is familiar under the name of "drunkenness."

This intoxication presents itself under appearances which differ widely according to the nervous organisation of the drinker; and as these differences affect more particularly the point of most concern to us here, namely the relation of drunkenness to conduct, it will be convenient to describe separately two forms of this condition, viz. what we may call normal drunkenness, or drunkenness as it occurs in the average healthy subject, and pathological drunkenness, or the drunkenness of the nervously unstable, who exhibit a special cerebral susceptibility to the action of alcohol.

In normal drunkenness the symptoms are those of a regularly progressive paralysis of the higher brain centres. At first this is shown merely in a lessened power of control, which gives rise to a



semblance of increased mental activity, so that speech and gesture are freer, the current of ideas seems more rapid, the emotional tone is raised. Very soon, however, this condition is exaggerated into one of more obvious disorder, speech becomes incoherent, the gait is staggering, ideation becomes wild and disconnected, and the emotional instability is expressed in fatuous gaiety, in sentimental drivel, or in motiveless whimpering. In this condition there is an extreme proneness to impulsive conduct, which, as we shall see when we return to the point presently, may sometimes be of a seriously criminal sort.

The phase of apparent excitement and increased motor activity is of short duration: it disappears as the paralytic symptoms grow more pronounced, and the individual becomes "dead drunk," and falls into the profound sleep which is the normal termination of a debauch. In rare instances, where the quantity of alcohol taken has been very large, the poisoning affects the vital centres in the medulla, and the drinker dies of cardiac or respiratory paralysis.

To some extent the character of the intoxication may be modified by the form of the liquor, and more particularly by the amount and nature of the impurities which it contains. In experiments on animals, for instance, the condition of "dead drunkenness" is much more rapidly induced by impure spirit with a high proportion of amylic alcohol; and such spirit is also more liable to cause fatal poisoning. It has, in fact, been shown by Dujardin-Beaumetz and Audigé that the toxicity of the alcohols is in direct ratio to their atomicity; and since it is in the trade spirit

prepared from potatoes that the higher alcohols are found in largest quantity, this spirit when imperfectly rectified is correspondingly poisonous. And doubtless the same thing holds true of the effects of new raw spirit in man. Nor are these injurious qualities altogether absent even in fairly well rectified spirit : the experiments of Brunton and Tunnicliffe have shown that grain whiskey after rectification contains traces of such bodies as furfurol or furfuraldehyde in sufficient amount to give rise to appreciably deleterious effects.

It is further freely asserted that impure spirit is apt to produce a peculiarly dangerous and impulsive form of intoxication ; and criminal acts are often set down to the credit of specially bad whiskey on which the criminal is supposed to have got drunk. The evidence in support of this view is not, however, very strong : in most of the instances which it is sought to interpret in this way it appears much more probable that the abnormal character of the drunkenness was due, as we know to be generally the case, to a permanent or temporary instability of brain in the drinker, rendering him more susceptible to the cerebral action of alcohol. So far, at all events, as our present knowledge extends, we may venture to affirm that this latter explanation seems to cover practically all the facts, and that, under the actual conditions prevalent in this country, there is no likelihood that the impurities in the ordinary alcoholic beverages are ever of such a nature, or present in such quantity, as to produce furious drunkenness in a normally constituted drinker.

From the short account we have given of its symptoms, it will be seen that simple drunkenness is characterised by the affection in regular and fairly rapid sequence of all the levels—cerebral, bulbar, and spinal—of the nervous centres. This fact is of dominant importance in connection with that aspect of the matter which particularly engages our interest, and to the consideration of which we have now to turn, namely the criminal aptitudes related to ordinary drunkenness.

Most usually the tendency of impulsive action in this condition is towards the trivial or the ludicrous; but it may at times take on a different character, and may lead to gravely criminal conduct. The primary direction of such criminal impulsiveness is generally to acts of acquisitiveness or lust; it happens but rarely that the healthy drunkard is spontaneously suicidal or destructive, though he may, no doubt, occasionally become so as a result of some intercurrent stimulus acting on his unstable and over-irritable mood. Under any circumstances, however, in this form of drunkenness the rapidly increasing inco-ordination restricts so narrowly the possibilities of conduct that there is relatively little chance of the performance of criminal acts of any complexity. The only exception to this rule is in the case of the sexual appetite, which is stimulated in the early stages of intoxication, so that very slight impairment of control may give an outlet to the heightened impulses of lust, and may so lead to rape or assaults on women. With this reservation, we may say that the influence of simple drunkenness

on conduct, at least in so far as the primary impulses are concerned, is of comparatively slight practical importance, because these impulses are for the most part socially harmless, and because the confused and disabled state of the drinker forbids their taking shape in acts of a very complex character.

And even the irritability of mood which renders the half-drunken individual liable to exaggerated reactions of anger, and which is thus the cause of a good deal of the less serious violence connected with drunkenness, is of very short duration in the healthy carouser, who will usually sleep off the effects of his liquor in a few hours. The wise recognition of this fact, it may be recalled, was the reason for the old legal method of punishing drunkenness by putting the offender in the stocks for the space of six hours, "by which time," says Blackstone, "the statute presumes that he will have recovered his senses, and will not be liable to do mischief to his neighbours."

So much for conduct in ordinary drunkenness. An entirely different condition of things is met with when we come to consider the symptoms of intoxication in individuals whose nervous system, whether by reason of congenital defect or acquired disorder, is abnormally constituted. In such individuals—and probably in such individuals alone—there is a special susceptibility to the action of alcohol, which causes a marked predominance of those symptoms that are due to interference with the higher mental functions, while the affection of the lower brain centres and of the spinal cord is relatively inappreciable. This

abnormal reaction is shown sometimes by the occurrence after moderate doses of liquor of a condition of wild maniacal excitement, sometimes by the development of a state of prolonged dream-consciousness in which the individual may automatically go through very complex and elaborate series of acts. This latter condition, which has been very carefully studied by Dr. Crothers, is obviously much more favourable to the realisation of morbid impulses than is the more diffused disorder of simple drunkenness; and we find accordingly that it is in this phase of pathological intoxication that the graver crimes due to alcohol are usually committed. And this is the more readily to be explained because many of the conditions that create the special cerebral susceptibility to alcohol are themselves of a nature to give a morbid set to the mood, which finds expression in destructive or suicidal impulses.

This double influence—on the aptitude to automatic action and on its direction—is very clearly seen in the case of the most important of the predispositions to morbid drunkenness, namely chronic alcoholism. As that diseased condition will be fully discussed in the next chapter, it will be more convenient to reserve till then what we have further to say concerning the alcoholic dream-state. For the moment, therefore, we shall be content with a passing reference to the other disorders of brain which have a like tendency to create this morbid propensity. In the order of their numerical importance they may be ranked somewhat as follows: congenital defect, usually connected with an insane or alcoholic parentage; epilepsy;

injuries to the head; antecedent insanity; and, in a lesser degree, syphilis and certain other infectious diseases.

In a given case, as will be readily understood, several of these causes may come into play, and it very often happens that one or more of them will be found in association with some degree of chronic alcoholism, and will then appear merely to bring about an earlier development of the automatic tendency than is usual in uncomplicated cases of progressive intoxication. Under these conditions the direction of the impulses in the dream-state is apt to be very similar to that in purely alcoholic cases. And even in instances where the influence of chronic intoxication is least marked, and where the disposition to automatism seems to depend almost altogether on some other cause of instability of brain there is very frequently, as we have said, a similar tendency to those impulses that go with a depressed emotional tone—impulses, that is to say, of violence to self or others.

The main result, therefore, that we have to retain from the foregoing discussion is the important difference that exists between normal and pathological drunkenness in relation to disorders of conduct. Morbid drunkenness, we have seen, may, and frequently does, give rise to impulses which are gravely anti-social in tendency, and which, from the special character of the intoxication, are very likely to issue in completed and intricate actions. In simple drunkenness, on the other hand, the conditions, as regards both the usual direction of the impulses and

the opportunity that the intoxication allows for their realisation, are just the reverse. And for this reason, accordingly, simple drunkenness, except in connection with the sexual instinct, is rarely a cause of serious crime.

CHAPTER IV.

CHRONIC ALCOHOLISM.

THE disturbance of function connoted by the word "drunkenness," which we discussed in the last chapter, though considerable in degree, is ordinarily of brief duration, and does not long outlast the presence of the intoxicating agent in the blood and tissues. It is thus essentially different from the chronic poisoning that we have now to deal with.

In this latter condition, which has, of course, no necessary connection with drunkenness, but on the contrary may, and very often does, develop in persons who have never been drunk in the popular sense of the word, the matter of predominant importance is not the immediate effect that alcohol produces on the nervous functions, but the series of degenerative changes in the various tissues of the body that are set up by its persistent action.

These changes, to which in their totality the term "chronic alcoholism" has been applied, differ, of course, in their degree of gravity according to the intensity and duration of the alcoholic influence, and may thus vary from relatively slight modifications of the nutrition of the cell up to the total destruction

of the essential tissue elements, and from a moderate disorder of bodily and mental health to fatal disease or dementia.

The quantity of the intoxicant which is necessary as a regular dose in order to bring about these injurious effects has been diversely estimated, and does, no doubt, in reality vary within a fairly wide range in different individuals, and in the same individual under different circumstances. It has been generally assumed—and the assumption is confirmed by experience—that the limit of safety has been passed when a larger quantity is taken in twenty-four hours than can be completely oxidised in the body so that traces are found in the urine. The experiments of Anstie put this daily amount at an ounce and a half of absolute alcohol, and Parkes and Wollowicz estimated it at something between one and two ounces. Expressed in terms of the alcoholic liquors in common use in this country, this would be from one to two pints of "four ale," or from a little less than half a quarter to a quarter of rum or whiskey. These experiments were made on healthy men living under good hygienic conditions and on a liberal diet; it is likely, therefore, that the daily allowance they suggest is to be taken as a maximum, which would be excessive for persons of less robust physique or placed in less favourable circumstances. This view would be consistent with ordinary experience, which goes to show that the tolerance of alcohol may be considerably modified by the drinker's mode of life and diet: the sedentary worker, breathing an impure air and living on bad or insufficient food, suffers from

the effects of intemperate drinking sooner, and more severely, than a well-fed labourer working in the open air. And experiments on animals lead to the same conclusion. Dogs, on an alcoholic diet, have been found to develop the lesions of chronic intoxication much earlier and to succumb sooner when they fail to take a full allowance of ordinary nourishment. To some extent this result is no doubt due to the more intense local effect which alcoholic liquors are likely to produce when the digestive tract is not protected from their action by the presence of food. The rapid development of gastric catarrh as a consequence of taking spirits on an empty stomach is a notorious instance of this sort. In its turn, of course, the digestive disorder so set up tends to further impairment of nutrition, and also, through the unpleasant sensations which accompany it and which alcohol can relieve, it excites the drinker to renewed excess.

In these ways, therefore, it is evident that the immediate action of alcohol on the digestive organs is a factor of considerable account. And recent researches on the pathology of alcoholism tend to give it still greater importance; for they show some reason to suspect that the generalised disorders of the chronic intoxication are not due wholly, nor even perhaps mainly, to the influence of the alcohol circulating in the blood, but that they may depend in still larger measure on secondary infections from the digestive system, which are enabled to penetrate into the economy through the open door of the lesions produced by the direct action of the drug on the gastro-intestinal mucous membrane.

The discussion of this problem of pathology, however, does not, of course, come within the limits of our present task; we are merely concerned to touch on it as an evidence of the peculiar importance which attaches to the dietary conditions of the drinker as a factor in determining his susceptibility to the effects of alcohol.

Neither need we dwell in any detail on the nature of the morbid changes of chronic alcoholism, whatever be their exact mode of origin; it is quite sufficient for our purposes to recall—and that very shortly—what are their main characteristics. Of these the most important is that they are generalised in their distribution, though of course varying pretty widely in their degree of incidence on different organs according to the peculiarities of reaction in each individual drinker. In one case the liver will be predominantly affected, in another the brain or the peripheral nerves, in another the generative glands; but in each instance the rest of the economy will also show unequivocal signs of damage.

As may be readily understood from its extreme complexity of organisation, the nervous tissue is that which suffers most frequently and severely; and there is, in fact, some reason to think that the disorders in other tissues may be to some extent secondary to the impairment of the nerve structures governing their nutrition.

However that may be, the point of practical importance to us here is that this special susceptibility of the nervous elements combined with the generalised distribution of the visceral disorders gives its dis-

tinctive character to the clinical picture of chronic alcoholism; owing to this double relationship the chronic intoxication is a condition of *mens insana in corpore insano*; or rather, to consider the aspect of the matter which specially concerns us, namely, the influence of the diseased state on conduct and thought, it is a condition of *corpus insanum in mente insana*, visceral disorder reflected in a weakened brain, and so forming a morbid personality prone to the impulses that go with deranged function, and to the poisoned thoughts that connect themselves with these impulses. In this fundamental conception we have the key to the varied manifestations under which chronic alcoholism appears in actual experience.

We may take as a type for our description the originally healthy workman who is engaged at a trade that encourages, or at least allows, the habit of regular drinking throughout the working day, and who probably goes in also for an occasional convivial bout at the week-end or on special festivals. After a period, longer or shorter according to the intensity of his excesses, such a drinker will begin to show signs of more or less persistent disorder, usually in the digestive and nervous functions; he will be aware of a diminished and more capricious appetite; he will suffer from pain and oppression referred to the region of the heart; he will often have nausea or vomiting on awaking in the morning; his sleep will be disturbed by disagreeable dreams, by attacks of muscular cramp, by electric starts in the limbs; more or less tremor in the hands and feet and in the

tongue and muscles of the face will be evident early in the day.

As the intoxication continues, and by its own effects supplies the motive for increasing excess, all these symptoms become aggravated; the morning sickness is regular and is often accompanied by the vomiting of blood; the tremor is constant; nightmares and insomnia divide the hours of rest, and foreshadow the characters that will appear later in the full development of delirium tremens.

Simultaneously with these signs of disease the mood and tendencies of the drinker become notably altered; he grows increasingly morose, irritable, and suspicious, showing the change of temper at first only in his relatively abstinent moments, but later on pretty constantly whether he be drunk or fasting. The impulses that are connected with this morbid mood, impulses of antagonism to the self and the environment, are now apt to issue in acts which are the more likely to come to fulfilment because by this time the drinker has begun to develop that special susceptibility to the cerebral effects of alcohol to which we referred in the last chapter. Moderate doses of liquor, which earlier in his career would have had but little effect on his nervous system, now induce in the drunkard a condition of disordered consciousness, a dream-state or phase of somnambulism which may last a considerable time—in some instances as long as twenty-four hours—and in which he will be able to go through connected series of purposive acts, but will retain no memory, or only a fragmentary memory, of their nature and motive. In this way the drinker

suffering from the visceral disorders of the chronic intoxication, and in the vaguely depressed mood which is their consequence, takes a few extra glasses of liquor, and then "loses himself," and makes an automatic attempt to commit suicide, usually in some very elementary method, as by jumping into a river or swallowing whatever poisonous mixture he may find to his hand. Or again, in this same state he will obey a homicidal impulse of like origin, and will murder his wife and family.

Of the details and of the motives of his actions he will usually have no memory, or at most the vague and imperfect recollection that we are familiar with in the case of dreams. As a general rule the total loss of recollection is commoner in the earlier period of the drinker's career, while it not infrequently happens that when older in alcoholism he will do quite similar acts in a less profound state of dream-consciousness, so that he can remember a good deal about them, and will probably recognise, and to some extent still feel, the motives by which they were prompted. These latter cases mark the transition to a more advanced stage of mental disorder, in which the diseased impulses have grown stronger, and the power of restraint has weakened. In these circumstances we find that the morbid tendencies, which in the earlier period lay hidden and dormant till the occurrence of an acute intoxication revealed them, have now become so rooted in the personality that their influence is persistently evident in conduct and thought.

In its full development this is the condition of

chronic alcoholic insanity, in which the drinker's acts are related to fixed delusions, very commonly to the effect that he is being poisoned or mutilated or that his wife is unfaithful. In accordance with these ideas he will now be likely to do with full deliberation the same sort of morbid acts to which he showed a proclivity in the phases of more or less profound automatism earlier in his intoxication ; that is to say, he will be suicidal or homicidal, and, in the latter case, the usual direction of his impulses will be against those who are sexually or socially in closest relation to him.

The mental enfeeblement, which appears early in the course of chronic alcoholism, and which is very evident under all this delusional activity, becomes still more pronounced in some cases, and is the dominant characteristic in the last stage of alcoholic decadence, when the drinker lapses into helpless dementia.

The foregoing description, it will, of course, be understood, is purely schematic, and the type that it represents is in countless details modified and deformed in the facts as they are actually met with. Thus, cases occur in which the whole course of intoxication is summed up in a gradual weakening of mind without any obtrusive perversions of conduct. Or, again, the early and severe implication of other organs may carry off the drinker without giving time for any marked affection of the brain. In other instances the evolution seems to become arrested, so that, despite continued excesses, the stage, *e.g.*, of delusional insanity or the stage of

extreme dementia is never reached. And, of course, there are fairly frequent examples also of a peculiar power of resistance to alcohol, which enables the drinker to live to an advanced age without showing evidence of damage to his brain or to any other part of his economy.

Moreover, even in the more typical instances, the process of alcoholisation which we have outlined is not a regular one ; the alcoholic habit is naturally liable to interruption and to increase, and even independently of the variations that are so induced, there are frequent episodes that break the even sequence of events. Of these the most important is the occurrence of outbreaks of acute insanity, to which in their intenser and briefer form the name of delirium tremens has been given. This diseased state, which is essentially a condition of hallucinatory confusion, represents a temporary aggravation of the disorders in thought and impulse that grow out of the morbid changes of chronic alcoholism, and is, therefore, very apt to be accompanied by criminal tendencies of the kind to which we have already referred. In this way the impulses that it reveals in more or less definite form are often, as it were, an anticipation of the acts and thought of the chronic insanity that will develop later, and they will similarly very frequently suggest the direction that impulsive action will take in subsequent phases of dream-consciousness. This latter point is of further interest for the reason that in many instances an attack of delirium tremens occurs on the threshold of the period of special cerebral susceptibility, the brain shock that it involves helping

apparently to determine the aptitude to pathological drunkenness. These delirious attacks vary, of course, very much in intensity and in duration; sometimes they amount to nothing more than a slight increase of the shakiness and faint hallucinatory tendency that ordinarily follow a heavy debauch; sometimes they are attended with severe fever and prostration, and may end in death. In other cases, again, often with less intensity in the tremor and in the vividness of the hallucinations, the delusional state is slower to disappear, and the mental condition clears up less completely; cases of this sort form the connecting link between delirium tremens and chronic insanity.

In the course of the foregoing remarks we have more than once touched on the salient points regarding conduct in chronic alcoholism; but it will nevertheless be desirable, before closing the present chapter, to focus our attention for a moment on this specific aspect of the matter.

We have seen that of the graver morbid tendencies met with in chronic intoxication the most constant is the tendency to suicide. It is liable to manifest itself during delirium tremens, and in the advanced stages of chronic insanity, but is perhaps most frequent in the dream-state of pathological drunkenness. In this condition, of course, the choice of the means of destruction and the method of its application will be very likely to show the irrationality and inco-ordination of the dream-consciousness; and for this reason a good proportion—probably, indeed, a large majority—of the suicidal attempts in the automatic phase fail of success. And we may

remark in this connection that conversely the majority of such abortive attempts, at least in this country, are due to alcoholism. This we might, indeed, expect on *à priori* grounds, for there is no other condition of wide prevalence that shares with alcoholism the characteristic of giving rise to suicidal impulses under conditions which are so frequently unfavourable to their fulfilment. And so far as the matter has been made the subject of direct inquiry this anticipation has been borne out; thus in 220 consecutive observations of such attempts the proportion due to alcoholism was found to be 78 per cent., the usual condition, present in four fifths of the cases, being drunkenness supervening on chronic intoxication.

2 Closely akin to the suicidal impulse, and often accompanying it, is the homicidal impulse, which, similarly, may be realised in a deliberate act harmonising with persecutory delusions in the chronic insanity of alcoholism, or may show itself in the dream-state of morbid drunkenness, and in that case will very often be abortive.

3 Another variety of crime which often occurs in chronic alcoholism depends on morbid impulses of lust, leading, as in the allied state of senile decay, to the violation of children. These offences are sometimes committed in the dream-state, but are more often related to the later phases of alcoholic dementia.

Other criminal acts inspired by malice, such as arson, or the destruction of property in other ways, are occasionally committed by the chronic drunkard;

and he may also be guilty of offences of acquisitiveness that are directly due to his intoxication.

These offences, however, are less characteristic of this disorder than are the graver impulses to suicide, to violence, and to lust.

Finally, in addition to such more serious crimes, chronic alcoholism leads, of course, also to offences of a more trivial sort, depending on the incapacity of the drunkard to live by other than parasitic means ; in this way it recruits, though not probably in any very large degree, the ranks of vagrancy, begging, and prostitution.

CHAPTER V.

SOCIAL CAUSES OF INTEMPERANCE.

FROM the study of alcohol and alcoholism in their relations to the individual drinker, with which we have been occupied in the preceding chapters, we now pass to the consideration of intemperance as a problem of sociology.

In approaching the subject from this new point of view the first task which meets us, and which we propose to take up in the present chapter, is the investigation of the social and industrial conditions that promote alcoholic excess. It is at the present time particularly needful to insist on the importance of this aspect of the drink question; for of recent years it has been rather the fashion to ignore the predominant influence of social causes in the genesis of intemperance, and, with a bias very unusual in the study of such problems, to concentrate attention on its biological factors, or to speak more correctly, on an imperfect and distorted conception of these factors.

This tendency has arisen mainly from the disproportionate importance attached to those instances in which an inebriate habit is clearly connected with

an abnormal mental organisation, and appears, therefore, to be relatively independent of the immediate influence of the environment. Cases of this sort, which are better material for psychological analysis and seem to offer more scope for medical treatment, are apt to come with greater frequency under the notice of the physician, or at all events are more likely to awaken his interest, than is the ordinary sot who lacks the attraction of the neurotic temper. As a natural result, therefore, this category of inebriates has been more carefully studied, and, we may add, has thereby gained the advantage of being treated on more rational methods, the practical success of which is the best guarantee of their soundness. At the same time, however, this too exclusive attention paid to a class of drunkards who are after all few in number and exceptional in character, has occasionally exercised a very injurious influence on the consideration of more important aspects of the problem. It has led some less responsible students of the question to assume that the view conveniently expressed in the formula that inebriety is a symptom of disease offers a valid and complete explanation of all the facts of alcoholism. Thus it has been asserted that intemperance is always a manifestation of a definite brain condition which creates a specific craving for alcohol. And some enthusiasts have even gone farther, and, assimilating this hypothetical drink-crave to a peculiarity of anatomical structure, have regarded the potentiality of being a drunkard as a simple inborn trait, which, we are gravely assured, being clearly unfavourable to its possessor,

must secure his early elimination in the struggle for existence, and so lead through natural selection to the evolution of a race immune from drink!

Extravagances of this sort, apart from such direct error as they may engender, are likely to have a mischievous influence, in that they divert attention from the real biological aspects of the question, and make an unnatural divorce between the organic and the social causes of alcoholism, which, as we have already pointed out, can only be understood when they are studied in their mutual relations.

For the proper apprehension of the question we must, therefore, at the outset get rid of this figment of an inebriate diathesis and replace it by the rational view that the explanation of inebriety is to be sought, not in any specific tendencies of an abnormal brain, but in the reaction of the normal organisation to the ordinary physiological effects of alcohol.

It is a capital advantage of this way of approaching the matter, that it at once brings us to the biological interpretation of the action of those social and industrial influences which—though the fantastic theorists of the drink-crave seem to forget the fact—are very certainly the dominant element in the causation of inebriety. For such conditions, of course, are in the long run effective causes of alcoholism, simply because and in the degree in which they induce in the organism certain states which are favourably modified by alcohol. It is from this point of view, then, that we propose now to consider them.

In Chapter II we saw that alcohol in small doses

had the effect, through its influence on the psychomotor centres, of increasing the capacity for muscular work; and we noted further that, probably in great part as a consequence of this motor stimulation combined with a similar stimulation of functional activity in the viscera, it had a characteristic reaction on the emotional tone, giving rise to a sense of well-being familiar in an exaggerated form in the expansive mood of drunkenness.

Now, in connection with the social origin of excess, these two actions of alcohol, though thus essentially identical at bottom, have an entirely different significance; they are related to different modes of drinking, differing in causation and differing enormously in the social gravity of their results.

In the first mode of drinking, where alcohol is taken for the sake of its effect on working capacity, it is necessary, as we have seen, that the dose should be moderate, so that the stimulant action may be obtained and may not be neutralised by the disturbing influence of the drug on other functions; and it is further necessary that the dose should be repeated within a short time, so as to keep up the excitant effect and prevent the onset of muscular depression. The alcoholic action, therefore, that is involved in this, which we may call industrial drinking, is constant, and for that reason is peculiarly apt to bring about the tissue changes of chronic alcoholism. And its effect in this direction is, of course, assisted by its tendency to be in substitution of ordinary food, the development of chronic intoxication being, as we have seen, considerably hastened by defective nutri-

tion. But, on the other hand, this action is not intense, it does not reach acute intoxication. Hence pure industrial drinking is a cause of chronic alcoholism, but is not primarily a cause of drunkenness.

It is, as a rule, entirely different when alcohol is drunk as an emotional exhilarant, and without regard to its effect on work. Under these conditions, as in ordinary convivial drinking, the immediate end is not interfered with, but is rather promoted by the taking of large doses, so that in individuals of low culture this sort of drinking is very likely to lead to drunkenness. But, on the other hand, as the occasions that call for it are ordinarily infrequent, such convivial drinking is generally not continuous. Hence, in contrast with the constant but moderate action of industrial drinking, we have to do in convivial drinking with an action that is intense but intermittent; and accordingly we find that convivial drinking is a frequent cause of drunkenness, but is not a cause of chronic alcoholism.

These contrasted types of drinking, then, correspond to two different attitudes of the drinker with regard to alcohol; and it will be observed that the terms which we have used to denote them are, strictly speaking, only applicable to particular varieties of either attitude. Thus industrial drinking, or drinking as an aid to work, is clearly allied to the drinking that goes with disease, with emotional depression and worry, with bad and insufficient food, and so forth; in all such conditions alcohol is taken in order to combat a state of inefficiency in the drinker, a state of relative ill-being. Convivial drinking, on

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differ

the other hand, is one variety of the drinking that belongs to states of relative well-being, when the vital energies are above par, and when the organism seeks the pleasant sensation given by alcohol for this positive value.

If we desire to look at the matter in this wider sense, we might distinguish the two types of drinking as misery drinking and luxury drinking, or if greater clearness be attained by the use of special terms, we might designate them as dyspathic and eupathic drinking. For our present purposes, however, which have to do with the social aspect of the question, we shall run no risk of serious error if we take the narrower view, and deal solely with the convivial and industrial forms of drinking which, in fact, are those of real practical importance.

Of course, in the actual condition of things, these two types of drinking are apt very often to occur in combination; this is more particularly so when industrial drinking is the primary factor; the worker who does his labour with the help of alcohol is sure to have recourse to the drug for his ideals of pleasure; and so it is a rule for the industrial drinker to be also addicted, when he gets the chance, to convivial excess. On the other hand, it frequently occurs that conditions which prevent industrial drinking may be favourable to convivial excess. Hence we find that while the pure industrial drinker who never carouses convivially is relatively rare, the pure convivial drinker who never works on alcohol is very common.

We have to bear this difference in mind when we consider the statistics of drunkenness and alcoholism;

it requires us to distinguish two sorts of drunkenness—the drunkenness that occurs without chronic alcoholism and indicates primary convivial excess, and the drunkenness that occurs with chronic alcoholism and indicates the convivial excess which is a secondary result of industrial drinking.

As a proof and an illustration of this position we may point to the contrast which drunkenness and alcoholism present in their regional distribution in this country. Before entering into the details of this comparison, however, it will be well to say something of the value and limitation of our statistical material.

That material has two main sources: the figures regarding drunkenness and the various forms of crime which are known to be specially connected with alcoholism are furnished in the criminal statistics from reports supplied by the police; the information as to the death rate for alcoholic diseases is given in the reports of the Registrar-General.

This difference of source is, unfortunately, a cause of some difficulty in the comparison of the two classes of data. In the first place, the registration county to which the mortality returns refer is not identical with the area of the same name which is used in the criminal statistics. The difference between the bases is not, however—except in the case of the metropolis and the adjacent counties—so great as to detract very seriously from the value of a rough comparison of the two phenomena. A more troublesome matter is that the mortality returns give no figures for alcoholism for lesser areas than the registration county, so that it is impossible to use them to

form composite districts representative of special industrial conditions, as can be done in examining drunkenness.

There are two ways in which we can to some extent meet this difficulty: we can find a second measure of alcoholism in the incidence of notoriously alcoholic offences—such, for instance, as attempts to commit suicide—the statistics of which, referring as they do to the same police areas, can be more strictly compared with the statistics of drunkenness; or, on the other hand, we may have recourse to the Registrar-General's returns of the death-rate from alcoholic diseases in the several occupational groups. This second method works well when the regional group has a close equivalent in a single occupational group, as is the case with the mining and agricultural industries; it is less satisfactory in dealing with the more complex industrial classes. In these several ways, then, we can establish a very fair comparison between the incidence of drunkenness and that of alcoholism.

There remains, of course, the objection which is very often urged against such statistics that they are so open to fallacy as to be entirely unreliable; the number of arrests for drunkenness, it is said, is determined less by the actual prevalence of the vice than by the zeal of the police force or the amount of available prison accommodation; while, with the defective system of death registration at present in force, no real value can be attached to estimates of the alcoholic death rate. There is undeniably enough truth in this criticism to require that such statistics should be taken with considerable reservation; and

no one, of course, would pretend that they should be regarded as measures of the absolute amount of drunkenness or of alcoholism, or that it could be legitimate to draw conclusions from slight variations, regional or periodic, in the figures of either phenomenon. But it is quite possible to take account of such qualifying considerations without denying to these figures a certain value for comparative purposes, so that in the comparison, in sufficiently large areas and over sufficiently long periods of drunkenness with alcoholism, agreement, if very close, or difference, if very wide, may become a legitimate ground of inference. And these conditions, as we shall see, are fully satisfied in the present instance.

The first group of figures with which we shall deal (Table I) concerns the frequency of arrests for drunkenness, deaths from alcoholism and cirrhosis of the liver—the most usual alias of alcoholism—and attempts to commit suicide, in the several counties of England and in North and South Wales; the figures represent the annual average per 100,000 of the estimated population in the decennial period 1891–1900, and the counties are arranged in the order of their addiction to drunkenness.

On looking at these figures we see that the list is headed by the chief mining districts—Durham, Northumberland, and South Wales. They form a group apart, with annual rates of drunkenness immensely in excess of those found in the other counties. But if we look at the place of these districts in the list of alcoholism, the result is entirely different. Durham—a long way the most drunken county in

TABLE I.—*Arrests for Drunkenness, Deaths from Alcoholism and Cirrhosis of the Liver, and Attempts to commit Suicide in the Counties of England, and in North and South Wales (Annual Average per 100,000 of the Estimated Population in the Decennial Period 1891 to 1900).*

Counties.	Arrests for drunkenness.	Deaths from alcoholism and cirrhosis of the liver.	Attempts to commit suicide.
Durham	2228·8	15·90	4·32
Northumberland	1643·8	22·36	6·37
South Wales	1012·9	13·61	2·59
Lancashire	806·4	25·29	6·57
Metrop. and adj. Counties ¹	748·7	24·18	9·43
Stafford	695·4	18·86	3·69
Cumberland	689·7	14·92	2·47
Worcester	676·4	19·50	5·38
Shropshire	661·3	22·91	3·36
York (West Riding)	644·1	16·67	4·17
Monmouth	629·3	12·81	2·22
York (East Riding)	620·7	15·97	4·55
Warwick	599·2	24·70	8·56
North Wales	569·9	16·07	1·99
Cheshire	546·2	20·48	4·72
Lincoln	542·9	13·85	4·14
Nottingham	541·7	18·03	5·85
Derby	510·1	20·44	3·94
York (North Riding)	475·7	15·67	2·87
Hampshire	390·9	19·61	7·82

¹ The metropolis is here combined with the counties which contribute to the police district: Middlesex, Surrey, Hertford, Kent, and Essex.

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TABLE I (*continued*).

Counties.	Arrests for drunken- ness.	Deaths from alcoholism and cirrhosis of the liver.	At- tempts to commit suicide.
Devonshire	343·7	15·38	4·32
Westmoreland	340·8	18·03	2·14
Sussex	312·5	22·32	4·78
Hereford	297·8	15·50	3·47
Northampton	296·4	13·66	6·73
Gloucester	290·7	14·41	4·93
Leicester	261·5	16·19	4·62
Berkshire	252·6	17·79	4·82
Somerset	246·7	19·70	4·67
Cornwall	230·1	8·50	1·11
Huntingdon	210·0	17·69	2·01
Dorset	209·5	13·10	3·69
Norfolk	200·7	15·39	2·77
Bedford	184·5	17·75	1·80
Wiltshire	172·6	15·44	2·62
Oxford	161·5	16·22	3·88
Rutland	153·9	18·39	1·49
Suffolk	143·1	14·61	2·12
Cambridge	100·6	19·82	1·77
Buckingham	97·0	21·76	2·80

England—has an alcoholic death-rate which ranks it with the sober agricultural districts; while South Wales, third highest in the list of drunkenness, is the lowest but three in the list of alcoholism. And Northumberland, which ranks high in both lists, is only an apparent exception to the same rule, for its excessive alcoholism is due simply to the dominant

influence of Newcastle-upon-Tyne, which contains 37 per cent. of the population of the county, and which, as a seaport and a centre of the metal trade, is industrially under quite different conditions. The exclusion of Newcastle would reduce the rate of suicidal attempts to 3·3 per 100,000, which indicates a degree of alcoholism near the average in the agricultural counties, but the rate of drunkenness would still stand at 1348·8. In these mining counties, therefore, we find drunkenness without alcoholism, a condition which, as we have said above, indicates pure convivial excess.

In predominantly manufacturing counties, on the other hand, such as Warwick or Lancashire, drunkenness, which, though less than in the mining districts, is still excessive, coincides with a very high rate of alcoholism: this is the mark of industrial drinking.

And, finally, in counties like Suffolk, Norfolk, or Cornwall, which are mainly agricultural, we have low rates both of drunkenness and of alcoholism, indicating that there is little tendency to either convivial or industrial excess.

The dependence of chronic alcoholism on industrial conditions which is traceable in this table is, of course, more clearly shown by the differences in the death-rate from alcoholic diseases in the several occupational groups. On this point the returns of the Registrar-General supply us with very complete information, the essential matter of which is shown in Table II, giving the comparative mortality figures from alcoholism alone and from alcoholism and liver diseases taken together, in the larger occupational groups. The "comparative mortality figure" from any given

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TABLE II.—*Comparative Mortality Rates from (a) Alcoholism and (b) Alcoholism and Liver Diseases taken together, in the larger Occupational Groups (Census of 1891).*

	Alcoholism.	Alcoholism and Liver Disease.
Agriculturists	4	21
Coal-miners	4	21
Railway engine-drivers	4	22
Textile workers	7	30
Quarriers, etc.	8	23
Shoemakers	9	29
Coach and carriage makers	9	35
Railway labourers	10	27
Printers	10	40
Building trades	11	34
Metal workers	11	40
Bakers	11	50
Tailors	12	43
Messengers, porters, etc.	15	31
Carmen, carriers	17	44
Merchant seamen	21	60
Coach and cab service	28	61
Butchers	35	91
Dockers	52	78
Publicans, etc.	94	268
In Scotland :		
Farmers and graziers	3	20
Miners	5	20
Masons and bricklayers	11	31
General labourers	14	30

disease in any given occupation indicates, it will be recalled, the number of deaths from that disease that would occur in a population corresponding in number and in age constitution to the standard population, but engaged only in the given occupation. These figures are therefore for purposes of comparison the best available measure of alcoholic proclivity in the different forms of industry. The figures which we give in Table II are taken from the census reports of 1891, and refer to the period 1890-1892. To show that the results are not an accidental feature of the English returns, figures are also given from the Scotch tables for those industrial groups in which the number of deaths during the triennial period exceeded a thousand.

It will be noted that the figures in this table confirm fully the view that the distribution of alcoholism in the counties is to be interpreted as a result of industrial conditions. Thus the low rate of alcoholic mortality and of suicidal attempts in the great mining counties, despite their high rate of drunkenness, corresponds with the relative immunity of coalminers from alcoholic disease. And this immunity, it will be observed, is equally evident amongst coalminers beyond the Border, though in the Scottish mining districts, as in Scotland generally, drunkenness is even more prevalent than in England. Differences in procedure make comparisons on this point of doubtful value; but if we assume that arrests for breach of the peace and for drunkenness represent very much the same thing as arrests for drunkenness in this country, we find that the proportion of such offences per 100,000 of the inhabitants

was on an average during the period 1897-1901 in the three largest mining counties of Scotland as follows: Fife, 1460; Ayr, 2150·3; Lanark (excluding Glasgow), 2619.

Again, the greater alcoholism of the counties with large manufacturing centres is similarly in accord with the higher mortality figures for alcoholism that rule in the textile and still more in the metal trades, as well as in the lower sorts of transport labour.

To make the matter still clearer, we may have recourse to the method already referred to, of forming composite areas each representative of special industrial conditions, and seeing how they stand in respect of drunkenness and of the various forms of alcoholic crime. This method is used with excellent effect in the criminal statistics; and for our present purpose we cannot do better than to adopt the same selection of districts that is made therein: in addition to being admirably representative, it has the great advantage of being clearly free from bias.

The areas that best exhibit the contrast of industrial conditions are, in the criminal statistics, made up as follows: Agricultural counties (county police districts only)—Norfolk, Suffolk, Hunts, Cambridge, Dorset, Hants, Somerset, Wilts. Manufacturing towns—Birmingham, Blackburn, Bradford, Derby, Halifax, Hanley, Huddersfield, Leeds, Leicester, Nottingham, Oldham, Preston, Sheffield, Wolverhampton. Seaports—Birkenhead, Cardiff, Hull, Liverpool, Newcastle-on-Tyne, Newport (Mon.), Southampton, South Shields, Swansea, Tynemouth. Mining counties—Derbyshire (excluding Derby borough),

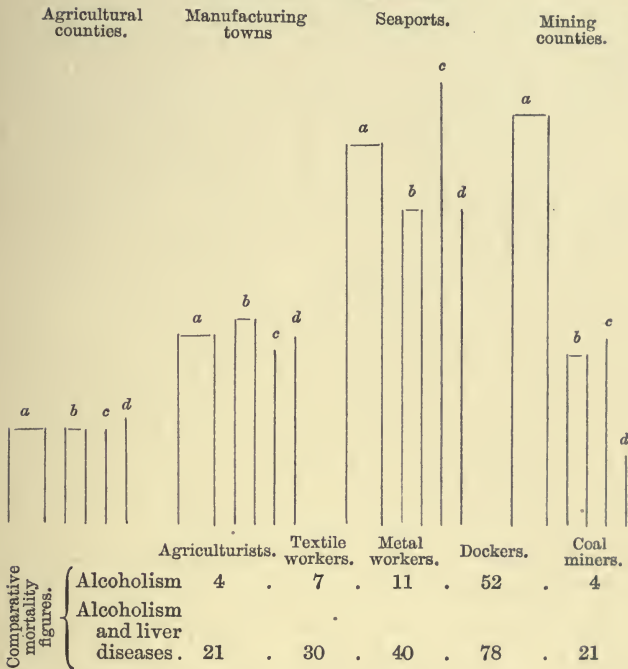
Durham (excluding Hartlepool, South Shields, and Sunderland), Glamorgan (excluding Cardiff and Swansea), Monmouth (excluding Newport), Northumberland (excluding Newcastle and Tynemouth).

Comparing drunkenness in these areas with the offences that are known to be of predominantly alcoholic origin—suicidal attempts, homicide, and

TABLE III.—*Drunkenness, Homicidal Crime and Assaults, Homicidal Crime alone, and Attempts to commit Suicide in Composite Areas of Special Industrial Character (Annual Average per 100,000 of Estimated Population during the Years 1891–1900); with Comparative Mortality Rates from (a) Alcoholism and (b) Alcoholism and Liver Diseases taken together in Certain Occupational Groups (Census of 1891).*

Areas.	Annual average per 100,000 inhabitants.				Comparative mortality figures.		
	Drunkenness.	Homicidal crime and assaults.	Homicidal crime.	Suicidal attempts.	Alcoholism.	Alcoholism and liver diseases.	Occupational groups.
Agricultural counties . .	226·3	116·33	3·03	3·46	4	21	Agriculturists.
Manufacturing towns . . .	479·8	265·73	5·33	6·42	7 11	30	Textile workers.
						40	Metal workers.
Seaports . . .	990·6	409·73	14·73	10·56	52	78	Dockers.
Mining districts . .	1091·2	237·94	6·34	2·43	4	21	Coal miners.

TABLE III—continued.¹



homicidal crime and assaults taken together—we get the figures of Table III, which are also graphically expressed in the accompanying diagram.

These results, then, fit in perfectly with the evidence we examined above. In the mining industry we have much drunkenness, more than in any other industrial group; but we have very little alcoholism—the comparative mortality figure of coal-miners

¹ a. Drunkenness. b. Homicide and assaults. c. Homicidal crime. d. Attempted suicide.

for alcoholic disease we saw to be the same as that of the agriculturists, and lower than in any other occupational group. And similarly, alcoholic suicide—as represented by suicidal attempts, which we shall subsequently see to be a very fair index of the chronic intoxication—is rare, and homicide, which is, of course, largely connected with drink, is, relatively to the enormous prevalence of drunkenness, rather infrequent.

X In the manufacturing towns, the centres more particularly of the textile and iron industries, we have a good deal of drunkenness, though much less than in the mining counties; and we have in the great industrial groups of the textile workers and the metal workers rates of alcoholic mortality nearly two and three times as high as in the coal-miners. And here, again, we find that alcoholic suicide, and in a great measure homicide too, corresponds with the degree of alcoholism rather than with the degree of drunkenness.

Next, in the seaports, which are more particularly centres of casual transport labour, and of ship-building, we have again a very high rate of drunkenness, approaching even that in the mining districts. And the industrial groups, which—though, of course, very imperfectly—represent in some sense seaport conditions—iron workers, seamen, and most of all, dockers—show very high alcoholic death rates: the comparative mortality figure of dock labourers from alcoholic disease is, in fact, only exceeded by that of the liquor trade group. We have here, therefore, much drunkenness and much chronic alcoholism;

and at the same time we have the maximum prevalence of alcoholic suicide and of homicide.

Lastly, in the agricultural districts we have only the most moderate amount of drunkenness, suicidal attempts, and homicidal crime, and in the corresponding industrial group we have a very low rate of alcoholic mortality.

So far, then, as the statistical evidence goes, it fully supports the positions stated earlier in this chapter. It proves that drunkenness and alcoholism are so far independent phenomena that the maximum of drunkenness may coincide with the minimum of alcoholism; and it shows further that the tendency to chronic alcoholism is mainly connected with the mode of industry.

And, finally, this evidence confirms the view, to which the study of alcoholism in the individual has already brought us, that the relation of alcoholic suicide and of alcoholic homicide is, not to simple drunkenness, but to chronic intoxication. In the chapters on racial degeneracy and on insanity we shall see reason to believe that, so far as these evils are due to drink, the same statement holds true; they also depend, not on drunkenness, but on chronic intoxication.

Nearly all the graver social evils, therefore, that are wrought by alcohol, and which alone give to the drink question the importance of a social problem, are effects of chronic alcoholism, and are, therefore, traceable in the main to the industrial drinking which is the chief source of the chronic intoxication. In a word, we may say that for all practical purposes the whole problem of alcoholism is the effect and development of industrial drinking.

CHAPTER VI.

INDUSTRIAL DRINKING IN THE OCCUPATIONAL GROUPS.

IN the last chapter it was seen that the surest inferences to be drawn from the statistical evidence regarding alcoholism in this country are, that all the graver social results of excess are connected with chronic intoxication and not with simple drunkenness, and that the main source of this chronic intoxication is to be sought in the use of alcohol as an industrial stimulant.

And it was further pointed out—what is, indeed, an evident corollary to this view—that, owing to variations in their industrial conditions, different trades differ very widely in their tendency to this form of drinking and therefore in their proneness to alcoholism. The extent of these differences we saw to be manifest on contrasting the death-rates from alcoholic diseases in the several occupational groups.

What we have now to discuss in more detail is the character of this industrial drinking, and the nature and mode of operation of the influences which produce it. Obviously such an inquiry, even if of a very limited and superficial kind, is beset with con-

siderable difficulty. The numerous forces, biological and economic, whose complex interaction determines the alcoholism of a given industrial group may vary widely in their direction and activity according to circumstances of time and place; and the drinking habits which are their resultant must necessarily show some corresponding diversity of character, so that even in occupations which are fairly homogeneous and well defined the alcoholic practice may differ somewhat in different districts or in different factories. And this is, of course, more likely to occur in trades where the workers are ordinarily distributed into such small groups that the influence of individual peculiarities in reaction to alcohol are shown on an exaggerated scale.

As a rule, however, the differences that arise from these causes are not so great as to prevent the recognition in each form of industry of certain general tendencies which are common to all its developments, and which give to its alcoholic tradition a more or less characteristic stamp.

In order, therefore, to acquire a clear idea of the facts of industrial alcoholism and of the causes which underlie them, we cannot do better than to start from the investigation of these characteristic tendencies as they reveal themselves in the more important branches of industry. This will be the matter of the present chapter, which will give a summary account of the drinking habits in a number of the chief trades in this country, and will endeavour to show the relation of these habits to the special conditions of labour that belong to each trade. The facts have been ascer-

tained by personal investigation amongst men engaged in the several occupations, the witnesses being chosen in such a manner and in such numbers as to represent each industry under a sufficient variety of conditions. The information so obtained has been further controlled by the evidence of persons connected with the liquor trade in various centres of working-class life.

Waterside labour.—Under this heading are comprised a number of more or less distinct varieties of work, differing in character according to the several stages of the process of loading or unloading, or according to the class of materials to be handled. The stevedores, for instance, who stow cargo, or the ship-workers who unload from vessels in mid-stream, are, to some extent, specialised groups as compared with the labourers who handle the goods on the quays or in the warehouses. And, similarly, men who deal with grain or timber form distinct categories from the ordinary docker.

These different sorts of work will necessarily differ somewhat in the local conditions under which they are carried on, in the skill they require, and in the pay by which they are remunerated ; and such differences may, of course, in some degree react on the drinking habits of the workers. The variations that are thus brought about are, however, for the most part of slight degree ; throughout all its subdivisions the homogeneity of the group is preserved by the essential sameness in the nature of the effort, in its demand for sudden spurts of energy rather than for skill ; and though there may be some dissimilarity in regard to such circumstances as the accessibility

of liquor, it is rarely sufficient to cause any considerable deviation from the general drinking customs. The few instances in which marked departures from the common type are found will come in for separate examination when we have dealt with the class as a whole.

The social status of the group is low. In Booth's statistics it is estimated that about 14,562 men are employed in riverside labour in London, and of this number the proportion living under very crowded conditions, *i. e.* where there are three or more individuals to a room—amounts to 28·4 per cent. As regards wages, Booth concludes from his investigations that “the ordinary rank and file of dockers earn at their trade from about 21s. at most to about 8s. a week.”

In common dock labour work starts generally between 6 a.m. and 7 a.m.; pay is at the rate of 6*d.* an hour, with a higher scale for special sorts of work; wages are paid every evening, or earlier if the job is finished, and after a few hours' work a man can, as a rule, have a “subb.,” or advance, from the foreman. Night work, which is fairly frequent, is, of course, more highly paid.

Besides the regular intervals for breakfast and dinner it used to be a general practice to recognise what were known as “bever times”¹—*i. e.* pauses for refreshment, one in the forenoon and one in the afternoon, each lasting some fifteen minutes. Of late years most of the employers have withdrawn their official sanction from these bever times, but

¹ See page 111.

the tradition is still pretty faithfully observed through the greater part of the docks.

These intervals, therefore, with the regular meal times, fix the common habits of the industrial drinker in dock labour. Before starting work in the morning he will take a "livener," consisting of a half-quartern of rum in coffee, or "a happorth and a pennorth" (a half-glass of ale and a tot of gin), or a glass of "four ale"; at breakfast he will have about a pint of ale after the meal, or possibly a larger quantity, with hardly any solid food; from one to three half-pints will be the allowance for the first beverage time; a pint or two will be taken with, or in lieu of, dinner; and at the second beverage time about the same amount as in the forenoon. On knocking off work he will have a pint or two more, bringing up his total industrial drinking for the day to something over six pints as a minimum. The drinking at the dinner hour is very often like that which goes on in the evening after work, of the convivial sort; at the other intervals it has usually the industrial characteristic of being solitary.

In general, the facilities for getting liquor during working hours at the docks are practically unrestricted. The official repudiation of the beverage times has, it is true, been followed up on the part of some firms by efforts to prevent the introduction of beer on the jetties; but unless these efforts are seconded by a particularly enthusiastic and energetic foreman they are not of much influence. Ordinarily the men can go out or send out for beer as often as they wish, employing in the latter case usually one

of the dock loafers who pick up a living in this fashion, receiving as remuneration for their services the penny deposit paid on the pint bottle.

Some of the shipping firms are said even to take a part in organising the liquor supply on their jetties; they grant to some favoured employee the exclusive right to fetch in beer at the bever times, the amount served out to each man being then booked and deducted from his pay at night. This practice used to be more common, but has been checked of recent years by prosecutions for beer hawking and as a violation of the Truck Act.

As can be readily imagined from the amount of the docker's average wages, the non-alcoholic part of his dietary is apt, under any circumstances, to be deficient, and the money which he spends on liquor leads necessarily to a further lowering of his ordinary food allowance. Not only does his dinner money very frequently go on beer before the meal-time arrives, but even when he brings his dinner with him from home he will often sell it for a few pints to some more temperate comrade. This condition of under-feeding contributes, of course, to the more rapid development of the lesions of chronic alcoholism; and it is usual for industrial drinkers at this work to suffer from gastric catarrh and severe nervous disorders before they reach the age of forty.

As a rule the liquor of the dock labourer is "four ale." Rum, however, is often taken as the morning livener, especially in cold and damp weather. It is used as the regular industrial stimulant only by a

small proportion of dockers—not more probably than one in twenty.

As far as general impressions can be trusted regarding such a matter, it would appear that a majority of dock labourers are industrial drinkers, who also go in for convivial excess. Men, however, who are pure convivial drinkers are not uncommon; and a small though apparently increasing proportion are teetotalers. Intemperance is, of course, more frequent among the casual hands than amongst the men in fairly regular work, and is much less common amongst the dock servants, who form a separate category altogether.

The average habits of the industrial drinker at the docks are fairly well illustrated in the two following examples of regular hands, one an unmarried labourer and the other a married man with children.

(1) T. M—, single, aged 48 years. Suffers from gastric catarrh, bronchitis, and nervous symptoms of alcoholism; has had several attacks of delirium tremens. In fairly steady work. Average daily wage 4*s.* 6*d.* Takes three solid meals, each of which costs him sixpence at the cook-shop: for breakfast he has a rasher and two eggs, two slices of bread and butter and tea; for dinner he usually takes beef-steak pudding, cabbage, and potatoes; tea is similar to breakfast, with probably fish in lieu of the rasher. His “doss” costs him another sixpence. The balance of his wages, 2*s.* 6*d.*, he spends practically all on liquor, partly in industrial drinking at

the usual intervals, and the rest in a convivial carouse after work.

(2) G. M—, stevedore, aged 32 years; married, two children. Suffers from gastric catarrh, with vomiting of blood; latterly develops dream-consciousness after alcohol, and is subject to hallucinatory attacks. Is in regular work, and often does overtime, so that he makes on an average as much as 6*s.* 6*d.* a day. Of this sum, he gives 4*s.* 6*d.* to his wife, on which she keeps herself and the children, and refunds him his dinner money next day. The 2*s.* which he retains goes mainly for industrial drinking; he takes no breakfast, but works on beer alone up to the dinner-hour, when he makes a solid meal at the cook-shop. He takes very little convivially.

The industrial drinking habits which we have described in the ordinary docker class reach a further degree of development in some special varieties of waterside labour. We may take as an instance the Thames Street fruit porters. Amongst these porters the method of work and payment is this: The overseer takes on a limited number of men, each man paying a nominal deposit for his knot; the porter then starts work, receiving at the warehouse door for each box he takes in a brass ticket marked with the amount of his fee, 1*d.*, 2*d.*, or 3*d.*, according to the size of the box. These tickets he can get changed for money later in the day by the clerk, or he can bring them at any time to a public-house which enjoys the special privilege

of cashing them, the porter taking a certain proportion of their value in drink. The second alternative is, of course, nearly always adopted, and, as a consequence, a large number of these men do their work almost exclusively on beer. As soon as its effect is sufficiently visible to suggest risk of accident the man has to give up his knot for the day, and is replaced by a fresh hand. These conditions produce the maximum development of industrial alcoholism.

Tea porters usually work in gangs on a contract system, being paid daily at the ordinary dock rate of 6*d.* an hour, and then getting at the end of the job whatever balance is left on deducting the money so paid from the contract price. This "plus money" gives an opportunity for convivial excess in addition to the regular industrial drinking.

Coal wharfers are in somewhat the same position as ordinary dock labourers, but their drinking traditions are even more vigorous; over and above the forenoon and afternoon intervals for liquor, they recognise a third regular pause for "going to mug," midway between the starting of work and the breakfast hour.

All these forms of unskilled labour furnish the conditions most favourable to industrial drinking; and it is, in fact, largely to their influence that we must attribute the excessive prevalence of alcoholism, which, as we have already pointed out, is a characteristic of the seaport towns.

Other forms of unskilled transport labour.—The porters at the various provision markets, coal-heavers,

carmen, etc., work under conditions that are very similar to those of waterside labour. They have the same need of sudden spurts of hard muscular effort; and from the circumstances of their calling, their drinking propensities are free from any control by their employers, and are therefore limited only by their own discretion and by the want of ready cash. Industrial drinking, accordingly, is very general amongst them.

We may take the coal-heavers as an illustrative instance. The average coalie will start the day with a livener of rum and coffee on his way to the wharf, and will then go on for the rest of his time with "four ale" at the rate of a half-pint for each delivery, of which, of course, there may be several in the two-ton load; he will then wind up with a convivial drink after putting up his horse and cart in the evening.

The proportion of coal-heavers who follow an alcoholic regimen of this sort is very large. In one yard, for instance, where the conditions appeared fairly representative, the gang of fifteen men was found to be made up of three teetotalers, one pure convivial drinker, and eleven industrial drinkers of the type we have described.

In many respects cabmen, and to a less extent tram and bus drivers, are connected with this class, and have accordingly a similar disposition to steady industrial drinking which is reflected in their high death rate from alcoholic disease.

The building trades. — The several occupations comprised under this heading form a rather complex

group when examined with regard to their drinking habits; for in the industrial conditions that have most influence on these habits there are very wide differences, not only between mechanics and labourers and between the different classes of mechanics, but also between men of any given category when working for small masters and men of the same category working for big firms.

The differences of the former sort are partly shown in the wages and housing of the different classes. Mechanics, for instance—*i. e.* bricklayers, carpenters and so forth—according to Booth, may be taken to earn on an average (in London) about 32*s.* a week, allowing for irregularity of employment, while under the same circumstances the labourer's wage would not come to more than 23*s.* 3*d.* As regards housing, very crowded conditions—*i. e.* three or more persons to a room—were found by Booth in 15·4 per cent. of the class as a whole, ranging in its several subdivisions from 10 per cent. and 12 per cent. amongst carpenters and plumbers respectively to 24 per cent. amongst bricklayers.

Throughout the trade industrial drinking is very prevalent, and its general type is essentially the same with mechanics and their labourers, though, of course, the grosser work and lower social conditions of the latter class tend to make their drinking more excessive in absolute amount, and still more relatively to their other diet. This type of drinking used to be, and in all the smaller firms still is, very like that in vogue amongst dock labourers; that is to say, there is the early morning livener, the regular

breakfast and dinner-hour drinks, and the drinking at the forenoon and afternoon pauses. At the latter times it is usual for a labourer to be sent out to a neighbouring public-house to fetch in the beer; and sometimes, though not often, in the building trades, a particular house will have the privilege of sending in a potman to take orders.

Where beer can be sent for in this way, and where no restrictions are imposed on bringing it in when coming to work in the morning, and after meals, it is possible for the industrial drinker to have liquor by him all day long, and instances of this sort are by no means uncommon, especially amongst old hands.

Wages are paid weekly, but in small firms a "sub." for beer can generally be had when desired; and frequently a man who cannot obtain such an advance from his own employer will find a pal who is working for a small master and will share his sub.

Even where no sub. is given in actual cash, it is often allowed virtually by the foreman guaranteeing the workman's credit at the public-house and deducting the amount of the debt at the end of the week. Without some such arrangement publicans are very chary of giving credit to men in this trade owing to their irregular and nomadic habits.

As in other occupations, it is the custom for the industrial drinker in the building trade to go in also for convivial excess, and exceptions to this rule are rare. On the other hand, a fair proportion of the men who drink convivially take little or no liquor

during working hours. The relative frequency of those two modes of drinking varies, of course, enormously in different groups of workmen. As an example of the most favourable state of things we may take this estimate of an intelligent workman in the carpenters' shop of a large London firm: according to his reckoning, of 120 mechanics working with him about twenty were teetotalers, fifty steady industrial drinkers, and fifty moderate convivial men, possibly going a little over the mark on Saturdays. Amongst men doing other work for the firm, either in the shops or on the job, the proportion of industrial drinkers would be rather higher, even taking account of mechanics only, and very much higher if builders' labourers were included.

As has been said already, there is a considerable difference between large and small firms in regard to the conditions of industrial drinking. The small master, whose work is rarely of the kind that will suffer much from a little unsteadiness of hand, does not usually make difficulties about frequent sending out for beer, and will generally be ready to provide a sub. for its purchase. Moreover, as he is not expected to find a mess-room, with a boy to do the cooking, there is a tendency on the men's part to scamp their regular meals. The big employer, on the contrary, dealing with more complex and dangerous undertakings, may very often have sufficient motive to restrain the drinking habits of his workmen; and, as he is in a position to give more constant and, therefore, more valued work, and to draw his supply of labour from a wider area, he has no need to

truckle to their weaknesses. Accordingly he gives no sub.; frequently he forbids the bringing in of liquor on his works, and he compels his hands to confine their drinking to the regular intervals, or he may suppress the forenoon and afternoon pauses altogether, or may allow them only for non-alcoholic refreshment. Of recent years there has been an increasing tendency in large firms to impose restrictions of this kind; and on all big jobs where there is risk of accident, as, for instance, in the erection of sky-scrappers, it is now the general rule that men can get liquor only at the breakfast and dinner hours. There is still, however, a good deal of diversity of practice amongst employers as regards both the tenor of their regulations on this matter and the stringency with which they are enforced.

As a result of such differences as we have indicated, we find in the building trade a very wide range of variation in the drinking habits of the men; thus the mechanic in the employ of a big firm is very much in the position of a skilled factory operative, and has a relatively moderate tendency to industrial alcoholism, while the bricklayer's labourer working for a petty master is under conditions practically identical with those of the docker, and follows a similar alcoholic regimen. For the trade as a whole it seems probable that the average drinking usage is nearer the lower than the upper limit on this scale. And this opinion would be in accord with the position of the building trade group in the list of alcoholic mortality.

Carriage building.—The relatively small occupational group of the carriage builders may be referred

to here in passing as a further, and in some respects a more instructive, illustration of the point which we have just discussed in connection with the building trades, namely, the difference in the drinking customs of the workers according as they are in the employment of large or small masters. The interest which carriage building presents from this point of view depends on the curious sort of reversion in industrial conditions which the growth of specialisation has brought about in London. In the provinces the state of things is very similar to what we find in other trades—that is to say, the big firms work under conditions like those in most factories; they usually prohibit the bringing in of liquor, and they will not recognise the forenoon and afternoon pauses for refreshment. On shoeing days, it may be remarked, these rules are often relaxed in favour of the smiths, but in general they are said to be very well enforced. Small provincial masters, of course, are for the most part less rigorous.

In London, on the other hand, the trade is organised after a quite different fashion; the big metropolitan firms do not directly employ the men who are engaged in their factories, but they contract with a "piece-gaff" for each portion of the work, and the piece-gaff then hires his men. These piece-gaffs are, therefore, more or less in the position of small masters, and their attitude towards the drinking habits of their men is in general marked by the same laxity; there are practically no restrictions on sending out for liquor, and in many houses the visiting potman is an established institution. More-

over, as the piece-gaff system makes for sweating and for irregularity of employment, it has in this way a further tendency to promote intemperance. As a result of this difference in conditions it is said that in the carriage trade alcoholism is much more prevalent in London than in the provinces, and that despite the fact that in the Metropolis there are, of course, a larger number of men in the industry engaged on specially delicate work, such as armorial painting and the like, which by its character excludes regular drinking.

Gas-stoking.—The men engaged in this work are of the same class industrially as the dockers and the builders' labourers, and a good number of the casual hands pass from one group to the other, doing stoking in winter, and going to the docks or the brickfields or the building trade in summer.

At the gas-works the usual custom is to distribute the work between three eight-hour shifts, changing by weekly or fortnightly rotation. A shift includes several groups of men, each group having to manage such a number of sets of retorts as will allow one set to be drawn and recharged every hour. At a fairly brisk rate of work this task can be got through in half an hour, and the remainder of the time is then free for rest and refreshment.

These conditions allow of a good deal of industrial drinking. The men can bring in liquor on coming to work, and on the day shifts it is usual to permit them to go out for refreshment, twice in the earlier and once in the second shift; or in some places a potman visits at corresponding intervals and takes

orders for beer. There are practically no restrictions as to the amount drunk, except, of course, that obtrusive intoxication is not allowed. It is said that some years ago it was the practice to make the men a beer allowance whenever the temperature in the works exceeded a certain limit, which under these circumstances it was found to do with remarkable frequency.

Wages are paid weekly, and no sub. is given; but there is a good deal of borrowing amongst the men, and regular hands can commonly get credit at the public-house. The system of alternating shifts, which interferes with fixed meal-times, appears in some instances to tend to a greater reliance on alcohol, but its influence in this direction is probably not very great. Alcoholism is extremely prevalent.

Glass-blowing.—In this skilled occupation the nature of the muscular effort and the influence of the heated atmosphere tend to further industrial alcoholism very much as in gas-stoking, which it also resembles in the system of alternate weeks of day and night work. The drinking tradition is correspondingly strong, and the industry ranks high in the scale of alcoholic mortality.

In a very few London firms attempts have been made, especially of late, to prohibit the introduction of alcohol during working hours, but such cases are exceptional; in the majority of glass-works no restrictions are placed on the frequency of sending out for liquor or on the amount brought in. As payment is for piece-work the employer has as a rule no particular interest in the matter.

Wages are paid on Saturday; the sub. is unusual, borrowing from fellow-workmen being the more general practice.

In this industry tradition appears to have a considerable force in fixing and preserving the drinking customs; this seems to be largely due to the system of work in groups or "chairs," which, as it requires a fairly accordant degree of speed and efficiency in each of the three men—the finisher and the two blowers—who make up the chair, tends to impose uniformity in such habits as have an influence on working capacity.

Metal trades.—The complexity in social and industrial circumstances which was noted as a difficulty in treating of alcoholic habits in the building trades is still more evident in the heterogeneous group of the metal workers. Many industries are connected with each metal, and many specialised processes belong to each industry, so that there is a great deal of diversity in the character of the work, and this is naturally apt to bring about more or less important differences in many of those conditions which react most potently on the drinking customs.

Nevertheless, it is but rarely that such differences are so marked as to obscure the underlying identity of the main determining influences in all these industries; even where they are most obtrusive their effect, as a rule, is limited to causing some relatively slight deviations from the type of industrial alcoholism characteristic of the whole group. We shall have occasion later on to point out some instances of this sort.

In general, metal-workers have always been noted for their strong alcoholic tendencies; their occupation, through the amount of muscular effort it frequently entails, and through the over-heated atmosphere in which much of it is pursued, is obviously apt to encourage industrial drinking. And in an earlier period in the history of the trade this effect was apparently accepted without question; Le Play, for instance, refers to alcohol as a seemingly "indispensable" part of the diet of workmen of this class. Subsequently, as machinery became more complex and its applications more general, and as the increasing stringency of factory legislation stimulated the employer's interest in the safety of his workers, efforts began to be made to restrain this disposition to alcoholism. These efforts, however, had to fight against an extremely strong tradition, embodied very usually in the persons of the foremen, who, being themselves survivors of a process of alcoholic selection, set much store by their own capacity for heavy drinking, and were ready to compel the new-comer to submit to the same test of efficiency. In many works, more particularly in the North of England, this state of things still to some extent persists; the workman who does not conform to the drinking usages of the shop will soon be made to feel in innumerable ways that his presence is not wanted. And even where the old tradition does not give rise to an active antagonism of this kind, it is very likely to produce an attitude of indifference in the more responsible workers which goes far to nullify the effect of any measures of restraint adopted

by the employers. For, in labour which may involve so strong a tendency to industrial drinking, it needs the energetic supervision of the foremen and overseers to check the surreptitious introduction of alcohol. Efforts to smuggle in liquor are, in fact, made more frequently and with more ingenuity in the metal trades than in almost any other industry. Bottles, for instance, are often concealed in the buckets of drinking-water, or are hauled up through the windows ; spirits are put in the tea-cans or carried in pocket-flasks.

Accordingly where, as is the more usual custom, the bringing in of stimulants is formally forbidden, the observance of the rule will depend very largely on the special circumstances of the shop. In the Government yards, where men are liable to be searched to prevent the theft of official secrets, this practice naturally hinders the smuggling of liquor as well, and some private factories at all events appear also to take fairly effectual measures against drinking on their premises.

On the whole, the tendency for several years past has been very decidedly in the direction of greater stringency. Many small masters, however, still tolerate the forenoon and afternoon beer times, and some of them allow special arrangements for the delivery of liquor from a privileged public-house, and in a few instances large firms follow the same practice, or even run canteens on their works.

Moreover, of course, in some branches of the metal trades, where the system of piece-work is in force and where the yards are open, the men are

practically free to drink as much as they please. Under such circumstances the drinking habits approach the type found in waterside labour, especially when, as is the case with anchor-smiths and chain-makers, the work is pursued in connection with seaport industries. This latter influence is also responsible for the alcoholic habits of the semi-casual class of marine-repairing engineers.

It was remarked above that in this group of industries special variations in the character of the work are met with, which are apt to modify the tendency to industrial drinking. Sometimes these variations operate to increase, sometimes to diminish, the alcoholic bent. Puddlers, for instance, and blacksmiths are reputed to be particularly heavy drinkers; and in the case of enamellers, whose work is extremely arduous and unpleasant, a spirit ration is sometimes even allowed by the employers.

On the other hand, in the more skilled and delicate work, such as that of the pattern-makers, the disadvantages of alcoholic unsteadiness are so well recognised by the workers that industrial drinking is quite exceptional. Similarly, brass-casters, whose finer craft demands very keen touch and quick and accurate movement, cannot do their work on beer.

It is interesting to note that the alcoholic death-rates in the several divisions of the metal workers seem to show traces of these differences; for instance, while the comparative mortality figures, from alcoholism alone, and from alcoholism and liver diseases taken together, in the whole class are re-

spectively eleven and forty, the corresponding figures amongst brass-workers are sensibly lower, namely, nine and twenty-nine; while in the group which includes anchor-smiths and chain-makers, they are rather higher, namely, twelve and forty-two. These differences are suggestive, though, of course, they are too slight, and, in their origin, too open to fallacy, to bear any great stress of inference.

Textile industries.—In the textile factories the facilities for industrial drinking are limited as a rule in very much the same way as in the large iron-works; that is to say, the bringing in of liquor by the men is forbidden, and no interruptions in the working day are recognised except for breakfast and dinner.

Since the labour is, in general, much less exacting than in the metal trades, and involves correspondingly less motive for the use of stimulants, these rules are, on the whole, fairly well observed, and the drinking habits of the textile workers compare favourably with those of most of the other occupational groups living under urban conditions.

This relative freedom from alcoholism is, however, of comparatively recent acquisition, and is in a great measure due to the alterations in the hours and circumstances of labour which have been brought about by the Factory Acts. Formerly, when no limitations were placed on the length of the working day, and when there was no compulsion on the employer to provide proper ventilation in his shops, the labour in the textile trades was, by reason of its excessive duration, and the foul and dust-laden atmosphere in

which it was carried on, one of the most arduous and exhausting in the whole field of manual industry ; and, as we saw in the introductory chapter of this book, it produced accordingly a wide and vigorous development of industrial alcoholism. Other causes have, of course, helped to bring about the better state of things that now exists, but the chief influence in the change has unquestionably been the factory legislation, and the effects it has thus wrought are a striking illustration of the extent to which intemperance can be modified by improvements in the industrial conditions of the workers.

In this connection we may also note that the large amount of female labour in the textile industries, though it tends through its disorganisation of home comfort to promote alcoholism, has in other ways a beneficial influence on the general tendency of factory life in relation to drinking habits ; for, as common opinion is less lenient to intemperance amongst women and at the same time more disposed to consider their comfort, employers have usually been more ready in the textile factories than elsewhere to provide decent refreshment rooms on their premises, and in these advantages the male hands naturally have their part. In this respect several of the cotton mills in the North of England are quite admirably equipped.

Sometimes, no doubt, employers, especially those who work on a small scale, adopt a rather laxer attitude towards the drinking habits of their men ; the introduction of beer is connived at, and liquor can be sent out for at regular times in the working

hours ; but instances of this sort appear to be relatively few and are on the decrease.

The lesser prevalence of industrial drinking amongst the textile workers accounts for their comparatively low rate of mortality from alcoholic diseases. On the other hand, their tendency to convivial excess is fairly strong, and this applies to the women workers no less than the men ; in both sexes a drunken spree is still a not uncommon way of signalling the completion of a good piece of work. Of late, however, more civilised manners are coming into vogue, and drunkenness is ceasing to be the mark of good fellowship

Boot and shoe makers.—The industrial conditions in this occupational group are so various and so complex, and moreover have been so unstable of recent years, that it is hardly possible to find any common denominator for them that will be of much practical utility. This fact, however, though it is, of course, a serious impediment to generalisations regarding the drinking traditions of the trade, helps at the same time to make its study rather instructive on many points of detail, for it enables us to see within the narrow compass of a single craft, the different effects produced by variations in several influences that have a large part in the genesis of industrial alcoholism.

The production of the machine-made boot, to which, as it forms by far the larger and more important branch of the trade, the following remarks will be wholly directed, comprises several stages. The pieces of the upper are first cut out by the

clickers, who are usually men or youths, and are then passed on to the machinists, commonly girls, by whom they are sewn together. The rough-stuff cutters and other workmen meanwhile prepare the soles. Soles and uppers are then fixed together by the boot-lastors, from whom the work goes finally to the finishers. The groups of workers who are concerned with these successive stages form distinct categories, the conditions of whose labour may be so dissimilar as to constitute from our point of view practically distinct trades. Up to a few years ago, indeed, this was the case to such an extent, especially in London, that the bulk of the work was distributed amongst outside workers, who might never come in contact with one another. Thus the clickers and the rough-stuff cutters worked in the employer's shop, but the closing of the uppers and the lasting were given out. And in the provinces it was customary to have the work cut and prepared, and then to send it on for lasting to the neighbouring villages. Under this system the outside workers were, of course, free from any restrictions with regard to drinking, and industrial alcoholism was accordingly rather prevalent amongst them. In 1895, however, the Trade Union was strong enough to carry out a strike against this out-work system, and since that date factory organisation has been on the increase in the boot trade both in London and in the provinces, with the result, it is said, that the drinking habits of this class of operatives have considerably improved. In the larger factories, at all events, the state of things now is very similar to what we have found in other

industries; that is to say, the men are not free to go out except at the regular meal-times, and the introduction of liquor during the working hours is forbidden. And these regulations have been pretty well enforced, at least within the last few years, largely because the keenness of competition in the boot trade has been such that even with piece work it has been a matter of consequence to the employer to secure a maximum of speed and efficiency from his hands in order to get the utmost return for his outlay on rent and power; and he has been more able to make these demands because the scarcity of employment has given him a greater freedom of choice and action. It is only in very rare instances that laxer practices are found in large shops. Moreover, in many of the boot factories the organisation of cheap restaurants has latterly been improved; and some of the co-operative societies in particular have made admirable catering arrangements on their works.

On the other hand, the smaller shops, as we saw to be the case with other trades, do little or nothing to interfere with industrial drinking; and in the boot trade the number of such shops is extremely large, since the necessary plant for a start can be acquired with a capital of a few pounds. Moreover, in connection with petty undertakings of this sort there is a good deal of subordinate employment and sweating, which, by their influence in lowering the standard of living, tend to promote alcoholism.

Where the out-work system persists there is, of

course, ample opportunity for industrial drinking. and this is further encouraged by a peculiar arrangement only met with in the boot trade, namely, the associated workshop, a room which the men club together to hire, each man providing his own light and appliances, and working whatever time he pleases. This system, which used to be common, especially in the bespoke trade, is now dying out.

On the whole, then, we may say that in this occupational group industrial drinking is probably very limited in amount, and is tending to decline amongst the workers in the factories ; but that the bootmakers working under other conditions, either as jobbing hands, or in the employment of petty masters, etc., are tolerably alcoholic.

Printing.—As in several of the trades we have discussed in this chapter, the different sorts of printing work vary within a pretty wide range, in the character of the labour they involve, the regularity of employment, the hours of work, and other details, many of which have a modifying effect on the drinking habits. Broadly speaking, the average conditions are of a kind strongly to promote industrial alcoholism, and their variations are for the most part in a direction that is more likely to increase than to diminish this general tendency. A very vigorous and deeply-rooted drinking tradition would seem, indeed, to have been a characteristic of this industry from an early period of its history. Franklin, for instance, writing nearly two centuries ago of the printing-house in which he worked while in London, says : “ The beer-boy had sufficient em-

ployment during the whole day in serving this house alone. My fellow-pressman drank every day a pint of beer before breakfast, a pint with bread and cheese for breakfast, one between breakfast and dinner, one at dinner, one again about six o'clock in the afternoon, and another after he had finished his day's work. . . . He had need, he said, of all this beer in order to acquire strength to work." It is a striking illustration of the stability of industrial manners that this description is substantially as applicable to the London printer of to-day as it was to his predecessor in the early years of the eighteenth century.

In most of the houses doing commercial and book printing the custom is, indeed, almost exactly as in Franklin's account. That is to say, the regular forenoon and afternoon intervals are recognised, when beer can be sent out for, or can be ordered from the potman of a public-house enjoying the exclusive right of entry on the premises. As in other industries, there are firms which do not countenance this practice, and some even take active steps to discourage drinking, but such instances appear to be relatively rare in the printing trade.

Even amongst women employed in connection with this sort of work, drinking during the hours of labour is very general; girls, for instance, who work at book-folding take their lunch and tea beer after the same fashion as the men, and are similarly prone to suffer from alcoholism.

Printers engaged on newspaper work are under even laxer conditions than those we have just de-

scribed. There is usually little difficulty in passing in and out of the office, and as in the intervals between getting out the different editions the men are practically unoccupied, it is customary to make frequent adjournments to the public-house. Drinking under these circumstances has a convivial element, the common practice being to toss for pots of ale. On the night shifts there is necessarily less opportunity for frequent drinking, but as a rule a man can bring in a supply of liquor to last him until the hours of opening in the morning; and up to some years ago a few public-houses near Fleet Street enjoyed by a tacit understanding the privilege of opening at 2 a.m. for the benefit of thirsty printers.

The irregularity of employment which is incidental to certain branches of this industry has also an influence on the drinking habits. A large number of men, for instance, depend almost entirely on casual work on weekly papers, being taken on just before publishing day. These "grass hands" while waiting for a job naturally gravitate to the public-houses specially patronised by their trade, and, indeed, if not society men, generally stand a better chance of being picked up there than they would anywhere else.

In general, throughout the trade there seems to have been hitherto very little effort on the part of employers to discourage industrial drinking, and very few attempts have been made to provide restaurant facilities for the hands. Possibly in part for this reason there appears to be less difference in alcoholic

habits between the different grades of workers than is usually found in industries with a hierarchical division of labour. The compositor, whose work demands quickness and accuracy and whose pay is liberal, is not as a rule much more temperate than the printer's assistant, engaged at heavy labouring tasks on lower wages; such difference as exists in their drinking habits affects the price and quality of their potations rather than the amount. It is only latterly and, as yet, to a slight extent, that there are signs that increasing competition is giving a higher value to the sober printer.

On the other hand, there are some highly skilled crafts connected with this industry in which the character of the work compels a departure from this tradition of free drinking; and since very frequently the interests of the employer are nearly concerned in these instances, the men's appreciation of the advantages of abstinence is reinforced by precautions against the introduction of liquor. In lithographic printing, for example, where the exact superposition of the sheet on the successive stones is of vital importance, a muddled workman, making a blunder at a late stage of the process, will probably destroy all the value of his previous work, so that the employer will lose heavily over material and labour. In most lithographic shops accordingly—probably in quite 70 per cent.—active steps are taken to prevent beer being brought in; and where intervals for refreshment are allowed, non-alcoholic canteens are often organised.

These special classes, however, are not sufficiently

large to modify perceptibly the intemperance of the printing industry as a whole ; we find, accordingly, that the occupational group ranks high in the alcoholic scale, its comparative mortality figure from alcoholism and liver disease being nearly the same as that of the building trades and the metal-workers. The very large proportion of the trade that is carried on in the alcoholic atmosphere of the Metropolis no doubt contributes to this result.

Coal-mining.—In this industry the conditions that determine the drinking habits of the workers are uniform and distinctive to a degree which we do not find in any other occupational group. Whatever differences may exist between the coalfields of one district and those of another, and however these differences may affect the methods of working, they are as nothing compared with the characters that are shared in common, and which, from our point of view at all events, make all coal-mines essentially alike. Of these characters, besides the general similarity in the muscular work involved in coal-getting, the most important are the constantly large scale of the operations, which prevents those contrasts between large and small employers so frequently met with in other trades ; the length of the spells of work which, owing to the difficulty of access to the place of labour, are more prolonged than in other industries ; and, finally, the extreme danger of drunkenness in the pit, a danger which, as it affects many interests, leads to a correspondingly rigorous supervision of the sobriety of the individual workman.

As a result of all these conditions the impediments to industrial drinking are greater in coal-mining than in any other form of manual labour. By the circumstances under which he works the miner is practically cut off from all access to liquor during the eight or ten hours which he spends in the pit. He is inspected before he goes down the shaft, to secure that he is absolutely sober; and in many mines a man will be stopped if he even smells of liquor. He is forbidden to take any alcohol down with him; and as his clothing is very light, and as, moreover, he is liable to be searched for matches and tobacco, he has very little chance of successfully smuggling in liquor, while if detected in the attempt he has to face dismissal and possibly prosecution. Besides, the spirit of solidarity will naturally discourage a practice fraught with danger for the whole body of workers, and will lead to the prompt denunciation of any offender.

In the result, therefore, the coal-miner has at most an opportunity for having a single dose of alcohol before he gets to work, and as its stimulant effect does not last long he speedily realises that beer is a "muddling" thing to work on. Amongst miners, accordingly, industrial drinking is practically unknown, though, as we have already noted, they are remarkably prone to convivial excess, the weekly or fortnightly pay-day being the occasion for a wild orgie, in which rum mixed with ale is one of the favourite tipples.

The high pay, of course, which miners receive favours this convivial tendency, at the same time

that it tells against alcoholism by allowing the adoption of a higher standard of living.

Owing to their relative freedom from industrial drinking, coal-miners, as we saw in the last chapter, show a remarkably low rate of alcoholic mortality, ranking, in fact, with the agriculturists and below all the other industrial groups.

Industries employing women.—In dealing with the textile trades and with printing we have had occasion to touch on the question of alcoholism amongst women in its relation to industrial occupation. Something more than this incidental treatment, however, seems to be required by the importance of the subject, and we therefore propose in this last section of the present chapter to supplement our previous references by a short discussion of the question as a whole.

The domestic occupations which are the chief field of women's activities lie outside the scope of this essay, and we need only remark in connection with them that they obviously allow ample opportunity for the continuance of alcoholic habits formed prior to marriage. This is a matter of much importance, for the ordinary existence of the working man's wife, with its succession of pregnancies and sucklings, and the management of a brood of children in cramped surroundings, will of itself be very likely to promote tipping; and if a knowledge of the effect of alcohol as an industrial excitant has been acquired by the factory girl, it is pretty sure of further development in the married woman. Instances of this sort, in which the discomforts of the

first pregnancy stimulate the growth of a rudimentary habit of industrial drinking to confirmed intemperance, are tolerably common in any wide experience of the alcoholic.

Leaving this matter aside, however, and confining our attention to the ordinary wage-earning occupations of women, we may observe that, speaking generally, their alcoholic proclivity is very much as we find to be the case with men, that is to say, it is less when the work is carried on in large factories than when it is done in small shops ; less when it is timework than when it is piecework, with the relative liberty which the latter system usually involves ; and, of course, less when the labour is skilled and delicate than when it is of the coarse, muscular kind. These different influences are naturally found in various combinations. In laundry work, for instance, the relatively severe character of the labour outweighs the other conditions, so that even when the work is done in large establishments the drinking tradition is tolerably strong, and many big employers will allow the introduction of beer during work-hours ; in textile work, on the other hand, as we have already seen, the factory organisation is the decisive influence, and is sufficient of itself to control the tendency to industrial alcoholism.

In occupations where male and female labour are closely associated the result of their mutual influence appears to be somewhat variable. If there is a strong motive on the part of the employer to restrain drinking, and if the character of the labour and the other circumstances are favourable to the success of

his efforts, then it seems likely that the presence of a large proportion of women workers makes for sobriety : the textile workers are a case in point. On the other hand, where such favourable conditions are absent, it is the rule that women working at or in connection with a trade where the alcoholic tradition amongst the male workers is strong will in a large measure adopt that tradition, quite irrespective of whether the character of their own labour does or does not involve any intrinsic tendency to industrial drinking. Thus, girls employed at book-folding, as was pointed out above, commonly follow the same usages as the printers, though their work is not of a particularly arduous sort. And in the nail- and chain-making industry in the Black Country the women who work along with the men in the small shops are said to drink very much after the same fashion as their male comrades, and suffer similarly from alcoholic disease. In this case, it is true, the character of the labour and the conditions under which it is pursued might be expected in any event to produce industrial drinking.

Another matter to be borne in mind in this connection is that in the less organised forms of industry the casual woman worker often belongs more or less definitely to the prostitute class, which is, of course, extremely prone to alcoholism—prostitution being, indeed, for obvious reasons an occupation that involves an exceptionally strong tendency to industrial drinking. This circumstance contributes materially to further alcoholism in the lower ranks of female labour.

In these very cursory remarks we have considered the industrial employment of women in relation to alcoholism only in so far as it affects the habits of the women workers themselves. It has, however, another influence of wider range to which we have already had occasion to refer, namely that which it exercises indirectly through its reaction on home life. This influence plays a very important part in promoting alcoholism. For the employment of women in the ordinary industrial occupations not only involves a disorganisation of their domestic duties if they are married, but it also interferes with the acquisition of housewifely knowledge during girlhood. The result is that appalling ignorance of everything connected with cookery, with cleanliness, with the management of children, which makes the average wife and mother in the lower working class in this country one of the most helpless and thriftless of beings, and which therefore impels the workman, whose comfort depends on her, not only to spend his free time in the public-house, but also tends to make him look to alcohol as a necessary condiment with his tasteless and indigestible diet. Both directly and indirectly, therefore, the employments that withdraw women from domestic pursuits are likely to increase alcoholism, and, it may be added, to increase its greatest potency for evil, namely its influence on the health of the stock.

Note on "bever."—This word, derived from the Italian *bevere*, Old French *beivre*, was a name given to any refreshment taken between the regular

meals, and more particularly to the afternoon collation. The following examples of its use are quoted in 'Notes and Queries' (Oct., 1859): "Betimes in the morning they break their fast, at noon they dine; when the day is far spent they take their beaver; late at night they sup" ('Gate of Languages,' 1568).

"He is none of those same ordinary eaters that will devour their breakfasts, and as many dinners, without any prejudice to their bevers, drinkings and supper" (Beaumont and Fletcher, "The Woman Hater," Act I, Scene 3).

At the present time it survives only in the speech of the working classes, especially in the neighbourhood of London, with the sense referred to in the text, of a drink between meals. Its use is most frequent amongst unskilled labourers; it is rarely employed by artisans.

CHAPTER VII.

THE FACTORS OF INDUSTRIAL DRINKING.

HAVING examined in some detail the alcoholic habits in the several occupational groups, we are now in a position to put together our salient results in a more general survey of the factors of industrial drinking, considering them in their relation to the physiological action of alcohol and to the present state and apparent tendencies of industry in England.

The most important and most obvious of our results, readily to be recognised in all the manual trades which we have dealt with, is the intimate connection of industrial alcoholism with the nature of the muscular and nervous effort involved in each particular sort of work. This connection we may express in the general proposition that the tendency to alcoholism depends on the balance between need of force and need of skill, reaching its maximum in the crude forms of transport labour, where brute strength is almost the sole requirement, and being at a minimum in the delicate crafts which make more demand on keenness of perception and accuracy of muscular adjustment. This fact is, of course, simply the confirmation in the actual conditions of manual labour of the conclusions

of the laboratory, which showed, as we saw in Chapter III, that the value of alcohol as an industrial stimulant depends altogether on its facilitating the discharge of energy and so increasing the output of muscular work, while its influence on sensory function—on sensation, perception, and co-ordination—is constantly unfavourable. The relation, therefore, which the special character of the labour in each form of industry bears to this regular action of alcohol will in the long run decide the alcoholic tendency of the average worker in that industry, and will so, in a large measure, determine its drinking tradition. And in like manner the various departures from this tradition on the part of individual workers can very often be accounted for by their peculiarities of reaction to the drug. In some subjects, for instance, as we learned from the psychophysical experiments, alcohol stimulates motor function with little or no disturbance of sensory function; such individuals, therefore, may be industrial drinkers even in a trade that demands a high degree of delicacy and skill. In other persons, on the contrary, the amount of sensory disturbance is so great and develops so early that it interferes with the performance of even coarse muscular work, so that though industrial drinking be the custom of their trade, they are forced to be abstinent during the hours of labour; this is the explanation of their habits that is given by many purely convivial drinkers engaged in occupations where industrial alcoholism is rife.

The first condition, then, we repeat, for the

development of industrial drinking is that the character of the work should be such that the effect of alcohol on its performance will be felt by the worker as beneficial, or, at all events, will not be perceived as immediately detrimental. This is the fundamental factor, and the other conditions that enter into the causation of industrial alcoholism, and which in many cases may appear to play a larger and more direct part, are operative in the main simply through reinforcing this primary influence.

Of these conditions, the facility of access to liquor during the working day is obviously the first in importance; it must, indeed, be regarded as also in itself an indispensable factor in this form of drinking; for, as we have already pointed out, the use of alcohol as a stimulant for work is only possible when the dose can be frequently repeated, so that its excitant effect may be kept up, and the onset of secondary depression may be avoided. When such frequent renewals of the stimulant influence are prevented, as occurs, for instance, when restrictions are placed by the employer on drinking during the hours of labour, then the workman is quickly made to realise, by actual experience, that the sense of increased energy that he gets from alcohol is of very brief duration, and that it has to be paid for by a degree of reactionary fatigue which considerably overbalances the initial gain in working capacity.

It is for this reason, because by breaking the continuity of the intoxication they destroy the prestige of alcohol, and not, of course, because they diminish the daily drinking by a couple of pints of

beer, that such restrictions exercise an important retarding influence on the development of industrial intemperance. We see this most clearly in those forms of labour where, while the restrictions on drinking are effectual, the spells of work are long enough to allow the ultimate disadvantages of alcohol to become clearly apparent. Coal-mining is a very good illustration of these conditions: the miner has practically no chance of getting liquor during his time under ground; his only opportunity, therefore, for using alcohol as an industrial stimulant is immediately before he goes to work; and as a single dose will not carry him very far in an eight-hour shift, he soon arrives at the conviction that beer is no good for his particular sort of labour. Accordingly we find, as we have already pointed out, that in this industry, instead of the superstitious belief in the strength-giving virtue of alcohol which is common in most forms of work that demand severe muscular effort, there is quite a contrary tradition, so that, though coal-miners are extremely addicted to convivial excess, they are practically free from industrial alcoholism.

In factories where the introduction of liquor is forbidden, and where the rules to that effect are properly enforced, the conditions are somewhat similar, but their influence in discouraging industrial drinking in the intervals of labour—that is to say, before starting work in the morning and during the dinner-hour—is less efficacious, for, since the spells of work are not so long, there is less time for the depressing action of alcohol to make itself felt.

That it does, nevertheless, become apparent even in these shorter periods, is shown by the expedients to which industrial drinkers will have recourse in order to smuggle in liquor, especially when the character of the work, as frequently in the metal trades, involves a considerable output of muscular energy.

For the full development, however, of the use of alcohol as an industrial stimulant, we must go to those forms of unskilled labour where access to liquor during the hours of work is practically free from restriction. In these circumstances, since the worker can always renew the excitant influence as soon as he is aware of any slackening of energy, he is never compelled to feel the secondary depression that alcohol induces, and he accordingly retains a firm belief in its value as an aid in muscular work. This, as we have seen, is the condition that we find generally in waterside labour and in the lower ranks of the building trade, which are the groups, therefore, that best illustrate the characteristics of industrial alcoholism.

In these groups the customary beer-times, together with the regular meal-hours, fix what we may regard as the normal type of industrial drinking, in which liquor is taken before starting work in the morning, at breakfast, at dinner, and at least once during the forenoon and once during the afternoon spell of labour, so that throughout the working day alcohol is regularly resorted to at intervals of not more than two hours. As to the quantity drunk we may probably take as a fair average for the confirmed industrial drinker the amount set down to the typical

docker, described on p. 80. The minimum daily allowance, as there shown, came, it will be recalled, to about six pints of "four-ale," which, assuming for the liquor an alcoholic strength of 4 per cent., would amount to nearly 5 oz. of absolute alcohol. This would be about three times the quantity usually held to be requisite to produce the degeneration of chronic alcoholism. Its effect in this way would, as we have already pointed out, be much accelerated by the deficiency of other diet, which is a common condition in the lowest ranks of the labouring class, and which is exaggerated by the expenditure of so large a share of the total income on the purchase of liquor. Such underfeeding is also, of course, in itself an important factor in causing industrial drinking, through the lack of strength and energy which it produces. So that in this double way, by encouraging the use of alcohol and aggravating its detrimental action, it contributes largely to bring about the constant association of alcoholism with the worst-paid forms of labour, which is one of the most striking facts that we meet with in the investigation of intemperance. In this same connection we may also note that the irregularity of employment which is very common in these forms of labour has a like tendency to promote industrial drinking; the labourer who starts on a fresh job after a period of enforced idleness, with the low living which is its usual accompaniment, will necessarily be for a time in a state of nervous and muscular inefficiency, for which alcohol will obviously be an apparent and to some extent a real remedy.

This is an influence which often has a considerable part in laying the foundation of a habit of working on alcohol.

Generally speaking, ale is the liquor taken by the industrial drinker. This preference may possibly be due in some part, as we have suggested, to the carbohydrates in beer, giving it a real advantage in a diet for muscular work over the more purely alcoholic beverages; but the main cause is more probably to be found in its apparent cheapness, for though there is not much difference as regards alcoholic value between the amount of rum and of "four-ale" that can be purchased for the same sum, the "big penn'orth" looks the better bargain. For this reason spirits are commonly regarded as a more aristocratic sort of drink, and workmen who habitually take beer will, on great occasions, when in funds, stand treat in whiskey or brandy. There are also, of course, a certain proportion of industrial drinkers who go in regularly for spirits. They are most numerous amongst the metal workers, especially in the North of England, where the spirit-drinking tradition has always been fairly strong, and where, though it seems now to be losing ground, the consumption of whiskey is still relatively larger than in most other parts of the country. The casual observer can see a rough indication of this local difference in the much smaller number of beer engines to be found in the average tavern of such a town as Newcastle compared with a house of the same class in London. Very often, too, men getting on in years, and men suffering from the gastric symptoms of alcoholism,

will substitute spirits for some part of their daily beer. And spirits in the form of rum, either alone or with coffee or ale, is also very frequently chosen as the morning "livener"; and as this drink is taken on an empty stomach the use of such a concentrated form of alcohol has, of course, a peculiarly injurious effect.

This "livener" or "freshener," whatever be its composition, always plays a very important rôle in industrial drinking and in the transitional stage between the convivial and industrial forms of drinking, being the natural remedy for the unsteadiness left after a week-end carouse. We find, accordingly, that conditions which stand in its way, notably the late opening of public-houses, have a very material effect in checking the growth of alcoholism. Thus the greater prevalence of industrial drinking in London as compared with the provinces, and in the latter as compared with Scotland, is probably in a great measure due to the fact that beyond the Border the public-houses are not accessible till 8 a.m., while in the British provinces they open at 6 a.m., and in the Metropolis at 5 a.m. In public-houses with a large *clientèle* of industrial drinkers this morning livener, which is almost a *sine quâ non* to the confirmed alcoholic subject, is a very considerable item in the day's business. In London taverns in poor neighbourhoods, for instance, as much as a third or more of the trade will often be done before 8 a.m., at which hour a house dealing with better-class artisans will hardly have its shutters down. And in the provinces publicans close to large factories which start work at 6 a.m. find it well worth

their while to cater specially for this morning custom by having the glasses ready filled before the doors are opened, so that the men may have just time to swallow their morning dram on the stroke of the legal hour of opening. This can be seen at the gates of several of the large iron works in the North of England.

The chief check on this early morning drinking is, then, the statutory limitation of the hour of opening. Drinking during the dinner and breakfast intervals is, of course, practically free from any direct outside control. On the other hand, drinking during the spells of work, which, as we have seen, counts for a great deal in the development of industrial alcoholism, largely depends on the will of the employer, who may or may not take steps to prevent the introduction of liquor on his premises. Formerly, at all events, the motives that decided his attitude on this matter would not, as a rule, bring him into opposition with the alcoholic tendencies of his men, for they were related in very much the same way to the character of the work. That is to say, the restrictions that the employer placed on drinking during work hours were, generally speaking, proportioned to his sense of the risk that his material or machinery might run at the hands of a fuddled workman; and since that risk was commonly greatest in skilled and delicate work, and least in labour of the gross muscular sort, it came about very usually that the restrictions were severest where the alcoholic tendency was least and least where the alcoholic tendency was greatest.

Within recent years, however, this state of things has altered. The growing use of machinery is more and more diminishing the field of labour in which force is of more importance than skill ; and even in that narrowing field many influences, amongst which the increased stringency of the Employers' Liability Acts is the most potent, are combining to give the employer a livelier interest in discouraging alcoholism amongst his workers. The effect of these changing conditions was referred to when describing recent developments in the building trade.

Again, the shortening of the hours of labour in many industries has tended in the same direction : it not only magnifies the importance of the slightest diminution of individual efficiency, such as alcohol may produce, but it also makes the loss of the ten or fifteen minutes at each beer-time a matter of real concern to the employer. And even in industries where piece work is customary the increasing keenness of competition often has a similar effect : it so narrows the margin of profit that the employer, in order not to lose on his outlay for rent, light, and so forth, will keep his men to regular hours, and will not allow the waste of time and skill that industrial drinking is apt to involve.

Under all these influences, accordingly, there is in most trades a growing disposition to put a stop altogether to drinking during work hours. Naturally this movement meets with a good deal of resistance, particularly in industries where the alcoholic tradition is long and firmly rooted. For, as must be constantly borne in mind in discussing the indus-

trial drinking of a trade, what we have really to deal with is not so much the actual alcoholic tendencies dependent on the work as an organised tradition which, though the outcome of these tendencies in the past, has a vitality of its own stronger than the original influences that formed it, and capable of surviving their cessation or decay. It is this tradition, rather than his own sensation of nervous or muscular fatigue, that impels the neophyte in a trade to adopt the drinking usages of his fellows, to start his day, for example, with the freshener of rum after the manner of an old hand. The force of this tradition, as can be readily understood, is strongest in the trades where an inherent alcoholic tendency is associated with a high specialisation of skill, bringing the new-comer into a relation of dependence on his seniors. This we observed to be the case, for instance, in the metal trades and in glass-blowing. In such trades the stoppage of drinking during work hours can only be enforced with great difficulty.

In many industries, of course, there are instances of employers who stand out of the general movement, and continue, for example, to allow the system of regular beer-times. This is particularly apt to occur when they or their representatives have a direct interest in the sale of liquor. Sometimes the firm runs a canteen on its own account; and sometimes it makes or allows the manager to make an arrangement with an individual publican giving him the sole right to sell beer in the factory during working hours. Allied to this latter system is the custom, to

which we have already referred, of the foreman guaranteeing the men's credit for industrial drinking at the favoured public-house, the account being settled on the weekly pay-day. For his part in the transaction the foreman gets a commission from the publican, generally at the rate of *2s. 6d.* in the pound. More elaborate plans to the same end are also in vogue : in London, for instance, it is sometimes the practice for the publican to issue brass tickets stamped with different values, from *1d.* to *3d.* ; these he hands over to the foreman of the " tied factory " at a discount ; the foreman gives them out to the men on demand as an advance on wages, and the publican then honours them in liquor according to their face value.

, All these arrangements have a very important influence, because they remove the main indirect restraint on the tendency to industrial drinking—the workman's want of ready cash. This difficulty is, of course, greatest in the lower ranks of unskilled labour, where industrial alcoholism is most rife. In the absence of some such method as we have just described, it is ordinarily got over, either by the " sub." from the employer after a few hours' work, or by the more usual way of borrowing. The money-lenders in the latter case are very generally the teetotalers of the group, who, no doubt as a solace to their outraged convictions, commonly charge interest to their unregenerate comrades at the rate of a penny in the shilling per week. The profits realised through this system of petty usury are thus very considerable ; and an appreciation of them is

often found to act as one of the most effectual incentives to temperance. Their value as an object-lesson of this sort has been rather amusingly illustrated by the enterprise of a zealous temperance reformer; this ingenious individual, who was the treasurer of the local branch of one of the large total abstinence societies, hit on the admirable idea of lending out the funds in his charge amongst his alcoholic fellow-workmen, and in this way increased his capital to such an extent that within six months he was able to present his branch with a banner which, by reason of its intrinsic magnificence as well as the circumstances of its origin, is the envy of all teetotaldom.

The effect of the various conditions which we have referred to in promoting industrial drinking is, moreover, very largely reinforced by the relative scarcity of proper means of procuring good and palatable food. This remark applies more particularly to the classes of unskilled and casual labour. In factories the state of things is in this respect generally better; the workmen more often live near enough to take their meals at home; and where this is not the case, it is at least fairly common for the employers to make provision for the supply of dinner on the works at reasonable terms. Some of the railway companies, and many of the big metal and textile firms in the North of England, have organised well-equipped restaurants for this purpose; and it is said that there are cotton mills in Yorkshire where the solicitude for the comfort of the hands extends even to the providing of instrumental music during

the dinner-hour ! As was remarked in speaking of the textile industry, these matters are usually better arranged in trades that engage a large proportion of female labour, though, unfortunately, the beneficial effect as regards alcoholism which is so produced is, perhaps, more than balanced by the disorganisation of home life and the loss of housewifely capacity that result from the employment of women in factories. Of course, employers differ very widely in their attitude on this matter ; and the instances of enlightened care for the dietary arrangements of the workers, such as we have just referred to, are still much more the exception than the rule, even in highly organised forms of industry. There can, however, be little doubt that the tendency which they indicate is showing signs of rapid development, and must continue to grow in strength when further experience has convinced the employers how much they stand to gain through the superior efficiency of the well-fed and temperate workman.

So far, accordingly, as the higher ranks of the working classes are concerned, the influence of defective dietary in promoting alcoholism is certainly on the decline. With unskilled and casual labour, on the other hand, where this influence has always been more powerful, the outlook is less encouraging. The difficulties to be encountered are obviously very much greater ; the home conditions are ordinarily worse, and the level of domestic capacity in the women is lower. It is, therefore, chiefly in the direction of organising cheap restaurants that a remedy for the evil must be sought ; but, unfortu-

nately, in this form of labour there is naturally much less motive for the employer to interest himself in the circumstances of his men, so that the provision of such restaurants is for the most part left to independent enterprise, either aiming at profit or working for purely philanthropic ends. In the latter way a great deal has been done, especially of late years; and in most of the regular centres of unskilled labour the workman, even on a very low scale of pay, can now procure, without much trouble and at a price within his means, good food in sufficient quantity and properly cooked. This last detail is of particular importance from our point of view, for it is probably the monotonous and unpalatable character of his ordinary diet, even more than its inadequate amount and defective quality, that inclines the workman to combine it with an excessive quantity of beer. Food which has undergone what the average housewife in the English proletariat fondly imagines to be cooking is pretty sure to stand in need of an alcoholic condiment, especially if, as is frequently the case, it has to be eaten cold or re-heated. And it is hardly a matter of surprise that the tired labourer will often lay more stress on the sauce than on the viands, and will be ready, if he can find a purchaser, to sell the domestic mess for a pot of ale.

As the larger scale of their operations enables them to give more value for the money in the amount, in the variety, and in the preparation of the food which they furnish, the philanthropic restaurants are better able to compete with the public-houses than are the ordinary coffee-shops; and the

multiplication of these institutions is, therefore, a valuable means of indirectly combating industrial alcoholism amongst the unskilled labourers. Of course, until the employers of this class of labour give the restaurant the same sort of advantage that it has in the big factories, where there is no access to the public-house during the hours of work, the beer-drinking tradition will be able to hold its own; and it is impossible, therefore, to expect under existing circumstances that very great modifications can be immediately brought about in the alcoholic habits of the casual labourer. And this fact, we may note in passing, suggests some doubt as to whether these philanthropic restaurants are entirely wise in their rigid insistence on the teetotal principle. There is some likelihood that the sudden and complete suppression of the accustomed alcoholic condiment may create in the uneducated mind a prejudice against the most irreproachable diet; and, as a matter of fact, old industrial drinkers will very often complain of the tastelessness of the food they get in the temperance restaurants, compared with what they bring with them from home and eat in the public-house. This judgment of a vitiated stomach, however worthless intrinsically, has its effect on the opinion of a not very discriminating public, and fosters the feeling of distrust that is so easily awakened against any philanthropic enterprise. On this account it seems probable that better and more speedy results might be obtained by a less uncompromising attitude, which, while discouraging the use of alcohol as an

industrial stimulant, would allow its consumption after work, and, in a very moderate extent, as a dinner beverage. Such systems have already been tried and found satisfactory in practice. Some years ago, for instance, in the construction of the Little Don Valley reservoir, the Corporation of Sheffield, in addition to establishing a restaurant where good food could be bought at nearly cost price, provided also a canteen for the sale of beer, but allowed it to be open only at the dinner-time and for a couple of hours in the evening. This plan worked very well, and might be copied with advantage not only in undertakings of this nature, but also, *mutatis mutandis*, in the docks and other centres of unskilled labour.

The facts which we have examined in this and the preceding chapter have shown us that the changes that have occurred within recent years in the conditions of industry in this country have for the most part tended very decidedly to diminish industrial drinking. It should, therefore, be of interest to inquire whether, as ought to be the case if this optimistic view be correct, there has been any corresponding fall in the statistical movement of alcoholism during the same period. At the first blush this expectation does not seem to be fulfilled. The average *per capita* consumption of beer and spirits has never decreased to any extent, and of late years has even shown some tendency to approximate to the high level of the early seventies; arrests for drunkenness, again, though they declined considerably up to 1896, have since that date

increased in number ; while the registered mortality from alcoholic diseases has more than doubled since 1867.

On closer scrutiny, however, the significance of these figures is considerably modified. In the first place the statistics of drunkenness and of the consumption of drunk do not really concern us at all ; as we have repeatedly pointed out, more drunkenness and a higher *per capita* consumption of liquor are no indications of a true increase in alcoholism ; they may be merely due to a greater amount of convivial drinking, such as usually accompanies "good times." And in the period under discussion we know that this was, as a matter of fact, in a large measure the explanation of their occurrence ; for in that period the years of their maximum incidence were also years of conspicuous general prosperity.

The increase in the mortality from alcoholism would, if real, be a more serious difficulty ; but, as has been pointed out by numerous critics, it must be regarded as in great part merely apparent. This is evident from the fact that the rise in the number of deaths ascribed to chronic alcoholism has coincided with an even greater fall in the mortality from liver diseases, and is, therefore, in all probability, due to a transfer of deaths from one category to the other. The following figures will make this point plain :

FACTORS OF INDUSTRIAL DRINKING. 131

Annual Death-rates from Chronic Alcoholism, and from Cirrhosis and other Diseases of the Liver, to a Million living—Averages for Quinquennial Periods from 1881 to 1900.

	1881-1885	1886-1890	1891-1895	1896-1900
Chronic alcoholism	34·8	42·8	53·0	70·6
Liver diseases	. 350·6	. 305·6	. 351·6	. 232·8

Moreover, as Dr. Shadwell has shown, during this same period the mortality from the least equivocal and most easily recognised alcoholic disease, namely delirium tremens, has hardly increased at all; its annual average from 1881 to 1885 stood at 13·4 per million living; between 1886 and 1890 it was 13·2; and during the next two quinquennial periods it was 15·0.

If, then, due allowance be made for these qualifying considerations, it will appear that the increase of alcoholism in England in the last thirty years will be reduced to such moderate proportions that, in view of the other changes that have occurred in the same period, and which were eminently of a kind to promote intemperance, it may be looked on as equivalent to a relative decrease. For during these years, in which the exodus from the country to the towns has been at its height, there has been a large transfer of labour from the temperate occupations of husbandry to the urban trades, where industrial drinking is most rife. The following table, showing per 10,000 of the total population the distribution amongst the chief forms of industry in 1901 and in 1881, will illustrate this change:

Industry.	1901	1881
(1) Agriculture	495	711
(2) Building	273	239
(3) Mining	202	158
(4) Chief textile industries . .	243	313
(5) Iron and steel	301	239

Under these circumstances a very marked rise in the amount of alcoholism might naturally have been looked for; and the fact that, on the contrary, there has been at most only a very moderate increase would seem, therefore, to indicate that during this period there must have been a considerable abatement in industrial drinking. And this, it may be added by way of confirmation, is also the general impression of intelligent observers amongst the workmen themselves.

On the whole, then, we may take it that the present evolution of industrial conditions in England is tending to bring about a decided decrease in the prevalence of alcoholism, most pronounced in the skilled industries, but evident also in even the lower sorts of labour. And there is no reason to suppose that this trend of things is at all likely to change, at all events in the near future. On the contrary, it appears more probable that the improvement in the standard of living amongst the working classes on the one hand, and, on the other, the increasing recognition of the need for high industrial efficiency which results from intenser competition, will tend more and more to check the use of alcohol as an industrial stimulant, and will relegate it to its proper function in convivial life.

INTERCHAPTER.

SOCIAL EFFECTS OF ALCOHOLISM.

HAVING discussed the phenomena of alcoholic action in the individual, and having examined in some detail the industrial conditions that are mainly responsible for the spread of the chronic intoxication in the community, it now remains to deal with the third portion of our task, and to consider the relation of alcoholism to certain of the graver social evils in whose causation it is supposed to play an important part. From this point of view we shall treat in the following chapters of suicide, crime, insanity, and racial degeneration.

As we shall have occasion to remark in discussing these social problems severally, the different observers who have studied them have differed a good deal in their opinions and in their statistical estimates of the importance of the alcoholic influence. In a large measure, no doubt, this must be attributed to the extreme complexity of the questions involved, and to the inadequacy and uncertainty of the data available for their solution. But it is easy to see that, over and above these inherent difficulties, there are others which have helped even more to obscure

the subject, but which are of a different character and are dependent on causes that are largely removable.

Of these avoidable causes of confusion by far the most important arises from lack of a definite limitation of what we are to understand by the consequences of alcoholism. Very frequently it is sought to include amongst these consequences, not only the direct results on health and conduct which the intoxication of the organism produces, but also the indirect mischief, positive and negative, which drinking habits entail as a form of wasteful expenditure. This attitude may, no doubt, be quite legitimate when certain purely political and economic aspects of the drink question are under consideration, and its practical utility may then, perhaps, be sufficient to outweigh the disadvantages that are inseparable from a method so liable to the distorting influence of arbitrary judgment. It has, however, no such *raison d'être* in the study of intemperance from any other point of view; and in an inquiry like this on which we are here engaged, where it is a chief aim to secure as much precision as the subject will admit of, the vagueness it brings into the discussion would be an unqualified evil.

In our examination, therefore, of the social results of alcoholism we shall confine ourselves to the phenomena that can be directly connected with the organic intoxication, and will take no account of the dangers which the drink traffic may in other ways bring upon the community.

This limitation is not, of course, adopted merely

to secure an artificial clearness : it is, on the contrary, fully justified on the score of accuracy, for the facts to which it restricts our survey form a special category quite distinct from the indirect evils of intemperance, and claiming an alcoholic origin on very much stronger grounds. When, for instance, an individual of previously valid brain becomes chronically intoxicated, and lapses into alcoholic dementia, or while in the dream-state of drunkenness commits suicide or murder, then the insanity, the suicide, or the crime will properly be accounted a direct and immediate consequence of alcoholism, a result due to the intoxication of the organism. But the relation is entirely different in the case of those evils which are only indirectly connected with drinking excesses. Thus, if a man squanders his wages with his boon companions and lets his children go supperless and barefoot, the suffering and social evil thereby induced cannot in the same way be attributed to alcoholism ; they are not the consequences of intoxication ; they are the results of vicious self-indulgence which happens to have taken this particular direction, but which, had this path been closed to it, would readily have found another where its detrimental effects might have been no less serious. In the strict sense, therefore, these and other similar indirect evils which result from extravagant spending on drink cannot be included amongst the proper mischiefs of alcoholism ; they have no necessary connection with it, no specifically alcoholic character. It has seemed desirable to insist on this point at the outset because its neglect

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has, to a greater extent than any other cause, enhanced the difficulties attendant on the discussion of these problems, and has led to estimates of the social gravity of alcoholism which, by their diversity, and by the obvious exaggeration of some of them, have done much to prevent the proper apprehension of the question and to discourage its exact study.

As our chief aim in the ensuing chapters will be to ascertain how far alcoholism, defined in the narrower sense we have just indicated, is really operative as a factor in the causation of the several social evils we propose to discuss, we must pursue our inquiry mainly by the help of statistics. Unfortunately, even the best evidence of this sort is apt to be somewhat inconclusive; and many of the statistics that we shall have to use are very far from attaining a high standard of excellence. For this reason we must approach their consideration in a somewhat critical spirit, and must recognise that any estimate of the proportions of the alcoholic evil based on their indications can have no pretension to more than a very approximate degree of accuracy; on many points, indeed, we shall find that they fail even to carry us so far, and that we must be content to remain for the present in a state of indecision.

CHAPTER VIII.

ALCOHOLISM AND SUICIDE.

IN the chapter on chronic alcoholism it was pointed out that the suicidal impulse is the most frequent and most characteristic of the graver disorders of conduct to which the habitual drunkard is prone. It will, therefore, be anticipated that, when we come to deal with alcoholism from the point of view of its influence on social phenomena, we shall find that influence most pronounced in the case of suicide. And this expectation is, in fact, in a large measure realised. Of course, as with all phenomena of this order, suicide has no fixed and invariable formula: the absolute and relative importance of alcoholism in its causation will differ widely in different countries and in the same country in different places and at different times. It is, accordingly, only where alcoholism is exceptionally prevalent, or where the other causes of suicide are comparatively inoperative, that we can expect the movement of suicide to show unequivocal evidence of alcoholic influence. Thus, Denmark, and, before the adoption of the Gothenburg system, Scandinavia, may be pointed out as realising the former condition; while Ireland, as we

shall see later on, is a typical instance of a community where the relative insignificance of ordinary suicide gives a magnified importance to the alcoholic variety.

In this country, on the other hand, the conditions are different; the absolute amount of alcoholism, though considerable, is very much less than in Denmark; while the other causes of suicide, which are lacking or are of small account in Ireland, are present here in a marked degree.

But though for this reason the influence of alcoholism does not in England attain to such prominence that it is immediately and plainly to be recognised in the statistical movement of suicide, we may, nevertheless, by indirect methods arrive at a fairly clear notion of its nature and importance.

To do this, we have first to ascertain what are the distinctive characters by which the alcoholic influence in suicide is revealed in statistics. The data for this inquiry are derived from several sources. In the first place the occupational death-rates as given in the Registrar-General's returns show us a number of industrial groups—those more particularly connected with the liquor trade—in which a very high rate of alcoholism is associated with a corresponding frequency of suicide. Since there is no evidence of any extraordinary operation in these groups of other causes of suicide, we may probably take it that the suicide is here a result of the alcoholism, and that, so far as it shows any unusual features, these are likely to be due to this special origin.

In the same way we can utilise another source of

information to which we have already had occasion to refer, viz. the police returns of attempts to commit suicide. Such attempts, which in this country are indictable offences, and are therefore reported by the police with enough care and uniformity to give them a good deal of statistical value, are found on direct investigation, as we pointed out in Chapter IV, to be due in about 80 per cent. of the cases to chronic alcoholism; and we shall presently see that the characters which appear in their statistical analysis give further proof in support of this view of their origin. These attempts, then, like suicides in the industrial groups most prone to intemperance, may be taken to represent alcoholic suicide, and the characters in which they agree with the suicides in these groups and differ from the general run of suicides will presumably be those distinctive of their alcoholic causation.

Of the distinguishing characteristics found in this manner, the most important and the most evident is that of earlier age incidence. Ordinarily the tendency to suicide increases with advancing years: slight in the time of active vitality, it becomes more marked with each successive decade, reaching its maximum over sixty-five years of age (*vide infra*, page 140). On the other hand, in the suicides of the alcoholic groups and in attempts to commit suicide we find that the relation to age is quite different. From the tables of the Registrar-General we may select the following groups which show a special alcoholic proclivity: publicans, butchers, coach and cab drivers, commercial travellers, hairdressers, and

musicians. In the three years 1890–1892 there were in these groups in all 404 cases of suicide by males over twenty-five years of age. If the suicide rates per million living at each age period in this composite alcoholic class be now compared with the corresponding figures for all occupied males, we get the following results :

	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 before the Statistical Society, figures are given showing details of the age incidence of suicide in various occupations during the six years 1878–1883. 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.

The examination of the figures regarding suicidal attempts gives a similar result. Unluckily in the criminal statistics, which deal with these attempts, and in the returns of the Registrar-General, which are our authority for actual suicides, age groups are classified on different systems, and it is, consequently,

impossible to place the figures in exact parallelism. The two phenomena present, however, a contrast so marked that it appears with perfect plainness 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 forty-five 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 for attempting to commit suicide (1893–1897), the proportion aged over forty was only 46·7, and the period of maximum incidence was the decade 30–40. A similar contrast is found as regards females: the maximum incidence in suicides in that sex is in the decade 35–45, while in attempts to commit suicide it is in the period 21–30. These two expressions, therefore, of the suicidal impulse of alcoholism—suicides in the alcoholic group, and attempts to commit suicide—agree in this character of earlier age incidence.

As regards the influences of sex and of season, which next to the influence of age have the most potent effect on the movement of suicide, we have less evidence, but what there is suggests that but little difference is to be traced in these respects between alcoholic suicide and suicide from other causes. And that is, of course, very much what we should expect to find, for both these influences operate somewhat similarly on alcoholism and on suicide. Thus women are less exposed to the ordinary causes of suicide than are men, and their contribution to suicide in all countries is consider-

ably smaller than that of the other sex ; in England it averages about 25 per cent. of the whole. But they are also much less prone to alcoholism : the judicial estimate of female drunkenness puts it at 29 per cent. of the total ; and the mortality of women from alcoholism and cirrhosis of the liver is to that of men in the proportion of less than two to three. We should accordingly anticipate also a lesser frequency of alcoholic suicide in women : and this is what we find, so far at least as we can judge from the very inadequate evidence which is alone available—the statistics of persons indicted at Assizes and Quarter Sessions for attempting to commit suicide. In the period 1893–97 the proportion of women amongst persons so indicted amounted to 27 per cent.

In respect of seasonal influence, again, we find a similar harmony between actual suicide and suicidal attempts ; both increase regularly from winter to summer, and decrease from summer to winter. Of course, we can hardly speak of a seasonal influence as affecting the development of a condition of chronic alcoholism, though even in that sense, no doubt, the seasonal variations in the length of the working day must react on the amount of industrial drinking. But apart from that aspect of the question, it is natural to suppose that the predisposition created by chronic intoxication will not affect the liability to the ordinary organic influences (such as that of season is, at least in part) which work on the suicidal tendency. And, moreover, we know that in any case drunkenness, which is so frequently the immediate



factor in the suicide of the chronic alcoholic, rises and falls with the same seasonal curve as suicide. There is, therefore, no reason why, in respect of seasonal incidence or of sexual proclivity, there should be any marked divergence between alcoholic and ordinary suicide.

More characteristic differences appear when we come to deal with another factor which has much influence in ordinary suicide, namely the form of religious belief. We cannot investigate this factor directly, owing to the absence of information on the matter in English statistics ; but we can attempt an indirect comparison by observing the facts in Ireland, where the religious conditions are different, while the amount of alcoholism is very little less than in this country. Without going into details, we may summarise the facts 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 often been considerably in excess of the rate of actual suicide. In 1898, for instance, and in 1899, when the number of actual suicides amounted to 145 and 128 respectively, the number of cases of suicidal attempts were 171 and 179. And this excessive frequency of suicidal attempts has been comparatively much more decided in the Catholic provinces than in Ulster. These facts, therefore, would suggest that if, as seems probable, the low suicide rate of Ireland be mainly due to the influence of Catholicism, that influence is, relatively, powerless against the suicidal impulse of alcoholism.

Another probable point of distinction between ordinary and alcoholic suicide is in respect of the methods of self-destruction. Since the impulsive suicide of the drunkard is, as we have seen, generally characterised by obscuration of consciousness and absence of deliberation, we should expect *à priori* that it would be realised more often by such simple methods as drowning or poison rather than by the more elaborate way of hanging. Unfortunately, we have very little evidence by which we can attempt to test this deduction: no information with regard to methods is available in the statistics of suicidal attempts or of suicides in the alcoholic groups. There are, however, some indirect and imperfect indications to be made out, and these go to support the view to which we have referred. Thus in a series of personal observations of attempted suicide, too few, however (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, of course, a reversal of the conditions found in ordinary suicide, where hanging is the method chiefly resorted to. Again, in those parts of Ireland where, owing to the religious conditions, the alcoholic influence in suicide has a higher relative importance, we find a similar tendency to a lesser frequency of hanging. For instance, in the four years 1887-90, while the proportion of suicides by hanging in Ulster amounted to 32·1 per cent. of all suicides in that province, in the Catholic provinces the proportion was only 23 per cent. It is interesting to observe, further, in connection with this matter,

that as a general rule, which is most clearly to be seen in countries where alcoholism is very prevalent, the preference for other methods of suicide than hanging is most marked in the earlier age-groups, in which, as we have already pointed out, the alcoholic influence is strongest. Thus Wagner has shown in the Danish statistics that, while the proportion of suicides by hanging increases steadily from the earlier to the later age-groups, the reverse obtains for suicide by drowning and by poison. And a somewhat similar relation can be traced in English suicides; in the years 1890, 1891, for instance, amongst male suicides in this country the proportion at ages under forty-five was, in suicides by hanging 33·5 per cent., in suicides by drowning 47·5 per cent., and in suicides by poison 50 per cent. These statistical data are evidently far too imperfect to warrant any definite conclusion, but they are at all events fully consistent with the *à priori* probability that in alcoholic suicide there is a tendency to the choice of drowning or poison rather than to the choice of hanging.

To sum up, therefore, the foregoing discussion, we are to conclude that the distinctive characters of the suicide of alcoholism are a tendency to earlier age-incidence, an independence of religious influences, and a predominance of the cruder and more impulsive methods of execution.

To these characters we must add, to complete its description, that this type of suicide is connected essentially with the chronic intoxication, and not at all with primary drunkenness. This was the con-

clusion to which our study of alcoholism in the individual led us, and we have seen that it is fully borne out by the statistical evidence. Thus it is clear from the figures given on pp. 66, 67, that, while the distribution of suicidal attempts, which we know to be of predominantly alcoholic origin, corresponds pretty well with that of the mortality from alcoholic diseases, it is entirely uninfluenced by the local prevalence of drunkenness. And a similar result was found on comparing the incidence of the phenomena in the composite groups (pp. 72, 73).

Alcoholism is pretty prevalent in this country; and we have seen some reason to affirm that the suicidal impulse is one of its most ordinary manifestations; and, though no doubt in the large majority of instances the impulse leads only to an abortive attempt, there must nevertheless be a considerable number of actual suicides from this cause. It is, therefore, natural to suppose that alcoholism accounts for an appreciable part of the total amount of suicide in England. The majority of writers who have expressed themselves on the point have adopted for this country the estimates of Lunier for France and of Brierre de Boismont for Paris, and have set down one suicide in eight as due to intemperance. Though estimates of the amount of alcoholic influence are, as a rule, much more apt to err on the side of excess than of deficiency, it is probable that this figure is to be taken as a minimum. It would be much less than half that arrived at by comparing the suicide rate amongst occupied males as a class with the rate in the very large occupational groups

in which alcoholic influence is at its lowest—namely in coal-miners and agriculturists. In these typically non-alcoholic groups the comparative mortality figures for suicide are respectively nine and ten, while the corresponding figure amongst occupied males in general is fourteen. If we take the excess of the latter figure over the former to represent very roughly the share that alcoholism has in the

Suicide in the Counties of England and in North and South Wales. Annual Average per 100,000 of Estimated Population during the Period 1891–1895.

Northampton	12·09	Norfolk	8·54
Suffolk	11·50	Hampshire	8·40
Sussex	11·24	Worcester	8·38
Nottingham	10·68	Oxford	8·37
Leicester	10·56	Cambridge	8·29
Metropolis	10·50	Stafford	8·17
Lincoln	10·21	Bedford	8·10
Huntingdon	10·16	Berkshire	7·96
Warwick	10·07	Cheshire	7·96
Westmoreland	9·99	Cumberland	7·80
Northumberland	9·92	Rutland	7·74
Shropshire	9·48	Gloucester	7·65
Devon	9·46	Hereford	7·42
Lancashire	9·10	Durham	7·15
Dorset	8·84	Monmouth	6·28
Somerset	8·71	Wiltshire	5·51
Derby	8·68	South Wales	5·43
Buckingham	8·64	Cornwall	4·90
York	8·59	North Wales	4·63

suicide of all occupied males between the ages of fifteen and sixty-five, we should then rate it at from 28 to 35 per cent. Of course, even if this method were reliable, the figure for the whole population would be distinctly lower, since alcoholic influence is of less significance in women, and at ages above the limits adopted for the statistics of occupied males. Under any circumstances, however, it is probable that intemperance is responsible for a larger proportion of suicides than is attributed to it in the estimates we have quoted, and that we should be well within the mark if we put its contribution at about 20 per cent.

Since the regional distribution of alcoholism varies within pretty wide limits, we should naturally expect that its influence on suicide, if it be really so considerable as we have suggested, should be in some measure perceptible in the local incidence of the latter phenomenon. And it is, in fact, apparent, though not perhaps very clearly, in the following table, which shows the frequency of suicide in the several counties of England and in North and South Wales during the years 1891-1895. On comparing this table with the figures on pp. 66, 67, giving the distribution of alcoholic mortality and of attempted suicide during the decennial period 1891-1900, it will be noted that though the correspondence of the phenomena is very imperfect, nevertheless there is a general tendency for the counties high in the scale of alcoholism to show also fairly high rates of suicide; and that in no instance, at all events amongst the larger counties,

do we find a considerable prevalence of alcoholism with a low rate of suicide. And we observe further that the incidence of suicide shows no correspondence whatever with the frequency of drunkenness, being relatively low, for example, in such drunken districts as Durham and South Wales.

The last point to which we have to refer is the present tendency in alcoholic suicide. Of recent years the frequency of suicide in England has increased; the rate per million inhabitants, which in the decennium 1861–1870 stood at 65, rose in the following decade to 70, and in the decade 1881–1890 reached 77, representing an increase of over 18 per cent. on the figures for the first-named period. Now, this increase in suicide has been characterised by two peculiarities. In the first place it has affected the earlier age groups very much more than the later. This is evident from the following table, showing the distribution of the increase in the four age groups comprised within the limits of twenty-

Increase of Suicide Rate per Million Inhabitants living in each Age Group from 1861–1870 to 1881–1890.

	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 „

five and sixty-five years in men, and twenty and fifty-five years in women. It is within this period of life that the large majority—considerably more than three fourths—of suicides occur, and therefore the variations in these groups are decisive of the general tendency in the statistical movement.

The second remarkable feature in the growth of suicide is that it has been practically limited to suicide by drowning and by poison, while suicide by hanging has remained about stationary.

But these two features, of earlier age incidence and of more impulsive method, are, as we have seen above, precisely those which are found in alcoholic suicide. And it will be further borne in mind that during the period with which we are concerned there has also been a very remarkable rise in the frequency of suicidal attempts, which we must mainly attribute to alcoholism.

Thus in the period 1867–1871 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 of 1892–1896 it rose to 57·9 per million, an increase of over 78 per cent. on the first cited figures.

These two facts, then, taken together, would suggest that in the recent growth of suicide an important part has been played by an increased alcoholic influence. It is said advisedly “an increased alcoholic influence” rather than an increase of alcoholism; for though, as we have seen, there has been in these years a slight rise in the *per capita* consumption of intoxicants, and a real, though probably slight, rise

also in alcoholic mortality, it is not likely that such increase of alcoholism as is indicated thereby would be at all sufficient to account for so decided an effect on the movement of suicide. It is more probable that the conduct of the alcoholic, like that of the criminal and the lunatic, has not entirely escaped modification by the general social tendencies of the time, and that there has been, so to speak, a change of direction in the alcoholic impulsiveness, so that tendencies to suicide have developed at the expense of tendencies to violence.

CHAPTER IX.

ALCOHOLISM AND CRIME.

THE discussion of the influence of alcoholism on crime is attended with rather more difficulty than was met with in the corresponding inquiry regarding suicide; and it has led, accordingly, to even more widely discordant estimates of the nature and importance of the part that intemperance plays in the causation of delinquency.

The main source of this confusion, however, would appear to lie less in the inherent difficulties of the question than in the frequent use of the term "crime" as if it corresponded to some distinct and relatively simple mode of conduct, instead of being, as it is, a word of purely legal meaning, embracing a heterogeneous collection of acts which have no common character save that of illegality. This fallacy, which runs through a good many plausible generalisations about crime and criminals, is particularly misleading in connection with alcoholism. On the one hand, owing to the inclusion under the rubric of crime of the various infringements of the liquor laws, it overstates the amount of the alcoholic contribution to the total volume of criminality;

while on the other hand, by leaving out of account the differences in social gravity between the several varieties of more serious delinquency, it tends to an error in the opposite direction, obscuring the fact that the classes of real crime in which the alcoholic influence is most potent, though numerically insignificant, are precisely those of most importance to society.

The exaggerations to which this fallacy may lead in the first direction are obvious when it is recalled that of the total violations of the law, of all sorts and degrees, in this country, more than a quarter are cases of simple drunkenness. And if we add to these the other infringements of the licensing laws, and the trivial cases of assault and damage, which are merely drunkenness under another name, this proportion will be raised to considerably over one third. Naturally, therefore, when we reckon all offences indiscriminately under the heading of crime, and inquire into their origin, we find that drunkenness appears to play the predominant part in the causation of criminality. And it may be added that it is largely on this fallacy that the defence of the legal attitude towards drunkenness is grounded; that is to say, drunkenness is penalised mainly because it is regarded as a serious cause of crime, and at the same time it is proved to be so by statistics in which in reality it constitutes the chief part of the crime it is supposed to cause.

If in this way the influence of alcoholism on criminality is over-estimated, it is liable to be as much falsified in the contrary direction in statistics which

ignore petty delinquency, and deal only with indictable offences. For, as we shall see later on, the crimes that are in an important measure due to alcoholism are especially crimes of violence and crimes of lust, while it has relatively little to do with the causation of crimes of acquisitiveness, which latter make up more than 90 per cent. of indictable offences in England. By pursuing our inquiry on this basis, accordingly, we should arrive at the result that alcoholism was probably responsible for much less than 10 per cent. of serious crime—an estimate which, in that form, is only of value to those who would attribute the same significance to larceny and to murder.

To meet these difficulties, then, what we have to do is to consider, not the relation of alcoholism to a vague abstraction which we entitle "crime," but its relation to each individual category of crime. In this way our estimates will be at all events more intelligible; and, so far as they are based on the observation of the general statistical movement of the phenomena concerned, they should be fairly reliable. When, however, they depend in any measure on the direct appreciation of the alcoholic factor in any group of criminals their value will be further qualified by reason of the extreme complexity of causation in even the seemingly most simple modes of delinquency. Such complexity, as it demands of the observer a corresponding degree of care in psychological analysis, makes his personal equation a disturbing factor of proportionate importance. It is for this reason, chiefly, that the majority of detailed prison statistics regarding the alcoholic influence in

crime are only to be accepted with considerable reserve. The wide differences in these estimates, which cannot be accounted for by variations in other conditions, and their contradiction by independent evidence, show sufficiently that in most instances the probable error from lack of good faith and intelligence on the part of the criminal has not been checked by the critical judgment of the observer. And in the case of alcoholism the need of such a check is doubly great. No plea for moral shortcomings is more readily raised and more lightly accepted than that of intemperance ; where an *alibi* of the body cannot be set up, drunkenness is an easy *alibi* of the mind. Hence in such statistics generally, and more especially in those compiled by clergymen of all denominations, who are commonly better judges of the abstract moral quality of conduct than of its causation, the influence of alcoholism is likely to be overrated. When, for instance, we observe that of male prisoners convicted of crimes of acquisitiveness in Sweden 52·2 per cent. were drunk at the time of the offence, but that the proportion so found in France is only 3·2 per cent., we shall probably be safe in assuming that this difference depends less on the diversity of conditions in the two countries than on the fact that the former estimate is furnished by prison chaplains from the statements of prisoners, while the more modest figures are based on the *dossiers* of the committing courts. And similarly, when one of the most recent inquiries on this point—that conducted by the American Committee of Fifty—makes intemperance a cause in 49·5 per cent. of crimes of acquisitiveness,

we are hardly surprised to learn that the intemperance which is supposed to be the causal influence is sometimes nothing more direct than the "intemperance of associates."

On the whole, therefore, we shall probably find it more profitable, instead of relying on statistics of this sort, to try to form an independent view of the matter from the facts and figures available with reference to this country.

At the outset we may assume that the offences which may be described as skilled crime are not, as a rule, found in frequent association with alcoholism: the expert burglar or the artistic forger may celebrate a professional success by a carouse, but the exigencies of their work would obviously make it impossible for them to be habitual drinkers. On the other hand, in the unskilled forms of illegality—crimes of violence, crimes against morals, petty larceny, vagrancy, prostitution, and so forth—a large proportion of offenders are alcoholic. In such cases the crime is sometimes the direct result of the intoxication; in other instances alcoholism and crime are co-effects of some common cause or causes in the individual or in his environment; or again, the special circumstances of the criminal *milieu* may lead to alcoholism.

Now, as we saw in discussing alcoholism in the individual, simple drunkenness may promote impulses of acquisitiveness and normal sexual impulses; while chronic intoxication creates a proneness to suicidal and homicidal impulses, and to certain sexual impulses of an aberrant sort. It is evidently possible,

therefore, that in the several corresponding varieties of crime alcoholism may be a more or less important factor. How far it is so in reality, and how it compares in relative importance with their other causes, we may try to ascertain, on the one hand, by an examination of the general statistics of alcoholism and of delinquency, and, on the other hand, by the direct study of representatives of the several classes of criminals.

To take the former method first, we have to inquire what has been in recent years the direction of the statistical movement in alcoholism, and to compare it with that of crime during the same period. As we have already seen, there has been within the last quarter of a century but little change in the amount of alcoholism; the *per capita* consumption of liquor has kept at a fairly high level, though it has not come up to the big figures of the early seventies; the mortality from alcoholic diseases has probably risen, but only in a very slight degree; and the rate of drunkenness, though oscillating widely in individual years, has shown no decided and persistent change of tendency.

Now, during ~~this same~~ period in which the amount of alcoholism has been thus practically unaltered, or has, at all events, not decreased, there has been, on the other hand, a very considerable change in the amount of crime. Of the three varieties of delinquency which are obviously the most important, we find that crimes of acquisitiveness have very largely decreased; crimes of violence have also diminished, though to a rather less extent; while crimes of lust

have continued at about the same level, if they have not shown some tendency to rise in frequency. Thus the proportion per 100,000 of population of offences of acquisitiveness reported to the police, which in the five years 1875–1879 averaged 337·12, and which was somewhat higher in the next quinquennial period, has since then fallen steadily, and in the years 1895–1899 stood at 234·38—a decrease of over 30 per cent. on the figures for the first period. Similarly the proportion of crimes of violence has fallen from 8·73 in 1875–1879 to 6·77 in 1895–1899, being a decrease of over 22 per cent. And, as has been proved in detail in Sir John Macdonnell's remarkable Introduction to the Criminal Statistics of 1899, this decrease can be traced in all the manifestations of aggressiveness, in actual and attempted homicide, and in assaults. With regard to crimes of lust, the statistics are less reliable owing to the disturbing influence of the Criminal Law Amendment Act of 1885, which created new offences, and which was moreover both a cause and an effect of increased vigilance in dealing with this form of delinquency. If we consider, however, only the time subsequent to that date, we find that the average proportion of such crimes during the five years 1895–1899 reached 5·47 per 100,000 of population, while in the period 1890–1894 it was 5·71, and in 1885–1889 it was 5·26. The number of cases of rape and indecent assault which were not directly influenced by the Act of 1885 has shown an upward tendency since 1870.

So far, then, as evidence of this sort can take us, the coincidence of a practically unaltered prevalence

of alcoholism with a decrease in crimes of acquisitiveness and crimes of violence would not support the view that intemperance is an important cause of such offences ; while, on the other hand, its coincidence with an increased or unchanged frequency of crimes of lust would be consistent with its having a considerable influence in the production of this form of delinquency.

As regards crimes of acquisitiveness, in which the diminution has been very pronounced, this inference is probably correct ; we know from other sources of information, from the direct observation of the criminals, from the relation of such offences to economic conditions, from their seasonal incidence, and so forth, that the bulk of crimes of acquisitiveness are not connected with alcoholism ; nor, indeed, has the contrary opinion ever been seriously maintained.

With crimes of violence, however, the case is very different. Such offences are universally held to be in a large measure due to drink, and all the direct evidence on the point goes to support this view of the matter. It is, therefore, somewhat surprising to find that they have tended to decrease in frequency despite the continuance of a high rate of alcoholism. On closer scrutiny, however, it will be seen that this difficulty becomes much less formidable. In the first place, we have to note that the falling off in these offences is considerably less than in crimes of acquisitiveness ; and further, that as a certain proportion of them are admittedly connected with causes other than alcoholism, their decrease may be partly due to

an abatement of some of these causes rather than to a diminution of the influence of intemperance. In much larger part, however, the explanation of this lessened frequency of homicidal offences may probably be sought, as we have already pointed out in connection with alcoholic suicide, in the general trend of manners towards conduct of a less rude and aggressive type. We can see this influence in non-alcoholic crime, where fraud has been very largely substituted for violence, and in insanity, where the stormy and furious symptoms of lunacy are far rarer than of old, and where states of depression and of relatively placid and colourless enfeeblement have become the more ordinary forms of disease. The same tendency, if it affected the impulses of the alcoholic, would obviously be apt to bring about precisely such a diminution of crimes of violence as we have noted. And that this is the correct interpretation of the facts is rendered more probable by the simultaneous and nearly compensatory increase in suicidal impulses of alcoholic origin. On the whole, then, we may conclude that the occurrence of a decrease in homicide without any corresponding fall in the amount of alcoholism may be quite conceivably accounted for on the hypothesis of a change in the direction of the alcoholic impulsiveness, and that it is not, therefore, necessarily in contradiction with the general opinion which attributes to intemperance the chief share in the production of crimes of violence.

And this view is further supported by the next class of evidence that we have to discuss, namely

that obtained from the direct examination of the criminal. Evidence of this sort, as we have already pointed out, is only of value in so far as it has been acquired through a fairly exhaustive investigation of each individual case. For this reason the material that can be dealt with by any single observer is necessarily rather limited, and the inferences therefrom will accordingly need to be controlled by comparison with the results of many others. Until, however, a somewhat larger number of observations of this sort have been recorded than are yet available, it seems better to defer this task of comparison; and, therefore, the following figures, which have been ascertained by personal inquiry, will be presented independently, it being merely noted that their general indications do not differ in any essential points from those of the more reliable amongst the published statistics of the same nature.

We shall first deal with crimes of violence, the material under this head comprising two series of observations, a smaller group made up of 200 male offenders convicted of murder or of grave homicidal attempts, and a larger group of 500 cases of less serious character, chiefly aggravated assaults, tried before the courts of summary jurisdiction. The cases in the first series were observed for the most part in a convict prison, and came from different parts of the country; the minor offenders belonged wholly to the Metropolis.

In the class of graver homicidal offences the number of cases in which the criminals were of alcoholic habits amounted to 158, and in 120 of

these, or 60 per cent. of the whole series, the criminal act was directly due to alcoholism. In the other thirty-eight instances no such relationship could be established, the homicidal offence having been committed in the course of other criminal enterprises, or by individuals habitually engaged in crime, or under circumstances that suggested the influence of ordinary criminal motives. In the strictly alcoholic cases the offence was almost invariably found to be related to an intoxication which had reached a certain degree of chronicity, less in the hereditarily unstable, greater in those of primarily valid brain. In a few instances where no definite symptoms of such chronicity of poisoning could be ascertained, and where the alcoholic influence amounted to little more than casual drunkenness, there was other evidence conclusively showing the presence of one or more of the other conditions predisposing to pathological intoxication.

For reasons similar to those adduced in discussing suicidal attempts, we might anticipate that the alcoholic influence would be less evident in actual homicide and in the graver homicidal attempts than in minor crimes of violence, and that, therefore, statistics referring to the latter class of cases would show a higher ratio of alcoholic causation. And this inference is borne out by the investigation of our larger series of police-court offenders, which shows the proportion of cases directly due to intemperance to amount to 82 per cent. It is to be noted, however, that in minor offences of this class the proportion related to simple drunkenness is much less insignificant than it appears to be in the graver homicidal

crimes. Thus in the above series of cases of assault only 67 per cent. showed signs of chronic intoxication; in the other 15 per cent. the alcoholic influence was limited to occasional drinking bouts with intervals of sobriety. This difference between the two grades of offences in regard to their relation to drunkenness is presumably due, in the main, to the fact that in the graver crimes a primary homicidal impulse is more generally involved, and this simple drunkenness is, of itself, incapable of generating; while less serious acts of aggression will more often owe their origin in some part to the influence of intercurrent impressions, which are enabled to produce an exaggerated reaction by reason of the favouring conditions of the temporary intoxication.

To put the matter shortly, then, what these prison statistics indicate is, that 60 per cent. of graver homicidal offences and 82 per cent. of assaults are attributable to alcohol, and that in nearly all the cases of the former class and in four fifths of the minor offences the intoxication had attained a fair degree of chronicity.

So much for alcoholism amongst homicidal criminals. We have now to deal with its influence on sexual offences, the other category of grave delinquency in whose causation we have seen reason to think that it may play an important part. The material which we have at our disposal in considering this point is, unfortunately, very much smaller, and the inferences that we may draw from its examination are only, therefore, of the most provisional nature. It consists of seventy-five observations of sexual offences,

comprising twenty-one cases of unnatural crime and fifty-four cases of rape. Briefly stated, the result of the investigation of these cases is to suggest that intemperance has no appreciable influence on unnatural crime; that it is a cause of rape in about half the cases; and that there is a marked difference between rape on adults and violation of children in regard to their alcoholic causation, the former offence being usually related to simple drunkenness, while the defilement of children is much more frequently a crime of the chronic alcoholic. So far, therefore, as these very scanty figures go, their indications are in agreement with what was stated on this point in the chapters on "Drunkenness" and "Chronic Alcoholism."

To test the soundness of these conclusions we have now to recur to the general statistics of alcoholism and crime. This time we shall consider them from a different point of view, our object being to ascertain from their examination whether there is such a correspondence between the various categories of crime on the one hand and alcoholic mortality and drunkenness on the other hand as would accord with the estimates we have arrived at of the amount and nature of the alcoholic influence. That is to say, does the frequency of crimes of violence vary with that of chronic alcoholism as much as we should expect on the assumption that the latter condition is the cause of some 60 per cent. of homicidal offences? And further, does it show a relative independence of the frequency of simple drunkenness? And again—though here we neither have such positive

views to put to the proof nor can look for such clear indications from our statistical tests—do we find that the distribution of sexual crime is consistent with the supposition that any considerable proportion of it is due to intemperance?

With regard to homicidal offences, the figures given in Chapter V have already answered our question. They show that such offences are rarest in the sober agricultural districts, and most common in the alcoholic seaports; and, further, that, on the whole, their correspondence is with chronic alcoholism rather than with simple drunkenness, inasmuch as their frequency in the seaports is immensely in excess of that in the mining districts, where the rate of drunkenness is actually higher, but where there is very little chronic alcoholism. It is true that in the comparison of the manufacturing towns and the mining districts this correspondence is lost, the prevalence of the graver homicidal offences being a little greater in the mining districts despite their much lower rate of alcoholism. To some extent this discordance may possibly be due to variations in the other causes of homicide, to which we have supposed as much as 40 per cent. of that class of crime may be attributed. This explanation would be supported by the fact that in the case of assaults, in which a rather larger proportion are due to intemperance, the correspondence reappears, the manufacturing towns showing a considerable excess over the mining districts.

With regard to the relation of alcoholism to sexual offences, we cannot expect to find results of much

value from the investigation of regional incidence, for crimes of this nature are, of course, very largely dependent on local conditions whose influence must in a great measure tend to obscure that of intemperance. Thus, for example, the greater drunkenness in the seaports or the manufacturing towns as compared with the agricultural districts may very likely fail to increase the frequency of crimes of lust because of the readier opportunities for the legal satisfaction of the sexual impulse that are furnished by urban life. And this *à priori* doubt is confirmed by the statistical facts. Thus, if we compare the frequency of those sexual offences which we suppose to be connected with alcoholic excess, viz. rape and indecent assaults, and defilement of children, in the several composite areas, we get the following results (expressed as before in terms of the annual average proportions of such offences per 100,000 of population during the period 1891-1900): Agricultural districts, 4.96; manufacturing towns, 2.95; seaports, 4.50; mining districts, 5.56. We see from these figures that while the frequency of this kind of crime in the mining districts corresponds much as we should expect with the prevalence of drunkenness, its incidence in the other districts is governed to a far greater extent by the urban or rural condition of the population than by their intemperance or sobriety.

Another matter of interest in connection with this category of crimes would be to ascertain whether there is any trace statistically of a difference in alcoholic relationship between rape on adults and rape

on children—whether, that is to say, there is a greater prevalence of the latter offence in regions where there is much chronic alcoholism and a lesser prevalence in regions that are simply drunken. Since no particulars are given as to the age of the victim in cases of rape, the only way in which we can form any idea on this point is through the statistics of the offences under the Criminal Law Amendment Act of defilement of children under 13 and under 16 years of age. In the period 1891—1900 the distribution of such offences, estimated, as before, per 100,000 inhabitants, was as follows in the composite areas: Agricultural districts, 1·3; manufacturing towns, 0·69; seaports, 1·48; mining districts, 1·08. Unfortunately, we cannot be certain that the practice in reporting such cases is uniform, and that cases which would in one district be returned under these heads may not elsewhere be included under rape. On this account the value of the figures is open to question; but it will be seen that, *quantum valeant*, they bear out to some extent the view which has been stated. Thus the great centres of chronic alcoholism, the seaports, show the maximum frequency of these offences, while the mining districts, where simple drunkenness is most rife, occupy a far lower place on the scale, though, as we have just seen, they have the highest rate for sexual offences taken as a whole.

This brings us to the close of our review of the evidence bearing on the relation of intemperance to the graver varieties of crime. Summarising our results, we may assert that it appears probable that

alcoholism is the cause of a large proportion, possibly of some 60 per cent., of homicidal offences, and of a smaller though still considerable proportion of crimes of lust ; but that in the other important category of serious delinquency, namely crimes of acquisitiveness, its influence is relatively insignificant. And we may further assert that nearly always in homicidal crimes, and very frequently in sexual crimes, the alcoholic condition which generates the criminal impulse is the chronic intoxication, and not casual drunkenness. ✓

CHAPTER X.

ALCOHOLISM AND INSANITY.

IN endeavouring to determine the part that alcoholism plays in the causation of insanity, our chief difficulty arises from the very complex relation in which intemperance stands to mental disease. On the one hand, as was pointed out in Chapter IV, an acute or subacute insanity, usually of a characteristic type, is a frequent episode in the course of the chronic intoxication, while a state of more or less pronounced dementia is often one of its ultimate results. In such instances, where the original condition of the drinker's nervous system was relatively normal, we can have no hesitation in attributing the insanity directly and fully to alcoholism.

But, on the other hand, it also happens, and possibly with greater frequency, that, instead of being the cause of mental disease, intemperance is its consequence. An individual, for example, in the early stage of insanity, or predisposed to disease by inherent weakness of mind, is notoriously apt to show his debility by a tendency to convivial excess, especially if he lives in a *milieu* where such excess is common. This is very often seen in general paralysis, and in other mental disorders; and in one such affection,

indeed, which is more often talked of than seen, viz. the so-called dipsomania, the periodic development of an irresistible impulse to excessive drinking may be the only obtrusive symptom of a psychological degeneracy allied to epilepsy.

Of course, in all cases of this sort the alcoholic poisoning is likely to aggravate the morbid state; and where the original debility of mind is relatively slight the intoxication may be an important force in converting the latent disposition into a positive insanity. But, though we may thus in a sense speak of alcohol in such circumstances being a cause of this insanity, it is very clear that it is so in a quite different and, from a social point of view, in a much less important manner than when it acts as the sole agent in bringing about mental decay in the healthy. It is even conceivable that in some instances its influence in hastening the breaking down of unstable and defective organisations may be of real advantage to the community. It is true, also, no doubt that many of the degenerates of this type are themselves heredo-alcoholics, and owe their inferiority of brain originally to the parental intoxication, so that ultimately their insanity, too, may be set down to the account of alcoholism. This fact, however, to which we shall subsequently return in discussing the connection of alcoholism with human degeneration, need not occupy us here: for the moment our concern is solely with the action of alcohol as a cause of insanity in the individual drinker, and from this point of view the distinction to which we have referred between its influence on

the healthy and on the degenerate brain is wholly valid and is of very real importance.

It is evident, therefore, from the foregoing considerations, that if we are to arrive at a correct estimate of the amount of the alcoholic contribution to mental disease, we must be able to separate these different modes of relation which may connect intemperance and insanity. On this account statistics which show nothing but the co-existence of the two conditions, or which attribute a causal influence to alcoholism on no better grounds than a history of drunkenness prior to the recognition of lunacy, are of small value. And, unfortunately, much of the available information on the matter is open to this objection.

The defect in question is conspicuously evident in the statistics that immediately concern us here, those, namely, referring to the causation of insanity in this country, which are furnished in the annual reports of the Commissioners in Lunacy. The tables of causation in these reports are based on the statements of the patients and the patients' friends. They represent accordingly, even if we assume a fair measure of intelligence and candour in the informants, merely a series of inferences drawn from a very partial knowledge of the conditions existent before the development of the disease.

It is obvious that in such circumstances the influence of alcoholism is almost certain to be over-rated, and this the more readily because intemperance, being easily thought of, and being besides often looked on as an individual failing which does not

reflect on the sanity of the stock, will, as a rule, receive more notice than other and possibly more important facts in the patient's history.

There is, therefore, a strong antecedent probability that estimates of the importance of alcoholism as a cause of insanity formed in this way will err on the side of excess. And actual examination of the figures will fully confirm us in this scepticism as to their value. An excellent example for our purpose is to be found in the report of the Commissioners in Lunacy for the year 1905, which enters at some length into this very question. In that report intemperance is given as the assigned cause of insanity in 15·9 per cent. (22·7 per cent. of males, and 9·4 per cent. of females) of cases admitted to the asylums of England and Wales during the five years 1899–1903. The proportion of cases of this supposed causation varies in different asylums between 3 and 40 per cent. and in different counties between 3·1 and 25·3 per cent. These figures do not differ very widely from the average returns of previous years.

Now, if these statistics really represent the degree of the alcoholic influence in the causation of insanity, we should naturally expect that a factor of such high relative importance, and, above all, one exhibiting such a wide range of local variation, would be likely to produce a perceptible effect on the regional distribution of the latter phenomenon, so that where alcoholic insanity was most frequent there would probably be, by reason of this additional contribution, a greater prevalence of insanity in general. The facts, however, are quite otherwise. By comparing

the several counties, on the one hand, with regard to the relative frequency of cases of "insanity ascribed to intemperance," measured in percentages of the total admissions during the year 1903, and, on the other hand, with regard to the ratio of the insane to the total population, as ascertained at the last Census, the Commissioners show that there is no correspondence between the two conditions, but that,

Counties.	Admissions into asylums with history of previous intemperance.		Ratio of insane to 1000 of population.	
	Per cent.	Per mille.		
Glamorgan	25·3	2·47		
Northumberland	24·4	2·35		
Lancashire	21·0	2·75		
Staffordshire	20·4	2·44		
Oxfordshire	18·7	3·71		
Yorkshire, N.R.	17·9	2·33		
Wiltshire	17·6	4·10		
Yorkshire, W.R.	17·0	1·90		
* * * * *				
Monmouth	6·2	3·00		
Cornwall	6·0	2·78		
Isle of Wight	4·8	3·40		
Devon	3·9	3·35		
Dorset	3·9	3·61		
Denbigh	3·1	2·36	}	
Anglesea		2·96		
Carnarvon		2·30		
Flint		2·68		
Merioneth		2·58		

on the contrary, "certain counties with a comparatively low rate of insanity show a high proportion of cases admitted with a history of intemperance, and *vice versâ*." The above table from the blue-book, giving the figures for a number of the counties at each end of the scale of presumed alcoholic insanity, will make the contrast clear.

Of course, it will be observed that this way of putting the facts is somewhat fallacious, in that the proportion of cases with a history of intemperance is expressed in percentages of the number of admissions, and not in terms of any fixed population, and will, therefore, be unduly high where the general insanity rate is low : in the above table, for instance, the 17·6 per cent. of such cases in Wiltshire, where the insane are in the proportion of 4·1 per thousand of population, will evidently mean more than the percentage of 25·3 in Glamorgan, where the general insanity rate is only 2·47 per mille.

No doubt this faulty method, as well as the paucity of the numbers (which are calculated on a single year's admissions), may have something to do with the anomalous results shown in the table which we have quoted. But, even when the possible errors from these sources have been allowed for, there still remains a divergence between the incidence of insanity in general and that of insanity with a history of intemperance which would be very difficult to account for if the statistics under the latter head really represented the amount and distribution of the mental disease caused by alcoholism.

And such an interpretation will seem still more

improbable when it is observed that the regional incidence of these cases appears to be quite independent of the frequency of chronic alcoholism, while it corresponds very fairly with that of drunkenness. Counties, for instance, such as Durham, Glamorgan, the West Riding of York and other mining districts, which are relatively low in the scale of alcoholic mortality, but have very high rates of drunkenness, show also a very high proportion of cases of insanity with a history of intemperance. In such circumstances the obvious inference is, that the association of the two conditions is merely a result and expression of the convivial tendencies of the given population, which are shown, of course, no less clearly by its weak-minded than by its sane elements.

In short, then, since we find that these cases classed as insanity due to intemperance may be conspicuously frequent where there is least chronic alcoholism, though we know that it is the chronic intoxication that mainly produces disease of mind—and that they are notably frequent, too, where the general insanity rate is lowest, though an added alcoholic influence might be expected to raise that rate—we are certainly justified in concluding that they are not trustworthy evidence on the question at issue, and that estimates of the importance of alcoholism as a cause of insanity based on such statistics are utterly unreliable. As to the extent of the error arising from this cause, it is difficult to hazard any conjecture. That it is probably large is suggested by the fact that in a great majority of the instances where insanity is attributed to drink intemperance

is described as the exciting and not as the predisposing cause of the disease. If we assume, as we safely may, that in a considerable proportion of such cases the predisposition was the important factor, we should rate the alcoholic contribution a good deal below the 15.9 per cent. which is the figure assigned to it in the official tables of causation. And that such a correction is needed is also suggested by the figures in a number of asylum reports in which a distinction is established between cases of "insanity due to alcohol" in the sense criticised above and cases which the asylum physicians regard as presenting the proper symptoms of alcoholic insanity. Though the characteristics of true alcoholic insanity are not always so definite as to admit of our making them an absolute criterion of this mode of origin, it is certain that statistics which measured alcoholic causation by that test rather than by a history of antecedent excess would be very much nearer the truth. Unfortunately, the distinction is made in the reports of only a few asylums; and, as the relative numbers of the true and the false alcoholic cases will probably vary considerably in different localities, it is impossible to judge to what extent these instances are representative of the average conditions. So far as they go they would suggest that cases of the characteristically alcoholic type constitute rather less than two thirds of the insanity that is associated with intemperance. That this is not, at any rate, far below the average appears probable from the fact that in some other countries the proportion has been found to be even lower. In the Prussian statistics, for

instance, while the insanity due to alcohol is estimated at 23 per cent. of the total, the ratio of alcoholic insanity is only 11 per cent. And we may apparently interpret in the same way the results found in a recent inquiry on this subject, conducted by the American Committee of Fifty, which showed that insanity was attributed to drink in 24·22 per cent. of the patients observed, but that only a little over half that number (viz. 12·22 per cent.) were genuine alcoholics. Similar conclusions were reached in an investigation of the same nature some years earlier by the Massachusetts Labour Bureau, viz. 20·86 per cent. of cases were supposed to be due to alcohol, but only 16·49 per cent. were excessive drinkers. It may perhaps be worth mentioning as an interesting illustration of the danger of *post hoc propter hoc* reasoning in regard to pseudo-alcoholic cases that in both these inquiries total abstinence was found to be much more frequent than intemperance as an antecedent of insanity.

The conclusion, then, to which these various considerations bring us is that in this country the proportion of cases of certified insanity in which alcoholism is the essential cause of disease falls a good deal short of the 16 per cent. at which it is rated in the official statistics, and may possibly be something under 10 per cent.

This view would accord with the fact that in the regional distribution of insanity it is difficult to trace any evidence of alcoholic influence such as might be expected if alcoholism really accounted for a sixth of the total number of cases. No such influence, at

all events, is apparent in the following table, which gives the insanity rate per million inhabitants according to the census returns of 1891 in twenty-nine English counties and in North and South Wales. The counties within the metropolitan area are not included in this list, nor are the smaller counties which do not support separate asylums, viz. Bedford, Huntingdon, Westmoreland, Cumberland, Leicester, and Rutland. The figures for these counties would

Mentally Deranged (exclusive of Congenital Cases) per Million living in Certain of the Registration Counties of England and in North and South Wales.

County.	1891.	County.	1891.
Wiltshire . . .	6354	Buckinghamshire	3046
Berkshire . . .	6268	Somerset . . .	3039
York, East Riding	4644	Sussex . . .	2903
Hereford . . .	4562	Stafford . . .	2869
Gloucester . . .	4487	Cheshire . . .	2825
Northampton . . .	4424	Lancashire . . .	2776
Worcester . . .	4350	South Wales . . .	2683
Shropshire . . .	4153	North Wales . . .	2627
Oxford . . .	4054	Nottingham . . .	2606
Norfolk . . .	3758	Warwick . . .	2422
Monmouth . . .	3659	Lincoln . . .	2416
Dorset . . .	3513	Northumberland . . .	2376
Devon . . .	3425	York, West Riding	2135
Hampshire . . .	3179	Durham . . .	1691
Suffolk . . .	3127	Derby . . .	1462
Cornwall . . .	3123	York, North Riding	610
Cambridge . . .	3047		

be obviously misleading, as the accumulation of the insane of several counties in a single institution would necessarily swell the insanity rate in the district containing the asylum, and would unduly lower the rate in the other counties.

Comparing these figures with the table on pp. 66, 67, it is evident that the distribution of insanity does not correspond very closely either with that of alcoholism or with that of drunkenness. Thus Lancashire, Warwick, and Cheshire, which rank very high in the scale of alcoholism, and the mining counties, where drunkenness is most rife, are alike in showing very low rates of insanity. The divergence is perhaps rather greater in the case of drunkenness than in that of the chronic intoxication; but in both it is sufficiently marked to show that neither of these manifestations of intemperance has a very important influence on the statistical movement of lunacy.

Of course, it has to be borne in mind that throughout this discussion we are referring solely to cases of certified insanity. And it is this limitation probably which explains the relatively low estimate we have been led to form of the alcoholic influence. For while some affection of mind is, as we have seen, amongst the usual results of chronic alcoholism, it is commonly so moderate in degree, or, if more intense, is so transitory in duration, that it very frequently does not bring the drinker within the walls of an asylum. Cases of delirium tremens, for instance, are treated in hospitals or other institutions; alcoholic dements drift very generally into

the vagrant class, or into the floating population of the prisons and workhouses. Such cases, therefore—and they probably constitute the larger part of the mental disease due to intemperance—are not included in the official statistics of insanity, and on that account are not reckoned in our estimate of the contribution that alcoholism makes to lunacy.

CHAPTER XI.

ALCOHOLISM AND HUMAN DEGENERATION.

THE injurious influence of parental intemperance on the physical and mental development of the offspring, though often referred to by earlier writers, hardly became the matter of exact observation before the second half of the last century. In 1849 Magnus Huss, in the classic work which laid the foundation of the scientific study of alcoholism, emphasised the importance of this influence in the brandy-drinking population of his own country. (And Morel, when, a few years later, he brought into mental medicine the fruitful conception of degeneracy, gave to parental intoxication a foremost place amongst the agencies capable of giving rise to this decadent tendency.)

From that time the writers who have followed Huss in the study of alcoholism, and those who have followed Morel in the study of degeneracy, have been practically unanimous in confirming and extending the views of these masters as to the mutual relation of the two phenomena; and it may be safely affirmed that the importance of this relation is not nowadays a matter of doubt to anyone who is

brought into actual contact with the subject, whether from the side of the causal intoxication in the parents or from the side of the resultant states of decadence in the succeeding generations.)

Of recent years, however, the reality of this influence of parental intoxication has been occasionally called in question on *à priori* grounds by some extremists of the school which repudiates the transmission of acquired characters. It is, however, perfectly obvious that a doctrinal objection of this sort is quite irrelevant; the effects attributed to parental alcoholism are not in the category of transmitted acquirements at all; they are the results, expressed in defect and deviation of development, of a deleterious influence exerted on the germ-cells, either directly through the alcohol circulating in the blood, or indirectly through the deterioration of the parental organism in which these cells are lodged and from which they draw their nutriment. We have no reason whatever to anticipate that such cells will be more resistant to the influence of changes in the nature of their pabulum than are bacteria, for instance, to changes in their culture media; rather, indeed, might we expect that the germ-cells would react in a more evident manner to such influences, in view of the infinitely greater complexity of intimate structure implied in their immense potentialities of development.

By other critics the importance of alcoholism as an agent in causing unfavourable variations in the stock has been disputed on different and more rational grounds. It has been argued that since it tends to

eliminate the inferior elements of the community, the ultimate effect of intemperance should be beneficial, and more clearly beneficial, too, the more its destructive influence affected the vitality of the degenerate offspring as well as that of the degenerate parents. That such a selective tendency does in fact operate is, of course, unquestioned; as Féré has pointed out, it is one of the characteristics of the degenerate that they are prone to have recourse to the poisons, like alcohol and morphia, which hasten their decadence and elimination. And, therefore, alcohol might certainly be adjudged a salutary evil if its incidence were limited to individuals whose extreme inferiority of organisation renders them wholly undesirable and useless to the community. But this is very far from being the case. Quite apart from the fact that the degeneracy that may involve a predisposition to alcoholic or other drug habits is a vague condition, and, even when more precisely defined, a relative and changeable condition which may quite well consist with the individual being more rather than less useful to the community—quite apart from this very pregnant consideration, we have to bear in mind that, in the circumstances of modern life, the part of mental degeneracy, of whatever degree, in causing intemperance is practically negligible in comparison with the influence of industrial conditions. However highly, therefore, we might rate its potency as an agent in the elimination of the unfit, we cannot doubt that such beneficial effect as it may thus produce is considerably outweighed by its detrimental

action on the healthy stocks which are exposed to its influence as a consequence of their social environment. So that in the ultimate result alcoholism may be counted on to make a good many more degenerates than it is likely to destroy.

The disorders of development in the offspring that may result from parental intoxication, whether by alcohol or by other poisons, are, of course, very diverse in character and in extent; they vary from slight degrees of mental instability to the lowest grades of idiocy, and from a moderate enfeeblement of vitality to an extreme defect expressed in still-birth or abortion. They are in their action essentially similar to the effects obtained by experimental intoxication in the lower animals. Combemale, for instance, found that pups begotten on a healthy bitch by an alcoholised dog were congenitally feeble, and showed a marked degree of asymmetry of the brain. And recent experiments designed to disprove the transmission of acquired characters incidentally give evidence of the same sort. In one series of such experiments, for instance, Lustig ascertained that when cocks by a process of slow intoxication with abrine had been rendered immune to ordinarily fatal doses of that drug, their offspring, which, of course, did not inherit this immunity, showed clear traces of the influence of the parental poisoning, being few in number, of low vitality, stunted, and often deformed in growth. And like results have been found by others.

The recorded observations of the effects that are similarly induced in human beings by the agency of alcohol form an enormous mass of literature, only a

small part of which, however, need be referred to here, to give the necessary precision to our ideas. These observations are of two kinds, differing from one another in their point of departure. In the first class the matter of investigation is the frequency of alcoholism in the ancestry of the degenerate; in the second class it is the frequency of degeneracy amongst the descendants of the alcoholic.

Records of the former sort are very much more numerous but for obvious reasons are also very much less valuable. Parental drunkenness is, in fact, one of the most easily traced antecedents, and is pretty sure, therefore, to figure disproportionately amongst the assigned causes of defect; and in many cases it will very probably get the credit of determining in the stock a degenerative tendency which really existed prior to it, and of which, indeed, it may have been merely a symptom. This may, perhaps, be a partial explanation of the extremely high estimates of some writers, who rate the influence of alcoholism so highly that very little room is left for the operation of any other degenerative agency.

But though for these reasons we may not lay too much stress on the absolute results of many of the statistical inquiries conducted on this system, we are forced, nevertheless, to recognise that, even at the lowest estimate, they have the value that must attach to opinions based on wide experience and formed by trained judgments, and that, therefore, their agreement in general trend is in itself strong evidence of the importance of alcoholism in causing impairment of development.

It is accordingly rather as indications of the fact of this alcoholic influence than as true measures of its extent that statistics of this sort are of interest. Looked at in this light, they show that in the most varied forms of defect—amongst idiots, epileptics, prostitutes, feeble-minded criminals, and in short in all the abnormal classes—parental alcoholism is one of the most frequent antecedents. In epilepsy, for instance, in different series of observations it has been held the causal influence in 21 per cent. (Wildermuth), in 28 per cent. (Wartmann), in 20·2 per cent. (Doran). In idiocy it was noted by Bourneville in the father in 471 cases, in the mother in 84 cases, and in both parents in 65 cases out of a thousand; and in 150 idiots and imbeciles whose family history was fully investigated by Tredgold it was present in 46·5 per cent. of the cases, usually, however, in association with insanity or other neuropathic conditions. In prostitutes, again, it has been found in 82 per cent. (Mme. Tarnowsky) and in juvenile criminals of weak intellect in 42 per cent. (Monkemöller).

Even more striking results with regard to the several forms of degeneracy were obtained by Legrain, who investigated the question from a somewhat different point of view. Selecting from the material at his disposal all those cases in which ancestral intemperance had appeared to exercise a causal influence, and working out their family history, he collected 215 observations of heredo-alcoholism referring to one generation, 98 referring to two generations, and 7 referring to three generations.

Of the children of the first generation, 508 in number, 196 were mentally degenerate, the affection of the brain being shown more particularly by moral and emotional abnormality, while intellectual defects were less pronounced; 106 were insane, 52 were epileptic, 16 suffered from hystero-epilepsy, and 3 from chorea; and 39 had convulsions in infancy. Amongst the children of the second generation, who numbered 294, the intellectual defects were more marked, idiocy, imbecility, or debility being noted in the offspring of 54 out of the 98 families investigated. In 23 out of the 33 families in which the children of the second generation had reached adult age, one or more of them were insane. Epilepsy was found in 40 families, infantile convulsions in 42, and meningitis in 14. The third generation in 7 families was represented by 17 children, all of whom were weak-minded, imbecile, or idiotic; 2 suffered, moreover, from moral insanity, 2 from hysteria, and 2 from epilepsy; 3 were scrofulous, and 4 had convulsions in childhood. In the three generations taken together there were, in addition to the children referred to above, 174 infants who were dead-born or died shortly after birth.

In many of these instances, of course, and particularly in researches such as those of Legrain, which start from the consideration of extreme forms of defect, the parental alcoholism is associated with other degenerative factors; and it may, no doubt, at times, as we have already pointed out, be regarded as merely a secondary expression of the influence of these agencies. This is an explanation, however,

which we cannot press very far ; for quite apart from the direct knowledge which we have of the possible effects of parental intoxications the internal evidence of the figures alone will often suffice to show the independent and essentially different position of alcoholism in connection with degeneracy. A striking illustration of this point is furnished by some recent researches of Grassmann. He finds that in the ancestry of the insane who belong to the degenerate type the conditions that are most frequently traced are insanity and alcoholism. But in their relation to the family history these two conditions present a remarkable difference ; insanity is found, not only in the parents of the insane, but also, and even much more frequently, in the grandparents and in the collateral line ; while alcoholism, on the contrary, when it is met with, is chiefly observed in the father or mother, and hardly occurs indeed in other relatives with sufficient frequency to entitle it to any special significance. Obviously such a contrast would not appear if parental alcoholism were, like parental insanity, a mere manifestation of a degenerate taint, and not, as it really is, its direct and efficient cause.

So much, then, for the statistics which refer to alcoholism in the ancestry of the degenerate. We have now to deal with the investigations that approach the question from the opposite side, and inquire into the incidence of degeneracy in the children of the alcoholic.

Such investigations have been much fewer in number, and, as must necessarily result from the

difficulties of the inquiry, the material handled by each individual observer has been relatively small in amount. Some of the most convincing observations, indeed, refer to single families; such, for instance, is the striking case mentioned by Galton of a man who, after begetting several normal children, became a drunkard and had imbecile offspring; and such, again, is the observation recorded by Selvatico-Estense of a healthy woman who when married to a drunken husband had five sickly children, dying in infancy, but in a subsequent union with a healthy man bore normal and vigorous children. The significance of such cases, it may be remarked in passing, is emphasised by the fact that parallel instances are met with in the other intoxications. In a case, for example, recorded by Marfan a man who had had two healthy children acquired the cocaine habit, and while suffering from the symptoms of chronic poisoning engendered two idiots.

Of the investigations dealing with the larger amount of material the most important is that of Demme. This observer traced the history of the offspring in 10 sober families and in 10 families where one or both parents suffered from chronic alcoholism. The sober families had in all 61 children, of whom 7 died in infancy, 2 were mentally deficient, 2 were deformed, and 50 were normal. The alcoholic families were divided by Demme into three groups. In the first, made up of 6 families, there was paternal alcoholism in at least two generations; of the 30 children in these families 15 died at birth or in early infancy, 3 were deformed, 3 were imbecile, 2 had

defective speech, 2 were dwarfish, 3 suffered from convulsions, and only 2 were normal. In the second group, comprising 3 families, in which chronic alcoholism in the fathers was the only taint, the number of children was 20, and of these 7 died in infancy, 2 were weak-minded, 2 were choreic, 1 was dwarfish, 1 was epileptic, and 7 were normal. Finally, in the third division, which comprised only one family, both parents were alcoholic, and of the 6 children none were normal, 3 died of convulsions within six months of birth, 1 was imbecile, 1 dwarfish, and 1 epileptic.

This last observation of Demme's leads us to the consideration of the effect on the offspring when, in addition to or independently of the paternal intoxication, the mother suffers from alcoholism. Since under these circumstances the influence of the germinal poisoning may be reinforced by the direct action of alcohol on the embryo during pregnancy, we should naturally expect that the interference with the normal course of development would be thereby increased. And this presumption of the greater gravity of maternal intemperance is fully confirmed by the facts. Thus in a personal investigation carried out some years ago it was ascertained that of 600 children born of 120 drunken mothers 335 (55·8 per cent.) died in infancy or were still-born, and that several of the survivors were mentally defective, and as many as 4·1 per cent. were epileptic. Many of these women had female relatives, sisters or daughters, of sober habits and married to sober husbands; on comparing the death-rate amongst the children of the sober mothers with that amongst

the children of the drunken women of the same stock, the former was found to be 23·9 per cent., the latter 55·2 per cent., or nearly two and a half times as much. It was further observed that in the drunken families there was a progressive rise in the death-rate from the earlier to the later born children, as shown by the following figures, giving the percentages of stillbirths and deaths in infancy in groups formed according to the order of birth :

	Cases.	Dead and dead-born. Per cent.	Dead-born. Per cent.
1st born	80	33·7	6·2
2nd born	80	50·0	11·2
3rd born	80	52·6	7·6
4th and 5th born	111	65·7	10·8
6th to 10th born	93	72·0	17·2

The type of alcoholic family suggested by these figures—a type characterised by a regular decrease of vitality in the successive children—was frequently realised in individual cases, as, for instance, in one observation where the first three children were healthy, the fourth was of defective intelligence, the fifth was an epileptic idiot, the sixth was dead-born, and finally the reproductive career ended with an abortion.

The high rate of stillbirths and abortions and the frequency of epilepsy in the surviving children in these observations is specially noteworthy, as they prove that the detrimental effect of maternal alcoholism must be in a large measure due to a direct

influence on the germ-cells and on the developing embryo, and cannot be explained as merely a result of the neglect and malnutrition from which the children of a drunken mother are naturally apt to suffer. Of course, the latter indirect influence also comes into play, and will, no doubt, have a greater effect just because it falls on children whose vitality is initially low.

In this connection we have also to bear in mind another biological mode of influence, namely that related to lactation. Regarding that function in the alcoholic two points have to be considered. In the first place, when excessive amounts of alcohol are taken traces of it pass off in the milk, and in this way the child nursed by a drunken mother may be directly affected. The quantity present in the milk is, of course, small, but, owing to the extreme susceptibility of the immature nervous centres, it may produce serious effects on the child, and there are, in fact, numerous cases on record of convulsions and other disorders occurring in infants when the nurse has taken liquor, and ceasing when she has been put on a non-alcoholic diet. The point is of some practical importance, because amongst the uneducated classes there is a deeply-rooted superstition that liquor, particularly porter, is a sovereign tonic for nursing mothers.

But there is also another and, perhaps, more important manner in which alcoholism influences lactation. It has been shown by Bunge, of Basle, that in a considerable number of cases the inability to suckle appears to be related to chronic alcoholism,

either in the individual or in one or other of her parents. Bunge worked out his conclusions from observations on 1629 women whose habits, and in most cases the habits of their parents, with regard to alcohol were ascertained. Dividing his cases into three classes, according to the nursing capacity of the women and their mothers, he found that in the first class, where both generations were able to suckle, the percentage of alcoholic excess, meaning thereby the daily consumption of over two litres of beer, was in the women themselves 1·1, in their mothers 1·1, and in their fathers 9·5. In the next group, where the mothers had been able to nurse, but the younger generation had lost the capacity, the percentages of excess were, in the daughters 4·9, in the mothers 2·9, and in the fathers 77·9. The last group, where both generations were incapable of nursing, showed percentages of alcoholism in the daughters amounting to 3·6, in their mothers to 3·5, and in their fathers to 30·7. Bunge further noted that in the families of drunkards where there were several daughters it often happened that the earlier born were able to nurse their children, but the younger, begotten when the father was more profoundly intoxicated, were unable to do so. This diminished capacity of suckling must clearly reinforce in no small degree the other detrimental influences of parental intemperance, and help to bring about a further lowering of vitality in the heredo-alcoholic.

Through these several modes of influence, therefore, it is evident that parental alcoholism is capable of causing a grave deterioration in the stock; and

this conclusion, as we have seen, is established alike by the results of inquiry into the ancestry of the degenerate and by investigations touching the posterity of the alcoholic.)

When, however, we endeavour to bring the question to the test of general statistics with a view to a more precise estimate of its importance, we meet with more serious difficulties, which appear to be, at all events for the moment, insuperable. These difficulties depend mainly on the fact that the effects attributable to parental alcoholism have nothing specific about them; they are frequently induced by other causes, and very often by causes which are apt to occur in association with alcoholism, either independently or as influences that promote intoxication or are amongst its indirect results. Thus, for instance, we have no means of distinguishing the part that parental intoxication plays in the infantile mortality of slum life from the part which belongs to foul air, bad or insufficient food, lack of clothing, and so forth. Nor, again, can we say precisely, when we observe the frequency of precocious criminality in the children of the alcoholic and its greater incidence in the centres of alcoholism, how far this association is the expression of an innate defect in the juvenile offender, due to the parental poisoning, and how far it is a result of moral abandonment and evil surroundings in childhood.

And if in the case of such conditions as idiocy and epilepsy difficulties of this sort are less troublesome, we have other obstacles of an equally serious

nature in the character of the statistical material, which is scanty and imperfect, and is, moreover, owing to the disturbing influence of large institutions, apt to be misleading in its indications of regional incidence. For these reasons, accordingly, there is little likelihood that we shall find any clear correspondence when we attempt to compare the local or periodic distribution of alcoholism with that of any of the evidences of degeneracy to which we have referred, although direct observation may have satisfied us that they frequently result from parental intemperance. It is difficult, for instance, to discover any parallelism between the distribution of the congenitally insane and feeble-minded in the English counties and the incidence of alcoholism or of drunkenness in the same areas. This want of correspondence can be seen on comparing the accompanying table showing the proportion per million living of the congenitally lunatic in the several counties with the figures given on pages 66, 67, referring to drunkenness, alcoholic mortality, and suicidal attempts. The relatively low rate of congenital defect in counties so drunken as Durham and so alcoholic as Lancashire contrasts with the high figures shown for many of the agricultural counties.

In France, again, where, owing to the military returns, fuller statistical information on the matter is accessible, efforts to show a correspondence between alcoholism and epilepsy have been equally inconclusive: the proportion of cases dispensed from military service for that neurosis is not larger in the

northern departments, where alcoholism is most rife, than in the south, where it is rarest.

It seems, therefore, that we must be content, at all events for the moment, to rest in the conclusion that, while the fact and the nature of the detrimental influence of parental intoxication are beyond question, its extent can only be inferred indirectly from the prevalence of chronic alcoholism. Nor even in this

Mentally Deranged from Birth—Proportion per Million living at the Census of 1891 in Certain Registration Counties of England and in North and South Wales.

County.	1891.	County.	1891.
Buckingham . . .	797	Nottingham . . .	311
Wiltshire . . .	525	Lincoln . . .	304
Shropshire . . .	475	Sussex . . .	301
Suffolk . . .	452	Worcester . . .	296
Hereford . . .	432	Northampton . . .	289
Oxford . . .	425	Norfolk . . .	274
Berkshire . . .	402	South Wales . . .	272
Somerset . . .	398	York, North Riding	214
Devon . . .	365	Stafford . . .	212
Warwick . . .	359	Lancashire . . .	211
Hampshire . . .	342	York, West Riding	204
Cambridge . . .	336	Cheshire . . .	192
Northumberland . . .	320	Derby . . .	192
York, East Riding	317	Durham . . .	183
Cornwall . . .	314	North Wales . . .	179
Dorset . . .	312	Monmouth . . .	178
Gloucester . . .	312		

way can we hope to form any opinion of reasonable probability until we know a good deal more than we yet do regarding the fertility of the alcoholic and the stage that the intoxication must have reached before its detrimental influence affects the offspring.

Pending that fuller information the utmost we can presume to conjecture on the matter is that, since the classes most prone to industrial alcoholism are also very prone to have excessively large families, and since the children of the alcoholic appear to abound in the various categories of the degenerate, it is, at all events, likely that this action of alcoholism on the health and vitality of the stock is the most serious of the evils that intemperance brings on the community.

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CHAPTER XII.

CONCLUSIONS.

WE have now completed our survey of the problem of alcoholism from the point of view defined at the outset of this work; and, to conclude our task, it only remains to summarise the salient facts which we have ascertained in the course of our inquiry, and to consider very briefly their bearing on the practical issues of the drink question.

In this recapitulation we shall proceed in a somewhat different order from that which we have followed hitherto, and will deal in the first instance with the social consequences of alcoholism, understanding thereby, as we have already explained at length, solely the effects that are essentially dependent on the intoxication of the organism, and not the various indirect results of wasteful living whose connection with alcoholic excess is for the most part purely accidental. Taken in their integrity, the consequences of alcoholism in this narrower sense are the proper measure of the gravity of intemperance as a social danger; and a notion of their real magnitude, as precise as the nature of the case will allow, is, therefore, the first condition requisite for seeing the drink question in its true proportions.

Envisaging the matter from this point of view, we saw that, under the circumstances actually prevalent in this country, alcoholism by its action on the individual drinker may enter into the causation of suicide, of certain forms of crime, and of insanity; and further, that, through its detrimental influence on the development of the drinker's offspring, it may give origin to various forms of degeneracy, expressed in more or less marked degrees of either physical or intellectual defect, or, as is more often the case, of moral perversion.

This latter transmitted influence of alcoholism we cannot pretend to estimate with even approximate accuracy; we can at most hazard some conjectures as to its importance, on the one hand from observation of the degenerative effects of parental intoxications and on the other hand from our knowledge of the prevalence of chronic alcoholism in the community. So far as an opinion can be formed on such data, we may suspect that it is in this way that intemperance ultimately does most mischief to society, by furnishing recruits to the ranks of the moral imbecile, the epileptic, the prostitute, and the other noxious and parasitic classes.

As regards the direct effects of alcoholism on the drinker, which are shown in disorders of conduct and in insanity, we can arrive at conclusions of a more positive sort. The statistical and other evidence concerning suicide, crime, and lunacy offers the material from which we may form at least a rough numerical estimate of the absolute and relative importance of the alcoholic influence in the production of

these social evils. From this evidence we have been led to the view that chronic alcoholism is the cause of a considerable proportion of the suicide in this country, probably of as much as a fifth of the total amount; and further that its influence is tending to increase in relative importance, and that it has had a large part in the upward movement of suicide which has been observed during the last few decades. Similarly we have concluded that the chronic intoxication is responsible for about three fifths of the homicidal crime in England, and that in rather less than half the cases of sexual crime either chronic alcoholism or simple drunkenness is the causal condition, the latter being more usual in rape on adults, while the violation of children is more often an offence of the chronic drunkard. In crimes of acquisitiveness, on the other hand, alcoholism seems to be a practically negligible quantity. Finally, as regards insanity, it appears fairly clear that the alcoholic influence is operative as the essential cause in only a relatively small proportion of cases, probably in much less than a tenth of the total number of certified lunatics in the country.

To sum up, then, we find that the extent of the alcoholic evil is represented by a considerable contribution to the amount of suicide; by a share in the causation of crime which, though small in relation to the total mass of delinquency, is of extreme importance by reason of the specially grave character of the offences comprised in it; by a comparatively small part in the causation of insanity; and lastly, by an indefinite but certainly considerable influence

in the production of many of the conditions of impaired development which underlie the perverted conduct of the socially unadaptable classes.

From the same evidence also, confirming on this point what we had already found in studying alcoholism in the individual, we can draw another conclusion of vital significance for the proper apprehension of the drink question in this country. That conclusion, on which we have repeatedly insisted throughout this work, is that nearly all these graver effects of intemperance are due to the chronic intoxication and hardly any to simple drunkenness. To this rule one variety of sexual crime forms practically the sole exception.

The importance of this fact lies, of course, in its bearing on the question of the social causes of alcoholism. The chronic intoxication on which the gravity of intemperance is thus seen to be dependent, is not a result of convivial excess, or at least is found to be so only in such a small number of instances as to be negligible in a general view of the question. Its origin is to be sought in a totally different form of drinking, in what we have termed industrial as opposed to convivial drinking; that is to say, it is connected with the use of alcohol as a stimulant for muscular work. In ultimate analysis, therefore, we find that the drink question is practically reducible to the effects of this industrial drinking.

In this conclusion we are confirmed, not only by the statistical evidence of the local and occupational incidence of alcoholism in this country, and by the relation of its periodic oscillations to those of other

social phenomena, but also by the broad indications that can be traced in a wide view of the history of intemperance and by the main facts of its geographical distribution. The vice of drunkenness, we know, is met with in every epoch of history, and is common in the most diverse civilisations; the drink question, on the contrary, which is frequently but wrongly looked on as its result and multiplied expression, has been constantly later in appearance and more limited in extent. In time and place it has ever followed industrialism as a shadow. In the great civilisations of antiquity drunkenness from convivial excess constituted the whole of intemperance; there was no extensive development of chronic alcoholism; and there was, therefore, no drink question. Not until the close of the Middle Ages, when feudalism made way for the modern industrial system, did alcoholism, as we now know it, become a recognisable fact in social history.

And just as in its historical evolution the drink question thus follows and is dependent on the growth of industrialism, so in like manner do we find that at the present day its gravity in the different civilised countries varies in close correspondence with the degree of their industrial activity. The states of Southern Europe which have been least affected by the industrial movement of the last century have also for that reason suffered least from alcoholism. And that this is the true explanation of their relative immunity is clearly evident from the fact that wherever in these countries there has been within recent years a beginning of industrialism it has in-

variably brought in its train all the evils of intemperance. Those parts of Spain, for instance, and of Northern Italy which have latterly become fields of industrial enterprise have also become centres of alcoholism; instead of the traditional sobriety of the nations of the Latin culture, they already show a development of alcoholic insanity and alcoholic crime, and a frequency of drunkenness that may compare with the intemperate countries of the North; here again it is the factory that has created the drink question.

This dependence of alcoholism on industrial conditions, which is thus evident on a general view of the historic and regional facts of intemperance, is traceable even more clearly, and in a form which makes the mode of relationship at once apparent, when we examine in detail the drinking traditions of the various manual trades. Our investigation of this point showed us that the incidence of alcoholism in the occupational groups is correspondent with those drinking traditions which, again, have their ultimate source in the special character of the labour in the several forms of industry. On this smaller scale, therefore, we once more observe the fact of the industrial origin of alcoholism, and, moreover, are enabled at the same time to perceive how that fact finds its explanation in the physiological action of alcohol.

The final result, then, to which the whole course of our inquiry has tended, the view which it has been the chief aim of this essay to establish, is, we repeat, that in this country intemperance as a

social problem depends essentially on the prevalence of industrial drinking.

The importance of this conclusion is that, if it be sound, it should considerably modify our views as to the proper direction of temperance reform. It must substitute industrial alcoholism for convivial drunkenness as the object of the remedial and preventive measures designed to deal with the evils of intemperance; and such a substitution will necessarily involve far-reaching changes in the character of these measures. For it is at once obvious from what we have learned of their nature that convivial drinking and industrial drinking, depending as they do on essentially different social conditions, require correspondingly different methods to influence them. The prevalence of primary convivial excess depends very largely on social ideals and customs, and therefore changes with the degree of culture and can be modified by educational and religious influences. The sobriety of the educated classes in this country at the present day as compared with their drunkenness in the eighteenth century, is a familiar example of such a progress in manners.

But influences of this kind can, of course, have little or no effect on industrial alcoholism. And not only so, but, as the recent experience of Spain and Italy, to which we have referred above, shows us, when industrial drinking is brought into previously sober communities, it weakens or destroys the efficacy of these influences, so that *pari passu* with the spread of chronic alcoholism and its usual results there comes also a growth of convivial excess.

Hence, to combat even convivial drunkenness in an industrial community we must begin by dealing with industrial drinking, which, so long as it persists, will maintain and increase the tradition of excess.

The proper direction, then, of temperance reform would, according to this view, be in restraint of industrial drinking; and, as our study of the factors of that form of drinking has shown us, it must mainly aim at modifying those secondary conditions whose interaction with the fundamental influence of the character of the work is the determining element in the production of industrial alcoholism. Now, we have seen that the recent evolution of industry in this country is tending more and more to restrict the operation of these secondary influences; and it is, therefore, by co-operating with the forces which are bringing about this natural tendency that our efforts should have most prospect of success. The possibilities of action in this sense are ample.

The fundamental factors of the social question, of which alcoholism thus forms a part, lie outside the scope of this essay; and we need only note, therefore, in reference to them, that every influence that raises the standard of living, and that betters the economic position of the worker, will thereby both directly and indirectly diminish the tendency to industrial drinking. Shortening of the hours of labour, which prevents muscular and nervous exhaustion; higher wages and greater regularity of employment, which secure a sufficient and constant supply of food and other necessaries for working

efficiency ; better housing and better hygienic conditions in the workshops—these and similar reforms have had incidentally an important effect in weakening the attraction of alcohol as an industrial stimulant ; and their further development in the future will doubtless have a similar tendency. But, of course, this effect was no part of the object of these reforms ; they were not pursued with a view to the promotion of temperance, nor do the means adopted to advance them admit very readily of any modifications to make them more effective for that special end ; their progress depends on other forces, and does not directly concern us here.

Another category of reforms is represented by the Employers' Liability Acts, which, as we have seen, have been amongst the most important influences of recent years in combating alcoholism. These measures resemble the social reforms referred to above, in that their effect on alcoholism was an accidental and indirect result ; but they differ from them in being susceptible of changes that might materially strengthen this special tendency in future legislation of the same sort. The recognition, for instance, that the responsibility of the employer would not be impaired in accidents incurred through the drunkenness of the workman unless adequate measures were taken to enforce abstinence during the hours of labour, would very quickly put a stop to the " tied factory " system and to the continued tolerance of the " bever " times. And on similar lines provisions could be readily framed which would give the employers sufficient motive to repress the custom of

bringing liquor into docks, coal-yards, and other such places.

Of measures more specifically directed to deal with industrial alcoholism, the most obvious and probably one of the most effective, would be the alteration of the statutory hour of opening licensed houses. The fixing of this time at even one hour later than is at present allowed would be likely to do more to abate the worst effects of alcoholism than would any extension of Sunday closing.

These instances will suffice to show—and it is only for this purpose that they are cited here—how materially the trend of opinion and effort in connection with temperance reform would be altered by the recognition that the alcoholic evil in this country is connected very much more with industrial than with convivial drinking, more with the use of alcohol as an aid in work than with its use as an aid to pleasure.

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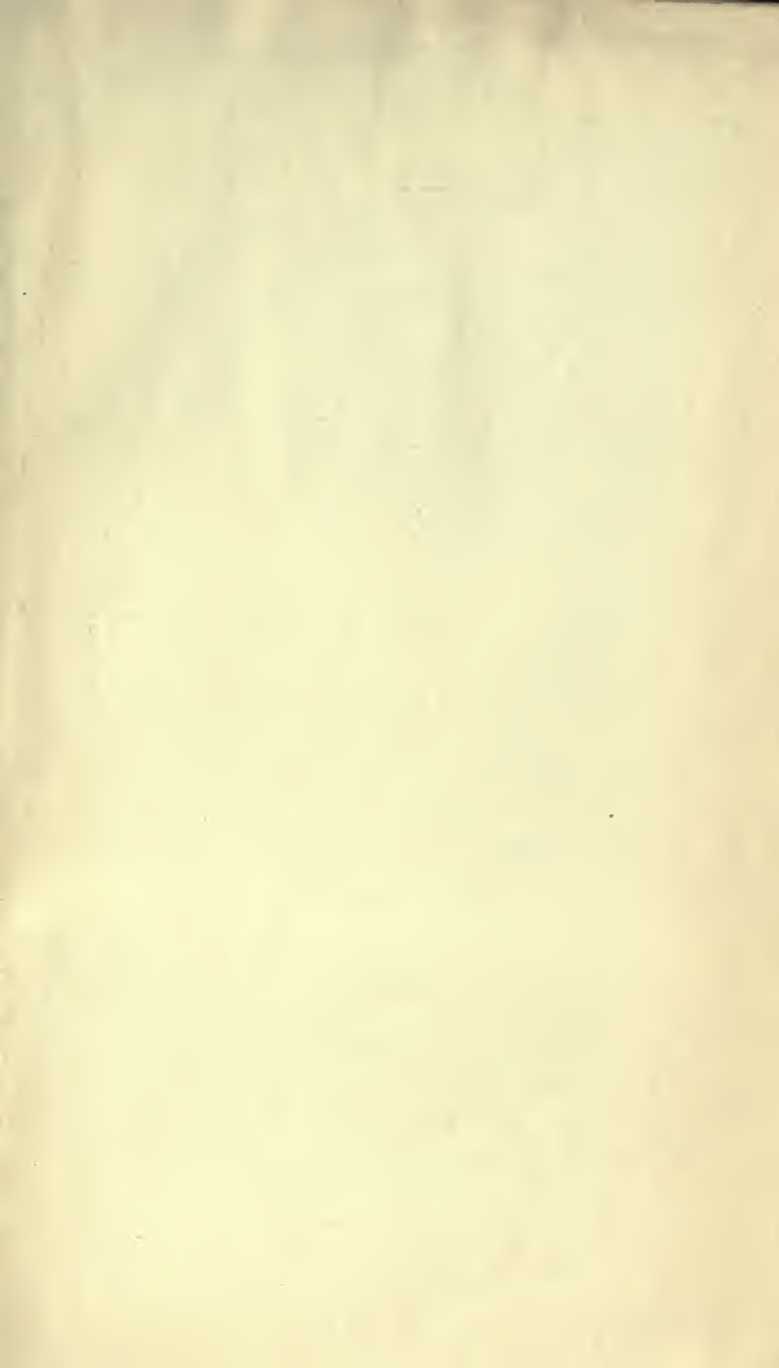
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