

Modern medical opinions on alcohol : being a series of lectures delivered by well-known medical men.

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**MODERN
MEDICAL OPINIONS
ON ALCOHOL**



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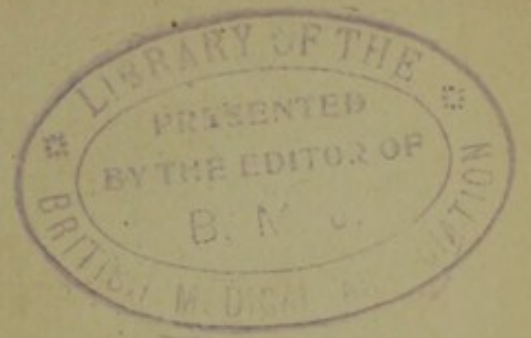


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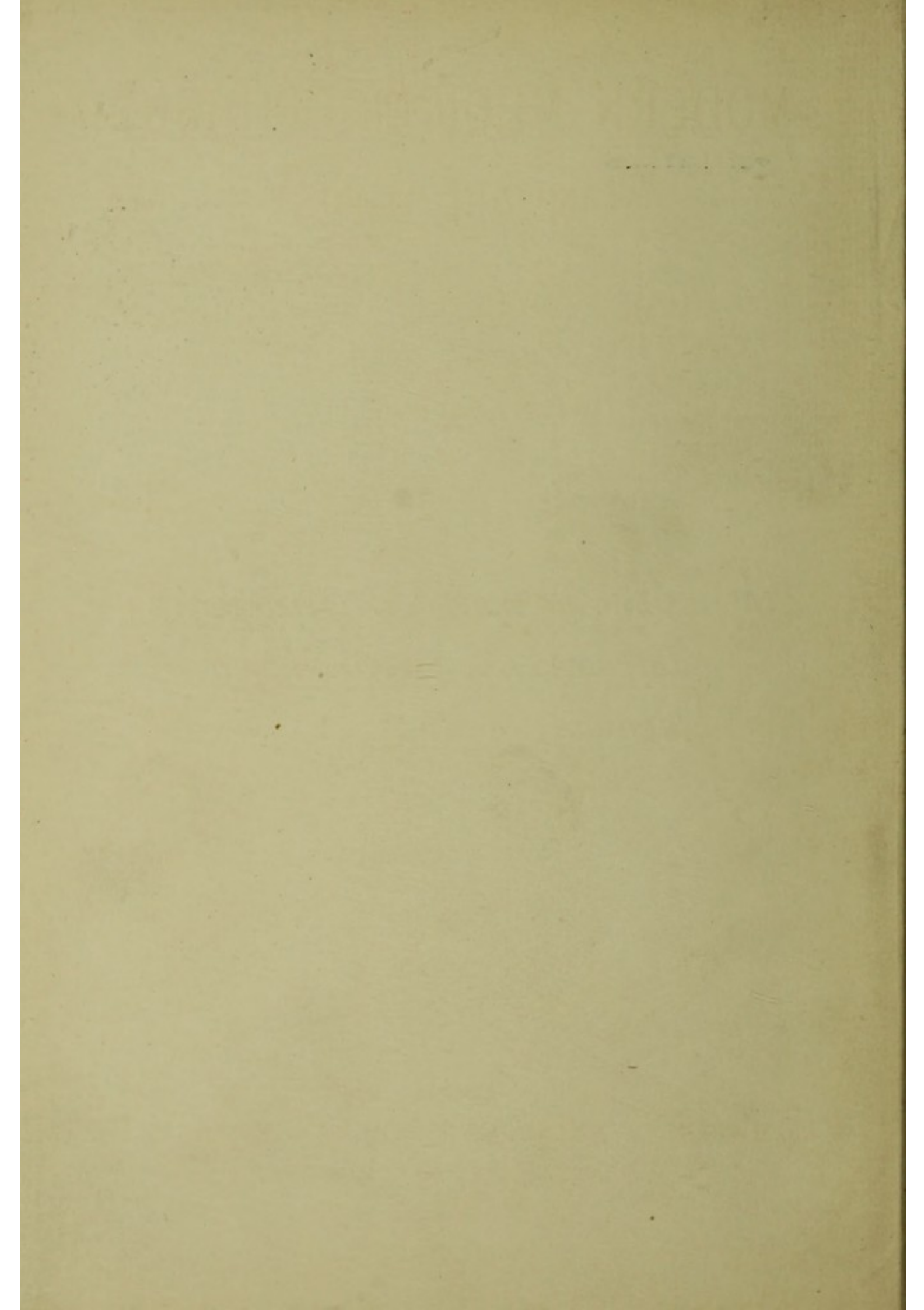
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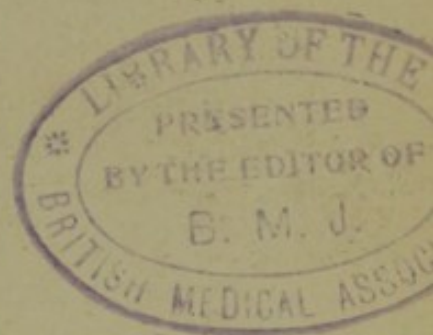


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Being a Series of Lectures
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Medical Men.



London:
CHURCH OF ENGLAND TEMPERANCE SOCIETY,
4 SANCTUARY, WESTMINSTER.

[ca. 1911]

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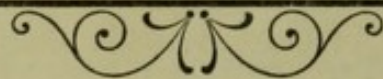
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ALCOHOL: A POISON.

[By Sir Frederick Treves, Bart., G.C.V.O., LL.D., &c.]

SIR FREDERICK TREVES, in the course of an address delivered at the Church House, Westminster, under the auspices of the Women's Union, Church of England Temperance Society, said: "I do not propose to trouble you with any detailed accounts of the effects of excessive drinking, and the lamentable diseases that follow from it. The train of physical wreckage that lies in the wake of drunkenness is, unfortunately, a matter of only too common knowledge. I should like, rather, to occupy your time for ten minutes in dealing with the effect of alcohol on the body generally.

The point with regard to alcohol is simple enough. It is a poison, and it is a poison which, like other poisons, has certain uses; but the limitations in the use of alcohol should be as strict as the limitations in the use of any other kind of poison. Moreover, it is an insidious poison, in that it produces effects which seem to have only one antidote — alcohol again. This applies to another drug equally insidious, and that is morphia, or opium. Unfortunately, the term poison is by no means an exaggerated one, when it is realised that with alcohol, as drunk by many of the poorer classes, there is apt to be mixed a very definite poison in the form of fusel oil.

Diminishing Medical Use.

There is no disguising the fact that alcohol is of later years less used by the medical profession. It has a certain position as a medicine; that no one will dispute. But looking

back over hospital records for the past twenty-five years, there is little question that the use of alcohol is diminishing.

In the first place, some people say, "Alcohol is a most excellent appetiser. There can be no possible harm in a little before a meal. It is, as the French say, an *aperitif* and helps digestion." What are the facts? First of all no appetite needs to be artificially stimulated. There is no need, supposing this property of alcohol to be true, to use anything that will excite an appetite. So on that ground I do not think there is much to be made out of its use. Dr. Rolleston, writing in Allbutt's 'System of Medicine,' says that alcohol 'hinders artificial digestion.'

Physical Bankruptcy.

Then it is said that it is strengthening, and that it gives great working power. We hear a great deal of this in the advocacy of British beef and beer. That sounds very well, but let us view the facts. Alcohol modifies certain constituents of the blood, and on this account, and on others, it affects prejudicially the nourishment of the body. It is said 'to diminish the metabolism of the tissues,' or to lessen the activity of those changes by which the body is built up. The output of carbonic acid from the lungs is much lessened. The drinker invariably becomes ill-nourished. No man dreams of going into training and taking but a minimum of alcohol. If he must reach the acme of physical perfection, it must be without alcohol. Alcohol has undoubtedly a stimulating effect, and that is the unfortunate part of it. The effect, however, lasts only for a moment, and after it has passed away the capacity for work fails. It does this: it brings up the reserve forces of the body and throws them into action, with result that when these are used up there is

nothing to fall back upon. Its effect is precisely like a general throwing the bulk of his army into the fray and then bringing up, as fast as he can, all the reserves and throwing them in also. The immediate effect may be impressive, but the inevitable result is obvious. As a work producer alcohol is exceedingly extravagant, and like other extravagant measures, it is apt to lead to a physical bankruptcy. It is well known that troops cannot march on alcohol. I was with the relief column that moved on to Ladysmith. It was an extremely trying time, apart from the heat of the weather. In that column of some 30,000 men, the first who dropped out were not the tall men, or the short men, or the big men, or the little men—but the drinkers, and they dropped out as clearly as if they had been labelled with a big letter on their backs.

Effect on Circulation.

With regard to the circulation. Alcohol produces an increased heart-beat, a fuller pulse, and a redder skin. It calls upon the reserve power of the organ, but the moment the effect has passed off, the action of the heart is actually weakened. Consequently the temporary effect is produced at an unfortunate cost.

Then there is its action on the central nervous system. 'Here,' writes the authority already quoted, 'it acts directly on the nerve cells as a functional poison.' It first stimulates the nervous system and then depresses it, and, as with other poisons which act upon this part of the body, the higher centres are affected first. They become a little dull—a little less quick and acute. It may be very trifling, but there it is; so that the man who does his work on alcohol—even on a moderate amount—is not at his best.

Inconsistent with Fine Work.

Alcohol is certainly inconsistent with what might be called fine work. It is inconsistent with a surgeon's work, and with anything that requires a quick, accurate, and alert judgment. I am much struck with the fact that many professional men have discontinued the use of stimulants in the middle of the day. Why? For no other reason, probably, in ninety-nine cases out of a hundred, than that they find they can work better without it.

'Oh, it is an excellent protection against cold. If you are going into the cold air you ought to take a little "nip" of something. It does keep out the cold.' This argument is used so often that even medical men would sometimes seem almost to believe it. I can answer this impression with a quotation from the authority above named, that 'alcohol tends to lower the temperature by increased loss of heat, and to some extent by lessened oxidation, while the power of the body to resist cold is much reduced by it.' That answers this particular argument, which, as you know, is one of the most potent circumstances under which alcohol is used in this country.

There is a great desire on the part of all young men to be 'fit.' A young man cannot be fit if he takes alcohol. By no possibility can he want it. No one who is young and healthy can want alcohol any more than he can want strychnine.

In conclusion, let me add one little testimony. Having spent the greater part of my life in operating, I can assure you that the person of all others that I dread to see enter the operating theatre is the drinker. I share with the late Sir James Paget his absolute dread of the secret drinker."

THE PREVAILING INTEMPERANCE AMONG WOMEN:

ITS CAUSE AND ITS REMEDY.

[By Sir Thomas Barlow, M.D., K.C.V.O., &c.]

SIR THOMAS BARLOW said he was sure it was needless for him to dwell upon the magnitude of the evil which they were to consider. It was quite true that amongst the educated classes the coarser forms of drunkenness had greatly diminished, and it was also true that efforts had been made—more or less successfully—to deal with the drinking habits of certain sections of the community—with soldiers and sailors, for instance; and thinking people were trying to face the vast problem of the regulation of the drink traffic, though they had made but little solid progress in practical politics as yet, for still the broad fact remained that intemperance was one of our greatest national crimes, and the greatest hindrance to our national efficiency.

They were met to consider intemperance amongst women. What was there special in it which distinguished it from intemperance amongst men? In many ways they were identical, but he supposed they should agree that the special feature which called for their consideration in female intemperance was secret drinking. Why was it that, relatively, secret drinking was more common amongst women than men? In his opinion, the chief reason was the difference in all ranks of society of the social standard of conduct expected of men and women. In all civilised

countries women were treated with deference, and in return a higher standard of conduct was expected of them; and that was probably the reason why, when the ring fence of propriety was broken down the degradation of open drunkenness in women appeared to be more abject than in men, and why secret drinking was more relatively common.

Causes of Secret Drinking.

What were the causes of women drinking? Sometimes lack of occupation. A childless woman, whose husband left her by herself the whole day, sometimes took to drink from sheer loneliness. A more potent cause, however, was trouble and worry. When the earnings were precarious, when there had been speculation and gambling and heavy loss, then drink came in to drown the sorrow and the care. But bodily weakness, and the various forms of nagging, wearing pain, which women had to bear, and which were temporarily relieved by alcohol, were responsible in some cases for the beginning of intemperance.

They heard a great deal at times about heredity as a cause. It was quite true that there were some cases of what seemed to be an inherited drink craving, and where quite early in life there seemed to be a strange enjoyment of the smell and taste of alcohol; but these cases, he thought, were rare. There were numerous examples of members of a given family one after another suffering from drunkenness. Possibly inheritance played a part in it, but the encouragement to drink from early life, and the examples of those around, had, he believed, a still larger share in the result. Let them lay it down at once that drunkenness, though it became a disease, started as self-indulgence, and even if heredity were a factor, drunkenness ought to be treated primarily as a sin.

Distaste for Food.

How did intemperance differ in women from men in its results on the individual? First, when women take to drink they seem to have less power to assimilate food than men. There were special reasons for this. Men had more outdoor life than women, and they retained their appetite for food longer than women. They were also able to work off the effects of drinking more easily, and start afresh in the assimilation of food. Women, with their indoor life, were more easily turned away from food, and when they took to alcohol the earliest effect was to lose their taste for solid food. The breakfast, except for a cup of tea, was put aside, and very often the mid-day meal likewise, until the very sight of food, especially if there had been some fault in its preparation, was revolting. Then from sheer faintness, recourse was again had to stimulants, and often at night again to help in sleep, and with the morning came the recurring cough and sickness.

The striking difference, however, was in the effect upon the nervous system. A man got his storm of delirium tremens, which wore itself out and left him exhausted; but after a while he was able to start afresh. How did the woman suffer? First, as to her temper. She became irritable, and flighty, and fractious, and even cried at the least provocation. When bereavement or disaster came she collapsed under the strain. Moreover, she romanced, and exaggerated, and lied, and invariably denied her besetment. She became the subject of strange terrors, and was afraid of crossing the street or going into crowded buildings for fear she would never get out again.

It was found, too, that the most insignificant things were a trouble, and whilst ordinary people were getting through with any business, the poor woman was fretting

and worrying over the difficulties of carrying it out; it seemed to be necessary, as it were, to get wound up in order to accomplish anything. They would observe, also, more or less tremor in the lips, the tongue, and the hands, and the great efforts made at self-control in order to perform small movements in the presence of others; the feeble circulation, the blue extremities, and the breaking out into perspiration very readily.

Paralysis.

So far, he said, he had been dealing with the signs which any observant person who had had experience of this kind would be able to verify. He would like now to refer to some forms of more definite disease which were often allowed to drag on, and were attributed to other causes. He referred to cases of paralysis of the lower limbs. This form was not so very rare in London, but was more common in many of the large manufacturing towns. A person would be attacked with this particularly painful disorder after a time of prolonged drinking. The patient would become bed-ridden, be racked with pain, worst at night, and would have cramps so severe as to make her wish she were dead. By and bye the upper limbs would be attacked, and, strange to say, even for a time after the alcohol had been stopped.

The very bad cases sometimes died. Some of them got a little quiet feverishness and mild delirium; they became thinner and thinner, and contracted a form of consumption. Others died in different ways—from paralysis of the nerves which control the breathing and swallowing; they became unable to cough, and when they swallowed food it went the wrong way, and they choked. These cases, he said, were not to be confounded with the long-standing forms of paralysis in aged people with which they were familiar,

especially when visiting workhouse infirmaries and homes for incurables. They occurred, however, much more commonly in people in early middle life than in old people, and much more in women than men.

Arsenic and Alcohol.

The Lancashire cases, of which they must have seen records in the papers sometime ago, were more acute in character than those to which he referred, but they had many features in common, and they were due to the admixture of arsenic with cheap kinds of beer. No doubt one poison intensified the effect of the other; but there were many cases of alcoholic paralysis where arsenic could be excluded, and where the cause of the paralysis was alcohol alone. He had said that some died; but, at the same time, even severe cases did not always die, but got sometimes absolutely well, though very slowly. In fact, all the serious chronic forms of alcoholic disease were slow in recovery. They might adopt the formula that no serious disease from alcohol would get well in less than twelve months. And under what treatment did they recover? By drugs, galvanism, shampooing, and baths? Certainly not in the earlier stage, for they gave too much pain; although in a later stage, these measures might prove helpful. They began to recover, however, only by rest and by removing the cause. A parallel progress was found with regard to other metallic poisons.

People who were engaged as painters and plumbers got a form of wasting which had some resemblance to what he had described, only that it was not so painful; and when it was discovered in England that painters got a kind of paralysis from lead poisoning, the wise men of that time found that the only way to get them right again was to remove them from the source of the poison and send them

out into the open air. This was the case with other poisons, such as mercury and arsenic. Now and again there were severe cases which caused death; but those which were not so severe, if they were removed from the cause that had brought the evil about, got slowly but surely well. He did not make any apology for insisting upon the parallelism between these forms of disorder, because he wanted to drive home to them that in paralysis they had a definite thing, the result of a definite cause, and the first thing in common sense was to remove it.

Remove the Cause.

Did they think that if anybody was suffering from slow poisoning as the result of taking any of these poisons, that it would be a rational thing to go on giving small quantities of the same poison because the victims had become used to it and liked it? He mentioned these platitudes because when they themselves were dealing with these cases they would find people say: "Why do you keep away from these people the thing that gives them comfort?" This was a thing they must stop, for if they wanted to give these poor people any chance of real recovery they must of necessity stop the poison absolutely, even in spite of what might be said about heart failure and the danger of delirium tremens.

What was the result of treating people by means of removing the cause? The first result was that by degrees the appetite returned; and by and by the severe pain began to abate; and last of all the power of movement returned. Mercifully, such cases as he had described were bed-ridden, and they were therefore in other people's hands, and if the doctors and nurses were loyal they could be dealt with properly, always provided that the friends were not such criminal lunatics as to frustrate their plans

by smuggling in stimulants. If any of those present had ever to do with such pitiful cases, he besought them to get doctors and nurses who were in sympathy with their desire to avoid alcohol, and not to have pessimists who would say: "It is no use; we cannot do any good! It has gone too far; and if the poor wretch is to die, why should she not have what she wants and be comfortable?" This was a delusion.

The pains and troubles that arose from alcoholism were the most terrible, especially in the form referred to. They might say to him: "It is all very well in the cases to which you have referred; these are hospital cases." That might be so, he said, but nevertheless they could be dealt with at home if they had the right people to look after them. But how were they to help those cases which were not bed-ridden?

Alcoholism a Sin.

He had spoken of physical methods, and that was the part with which he was concerned. The Bishop of London and others would deal with the moral methods; but even as a doctor he must say deliberately he did not think that any cure from the results of alcoholism was a satisfactory or permanent one unless the victim had made a definite admission of sin and wrong-doing, and had come to look upon it, not as a disease which could not be overcome, but as a sin for which she was responsible. Mere prudential morality would not serve, and merely material ways of looking at it and talking of heredity were absolutely no good. As soon as the poor victim that they were interested in came to know the difference between right and wrong, the kindest and shortest way to deal with it was to tackle him or her, and the higher the moral stratum they could appeal to the better. His

experience of the method of concealment was that it was a fallacious one, and sure to end in disaster. He urged the necessity of helping them by human sympathy, and, most important of all, by example.

Are Women Unreclaimable?

They had heard a great many pessimistic statements about women being unreclaimable. That was rubbish and he was quite sure that those people connected with the Inebriates' Home of the Church of England Temperance Society, and with the Salvation Army, could give them many notable instances to the contrary. They knew perfectly well that there was a great danger of relapse, but when some of their kind critics talked about relapse they ought to find out what had been the conditions under which the poor victim had been placed after her year, or whatever it was, of reclamation. Had the husband and others done everything they could to help her? There were many instances, he was sure, where the husband had been ready to make sacrifices; but others had done their best to induce the victim to take stimulants, and she had again fallen.

They might do a great deal with regard to the individual sufferer in various ways, but if they wanted to go to the root of the evil they must strike at the drinking habits of the people generally. Half measures of dealing with intemperance were of little use. They ought not to expect recovery too soon, and when once a victim had been reclaimed, those who were specially interested in her should make it their business to surround her with a friendly conspiracy of people determined to watch her jealously, and to encourage her by their own example; and, furthermore, to see that in the case of small ailments, she did not fall into the hands of a doctor who would order her stimulants.

ALCOHOL AND EFFICIENCY.

[By Sir James Crichton-Browne, M.D., LL.D., &c.]

IN the course of his introductory address at the distribution of prizes gained by students in the Medical School attached to Charing Cross Hospital, Sir James Crichton-Browne gave the following advice on the use of alcohol. After a warning concerning the dangers of insomnia and concerning the still greater dangers of narcotics or stimulants taken as remedies for it, Sir James concluded his observations by a reference to the use of alcohol:—

“The mention of stimulants suggests to me that I may again, in my monitorial capacity, venture to say a word about alcohol in connection with efficiency. I do not for one moment suppose that in speaking to you there could be any propriety in referring to alcohol in its ethical relations. The bibulous medical student is a creature of the past. If drinking songs are still heard at your friendly gatherings they are but old ballads commemorative of a kind of conviviality that is no more. The medical student of the period is not the midnight reveller described by the novelist of a by-gone generation, but a staid and self-respecting gentleman, effervescent at times, as youth always is, but never rowdy. It is not against the vulgar abuse of alcohol that he has to be warned; of the evils of that he is cognisant in an especial degree. No; it is to the alleged use of alcohol that his attention should be drawn, to the question which still agitates our profession whether alcohol is a wholesome article of diet, and in moderation harmless to the brain-worker. Now I am not going to enter on that

large and very thorny question here, further than to say that I am not of those who denounce alcohol up hill and down dale and give vent to well-meant but sometimes extravagant diatribes against it, an admission which will add weight to my opinion that the medical student had best avoid alcohol altogether.

Deleterious during Growth.

Whatever our views about alcohol at large may be, I think we are all agreed that in the growth period, where that is normal, it is not wanted, and that at epochs of rapid cerebral evolution it is apt to prove deleterious. It is the property of alcohol to act primarily upon the highest nerve centres. In poisonous doses it paralyses the nervous system from above downwards and we are able to follow step by step its descent from level to level, until the driving centres of organic life are reached and death ensues. But the highest centres for the time being are always those which are undergoing most active development, and hence alcohol is especially liable to arrest or retard growth in the nerve centres. The highest centres of all are the controlling centres of the brain, upon which the orderly behaviour of the lower centres depend, and which it is the final aim of education to brace up and strengthen, and any interference with their integrity must have disastrous and far-reaching consequences. Now it is during the later stages of education, when these controlling or inhibitory centres are elaborating and perfecting their structure and extending their dominion, that alcohol may be particularly pernicious, and then it is that its insidious inroads for the most part begin. It is during adolescence that the taste for alcohol declares itself. In the school boy it does not exist, and if he indulges in alcohol at all, it is from bravado or in mimicry. It is when the emotional life is opening

up, when self-consciousness grows keen, when the craving for social enlargement is experienced that the exhilaration and confidence and expansive friendliness that alcohol yields are appreciated and found helpful. Then it is, when so many habits are formed, that a habit of some degree of dependence on alcohol may be contracted, and it is a noteworthy fact that in nearly 90 per cent. of cases of confirmed inebriety, the addiction to drink began between 15 and 25 years of age. That is the danger period, and little apprehension need be felt as to the future career as regards sobriety of any man who has voluntarily abstained from alcohol till 25 or even 21 years of age. Earlier in life, in childhood, in infancy one might say, happy associations are unhappily allowed to gather round alcohol in some or many of its embodiments. It is on holiday and festive occasions that it is most in evidence; good wishes are pledged in it; it becomes linked with the idea of health; to think of it is to recall hilarity and social enjoyment, for the horrors and humiliation that occasionally follow in its train are looked on as accidental accompaniments. We pay no doubt a heavy penalty for these early associations, but the best way of correcting them and the evils attending them, is to inculcate the truth that alcohol is baneful until the full stature of manhood or womanhood is reached and is very apt to mar the beauty both of body and mind.

Drinking "Bad Form."

It is much to be wished that there should grow up one of those conventional understandings which are almost more binding than legal enactments, that it is 'bad form' for a youth to indulge in alcohol till he has attained his majority. But beyond the general impulse to alcoholic excitation and other strong sensations characteristic of that spell of life when equilibrium is disturbed, during

the transition from boyhood to manhood, the medical student has then a special temptation to resort to alcohol in the calls made upon him for severe and sometimes overstraining mental exertion. He has a heavy load to carry against time and up some very steep hills, and the temporary support and relief which alcohol gives in such circumstances are grateful and not unlikely to establish a habit. For alcohol in moderation does afford temporary support and relief in such circumstances and no physiological refinements can get rid of the fact, and the judicious policy is, it seems to me, not to dispute it but to insist on the other fact that the support and relief obtained are too dearly purchased. Alcohol, let the fanatics say what they may, is a cerebral stimulant and has perhaps played no unimportant part in human progress, but it is a stimulant that is hazardous when the nutritive processes in brain are already accelerated in its natural growth to maturity. It is a whip to the brain and quickens its paces for a time, but it often leaves wheals and inordinate fatigue behind it, and so brain-workers, in early life at any rate, should eschew it or only partake of it in the most guarded manner. Young, nimble, and freely-secreting stomachs have no need of it as an adjunct to digestion. As a food it is costly and inconvenient, for it burns too fast and interferes with the combustion of other and more trustworthy fuels; as an anodyne it should not be required at that epoch when existence is most agreeable and is least vexed by aches and anxieties.

A Treacherous Familiar.

It is a treacherous familiar that strengthens its hold on its victims, sedulously aggravating the exhaustion that it, in the first instance, alleviates, and setting up a state of

pathological unrest that it is alone adequate to soothe. It is upon fine and susceptible natures that its hurtful influence is most strongly exerted and thus it is that brain-workers often succumb to it. Having regard to the partial and transient nature of the assistance which it affords and the risks attending its employment, it seems to me that the medical student, aiming at efficiency, does well to place it, in all its guises, from the homely stout to the ethereal champagne, on his *index expurgatorius*.

I have been bold enough to submit to you a few desultory hints as to habits of life which may, perhaps, contribute to your professional efficiency, and I could go on wearying you with many more of a like kind, but I shall only add that whatever the physical and intellectual efficiency to which you may attain may be, they will be of small avail if not united with that moral efficiency which gives them stability and completeness. High principle and divine pity are not less necessary than skill and learning, to success in medicine, which is not merely a bread-earning profession but a ministry of science. Each one of you, about to join it, should feel that he is taking upon himself weighty obligations and is entering an honourable fraternity, fealty to which includes good deeds, good manners and good conduct. He should realise, indeed, that in a humble walk and in modern apparel he is bound to be as one of the Knights of Arthur's Table Round—

‘ Who revered his conscience as his king ;
Whose glory was, redressing human wrong ;
Who spake no slander, no, nor listen'd to it ;
Who loved one only, and who clave to her.’ ”

THE MEDICAL PROFESSION AND ALCOHOL.

[By Sir Victor Horsley F.R.S., F.R.C.S., &c.]

At a large gathering of the consultants and medical practitioners of the Midlands, held at the Medical Institute, Birmingham, Sir Victor Horsley gave an address on the above subject, which was listened to with profound interest and approval. The chair was taken by Mr. J. Furneaux Jordan, who pointed out that the medical profession took a pride in checking diseases like diphtheria, and in fighting against everything that was bad for the health of the nation; but that they had failed to take a strong position with regard to the alcohol question, although the national health was deteriorated by that far more than by anything else.

Sir Victor Horsley began by stating that we were all at one by wishing to check poverty, disease and crime, and that all medical men knew well that these were due in large part to the taking of alcohol by the people of this country. In reality, alcohol was the commonest cause of disease and death; but our statistics did not show how many deaths were due to it, because the true cause of death was, for social reasons, not always put down by the doctor. Moreover, indirectly, long before the toxic effect was developed in a man or woman, alcohol had begun to undermine the morality of their home, and to cause disease and vice in many serious ways. A great step in the cause of truth had been gained when the Home Secretary admitted in Parliament that alcohol was the commonest cause of crime.

The Experience of Medical Men.

Now medical men had more experience of the home and social life of the people than any other profession (excepting possibly the Church), and it was the duty of the profession to influence public opinion, and to warn the nation and tell them the truth with regard to the mass of disease that arose from taking alcohol, even in small quantities. He considered it to be the duty of a doctor, when a patient asked if it were wise to take a little alcohol, to say "No, it is not wise. If you take it you must understand you take it as a luxury." We do not yet fully know the effect of alcohol on the body, but we know that its stimulating effect is followed by a longer depressant effect, and that from a physiological point of view even small quantities are not good. Every man who had once had concussion of the brain knew that he could not touch a glass of wine. Why was this? Clearly if alcohol were so harmful after concussion, it must be a drug that had some potency. People did not realise how delicate were the chemical processes of the body, nor how easily these might be disturbed. With regard to its use as a medicine, Sir Victor said that he practically never ordered alcohol.

Other and Better Remedies than Alcohol.

If, after an operation, a patient needed stimulating, he considered that we had better remedies to turn to, such as strychnine. No alcohol was given in his surgical wards,* because he knew that the patients recovered better without it. Alcohol failed to help any of the physiological activities of the body, and so its use would drop out of treatment gradually, just as the fashion of bleeding patients had been

* Sir Victor Horsley's house-surgeon has, of course, full liberty to use alcohol in an emergency if he thinks fit, but in view of the other steps named this very rarely arises.

dropped. He was anxious for a committee of the British Medical Association to be formed to investigate the traditions that hung about the matter. Many people fancied that whisky was good for rheumatic gout, whereas recent discovery showed that rheumatic conditions were due to microbes, and research also showed that alcohol lessened the resistance of the body to the invasion of them. Therefore, *a priori*, it was unlikely that whisky was good for any person suffering from arthritis.

Mr. Jordan Lloyd, F.R.C.S., spoke strongly against the daily use of alcoholic beverages, and emphasised the need of our being aware that they were luxuries and not articles of health. Doctors should only sanction their use as luxuries. Work could be better done without alcohol. He spoke very strongly as to alcohol being the cause of poverty and disease, and said that the majority of the hundreds of patients in his wards at the Workhouse Infirmary admitted that at one time or another in their lives they had drunk too freely. The profession should speak as a body on this subject.

Professor Priestley Smith endorsed all that had been said, and advised that people should take far more liquid than they did—in the form of water—between meals. He considered that smoking was another evil which the medical profession ought to take steps to check.

IS ALCOHOL OF ANY SERVICE?

[By Sir Victor Horsley, F.R.S., F.R.C.S., &c.]

SIR VICTOR HORSLEY, in the course of a lecture, said:—"With regard to the question of the use of alcohol in its so-called employment as food—in its dietetic use—I need not remind you that the so-called food use of alcohol is of itself a potent aggravation of disease, if it is not actually the cause of it. We know quite well that in the small quantities which are often spoken of as harmless, that they are not harmless, that there are many individuals in whom they cause moral degradation. I will not worry you, therefore, by going into facts which are well known to yourselves as well as to me. I will turn at once to a question in which the medical profession is often consulted, even though their evidence be frequently disregarded. I mean the question that the use of alcohol is one of the primary causes of crime. Here it is not the question of too much or too little, because, as I showed in this hall some years ago, all the tendencies of modern science go to prove that small quantities of alcohol affect the nervous system, so as to influence the activity of the brain, and in a sense to dull the edge of our moral principles. The medical profession has often been charged by the legal profession as having a quixotic interest in certain persons who commit crimes in certain moments of epileptic mania. When a person is suffering from a disease such as epilepsy, his moral senses are often so upset that he cannot be held morally responsible to the laws of his country. But when we read

the reports of the law courts we are astonished to find that the attempt is constantly made to mitigate the punishment of a man who commits a murder when drunk, on the ground that his moral responsibility is destroyed by alcohol. Not that he is suffering innocently from disease but because he has deliberately indulged in a luxury of a poisonous nature. From the medical point of view, and from the moral point of view the injury to Society is just as great whether the criminal owes his criminality to alcohol or not. To what, therefore, are we to ascribe the attempt to minimise the offence on the score of the drunkenness of the offender?

Is it a Food?

I believe we must ascribe it to the fallacy of regarding alcohol as a food. The idea that alcohol is a food is a habit of mind which is common in the United Kingdom, especially in this country. I have been assured by Scottish medical men more than once that they are surprised when coming South to hear their patients ask as to what form of alcohol they should take. They assume that alcohol should be used by everyone, and this habit of mind prevailing throughout the country, I believe, influences politicians and influences their legislation. It is clear under these circumstances that we must reconsider the well-worn subject whether alcohol is a food or not. You know perfectly well that alcohol lowers the temperature of the body. That is the first point. It can only do that by diminishing the activity of the vital processes. It has been shown, also, from the time of Dr. Parkes onward, that it diminishes very greatly the power of the muscles; and again I repeat that it diminishes the intellectual power of the nervous system.

Now, from a medical point of view, to call an agent that causes such a diminution of activity throughout the whole body a food seems to be perfectly ridiculous. It is not a food. And yet I have to draw your attention to the fact that this question has lately encountered a very curious revival in France. If you consider the statistics of the sale of alcohol consumed per head of the population of France during the last decade, you will be horrified at the amount of alcoholism throughout that country as compared with its more or less stationary condition in this country. As the result of this there has lately been a most important Temperance movement which, from a medical point of view we hope will be repeated here—the movement to stop the manufacture of absinthe and substances of that kind. It can only be done through the Government, and therefore in France a movement has been set on foot approaching the Government with this object. This has raised the hostility of the liquor trade, and at the present moment there is a little wave of reaction stimulated by the sellers of alcohol against this Temperance movement; and quite recently in the *British Medical Journal* appeared a very curious leading article dealing with some of the recent contributions on the subject of alcohol as a food, by various French scientists: curious, because it is summed up in favour of regarding alcohol as a food, and summed up in such a manner because, as stated, most of the medical authorities in France regarded alcohol as a food. Now, this very leading article, if you add up the authorities quoted, shows that the majority is against alcohol as a food. I only mention this to show what I mean by this general ‘attitude of mind.’ Nobody can gainsay the facts that alcohol depresses the vital activity of the human body, and therefore cannot possibly be regarded as a food.

Value as a Drug.

“And now as to alcohol as a medicine or ‘drug.’ In this connexion we enter upon totally different ground. With the increase of medical knowledge, and with the increase of conviction of medical observation, it is shown every year that the value of alcohol as a drug has been enormously over-estimated. On the contrary, it is a very doubtful agent, and is only in common use because it is so easily obtained. The medical profession is using it less and less because they appreciate it now at its true value. Therefore, either as a food or as a drug, we recognise that alcohol is of no service—or very little—to the community. No service as a food, and very doubtful service as a drug. Under these circumstances, I take it that we, as ratepayers and citizens of a great nation, ought to treat this question on the same principles as medical legislation in public health. The whole question is one of public health. It is not in any way a political question, though, of course, unfortunately, as the outcome of our party system of government, it has been made a party question.”

ALCOHOL AND INFANCY.

[By C. W. Saleeby, M.D., F.R.S.E.]

It is admitted by all modern biologists that what are called acquired characters—such for instance as a scar—are not transmitted to children by either parent. A monstrous misunderstanding of this proposition has led a few writers to declare that the effects of alcoholism are similarly incapable of transmission, and that on the average children have an equal start whether their parents be alcoholic or not. But it is obvious, on a moment's consideration, that the transmission of a scar is in an utterly different category from the registration in the new generation of the consequences of the soaking of parental tissues by such a poison as this.

Effect of Parental Intoxication.

On the contrary, definite statistical inquiry in man and in the lower animals has proved that parental intoxication has marked effects upon offspring, varying "from a moderate enfeeblement of vitality to an extreme defect expressed in still-birth or abortion." ("Alcoholism," by Dr. W. C. Sullivan, p. 185). Numerous experiments on the lower animals have verified the observations in man. Of these, many can scarcely be quoted here. There are definite cases on record, however, such as one recorded by Mr. Galton—which show the effect of progressive paternal alcoholism on successive children, and the facts are much more marked in the case of maternal alcoholism. Dr. Sullivan, in one inquiry ascertained that of 600 children born of 120 drunken mothers, 335 (58 per cent.) died in infancy or were still-born. Many of these women had female relations of sober habits. 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.

Drunkenness in the case of an expectant mother really involves the drunkenness of two persons.

The Child's Diet Affected.

In general, the argument from our infant and child mortality to a national degeneration is utterly fallacious. It is certain that at least four children out of five are born healthy, and as I began by stating, the transmission of individual deterioration to children is no longer believed in except where the deterioration depends upon such a cause as alcohol. The case of alcoholism, then, is a conspicuous exception, and is at this time practically the only true cause of racial degeneration in the proper sense.

I pass now to the child after birth. Even if alcoholism has not prevented the child being fed in a natural fashion, it may yet suffer gravely in consequence of receiving alcohol in its mother's milk. That this occurs has been chemically proved. Mrs. Scharlieb says: "The child, then, absolutely receives alcohol as part of his diet, with the worst effect upon his organs, for alcohol has a greater effect upon cells in proportion to their immaturity." ("The Drink Problem," p. 166), and Dr. Sullivan refers to "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." ("Alcoholism," p. 193).

I need not here make any citation of the facts which show

that alcoholism interferes with lactation, but I would insist upon the opinion that the "action of alcoholism on the health and vitality of the stock is the most serious of the evils that intemperance brings on the community."

It is high time that temperance workers should be guided by scientific inquiry and should devote a much smaller proportion of their energies to the mere question of drunkenness, and a much larger proportion to the fundamental question—which is the relation of alcohol to the living tissues of the human body, especially during its developmental stages.

Alcohol in the Tissues.

That alcohol is a poison to growing tissues at any rate no one will question. This may be proved by experiments upon growing cress—which are very simple to carry out—or upon the young of the lower animals. It is daily demonstrated upon the young of man. The general rule is that any narcotic substance affects highly developed tissues sooner and more markedly than simpler tissues, and so it is in the case of alcohol and the infant. It is the developing nervous system that is most markedly affected. This leads, of course, to an increased child mortality, especially by way of convulsions. This was the cause of 60 per cent. of all the deaths that occurred amongst the 600 children in Dr. Sullivan's series. But it has especially to be remembered that a large number of children whose nervous systems are injured for life by parental and more especially by maternal alcoholism do not die either as infants or children. Instead of dying of convulsions they live as epileptics. Of the children in Dr. Sullivan's series "219 lived beyond infancy, and of these nine, or 4.1 per cent. became epileptic, as compared with 0.1 per cent. of the whole population." Other observers have found

epilepsy in 12 per cent. and even 15 per cent. of the children of alcoholic parents.

Dr. Claye Shaw told the Interdepartmental Committee on Physical Deterioration that "we have inebriate mothers, and either abortions or degenerate children." The teleological relationship between the two seems to be as certain as any other conditions of cause and effect.

The Hereditary Taint.

The question of the influence of alcoholism on infant mortality may clearly be divided into two stages: First, there is injury of the child before birth; secondly, there is injury of the child after birth. The first of these influences, as I have tried to show, is of the utmost importance, but is, of course, impossible to deal with fully in this place. At the present time the most detailed and conclusive statistics available are those of Dr. Sullivan which I have quoted. Furthermore, this first stage may be considered under two aspects—first the influence of paternal alcoholism, and, second, the influence of maternal alcoholism.

Now, the experiments of Combemale on the dog have shown that paternal alcoholism directly affects the offspring, and I have alluded to human cases. Nevertheless the fact, as we should expect, is that "as regards the vitality of the offspring the influence of maternal drunkenness is so predominant a force that the paternal factor is almost negligible."

The reader will understand that this last sentence, like the whole of my article, refers exclusively to what may be called the biological or medical factors of this question. As everyone knows, an overwhelming case may be made against alcohol in relation to infant life on the ground of the extra-medical factors, which show themselves in such accidents as overlaying, but the whole point which I wish

now to make is that alcohol has a deadly effect upon infant and child life within the strictly medical or scientific realm. There are two distinct indictments—one, that of the sociologist, and the other that of the student of living tissues.

The proved facts as to the influence of alcohol upon growing human tissues, whether before birth or after birth, whether through the maternal blood or through the maternal milk, must be taken into account in connection with the use of alcohol as a drug in childhood. The skill and success of the children's physician can almost be estimated in inverse proportion to the amount of alcohol that he finds it necessary to use; and it is safe to say that even in those cases where brandy, for instance, is of use in the disorders of infancy, the need for its employment only points to the neglect of previous precautions. Meanwhile the irresponsible use of alcohol persists, and this in two directions. In the first place, there remains in many quarters the ridiculous superstition that alcoholic liquors—and not milk!—are good for the nursing mother.

In the second place, there is the much more serious employment of alcohol, disguised or undisguised, by mothers and nurses as a means of soothing children whose need to be soothed is only proof of previous maltreatment. It is a safe proposition to lay down that alcohol should be administered to no infant except openly, in known doses, and under responsible supervision.

The Vast Slaughter of Children.

In a previous article I endeavoured to confine myself strictly to the immediately medical aspects of the relation between alcohol and the horrible fact which is technically called infant mortality—the death of children under one year old—perhaps the most horrible of the facts which will lead posterity, as Ruskin hinted, to look back upon us “with

incredulous disdain." But we also have to reckon with a vast slaughter of children who have escaped during the first year of life, a slaughter so great that about one half of all children born have already died at the end of five years. When the usual folly is talked about the birth-rate, it is well to remember that if the fact of child mortality be taken into account, and an interval of only five years be allowed, the birth-rate is practically only one-half of the nominal figure. It may further be urged upon the patriot that whilst his efforts to prevent diminution of the birth-rate are predestined to certain and continuous failure, the result which he desires can be attained far more easily, far more humanely, far more economically, and far more desirably by a reduction of our ghastly child mortality. Let us now consider the specific and overwhelming factor of alcohol in this regard.

We may dismiss for practical purposes, of course, the actual ingestion of alcohol by children. Quite exceptional are the cases in which children have directly died of alcoholic disease. Yet indirectly alcohol can scarcely be too severely incriminated.

The most deadly and important of all diseases is tuberculosis, though of course it is far surpassed as a cause of death by alcohol itself. The tubercle bacillus is, of all living things, man's greatest foe. The commonest and most deadly form of tuberculosis is consumption. It is usually taught that this is a disease of early or mature adult life, and that it is not met amongst elderly nor amongst children to any great extent. We are now learning, however, that the number of consumptive children is far greater than used to be supposed. The recent attention which has been paid to the diseases of childhood has taught us that, amongst these, consumption takes a foremost place.

Now we must dismiss absolutely from our minds the old error that this is a hereditary disease. Every case of tuberculosis has had its origin in personal infection, and one of the greatest problems for those who love children is to protect them from this awful and common infection.

So far as medical science is concerned, the factors of the problem are known. In general there is required extensive exposure to infection in the first place, and susceptibility to it in the second place.

Infection in the Public-House.

It is now generally admitted by those who know that the most potent factor in the spread of consumption is the public-house. In all probability at least one half of all cases of consumption are due to infection in the public-house. The public-house is regularly frequented by consumptives. It is an easy matter to demonstrate the existence of virulent tubercle bacilli in the sweepings from the public-house floor. Nowhere else can they be so constantly and abundantly demonstrated. It is a safe proposition that everyone who enters a public-house is entering a plague spot, for tuberculosis is the greatest plague of our day. The consumptives who regularly frequent these places expectorate millions of living and acting bacilli, and these are most abundant on the floor.

Now, children under one year of age do not suffer to any extent from consumption, and the reason seems to be in large measure that they are not exposed to the infection. But observation has shown that the occurrence of tuberculosis in many forms coincides with the crawling period. The child that crawls on the public-house floor or the small child that walks upon it is in grave danger. The nearer the mouth and nose are to the floor, more likely is infection to occur. For that matter, the taller a man is

the less risk he runs in entering a public-house. No single measure could strike so great a blow at this awful disease or could make so rapidly for its extermination, which will have come some day, as the elimination or radical reform of the public-house. To the eye of the doctor there can scarcely be a more disgusting or cruel spectacle than that of a small child crawling or toddling along the infected floor of a public-house—which he knows to be covered with the germs of death.

Susceptibility of Individual.

Now, the second factor in the spread of tuberculosis is the susceptibility of the individual. In order to reap your crop of death you must have not only abundant seed but suitable soil. It has been overwhelmingly proved that the quality of the air breathed is a chief factor in determining whether the soil will or will not permit the deadly seed to grow. The atmosphere of the public-house begins by harbouring a great abundance of the virulent seed, but, further, it is the ideal atmosphere for the preparation of the soil to receive it. I need scarcely waste space in describing the air of a public-house—foul with carbonic acid, with the products of filthy skins and clothes, with smoke and with organic and microbic dust. The reader will see that the public-house provides every condition necessary for the propagation of this disease. We have in England the foremost student in the world of tuberculosis in its wider aspect—Dr. Newsholme, of Brighton. I believe that he is now engaged upon a close study of the questions which I have here raised, but meanwhile I cannot quote any statistical evidence which indicates the precise extent of the slaughter of the children in the manner I have indicated.

Alcohol and Tuberculosis.

In so far as children take alcohol their resistance to tuberculosis is weakened. We know now that, as a great French Physician has said "*L'alcoolisme fait le tit de la tuberculose.*" I quote a long and most important paragraph from Professor Sims Woodhead ("The Drink Problem," p. 76).

"Alcohol, far from being antagonistic to tuberculous disease, as was at one time supposed, is looked upon as one of the great predisposing factors in the production of both acute and chronic pulmonary tuberculosis, and it is generally accepted that in alcoholic patients, tuberculosis is far more likely to assume an acute and generalised form than it is in the non-alcoholic patient, for, as Dr. Dickinson said:

'We may conclude, and that confidently, that alcohol promotes tubercle, not because it begets the bacilli, but because it impairs the tissues and makes them ready to yield to the attack of the parasites.' In France, in the districts in which the greatest amounts of alcohol are consumed, the highest mortality from tuberculosis is met with, alcohol apparently acting as a devitalising agent and rendering persons indulging in it to excess a more easy prey to infection. Baudron in 1901 showed that the consumption of alcohol of 12·5 litres per person corresponded to a mortality from tuberculosis of 32·8 per 1000 living, whilst the consumption of 35·4 litres of alcohol per person corresponded to a death rate from tuberculosis of 107·8 per 1000."

In the same volume, p. 204, Dr. Crowley says that in "a careful inquiry into the alcoholic habits of sixty-two adult male patients admitted into a Poor Law sanatorium for consumptives (including a considerable number above the 'pauper' class) 43·6 per cent. owned that they were heavy drinkers."

What applies to adults applies still more, of course, to children, and we must also remember that whatever makes the parent tuberculous enormously increases the child's risk of infection.

Other Diseases.

I have insisted at some length on this relation between alcohol and a disease which is deadly, not only to adults, but also to children, because the facts are far from being generally known; but I might easily have written at length upon measles and whooping cough alone. These diseases, so deadly to the children of the lower classes, kill them by means of bronchitis developing upon neglect and malnutrition. The children of the well-to-do classes do not die of these diseases. Need it be said that the atmosphere of the public-house, apart even from any question of violent change of temperature, is a potent cause in the development of fatal bronchitis in these diseases? Beyond all this there is the obvious truth that this foulest of foul atmospheres, to which no society lady would expose her dog, diminishes the power of resistance to all kinds of disease, whether in childhood or in after life.

My space is filled, and yet I would have to say many times as much again in order to complete the medical catalogue alone of crimes committed by alcohol in general and the public-house in particular against our children. To those who have the power, and therefore the responsibility of saying now and with effect, "There shall be no more of this curse," but whom callousness or selfish indolence dissuades, I would quote the condemnation passed by One who loved children, upon whomsoever sins against childhood: "It were better for him that a mill stone were hanged about his neck, and that he were drowned in the depth of the sea."

ALCOHOL AND PARENTHOOD.

[By Dr. Saleeby.]

THE relations of alcohol and parenthood are many and all-important, and they can only be outlined here. I wish first to show how alcohol affects the life of this country by its destruction of fatherhood.

Drink's Widows and Orphans.

Some time ago we heard a good deal about the widow whose modest capital is invested in the licensed trade, and we were told that anything which injured that trade would thus work grave injury to many helpless widows and orphans. The following is an account of an investigation which I made at the end of 1908, in order to find out how many widows and orphans are made by alcohol. It has been stated that there are half a million persons who have invested money in the licensed trade. Let us allow that half of these are men. The death-rate of all males, above 15 years of age, is slightly over 16 per 1,000. At the census of 1901, 536 in each 1,000 males aged 15 years and upwards were found to be married. Ignoring the differential death-rate of the married as compared with bachelors and widows, it follows that about 4,100 male investors in the licensed trade die each year, of whom some 2,197 will be married men, leaving behind them the same number of widows entirely or partly dependent on these investments.

The widows made by drink are nearly six times as many.

Numerous enquiries at home and abroad agree somewhat closely in stating 14 per cent. of the entire death-rate to be

due to alcohol. The proportion of one in seven is generally accepted. I do not think the justness of this figure can be disputed at all, except as an under-estimate. We are here dealing with male deaths only, and I will do my contention the obvious injustice of supposing that the proportion of deaths due wholly or in part to alcohol is no higher amongst men than amongst women. If one could allow for the existing difference, the result would be even more terrible.

Taking the figures for 1906 for England and Wales alone, we have 167,307 deaths of males over 15, 23,422 of these wholly or partly due to alcohol, and of this number, 12,554 were married men (*i.e.*, 536 per 1,000). The average size of a family in England and Wales is 4.62 according to Whitaker. If we multiply the number of widows, 12,554, by 3.62, we shall have an approximation to the number of widows and orphans made by alcohol in 1906. *There were 45,445, or over 124 widows and orphans made by alcohol every day in the year.*

It can be fairly well shown, and will become quite clear after the forthcoming census, that these figures are much too low because they do not reckon with the abundance of the birth-rate in the classes from whom the alcohol-made widow is mostly recruited. Dr. Tatham's observations on occupational mortality for 1900, 1901 and 1902 show us where this destruction of fatherhood mostly occurs. Thus one may note such occupations as:—coalheaver, coach, cab, &c., service, groom, butcher, messenger, tobacconist, general labourer, general shopkeeper, brewer, chimney sweep, dock labourer, hawker, publican, inn and hotel servants. A glance at the table will show that in most cases the men who are dying are "industrial drinkers," who frequent public-houses in the districts

where the reduction in the number of licenses under a Licensing Bill would occur. Often nowadays the widows are heavy drinkers, and the lives of their children centre round the public-house.

Let us turn now to the physiology of our subject.

Alcohol and the Germ Plasma.

It has been proved up to the hilt that the parenthood of the alcoholic person is injured, and that his children, therefore, and still more *her* children, do not have equal start. This has been critically proved by statistical inquiry on a very large scale, and also by experiment upon the lower animals. Dr. Sullivan, in one inquiry, found that of 600 children born of 120 drunken mothers, 335 (58 per cent.) died in infancy or were still-born. Many of these women had female relations of sober habits.

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 drunken families there was a progressive rise in the death-rate from the earlier to the later born children.

Drunkenness in the case of an expectant mother really involves the drunkenness of two persons, and, whilst working in the slums of Edinburgh and of York, now several years ago, I have attended the birth of children that were born drunk.

The Child's Diet Affected.

Let us consider now the child after birth. As has been proved by Professor Bunge, alcoholism in preceding generations often interferes with a mother's power of nursing. But even if alcoholism has not prevented the child from being fed in a natural fashion, it may yet suffer

gravely in consequence of receiving alcohol in its mother's milk. That this occurs has been chemically proved. Mrs. Scharlieb says: "The child, then, absolutely receives alcohol as part of his diet, with the worst effect upon his organs, for alcohol has a greater effect upon cells in proportion to their immaturity" ("The Drink Problem," p. 166), and Dr. Sullivan refers to "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" ("Alcoholism," p. 193).

Alcohol thus belongs to the class of what I have called racial poisons, and, as I have elsewhere shown, its action both through the father and through the mother is strictly parallel to that of lead. In both cases the most serious consequences are found when the racial poison acts upon expectant motherhood. In the case of lead its opportunities for action are at the present time rapidly diminishing. In the case of alcohol they are rapidly increasing, this being perhaps the most ominous fact of the alcohol question to-day. It is surely high time that temperance workers should be guided by scientific inquiry, and should devote a much smaller proportion of their energies to the mere question of drunkenness, that is to say, of acute alcoholic intoxication; and a much larger proportion to the fundamental question, which is the relation of alcohol to vital processes, and pre-eminently to those of parenthood and childhood.

Alcohol and Infantile Mortality.

The question of the influence of alcoholism on infant mortality may clearly be divided into two stages: first, there is injury of the child before birth; secondly, there is injury of the child after birth. The first of these influences

as I have tried to show, is of the utmost importance, but is, of course, impossible to deal with fully in this place. At the present time the most detailed and conclusive statistics available are those of Dr. Sullivan quoted above. Furthermore, this first stage may be considered under two aspects—first, the influence of paternal alcoholism, and, second, the influence of maternal alcoholism.

Now, the experiments of Combemale on the dog have shown that paternal alcoholism directly affects the offspring, and there are many parallel observations on man. Nevertheless the fact, as we should expect, is that “as regards the vitality of the offspring the influence of maternal drunkenness is so predominant a force that the paternal factor is almost negligible.”

The reader will understand that this last sentence refers exclusively to what may be called the biological or medical factors of this question. As everyone knows, an overwhelming case may be made against alcohol in relation to infant life on the ground of the extra-medical factors, which show themselves in such accidents as overlaying, but the whole point which I wish now to make is that alcohol has a deadly effect upon infant and child life within the strictly medical or scientific realm. There are two distinct indictments—one that of the sociologist, and the other that of the student of living tissues.

Alcohol *versus* Milk.

The proved facts as to the influence of alcohol upon growing human tissues, whether before birth or after birth, whether through the maternal blood or through the maternal milk, must be taken into account in connection with the use of alcohol as a drug in childhood. The skill and success of a children's physician can almost be estimated in inverse proportion to the amount of alcohol that he

finds it necessary to use; and it is safe to say that even in those cases where brandy, for instance, appears to be of use in the disorders of infancy, critical inquiry will show that it has only supplemented the total sum of the forces at work against the patient. Meanwhile the irresponsible use of alcohol persists, and this in two directions. In the first place, there remains in many quarters the ridiculous superstition that alcoholic liquors—and not milk!—are good for the nursing mother.

In the second place, there is much more serious employment of alcohol, disguised or undisguised, by mothers and nurses as a means of soothing children whose need to be soothed is only proof of previous maltreatment. It is a safe proposition to lay down that alcohol should be administered to no infant except openly, in known doses, and under responsible supervision.

It is especially to be remembered that a large number of children whose nervous systems are injured for life by parental, and more especially by maternal alcoholism, do not die either as infants or children. They live to demonstrate the truth that it were better for them had they never been born. Of the children in Dr. Sullivan's series, 219 lived beyond infancy, and of these 9 or 4·1 per cent. became epileptic as compared with 0·1 per cent. of the whole population. Other observers have found epilepsy in 12 per cent. and even 15 per cent. of the children of alcoholic parents.

The Children Act.

The Children Act, 1908, which came into force on the 1st of April, 1909, and thus affected the fate of childhood during nine months of that year, must unquestionably be awarded much of the credit for the reduction of the infant mortality of 1909 to a figure—109 per thousand — which

has never been approached since the figures have been taken. The Act forbids the giving of alcohol without medical orders to children under five years of age. It forbids smoking by children under 14 years of age; and posterity will be interested to inquire on what theory we of this generation made this remarkable distinction between the influence of alcohol and of tobacco upon childhood. Thus, though I am not one of those who regard the Children Act as the last, final and perfect completion of legislation for childhood, yet it is something.

By excluding children under 14 from public-houses, the Act has radically struck at the most deadly of all our diseases, which is tuberculosis. A most potent factor in the spread of consumption is the public-house, which is regularly frequented by consumptives who spit the germs of death upon its floor. The child who crawls on the public house floor or the small child that walks upon it is in grave danger. The nearer the mouth and nose are to the floor, the more likely is infection to occur. Indeed, it is safe to say that, whether from the point of view of childhood or from that of adult life, no single measure could strike so great a blow at tuberculosis as the abolition or radical reform of the public-house.

Public-House Contamination.

In excluding children from public-houses, we protect them not merely from tuberculosis alone. Measles and whooping cough, so deadly to the children of the lower classes, kill them by means of bronchitis, developing upon neglect and malnutrition. The children of the well-to-do classes do not die of these diseases. Need it be said that the atmosphere of the public-house, apart even from any question of violent change of temperature, is a potent cause in the development of fatal bronchitis in these

diseases? Beyond all this, there is the obvious truth that this foulest of foul atmospheres, to which no society lady would expose her dog, diminishes the power of resistance to all kinds of disease, whether in childhood or in after life.

Certain persons who have never hitherto raised a finger or uttered a word on behalf of infancy or childhood in their lives, are now advocating the repeal of this clause of the Children Act, whose operation during 1909 helped to give us the lowest infant and child mortality on record: except that of 1910, during the whole of which the Act was in operation. They say that children suffer by being kept outside the public-house; their real objection being, of course, to the tendency of parents having children outside to spend less time and money in the public-house. I have been speaking and writing on this subject, almost without a week's intermission, since 1906, and have always made a point of citing the evidence of the decent publican on our side; but what is one to say now, if the licensed trade is to set itself as a whole against this sensible provision, which merely brings us into line with the best of our own Colonies?

The Feeble-minded Inebriate.

We have yet to learn that though intemperance is often a sin, it is often more properly to be called a symptom—a symptom of nervous degeneracy, of which the most familiar form is what we call feeble-mindedness. There exist many persons in the community whose nervous organisation is naturally defective, and who take alcohol to excess in consequence. In such cases, to be scientific is to be charitable. The person in question is a patient, and the business of those who believe in Eugenics, or Race-Culture, is to regard the alcoholism as a flag of warning, which declares the individual to be unworthy of parenthood.

This subject was forced into prominence a short time ago by an administrative scandal, due to a sordid squabble between the Treasury and the London County Council. The efforts of those who devoted themselves to educating public opinion on this matter resulted in the appointment of a Departmental Committee of the Home Office, the Report of which must be the basis for the legislation which is grossly overdue. I have given the name Negative Eugenics to the discouragement of parenthood on the part of unworthy persons. The chronic, incurable, feeble-minded inebriate of either sex pre-eminently comes under this ban. We must provide for such persons, reformatories and homes, not merely for their own sakes, not merely with the hope, too often vain, of reforming that which has never been properly formed, but in order to protect the race from the production of individuals who can only be called the *illth* of nations.

The considered and expert judgment is that not less than eighty-five to ninety per cent. of the feeble-minded now existing in the community are scions of feeble-minded stock. We attempt to educate them in schools or reform them in inebriate and other reformatories; but one cannot draw out what is not there, nor reform what has never been formed. That is the verdict, alike of experience and apriorism.

These people of feeble-minded ancestry produce feeble-minded offspring. Our duty in their regard is evidently twofold. We have our duty to them and our duty to the future.

Life-long Treatment Necessary.

Now, nothing is more certain than that, Huxley's Romanes lecture and the comments of contemporary tinkerlings notwithstanding, these two duties can be simultaneously discharged; nay, more, *can only simultaneously be discharged*. The only just, humane and

medically warrantable treatment for these patients is *lifelong care*; and lifelong care means the absolute and final satisfaction of the demands of negative eugenics.

If, instead of lifelong care, I were to use the ordinary term, which is segregation, there would be no difference in the thing; only the change of name would confound those who think in names. But is it still necessary to argue with champions of "liberty," who think that the feeble-minded and inebriate prostitute is freer in Piccadilly than in a home?

That objection to the only policy whereby these poor people can obtain any measure of real liberty may be left aside. But there is a second, which is that the policy of segregation or lifelong care would be expensive. But, pray, how expensive are these people as it is? If they live, we pay for them; and under present conditions, we pay not merely for their keep, but for their crimes and the diseases they convey; and for their children. That last is the point, for I grant that under decent and eugenic conditions these people will live longer; but at least the cost will end with their own lives.

Right Care of Child.

The practical solution of this problem lies in the right care of the child. Already we "educate" the feeble-minded child (at far greater expense than the normal child); and in so doing we learn, of course, to distinguish the real cases from those of tardy or imperfect development due perhaps to nutritional defect or accident. Then when the boy becomes a man, or the girl a woman, we turn them into the community, with the inevitable consequences. The girl's fate as mother of an illegitimate, feeble-minded child, and thereafter as prostitute, is perhaps the most tragic conceivable illustration of Madame Roland's cry, "O Liberty, what crimes are committed in thy name!" We

must take care of these children all their lives, on the lines of the Lancashire and Cheshire Incorporated Society for the *Permanent* Care of the Feeble-minded—one of the few wholly wise charitable institutions in this country, and one of the very poorest. On this policy all are agreed, including the Royal Commission that sat on the subject, and both Reports of the Poor Law Commission. It awaits translation into deed merely because it offers no party cry, and therefore fails to find a voice on either side of the House of Gramophones.

A most important part of the problem of alcoholism depends upon the solution along these, the only, lines of the problem of the feeble-minded. In his work on "The Criminal Responsibility of the Insane" (London: Churchill, 1856), Dr. Caleb Williams, the present writer's grandfather, laid it down for the first time, as a result of some forty years' observation as an alienist, that alcoholism is frequently a symptom of mental degeneracy. Half-a-century later, Dr. Welsh Branthwaite, His Majesty's Inspector of Inebriate Reformatories, found that approximately two-thirds of the inmates of those institutions present clear indications of mental degeneracy anterior to the alcoholism, inherited and therefore transmissible. The evidence on this subject was stated in a memorandum which I prepared for the Eugenics Education Society, and was laid before the Departmental Committee, already referred to, which lately considered the law regarding inebriates, and the Report of which, like those already cited, was in favour of the policy of segregation.

Prof. Karl Pearson's "First Study."

After the first edition of this little summary was written,

Prof. Karl Pearson issued a "First Study of the Influence of Parental Alcoholism on the Physique and Ability of the Offspring," in which he comes to the conclusion that the children of alcoholic parents are superior to those of sober parents in physique, intelligence, eyesight and freedom from disease. It was indeed a first study of the subject, and if Prof. Pearson were not a tyro therein he would have avoided the many errors, some of them inexcusable even in a beginner, which have since exposed him and his method to the mercilessly destructive criticism of first-hand students of alcohol all the world over. Having few teetotallers to study, Prof. Pearson grouped them with moderate drinkers, so that his enquiry contained no comparison between the children of abstainers and drinkers. Alcoholism means nothing in particular on his classification, and a great student of this subject, whose well-known demonstration is referred to above, writing in the *Eugenics Review* for July, 1910—following upon my paper therein in April, where I showed how impossible it was for Prof. Pearson to arrive at the truth by his methods—showed that the lack of anything even loosely resembling a scientific criterion of Chronic Alcoholism largely explains Prof. Pearson's error. There were many other fallacies in this Report, but all of them were trivial compared with the astounding fact that in estimating the influence of parental alcoholism upon offspring Prof. Pearson omitted to ascertain, in a single case, whether the offspring or the alcoholism came first. This is incredible but it is true. In the whole literature of alcohol *pro* and *con*, from the follies of ignorant doctors in the past to the worst extravagances of fanatical teetotallers, I know little so mischievous, and nothing so completely destitute of the scientific temper as this literally preposterous report,

equally uncritical, inaccurate and pretentious, which forgot to notice whether effects or causes came first.

"The British Medical Journal" Review.

After some ten months of continuous criticism of this paper by pen and voice, latterly in the formidable company of Sir Victor Horsley, to mention no others, and after being amongst those critics of Prof. Pearson whom the *British Medical Journal* described as being "over-hasty," it was with relief and delight that one welcomed the end of the controversy in that journal on February 11th, 1911, and its handsome withdrawal of the adjective in the following words: "It is now abundantly clear that this epithet was ill-chosen, and we regret that the expression was used." There remains only to repeat here the demand for the public withdrawal of the Report, until compliance with which, the scientific world can have no choice but to ignore all the future work that comes from this publicly discredited source.

But time and turmoil are the best friends of truth. Already the result of the publication of this Report has been that the injurious influence of alcoholism upon offspring is more clearly understood, and the evidence for it better defined than heretofore. And in the light of the past year's work I am more convinced than ever that, as I have long been urging upon the friends of temperance and mankind, their wisest, most urgent and most effective motto for many years to come is

Protect Parenthood from Alcohol.

We are about to discover that the true politics is domestics, since there is no wealth but life, and life begins at home. We are going to have the right kind of life born, and we are going to take care of it when it is born. If we

would rebuild the living foundations of empire, we must preach a New Patriotism which knows that, since individuals are mortal, parenthood is the supreme factor in the destiny of nations. In the light of this truth and of the foregoing facts, can it be questioned that he who at this date is for alcohol, is against England, and therefore against whatever ideals of justice and freedom and goodness she still stands for in the world ?

ALCOHOL AND DISEASE.

[By Professor Sims Woodhead, M.D.]

PROFESSOR SIMS WOODHEAD said: My Lord Bishop, Ladies and Gentlemen—I deem it a great privilege to be allowed to come and take part in a meeting such as this, and an honour to be asked to help, in however small a way, the Forward Movement of the C.E.T.S. One cannot but feel that as a result of the three months' work that is to go on all over the country, you may look forward, as your chairman has said, to a very great accession to the strength and the working power of this great Society. Very fittingly, I think, I have been placed in this position in the programme, as I believe I have to deal with this question from—shall I say, a selfish standpoint?—a by no means high standpoint. I shall to-night deal with this great question in its physical or physiological aspect. Although we may say that this is a selfish aspect—as, indeed, it is when we apply it to ourselves merely—yet when we take a broader outlook on this great question we begin to feel that, after all, it may include a much wider circle than that including our own immediate little patch of ground; that it is, indeed, a great social question. It is a question which bears upon the prosperity of the nation as a whole. There are many sides to this physical question. We have to deal, first of all, with the abuse of alcohol.

Effect on the Growing Body.

How does it affect the development of the growing body of the growing man or future citizen? Even when that citizen is allowed to develop to the full extent

of his powers there still may come a time at which alcohol may bring about a serious deterioration of his physical and mental powers. And, of course, in connection with that aspect there comes in the question of alcohol in its relation to disease. I should like to say, at the very outset, with your chairman, that I always think those of the less extreme wing of your association have a tremendously greater responsibility than those of us who are total abstainers. I was glad, indeed, to hear this from your chairman, because I feel, and feel it very strongly, that alcohol is unnecessary for the preservation of the health of the individual. I go no further than that in connection with this matter; but if we hold that, then we must accept it that alcohol is a luxury, and if we go as far as that I should like it to be borne in mind what a dangerous luxury it is for many of those with whom we may come in contact. If we look upon it as a luxury, then we have to consider how dangerous that luxury may be to those who are not so strong as we are, and who are less able to resist temptation, and upon whose physical condition it may have a far greater influence than upon us. We all, I think, agree that excess is bad, but, unfortunately—and even those who are working at this question are in the same difficulty—we cannot agree as to what is excess. We cannot determine the exact quantity of alcohol that is to be regarded as being excessive. Moderation for one man may be great excess in another.

What is Excess?

From the scientific standpoint I maintain we must look upon excess as the use of any quantity of alcohol which interferes in the slightest degree with the perfect performance of all the functions and

activities of a man's brain and of his body. Anything beyond that must be looked upon as excess. Now, in the old days, when the methods of determining pathological processes and conditions were less elaborate and delicate than they now are, it was quite excusable for a man to say that, so long as he could walk straight and had control enough over his muscles of speech to be able to pronounce "British Constitution" without any very great lapse, he was to be looked upon as sober, and as not having taken an excessive quantity of alcohol. But we now know from the accurate tests that have been made with the aid of very delicate apparatus, that long before that stage is reached a man has less control over certain sections of his mental and physical apparatus—if I may so call it—and that certain parts of his brain are not acting so well as they should, that certain small muscles have lost some of their delicate working power, and that to that extent the man is not doing the best of which he is capable. If we take the first definition—that is, the power of doing the best that is in one—then we must acknowledge that moderation is a much more moderate thing than many of us, even now, imagine.

Let me give you a well-known example. I could give you many of them. We all know that to be a good shot requires great accuracy of eye, great power of co ordination, and great steadiness of hand. All the muscles of the eye and hand must work well together; we must have what is called a very fine co-operation or co-ordination of eye and hand.

The Study—Eye and Hand.

Now, in order to test this, the Swedes — who, by the way, have been making tremendous advances in the study of this question — took a couple of

companies of soldiers, men who were about equal shots, and they gave to each of the men in one company an ounce-and-a-half of brandy, and then set the men of the two companies to shoot at targets the size of a man. They were told to fire as quickly and as accurately as possible. Those who had taken the alcohol were very much surprised to find that those who had not taken it had finished their shooting before they had—that they had been beaten as to rapidity of firing by the abstainers. On reckoning up the points it was found that those who had not received alcohol had made 30 per cent. more hits than those who had taken a longer time—but had also taken alcohol. They said, no doubt, “If you had given us a little more time we could make as many hits as the abstainers.” They were allowed to take more time, and take a steady, careful aim, but again the abstainers were found to have beaten them, this time by 50 per cent. of marks. “Oh,” it may be said, “of course you had much better shots in the abstainers’ company than in the other.” They now let them rest for a few days, and then gave the alcohol to the other set of men, with precisely similar results. The effect of the alcohol was, first of all, to make the men deceive themselves as to how they were doing. They always imagined they were doing better than they were doing, and undoubtedly the others who were not taking alcohol were always doing better than those who were taking it. This experiment showed that alcohol has a very definite effect in interfering with the co-ordination between the action of the hand and that of the eye, and the sooner we realise this the better it will be for our artizans. I say our artizans because the life of this country depends to a very large extent upon the men in our workshops.

There are those who draw a sharp line of definition between different kinds of work; but we have to remember that we are all working men, and that those of us who call ourselves brain-workers are working with our hands as well as with our brains, whilst those of us who call ourselves artizans have to work with our brains to control our hands, and unless those brains and hands are kept in the very best possible condition, then we cannot do our duty to our country, to ourselves, and to our fellow-men.

Effect on the Nervous System.

Therefore, I ask all who take any interest in this Temperance question to make themselves familiar with the effect of alcohol upon the nervous system. We have to remember that the nervous system is the centre, not only of thought, but of action, and that without a thoroughly sound nervous system we cannot be thoroughly sound men and women, men and women who can think and act properly. Our whole nervous system is at first educated through our muscles. Our muscles in turn receive certain information from our nervous system. It is necessary that the brain should always be in the most favourable condition possible. Unless we maintain that favourable condition we shall not get the best work out of our bodies and the best work out of our minds. I should like to say a word or two on this question in relation to the child. The child uses up a very great deal of its energies and its vital power in adding to its bulk. The brain, however, is at its full size at about eight or nine years of age. It is really a plastic mass from which the sculptor is going to mould a very wonderful and beautiful organ. At first in a very young child it is a mass of almost inert cells. There are just a few at the base of the

brain which have been developed at a very early stage to control the breathing apparatus and the action of the heart; but the great mass of the brain that is developed in earlier life is simply a plastic mass of clay, if I may so designate it, that goes on growing in size till the child reaches about nine years of age. During that time it has become somewhat modified; most beautiful and delicate changes have taken place in it.

The Moulding of Brain.

From the first year to the age of twenty-five — perhaps even a little longer — the brain is being constantly modified. There are being laid down in it a large number of most delicate nerves, telegraph wires, if I may call them such, wires joining up little different points or cells in the brain. Each of these different cells — and there are millions of them — may be compared to a small galvanic battery which is receiving and sending out currents. This net work of nerves or wires and this enormous accumulation of nerve-cells or batteries must be developed under the very best and most favourable conditions, and if you do anything to disturb this development to break down these wires, or to weaken these minute batteries, you are doing something to render the brain as a whole less efficient. That brain will not develop if you do not give it enough food, if you do not give it enough exercise, if you allow poisonous substances to act upon the minute parts of which it is built up. One of the most potent of these poisons is alcohol. Alcohol acts upon these little cells and upon these little nerves, and prevents the formation of what we may term the finest ramifications. It interferes with the proper development and distribution of the impulses received or developed by the brain. It breaks up the paths that are laid down, and in that way

interferes with the action of this perfect mechanism. It is because of this poisonous action of alcohol upon the young brain that those of us who are interested in the Band of Hope movement—and we at Cambridge only last week had the Very Rev. the Dean of Carlisle, who gave a magnificent address on that movement—wish to do away with the use of alcohol—to have it brought home to the children that alcohol interferes with the proper development of our youth.

Effect on the Developed Brain.

Even when the brain is fully developed alcohol in slightly greater quantities will still interfere with its perfect action. Every one of those millions of little cells has going out from it perhaps twenty or thirty separate threads and wires, let us call them, and on each of these wires are numerous little thorns; these little thorns approaching one another and even coming in contact with each other, so that there may be a passage of currents from one little battery or nerve cell to another. When alcohol is taken, these little thorns, instead of remaining long sharp points, retract and form little stumpy processes, which retract from one another with the result that there is obstruction to the passage of some impulse or other and a corresponding obstruction to the proper action of the brain. The results of all this may be seen in any tap-room from the actions of a man gradually coming under the influence of alcohol. He became less and less capable of performing certain actions. He could not walk and could not pronounce perfectly, owing to these little processes becoming contracted, and if this contraction were continued the co-ordination became less, and ultimately intellectual power was abolished, and the power of speech lost, and ultimately life itself might be stopped. That was

the final stage. But something has been going on from the time the very first drop was taken. I have not the privilege of being allowed to alleviate directly the disease that is met with in every direction. It is my privilege to attempt to find out what are the causes of those diseases. It is the object of every medical man to find out, first, what is the effect, and, then, what is the cause of a disease; and for many years I have been examining the conditions that are met with in patients who have succumbed to various diseases, and the more I have seen the more am I satisfied that if we could only get rid of alcohol we should get rid of many of the worst forms of disease that we have amongst us. For a long time it was believed there were certain diseases that were specially associated with alcohol, and could be said to be traceable to it; perhaps they were the only ones that were directly traceable to the use of this substance; but as men found out something of the more subtle processes of disease it was realised that alcohol plays a greater and ever greater part in determining the issue of all disease.

Effect on Certain Organs.

It was long known that alcohol had an effect in effecting changes in certain organs of the body, and it was known that the formation of connection tissue and the gradual disappearance of the proper tissues of the body were due to its action, but it was only comparatively recently that doctors, physiologists, and pathologists have been able to prove that many of the infective diseases were much more fatal amongst those who had taken alcohol than amongst those who had not. There is something very subtle, very difficult to put our fingers on, in this action of alcohol on the body. For example, it interferes with our power of protecting ourselves. You know that if a child

has an attack of scarlet fever and recovers, it is immune—is protected against a future attack, and that if one takes small-pox it is a very rare thing to contract it a second time; there are a considerable number of diseases of the same kind. As we pass through that disease our constitution is altered in some way or other, the fluids of the body are altered, certain of the cells are also altered, and we are protected against future attacks. It is only through this protection that we ever recover from the disease. It has been proved definitely that alcohol interferes with the carrying out of this protective process, with the formation in the body of those substances which protect us against disease, and in so far as they interfere in any degree with that protective process they diminish our chances of recovery, and a certain percentage of cases that might recover if left to themselves do not recover when alcohol is given. It is a serious statement to make, but it is one of the accuracy of which I am thoroughly satisfied, that in the old days when alcohol was given in its various forms, a great many people died of fever who would otherwise have recovered. I do not say that now and again alcohol may not have given some assistance temporarily, but I believe that even this is at the expense of some more permanent damage. It may in certain circumstances give temporary help, and doctors may have to use it because a temporary condition may be so serious that the patient's life may be directly in danger, and alcohol may tide the patient over a difficult period; at the same time it may be having a direct injurious effect upon the patient, and later this may become a very serious matter.

Alcohol in Diphtheria.

Take the case of diphtheria. We all know that diphtheria is a disease in which a poisonous material is

formed. That poisonous material acts upon the heart and upon a great number of the other organs of the body. On the heart, if allowed to act long enough, it brings fatty degeneration. Alcohol, if given in sufficient quantities, picks out the weakest organ of the body—the liver, the heart, or the brain. If it attacks the heart it attacks it just as does the diphtheria poison—it causes fatty degeneration. If we have one poison causing fatty degeneration by itself, and another poison doing the same thing, the two acting together will undoubtedly cause more marked fatty degeneration. That is what actually takes place. There are cases in which alcohol seems to accelerate this fatty degeneration and cause the death of the patient, because there is the cumulative effect of two poisons instead of one acting alone, and although the patient might have recovered from one, the two together ensure his death. I do not want to say these things to frighten people, or to say that fatty degeneration and death occurs in every case where the two poisons come into play at the same time; but I do say that a certain proportion of cases which, if left to themselves, would recover, under the action of alcohol undoubtedly run a far more grave, and in certain cases a fatal, course. Nowadays, doctors understand this, and Sir Victor Horsley and others have demonstrated that, instead of giving alcohol in our hospitals they are now giving milk; and I know of one hospital where the cost of alcohol for one year came to 2½d. per head. That is a very different state of matters from what we had in the old days, when patients were practically *fed* on various alcoholic drinks. One point on which I want to say a few words, because it is sometimes used as an argument in favour of the use of alcohol, and I should like you to be able to refute it, is this: People say they have seen

patients who were kept alive for considerable periods by brandy.

Kept Alive by Brandy.

They have not been kept alive by brandy; they have lived on their own substance. Brandy may undoubtedly prevent waste, but it is at a terrible expense to the patient, and in any case the patient lives on himself, not on the brandy. The patient is living upon his own substance, upon the fat and muscle he has accumulated during health, and anyone who says a patient can be kept alive on brandy is mis-stating the fact—of course, through ignorance. There is one other point I should like to mention. It is stated that alcohol is found in every food, in everything that we take, and, therefore, that it must be of some use—it is one of God's good creatures. Well, alcohol is found wherever there is life. Alcohol is formed by a large number of living organisms, and it has been stated that alcohol is present in everything and is almost as necessary as water. But there is this one great distinction between the two substances: water is a food. Water is taken up in large quantities by every kind of living matter, and no living matter can exist long without water.

Alcohol a Waste Product.

Alcohol, on the other hand, is a waste product. It is one of the results of vital activity. But note this: As soon as it is formed by living matter it is thrown outside. It is got rid of as soon as possible, and if it accumulates around any living matter, that living matter soon becomes dead matter; nay the protoplasm that forms more alcohol than anything else cannot continue alive in the alcohol that it forms. The yeast plant dies when 14 per cent. of alcohol accumulates in the yeast liquor. Alcohol when formed is got rid

of as soon as possible. It is not essential, and not only not essential but absolutely deleterious to life; and when people say that alcohol is found in everything, let us tell them it is a waste product of life, and like all waste products, and in certain quantities—very small quantities—it is exceedingly deleterious to living matter. Let us realise that alcohol is not necessary for any healthy individual; to some it is a luxury, to some it is a great temptation. May I put the point in this way: We all of us have some influence; it may be small, it may be very great. I heard a distinguished physicist say at Ely the other day, you cannot drop a pebble into the ocean without the wavelets set up by the dropping of that pebble extending to the nearest shore wherever that may be. It may be you drop it near this shore—some of the waves come to this shore, others go across the Atlantic: they reach the shore on the other side. Similarly there is no simple act you or I may do that has not a permanent influence upon someone, upon ourselves, no doubt, but also on a great many other people.

Self-denial for Others' Sake.

I would ask, is it not worth while to deny ourselves a small luxury—if it is a great luxury it is a great temptation, and if not a great temptation it is only a small luxury—is it not worth while to deny ourselves a small luxury in order to bring any little influence we may have to bear upon those to whom this alcohol may be a very great temptation indeed? I am speaking as a total abstainer. I believe that from the purely selfish point of view I have the best of it. I believe, however little I may be able to do, I should be able to do still less if I were not an abstainer. I believe that you, each one who is not an abstainer, however much you may be

doing, would be able to do still more were you an abstainer. I am now speaking to those earnest men and women who do not see their way to become total abstainers, because they have not, I believe, looked into this matter very carefully or thoroughly. Anyone who will work through the literature of this subject, who will only read the report of the fifty American physicians, will, I believe, soon become "convinced" abstainers. These fifty American physicians banded themselves together to find out the truth about alcohol; they went to work attacking the subject from all sides and all aspects, and they came to the conclusion that although alcohol may be of some use in some cases, the world would be a better world if there were no alcohol in it. If those men, many of whom were non-abstainers — and many actually remained non-abstainers, I am sorry to say — came to the conclusion that alcohol was an evil in this world, and was doing more harm than good in it, should we not be allowed to argue that we should be better, stronger, purer and nobler if alcohol were not in existence? I ask you to look at these facts, to read all you can of the physical effects of alcohol, look at it from a social point of view, and see what effect it is having in causing deterioration in some districts and preventing elevation in others. Men are not always growing worse. Nay, I am optimistic enough to think that we are better than we were two hundred years ago. It may not be apparent in the individual, but in the mass we are a better world than we were; and if you look into this question carefully and thoroughly, and give earnest consideration to it, a great many of you men and women will become total abstainers and bring your influence to bear upon your neighbours, and the rate of improvement will be still more rapid. I commend this aspect of the question to you, and there leave it.

ALCOHOL: A PARALYSER.

[By Norman Porritt, M.R.C.S., L.R.C.P., &c.]

SCIENTIFIC NOMENCLATURE is not the least of the paradoxes of science. An artery bears that name because the vessels, being found empty after death, were supposed to be air-ducts like *arteria*, the windpipe; oxygen is so called because the ancients erroneously supposed that no acid could be formed without it; whilst the blood-forming organ called the spleen has added a well-known word to the language, on the slanderous supposition that the spleen is the seat of melancholy, vexation and anger. To turn from science to everyday life we know that a Welsh Rabbit is a Welsh rare-bit; a country dance, a *contre danse*, in which the dancers stand opposite each other; whilst a blackguard is not a guard at all, but only a low, disreputable fellow.

If things sometimes are not what they seem, they are oftener not what they are called. A fancied resemblance to some object or the assumed possession of some property, has been responsible for the names of many objects in scientific as well as unscientific circles. As years have rolled on, knowledge has grown and deeper research has shown that the name chosen has no counterpart in the properties of the thing it is intended to define. The name becomes an anomaly, a misnomer, and chiefly of interest to the philologist and the scholar as an index to the imperfect knowledge and gropings in the dark of earlier discoverers and workers.

False Beliefs.

But however inaccurate and misleading, once in possession, the name remains. Give a dog a bad name, says the proverb, and it will stick. And the Dog Latin dragged into the service of nomenclature sticks as effectively to the object it so imperfectly or inaccurately describes, as the bad name to the unfortunate dog itself. He who essays to change the names of artery, oxygen, or spleen for titles more appropriate will engage in a hopeless task. But if the names of objects cannot be altered, no pains should be spared to understand and know their real nature and properties. With the start the false belief has gained, the truth may be years in overtaking and overthrowing it, just as Harvey was years in bringing round his compatriots to the view that blood and not air circulates through the arteries. Actual knowledge has a long stern chase before it gets ahead of inferences and impressions founded on likes and dislikes, and beliefs handed down from age to age and from father to son as gospel truths, too obvious either to need examination or challenge dispute. Moreover, it is so much easier to go on believing the old, comfortable theories, and so disconcerting and distasteful to relinquish them, and nothing short of a *tour de force* will dislodge them from the habitation they have occupied for years. Few have the habit of scrutinising the grounds of their beliefs. They prefer to jog on with the majority and not worry. A few loose generalizations, resting on looser observations and deductions, may be the sufficient justification for the convictions of a lifetime. To substitute knowledge for inference, to dive beneath the surface of seeming and drag forth the hidden truth, to change the apparent for the real, is beyond the ideal of the average, everyday man in the street. And yet if he had done so what a

difference in his opinions and his life! For life is but belief in action. And in few things would the results have been greater than in the case of alcohol.

Alcohol not Stimulant but Paralytic.

Alcohol is hailed everywhere as a stimulant. A man who is addicted to stimulants is one who indulges in alcohol; to take a little stimulant is to take a little alcohol. And this, in spite of the fact that the effects of alcohol—from first to last, from weakest to strongest—are not stimulant, but paralytic. To study the action of alcohol on the vital powers is to watch a continuous and progressive paralysis. In its grosser effects this paralysing, narcotising property is obvious, and finds apt expression in the phrase “dead-drunk.” A man who is dead-drunk is so palsied in mind and body that he lies like a log, incapable of coherent thought or orderly movement. And if the man has taken enough of this narcotising drug, not only do thought and the power of movement vanish, but life itself, as has occurred often enough when men for a wager have tossed off excessive quantities of spirits. A boy of seven died thirty hours after swallowing two wine glassfuls of brandy. Here the paralytic action of alcohol extended not merely to intellect and limb, but to life.

The average man will retort at once—“Yes, but it is unfair to take such examples of excessive use of alcohol—specimens of its abuse, rather than its use—and draw from them the inference that alcohol is an universal narcotic and paralyser. I take it myself,” the objector concludes, “in moderate quantities, and I know from my own sensations—from the evidence of my own body—that it is a stimulant.”

The Flushed Face.

Let us humour our objector and allow that a dose of

alcohol is followed by sensations suggestive of stimulation. The vital candle seems to burn more brilliantly; the face flushes, a glow of warmth spreads over the body, and the heart canters merrily along as fresh energy seems to thrill the frame and more brilliant thought to illumine the intellect. But without dwelling on the fact that bodily sensations are misleading and unreliable, and may indicate the opposite of this apparent stimulation, the essential factor is a relaxation of the muscular coat of the small blood vessels. The calibre or bore of the small arteries varies with the degree of tightness of the muscular ring which surrounds them. The tone—the degree of firm contraction—of this circular muscle is regulated and controlled by a special set of nerves, the vaso-motor nerves. If from any cause the influence of these nerves is lessened, the tubular muscle around the vessels slackens, the capacity of the vessels is enlarged and more blood rushes into them. The blush, which suddenly reddens a face, is due to such a relaxation and filling of the vessels with blood.

Effect on the Blood Vessels.

Many drugs suspend the action of the vaso-motor nerves, and cause a dilatation or widening of the calibre of the small vessels, and among them is alcohol. An alcohol consumer has a flushed face, and perhaps redder nose, because alcohol paralyses the nerves which control the calibre of his blood vessels. It is a true paralysis, and if alcohol is taken with sufficient persistence the tone of the vessels is continuously lost, and the stagnation of the alcoholised blood in the dilated vessels variegate the discoloration with blue or purple. It is upon this paralysis of the coats of the vessels that the so-called stimulant effects of alcohol depend. As the calibre of the

vessels enlarges with the benumbing of the controlling nerve influence, there is less obstacle to the flow of blood. Then the blood rushes through them at a great pace. To keep up with the acceleration of the blood stream, the heart must beat more quickly. The heart must propel the greater volume of blood through the enlarged vessels, and, unable to add to its own power, meets the difficulty by more rapid action. Any direct stimulating effect of alcohol upon the heart is temporary and transient and the accelerated pulsation is secondary to, and caused by, the greater rush of blood through the paralysed vessels.

The Strain of Modern Life.

One of the commonest results of the stress and strain of modern life is increased tension in the blood-vessels—a condition known to doctors in the extreme form as *arteriosclerosis*. Over-work, worry, loss of rest and sleep are its potent causes. It is responsible for the bulk of petty health worries, those wretched feelings of malaise and misery, too indefinite perhaps to need a doctor, but sufficient to make life a burden. Too often, instead of exorcising the demon by rest, recreation, holidays and sleep, the sufferer finds at his elbow another demon, who, as if by magic, dissipates his misery and puts new life into him. A glass of whisky paralyses the blood vessels; tension is relieved, misery vanishes, and for a time at any rate, life wears a new aspect. But the strained system has had no real relief. The over-wrought nerves and irritable blood-vessels have been neither strengthened nor restored. They have instead been be-numbed and paralysed. And the sufferer has only to continue to resort to his comforter, to add one more to the great multitude of those who float to their graves on a flood of beer or whisky.

Effect on the Brain.

But if the so-called stimulant effects of alcohol on bodily functions can be shown to be the result of a paralysis, what of its effects on the mental faculties? A small dose of alcohol seems to brighten the intellect with an edge of keenness, as well as of pleasure, as if the brain had received a marvellous access of power and efficiency. In his invaluable Lees and Raper Memorial Lecture,* a lecture to be read by all who would replace vague belief by ascertained facts, Sir Victor Horsley summarises the latest investigations into the effects of alcohol on the human brain. Sir Victor Horsley adduces the experiments of Professor Kraepelin on the effects of small quantities of alcohol on the brain. Professor Kraepelin thought that a small quantity of alcohol had an accelerating effect on the activity of his mind, and that he performed the operations of adding and subtracting and learning figures more quickly.

But when he measured the exact time taken, he found that with alcohol he did the work less quickly than without it. In Sir Victor Horsley's words "Alcohol had a primarily deceptive influence on the mind, and its witness was a false witness. . . . When a person is in this stage of loss of cerebral activity after taking a small dose of alcohol, he feels that his brain is extraordinarily active. The idea is present to him that he is really thinking more than usual, whereas as a matter of fact his thinking is slower."

Illusion of Increased Mental Power.

After pointing out that this illusion of great mental power is analogous to the fiction of great muscular strength

*THE EFFECT OF ALCOHOL UPON THE HUMAN BRAIN. A lecture by Sir Victor Horsley, M.D., &c., 26 illustrations, 5d. post free, from C.E.T.S. Publication Depot, 4, Sanctuary, Westminster, S.W.

after inhaling small doses of chloroform or ether, Sir Victor Horsley continues: "This fact is of very great importance to us in endeavouring to understand how a substance which paralyses like alcohol can also stimulate. Alcohol is not peculiar in this respect; chloroform, or any of the drugs which we know send the brain to sleep, has this property. Morphia, for instance, taken in very small quantities, causes initial excitation. Can that be anything else than a paradox? In this respect these observations of the result of small quantities are most interesting to us from the physiological standpoint. They really offer the means whereby we can introspectively examine ourselves, and as Professor Kraepelin has proved, our judgment—our intellectual judgment—is the first thing to fail. . . . It is, therefore, now established that the first effect of alcohol in small quantities is to suspend or interfere with the operation of the highest function of the brain. . . . It is as though a kind of brake were taken off, allowing the apparatus to go more quickly than before, but with a higher and continuously increasing proportion of errors. Thus it is clear that the first stimulation effect of alcohol, although apparently a help, is not a real help, for it abrogates that highest function we know in the brain—its controlling mechanism."*

Taking the Brake Off.

Just as it takes off the brake which in the coats of the vessels controls the blood current, in the brain it takes the controlling mechanism from the higher nerve centres. Alcohol makes a man talkative and communicative; but similar loquacity where no alcohol had been taken, would suggest one of those homely terms—"A slate off" or "A screw loose somewhere." Mental weakness, rather than

* British Journal of Inebriety, October, 1905.

mental vigour would be the verdict, and we must recognise mental activity following a small dose of alcohol either estimated by the amount and efficiency of mental work done, or by the nature of the process which induces it, not as a stimulation but as a paralysis.

That alcohol in large doses paralyses needs no proof. The facts are too well-known. Doctors are familiar with a form of paralysis of the limbs, peculiar to alcohol drinkers. Between the small and the large doses the paralysis is one of degree only. The highest centres, the intellectual, are affected first, the lowest, those presiding over bodily functions last. If the order were reversed, alcohol would be as dangerous a poison as prussic acid, and a more dangerous one than opium or strychnine. First the power of judgment goes ; then control of the emotions, and the man may be either combative, lachrymose or affectionate ; then, as the paralysis reaches the muscles, the tongue and the limbs begin to stagger and the man can neither speak distinctly nor walk steadily ; and at last sinks down "dead drunk"—paralysed alike in mind and body.

Ill-Nourished Tissues.

Moreover, the paralysis prejudicially affects the chemical processes, as distinct from the vital functions of the body. Alcohol keeps the blood impure. To serve its purpose as a nutrient fluid, the blood must take up oxygen and get rid of carbonic acid in its passage through the lungs. And the oxygen the blood carries must be held loosely that it may be easily transferred to the tissues of the body. But if other chemicals float round with the blood stream, the oxygen, loosely held and ready to unite with whatever offers itself, combines with them. The ill-nourished tissues cannot obtain sufficient oxygen because it has

already entered into a combination from which it is not readily driven out. Hence chemical interchange between the tissues and the blood is difficult or impossible. Too much carbonic acid is retained in the blood and shows in the purple nose and blue extremities of the sufferer. The clever rogue who advertised a sure cure for a red nose took advantage of this property of alcohol and advised all who sent remittances to him "to go on drinking till the organ turns blue."

Now diminished chemical change—less chemical action in the great vital crucible—means that less heat is produced in the body. The chemico-vital action is retarded—the nutriment processes of life are diminished, or as we may say, paralysed. The temperature of the body falls, as may be easily proved by touching the cold blue hands of the habitual drinker. And the fall of bodily temperature is helped by the cooling of the blood on the surface of the body. The skin is the radiator of the body. On a hot day in summer, automatically, the vessels relax and the blood comes to the surface to be cooled; but the cold of winter contracts the vessels, which then drive the blood to the interior of the body. Were the blood vessels of the skin to maintain in winter their summer dilatation, the cooling of the surface of the body would refrigerate the blood, and the bodily heat would fall below the line of health and safety.

Temporary Warmth.

And although a dose of alcohol may be immediately followed by a sensation of warmth, the ultimate, the real effect, is a fall of temperature produced, in part by the impairment of the chemical processes in the body, and in part by the cooling on the surface of the body of the mass of blood sent to fill the dilated and

paralysed blood-vessels. "When large quantities of alcohol are taken," says Sir Lauder Brunton "the blood from the interior circulates over the surface, and is cooled down more and more until its temperature becomes so much reduced as to be incompatible with life and the patient is frozen to death. The dangerous effects of alcohol under such circumstances are well known to the lumberers in Canada, and to Arctic voyagers, who dread alcohol and generally avoid it altogether." So that, as usually taken "to keep out the cold" alcohol is one of the most effective agents to let in the cold.

So that whether we look at the bodily, the mental, or the chemical functions of the body, we find that in whatsoever manner the effects of alcohol show themselves, the root and mainspring of them all is a paralysis.

A Narcotic and Paralysing Power.

That this narcotic and paralysing power, like the narcotic properties of opium and other powerful drugs, can be turned to good account in suitable cases is indisputable. But this is not the ordinary conception of alcohol. It passes for a stimulant. It is called a stimulant. It will probably be called a stimulant to the end of time. May we not hope, as in the case of other misleading and inaccurate names, that the spread of knowledge and the growth of intelligence will in time bring men to appreciate its real properties? No labour is too arduous, no effort too great to bring men to a knowledge of the truth. Centuries of custom and ages of conviviality reinforce the alluring deceptiveness of the drug itself, rivet more firmly the fetters of ignorance and the cravings of appetite, and help to fill the thousands of graves of those who, thinking they are taking a stimulant, know not that they are taking a narcotic and paralysing agent to lead them in the way going down to the chambers of death.

ALCOHOL AND THE BRAIN.

[By Dr. George Carpenter.]

IN my address this evening I propose to confine my remarks to bringing to your notice recent research work on the effects of alcohol upon the human body—upon its effects upon the brain more especially. The brain, as you well know, presides over our bodies. It is the birthplace of our ideas; we think, we decide upon a certain course of action, we hold views on subjects political and otherwise, we are pleased or angry—all of these things are manufactured in the brain. It is also endowed with the faculty of making us conscious of the various sensations which are presented to it from the world around us through the windows of the mind—viz., the senses of sight, hearing, smell, touch, etc. When we say that we see with our eyes and hear with our ears, that assertion is not quite accurate. We see and hear with our brains; the eyes and ears convey impressions to the brain which enable us to construct those complicated pictures of external surroundings which, each moment of the day, are brought to our notice. If certain special areas of the brain connected with the eyes and ears are diseased or destroyed, then we become blind, or deaf, even though our eyes and our ears be perfectly healthy, for the senses of sight and hearing are complicated workings of the mind.

The Brain and Controlling Power.

Not only does the brain preside over our ideas and our special senses, but it controls and originates all the voluntary muscular movements of the body. This very complicated mechanism, the brain, to the naked eye is made up of grey matter and white matter, the former on

its surface, the latter in its interior. In order to increase the extent of the grey matter the surface of the brain is thrown into folds, into valleys and hills; but the valleys, though deep, are not readily seen, for the hills touch one another, so that to appreciate the extent and depth of the valleys, the hills require to be gently separated with the fingers. If the brain be examined with the microscope, the grey matter is found to consist of masses of innumerable little jelly-like bodies or cells (protoplasm), many of them small and round and without processes, others much larger with tree-root-like ramifications, which eventually terminate in nerve fibres which are distributed to all parts of our bodies so as to keep them under the control of the brain. In areas which are devoted to the special senses the smaller cells predominate, and in those which preside over our voluntary movements the larger cells are most pronounced. In the small cells are recorded our memories for things seen and heard and felt, in them reside the workings of our minds, so that when we are thinking of something they are in a state of functional activity. In them resides the source of all our energies—our ideas, our sight, our hearing, our walking, and talking, and so on. Not only are there special areas in the grey matter on the surface of the brain for the senses of sight and hearing, but there are localities in other situations which are devoted to the senses of taste and smell. There are also special areas in the grey matter of the brain which preside over voluntary movements—one area for the movements of the legs, another for the movements of the arms, and so on. Stimulate these areas with an electric current, and the corresponding movements of the limbs invariably arise.

The large Brain and the small Brain.

Moreover, every single part of the brain is closely united

to other parts by association fibres, which permit of thoughts arising by excitation of the special senses being translated into muscular action, and allow the brain to work as one harmonious whole. When we are thinking these association fibres are busily engaged. One of our most important faculties, that of speech, depends upon the integrity of these very important association fibres. In addition to the large brain, there is a small brain, or cerebellum, which underlies the large brain, and is connected with it by nerve fibres. The cerebellum, like the big brain, is made up of grey matter and white nerve fibres. Passing from the large brain and the little brain to the spinal cord are strands of nerve fibres which terminate in the nerves of the limbs, and are finally distributed as sensory nerve endings in the skin and as motor nerve endings in the muscles. When the big brain is performing a voluntary act, the little brain is in a state of functional activity, because its duty is to regulate the fine adjustment of our limbs. If the cerebellum is diseased the individual staggers, because standing and walking correctly depend upon its normal activity. All day long messages are continually streaming by one set of nerves into our brains from outlying areas in our bodies, and from our brains controlling influences are being conveyed to our muscles, organs, and tissues, by another set of nerve fibres.

Delicate Experiments.

Let us proceed a step further and perform some experiments of a simple nature upon the brain. Suppose I suddenly from behind a screen, display a little white flag. You are on the look-out for it and see it instantly. Let us further suppose that I have an instrument which records the instant the flag is displayed on a piece of rapidly revolving smoked paper. I have also a tuning fork, each half vibration of which is executed in 1-500th of a second,

the vibrations of which are also recorded on the smoked paper. Next you will press a button the moment you see this flag, and directly you press the button the fact will be electrically recorded on the smoked paper. It will be found that there is an appreciable interval between the time of the display of the flag and the time of your recording the fact. That interval of time is known as *time reaction*, and it varies greatly in different people. Now, let us make our experiment a trifle more complicated. Suppose there be three flags, a red, a white, and a blue flag, the arrangement between us being that the signal is only to be made when you see the red one, for instance. Directly the flag is displayed you have to think whether it is the right flag or not, for you are not required to signal when the others appear. The *time reaction* will be materially increased, about half more. You had to exercise thought, and the thought took an appreciable period of time to come about. The experiment also includes the time spent in the passage of impulses from the eye to the brain, and from the brain to the muscles, but those intervals of time are known, and they can be excluded by subtraction, so that the time actually expended by the brain in performing this trifling mental act is accurately arrived at.

Kraepelin's Experiments.

Suppose, now, we give alcohol in quite small quantities to the person on whom we have been experimenting, what happens? In the first place, with the simple experiment. The time is shortened—the brain appears to operate more quickly than before, but after a few minutes a slowing takes place, becomes more marked, and endures as long as the alcohol remains in the system. But if the reaction be complex, if there be an association of ideas, this is never quickened by alcohol. The slowing effect begins at once,

and continues throughout the experiment. And clearly understand that this depressing effect occurs with the use of dietetic quantities of alcohol. When Kraepelin experimented upon himself he was under the impression that alcohol quickened the complex reaction periods. Thus he was firmly convinced that he could add and subtract figures much more quickly under its influence. But when he came to inspect the recording instrument he was astonished to find that the mental operations which he thought he conducted so quickly and so well were, on the contrary, gone through much more slowly. Alcohol, therefore, cheated his intellectual judgment, but it could not deceive the recording instrument. Thus it happens that the man who has taken even small quantities of alcohol *feels* that his brain is remarkably active and capable of great thoughts, whereas, in reality, his conceptions are ever so much slower than natural. The feeling of well-being which follows the drinking of small doses of alcohol is an illusion. The subjective sensation of great muscular power is part and parcel of this feeling of well-being. This subjective sensation of the possession of great strength is not peculiar to alcohol—it is seen with other drugs such as chloroform and ether. In anæsthesia by these drugs the patient is under the impression that he is making superhuman exertions, whereas they are very ordinary efforts indeed.

What is Fatigue?

What is fatigue? It is recognised that the feeling of fatigue which all of us must have experienced at one time or another is not so much an affair of the muscles as of the brain. As I have already pointed out, all our complex muscular movements are presided over by cells in the grey matter of the brain; when these have been over-stimulated and have become exhausted, then we experience the

sensation known as fatigue. When messages are transmitted from these nerve cells to the muscles, they do not travel in gusts of nerve energy, but in small explosions following one another very rapidly—about 14 per second—so that if in muscle contractions the result of a voluntary act be graphically represented on a rapidly revolving smoked paper they will not appear as a straight line, but as a jagged line. The next step is to select some particular muscular act, measure the force expended by a special instrument, and then compare this with the force exerted when the experimented person is under the influence of dietetic doses of alcohol. Even moderate doses of alcohol produce tremor in all muscular acts. The first effect of the drug is to produce an additional amount of work, but this is quickly followed by a diminution and a depressant effect. Kraepelin found that if instead of a dose of alcohol a dose of tea was given, there was no subsequent depressant effect, and there was an initial stimulating effect. This is a strong point in favour of total abstinence. But why is there an initial stimulating effect with alcohol? This increased activity is apparent rather than real. It is due to loss of control. The mechanism runs riot for the moment. All our acts are under control, and this loss of control is noticed in the simple *time reaction* experiments which I have already explained to you where ideation is apparently increased. The drug, however, commences to paralyse at the very beginning of the experiment, and the controlling elements are the first to fail. Apart from scientific experiments, it has been demonstrated over and over again that the best physical results have been obtained in military and other expeditions and in athletic contests by the practice of total abstinence. Dr. Aschaffenberg conducted a series of experiments on skilled compositors,

and conclusively proved that the taking of alcohol in dietetic doses did not produce the best results.

Influence of Alcohol.

If alcohol be taken in slightly increased quantities, the function of the cerebellum is deranged, the man cannot walk or stand properly. Under normal circumstances the little brain performs the function of damping the slight tremor which accompanies all muscular actions. Take away its control, and tremor becomes pronounced. Tremulousness in the performance of a voluntary act is an early and characteristic symptom of alcoholism. The taking of alcohol in small doses produces no demonstrable microscopical effect upon the cells of the brain. But that is no proof that the brain does not suffer injury. The most virulent snake poison can arrest life without producing microscopical changes in the nervous system, and it is not surprising if alterations cannot be demonstrated in cells which display slight departures from normal function in the shape of a slowing in performance of their allotted duties.

But although in the temperate, no structural alterations in nerve cells can be discovered by the microscope, yet in prolonged alcoholism the nerve cells are profoundly altered. In regard to the spinal cord and spinal nerves it is not necessary to dwell, except to say that alcohol has on them a poisonous action. Not only does alcohol, taken in "nips" extending over a long course of time, produce degeneration of the brain, with mental degradation, but it also leads to a hardening of the liver and kidneys and to fatty degeneration of the heart, to the production of chronic illness, and to the eventual shortening of life. Therefore, if you want to do good work, mental and bodily, avoid alcohol. If you want to live a healthy and long life do without alcohol.

INEBRIETY AND THE FEEBLE-MINDED

[By Dr. Theo. B. Hyslop.]

AT a Conference, held in the Chapter House, Southwark, on March 18th, 1911, when the Lord Bishop of Southwark (Right Revd. E. S. Talbot, D.D.), presided, Dr. Theo. B. Hyslop, late Senior Physician at Bethlem Royal Hospital, read the following paper on "Inebriety and the Feeble-Minded."

Dr. Hyslop said: My Lords, Ladies and Gentlemen,—In opening this discussion on Inebriety and the Feeble-minded, I am fully aware of the many difficulties which beset me. The unusual amount of interest which at the present time centres round the scientific and statistical methods of dealing with the various problems relating to alcohol renders it necessary that we should proceed with extreme caution. I myself, as President of the Society for the study of Inebriety, have no particular axe to grind, nor do I subscribe to any form of belief in such matters, except in so far as such belief has been arrived at by the diligent study of genuine facts. It is not my intention to enter upon any discussion of the controversy between Sir Victor Horsley, Dr. Mary Sturge and Professor Karl Pearson, of the School of Eugenics. So much has already been both said and written that most people are in a state of perplexity as to the real points at issue.

Parental Alcoholism.

Whether parental alcoholism — apart from parental degeneracy, which together with a tendency to alcoholism, is heritable—does, or does not influence the physique and ability of offspring, need not

engage our attention at present. It may, however, be advisable to refer to certain facts which have been elicited in consequence of the controversy, inasmuch as they have a definite bearing upon the subject under discussion to-day. Of the results that drinking produces in the offspring, it is stated with a certain degree of truth that, "alcoholism in the parent may, like insanity, be the somatic mark of a defective germ plasm in the stock. The child is defective, not because the parent is alcoholic, but because it is the product, like the parent, of a defective germ plasm. The child may be physically and mentally fit, and yet, when adult, exhibit alcoholic tendencies." I have elsewhere pointed out that this contention does not include, or even refer to, the almost accepted assumption that alcoholism in the normal, as in the degenerate parent, is apt to lead to earlier alcoholism or degeneracy in the offspring. My experience has led me to the belief that parental alcoholism does accentuate the downward trend, and with each successive generation the period of exemption from alcoholism and degeneracy is shortened, so that the offspring become alcoholic or degenerate at a relatively earlier age. Alcohol, acting as a complementary factor to parental degeneracy, does aid in the devolution of the stock, and it is upon families which are prone to degeneracy that it appears to put the finishing touches, and thereby renders the physique and ability of the offspring more and more unsatisfactory with each successive generation. Another point to be borne in mind is that Nature does not permit any prolonged departure from its laws of health and the trend of evolution, as evidenced by the tendency of nervous and mental maladies to spread and ultimately wear themselves out in the course of time and with successive generations. This law holds good so long as other com-

plicating factors, such as alcohol, do not add to the burden, and by attacking the more or less attenuated physical or mental weaknesses, keep them alight and thereby frustrate the efforts of Nature to render them abortive.

Alcohol Rekindles the Waning Malady.

Alcohol, as we all know, will readily set alight and determine the existence of a malady which might otherwise be on the *wane*; and not only does it affect the individual and intensify his degeneracy, but it is also open to belief that it renders the offspring more liable to suffer from the transmission of such degeneracy, not only in its parental intensity, but also to be manifested at an *earlier* age in the progeny. Such, then, are the lessons we have already learned; and to-day I propose to discuss some aspects of health and disease which have hitherto been but imperfectly appreciated. The feeble-minded and their relationship to alcoholism, both individual and parental, have been studied exhaustively by eminent scientists and observers both in this and other countries, and it would appear difficult to break new ground, or even to add to the enormous mass of information already acquired. Hitherto, attention has been applied mainly to the feeble-minded who have borne distinct evidences of defect or perversion, either physical or mental. The various *standards* of physical or mental attainment have been made the basis for the acquirement of data for statistical purposes, whilst the scientific or medico-biological methods of study have been concerned with such symptoms of degeneration as are evident to the ordinary observer.

The Forward Child.

To-day I propose to speak more particularly of some *warnings*, which ought to be accepted as such, and as indicative of nervous *instability*. The mental and physical

attainments of children are by no means indicative of nerve stability, and, as a physician who has devoted his energies to the study of nervous and mental diseases, I would state that in the majority of instances which have come under my observation certain degrees of backwardness are of more favourable import in the life-histories of children than are various conditions of precocity or forwardness. The tendency of the age is to beget nervous children who exhibit their precocity in almost every type and degree of intellectual or æsthetical attainment. Their fond and admiring parents, in a spirit of emulation, instead of recognising the precocity of their children as warnings of dangers to follow, congratulate themselves, and by every means available endeavour to force faculties which are in reality but indications of instability. Such children not infrequently possess an abnormal physiological retentiveness of memory, and they readily acquire a large amount of book knowledge. A good memory, however, does not necessarily imply a proportionate degree of brain power and the acquisition of knowledge may be significant merely of brain growth without a corresponding development of the reasoning faculties. Unfortunately, many children of this type do a "sprint" at the outset of the race, and soon become too exhausted to keep up with those who start slowly and who gradually get into their wind and stride. It is sad to think that early promise is so frequently unrealised, for asylum physicians know only too well how apt precocity is to be replaced by early mental decay, or so-called dementia præcox. It is a noteworthy fact that children of alcoholic parentage may, during the *earlier* years of their lives, compare very favourably with those born of a more stable parentage; but alas, the sequels are very different, and the relatively greater

frequency of the occurrence of early dementia tells a tale which has not yet been acknowledged by those who make light of the effects of alcohol on the human race. One fact to be noted in connection with precocity and nervous instability in children is the existence of a tendency, not only to become excited and almost uncontrollable in their impulses and cravings, but also an intolerance of alcoholic stimulants of any kind whatsoever. Thus it is that some children by their excitability and intolerance of alcohol betray their possession of a neurotic inheritance, and to them alcohol is a most deadly poison.

A Demoniactal Heritage.

The possessor of such a neurotic constitution commands our deepest sympathy, and when I hear the careless boast of some individuals that for them there is no need to become abstainers, my thoughts fly immediately to those who bravely fight and conquer their demoniactal heritage which constitutes the very essence of their physical and mental being. We who are not so constituted can readily recognise the abilities and attainments of those who are. We may even imagine some of the difficulties overcome by them in their efforts to retain their intellectual and social status. But can we really appreciate subjectively, and to the full, the desperate encounters between those inner constitutional evil forces which represent the individual, and which tend to dominate his will and absorb his personality and the desire to conform to the ordinary ethical standards of life and usefulness. The road indicated by self, when that self is influenced by factors which tend to retard the progress in a right direction, is by no means easy to avoid, and when one finds an individual suffering from such constitutional defects, who nevertheless maintains his equilibrium, he is to be respected and honoured by all, and more

especially by those who know no such struggles. The facility with which some diseases either become evidenced by, or yield to, certain drugs, often enables us to arrive at a definite diagnosis of the true nature of the disease; and, in my opinion, nothing tends to unmask or expose the existence of a neurotic inheritance more than does alcohol given in minute quantities. This means that not only does alcohol lay bare the existence of a feeble or unstable nervous organisation, but also that for one who is so constituted, under no circumstances, except, perhaps, in grave crises, should alcohol be resorted to, either habitually or even incidentally. That alcohol is selective in its action, and attacks one system more readily than another, is well known, and the reason is probably because the resistive mechanism to the effects of alcohol varies in individuals. Thus some are prone to suffer from disorders of their alimentary, or other systems, whilst others suffer mainly from nervous or mental symptoms.

Lack of Resisting Power.

This lack of resistive power is characteristic of the alcoholic and the neuropatic diatheses, and those who inherit such diatheses are very readily affected not only by alcohol but also by any other toxin which may be manufactured within the body itself, or be administered from without. Thus it is that a moderate amount of autotoxins, or even the administration of a slight dose of ether, or of chloroform, may bring to light a nervous or mental weakness which had hitherto been latent. In such instances the toxin may be insignificant in its nature or amount, whereas the result may be not only severe, but lifelong. I have seen many cases of incurable insanity determined in this way. The explanation of the fact that minor operations, performed under an anæsthetic such as

ether or chloroform, are sometimes followed by severe and prolonged attacks of insanity which are out of all proportion to their cause, is that the toxin appears to snap the controlling reins of custom and conventionality, and the individual thereby becomes insane and irresponsible. The life-histories of precocious children, so-called geniuses, and other types of neurotism, are of great medico-psychological interest, and more particularly so when the nervous exhaustion of the stock begins to express itself in the adolescent. It is from a neurotic heritage that we obtained geniuses, mattoids, graphomaniacs, hysterics and the great hordes of individuals who, being neither sane nor insane, are classed as "dwellers on the borderland." In all these, either cravings or morbid impulses are apt to arise, and for the individuals comprised under such types even a small amount of alcohol may bring about effects which are disastrous. Unfortunately, precocity and early genius are frequently comparable to the flickerings of the candle before the light goes out, and it is becoming very evident that the present generation is in some danger of mental darkness. That the present generation is suffering from fatigue is evidenced by the hysteria, neurasthenia, and feeble-mindedness which prevail in almost every community, be it intellectual, æsthetical, or merely social. This condition of fatigue is largely responsible for the so-called "up-to-date" hysterical attempts to revolutionise art, music and literature.

Neurasthenia in Art, Music, and Literature.

As a matter of fact, when an individual revolts from all that has been attained by mankind, it usually means that through excessive indulgence there has resulted a condition of *ennui* with failure to derive further gratification from habitual or customary stimuli. This, in turn, leads to attempts being made to excite the fatigued or exhausted

faculties by stimuli which are abnormal or perverted. In art we find that excessive indulgence in the sensuously beautiful has exhausted the æsthetical perception of beauties in Nature and their portrayal in line and colour. In order to stimulate the exhausted faculties, resort is made to the use of abnormal or even painful stimuli, and the individual becomes a pervert or paræsthete. In music we see a similar state of things. The musician who is satiated with stimuli derived from the masterpieces of harmony and form, either rejects from his dulled or *anæsthetical* stomach all stimuli which are sensuously beautiful, or he becomes a pervert or paræsthete, and endeavours to stimulate his perverted faculties by the intemperate use of discordances and noise, which in their effects on such paræsthetes, are only comparable to the flogging of an already jaded horse. In literature, also, do we find evidences, not only of revolt from what is great in form and thought, but also a tendency to stimulate the flagging interest and mental energies by highly sensational and emotional trash, which are comparable only to the ravings and incoherencies of the insane. All these conditions are symptomatic of feeble-mindedness begotten by fatigue, and, for our purposes, it is of interest to note that in some instances, at least, the founders of imaginary new "eras" in art, music, and literature, have been not only neurotic and unstable, but they have also been the victims of absinthe and alcohol in other forms, to which their nervous diatheses have rendered them particularly intolerant.

The Similarity between Feeble-mindedness and Strong-mindedness.

Sooner or later, however, the poison has done its work, and if the history of the lives of geniuses who have attained to great intellectual and æsthetical heights could be written,

it would be of interest to see how many of them, although scarcely feeble-minded, nevertheless, by reason of their nervous instability and defective resistance, have succumbed to the effects of alcohol. Living as I do in a world of nervous people, I have gradually come to believe that the possession of an abnormally active mind implies also the possession of an unstable nervous system. Activity of mind does not necessarily mean strength of brain. One point to be noted is that the higher the nervous organisation, and the finer the intellectual or emotional temperament, the less is the tolerance of alcohol. And, needless to say, no individual who has any pretensions to excellence of intellect can afford to expose his comparatively vulnerable brain to the effects of alcohol. The main object of my thesis is, therefore, to point out the similarity that exists between feeble-mindedness and so-called strong-mindedness, and I trust I have said sufficient to promote discussion. We who stand midway between genius and feeble-mindedness may take comfort from such a thesis, for, after all, *stability* of brain means stability of mind, and it is the main factor in determining the trend of evolution, whilst for us, individually, it is the only factor which shall stand the test of time.

THE PREVENTION AND CURE OF INTEMPERANCE.

[By Dr. Ettie Sayer, M.B.]

The Medical Point of View.

THE medical point of view of Temperance I assume to mean the question of the prevention and cure of intemperance. If prevention is better than cure, it is certainly easier. The first step to be taken in order to find out how to prevent a disease is to determine the cause of it. Therefore, anyone wishing to be of real personal service in assisting in the campaign against intemperance must, to start with, have clearly crystallised ideas concerning what the causes are which produce this disease.

I would divide drunkards into three distinct classes—

1. The industrial drinker.
2. The convivial drinker.
3. The feeble-minded drinker.

1. The industrial drinkers are those who drink to stimulate their working capacity in their industrial occupations, and who, in the first instance, fall into the evil habit because they are suffering from the delusion that alcohol has nourishing and strengthening properties.

2. The convivial drinkers are those who drink to produce emotional exhilaration and state of more intense well-being, chiefly out of pure conviviality and ultra-sociability of temperament.

These two classes constitute the curable cases of drunkenness in themselves, but their children are very likely to fall under the third heading, namely—

3. The feeble-minded drinkers.—These constitute about 63 per cent. of all the cases admitted into our inebriate homes. They exhibit inherent mental deficiency, which they have usually inherited from a bad neurotic stock. Owing to an anatomical imperfection in the structure of their brains, they are subject to impulsive cravings over which there is a blank instead of the higher inhibitory centres which exercise control and judgment in a normal individual. These inhibitory centres are the last to be developed in the process of evolution from the savage to the most highly civilised individual. In the semi-barbarous transitional stage they are only present to a slight extent, and that is why tribes such as the Red Indians, who fall into this category, become drunkards to a man if alcohol is introduced amongst them. Provided they have access to it, it may be regarded as a foregone conclusion that they will be quite unable from the most purely physical point of view to withstand the fascination of alcoholic intoxication.

Illusory Happiness.

The inhibitory centres, which are the last to be developed, are also the first to disappear in any form of mental deterioration. They are also the first to be affected and rendered anæsthetic in all forms of intoxication. The emotional exhilaration which results from convivial drinking is simply due to paralysis of these higher centres, depriving the usually cautious and reserved individual of his power of judgment and abolishing his power of self-control. Hence the emotions are unrestrained and have full sway, but as the condition is one of true paralysis, the subject is quite unconscious that he has been deprived of his highest faculties, and in a child-like way fondly imagines himself to be extremely happy. A desire for intensification of this freedom from restraint ensues; more

is swallowed, with the result that the next highest centres, those of sensation, get paralysed, and he becomes incoherent. Finally, the muscular system is paralysed, too.

The Feeble-minded a Drag on the Community.

To return to our mental defective, one has to regard him as a reversion to a more primitive type, where the brain is still only partially developed. His powers of self-control are non-existent; therefore, if he once obtains access to drink and acquires a liking for it, he will be almost bound to end in excessive indulgence. The age at which the great majority of these drunkards take to drink is between 15 and 25, and owing to their brain capacity, so far as will-power is concerned, being more or less a blank, it is utterly hopeless ever to dream of curing them. The Royal Commission on the Feeble-minded found that there were about 170,000 of these mentally-defective people at large in England at present whose irresponsible lives are productive of nothing but crime and misery—a source of lasting injury to themselves and others, and of continuous wasteful expenditure to the community.

There is no reason why they should be at large, as they are diagnosable in childhood. We have between 6,000 and 7,000 of them in our Special Schools in London. In London alone over 200 a year who are utterly unfit to manage themselves or their affairs are being turned into the world. This should be stopped. Their over-expensive education should also be stopped. As soon as diagnosed they should be segregated.

Every Twenty-fifth Person a Chronic Alcoholic.

We now come to a consideration of those cases of drunkenness which are curable, and especially to the case of the industrial drinker, as it is he who stands most in need of our help as Temperance reformers. If left to him-

self he becomes what is known as a chronic alcoholic. I once investigated the family histories of some hundreds of children attending our Board Schools. Amongst the mentally defective children I found that 42 per cent. had alcoholic parents, but among the normal families there were about 4 per cent. drunkards. Almost all the statistics I have been able to come across place this figure—namely, 4 per cent.—as that indicating the amount of drunkenness which exists among the population in Great Britain at the present day. That is to say, about one in every twenty-five of the people in our land are suffering from chronic alcoholism: which is such an exceedingly serious matter from a humanitarian point of view that it positively becomes a duty to every thinking person who properly realises the situation to aid in assisting to reclaim these people. The unfortunate victim begins his downward career by attempting to stimulate his working capacity by indulging in alcohol. He is in complete ignorance of its real physiological properties, and is imbued instead with a superstitious belief founded, of course, on its temporary stimulating effect on muscular output, that it is good for him, and will give him strength. This belief is fostered and kept up by a peculiar and extraordinary incapability of realising that the depression which follows has any connection at all with the original taking of alcohol. All he seems to grasp is that he is depressed. What he remembers most vividly is the stimulating effect of the drug. Consequently, he wants more, and takes it. The result is that a vicious circle is set up, and in his attempt to combat a lower and lower state of ill-being the whole of his internal organs become sacrificed to alcoholic poisoning. As to which organ will suffer most depends entirely upon the individual's own peculiar constitution. I have the strongest belief in

hereditary transmission of tendencies to diseases. If his family is neuropathic, his brain will give way; if there is any tendency to kidney troubles, he will assuredly develop Bright's disease; if the digestive organs are weak, dyspepsia will supervene. It may here be as well to observe that in perfectly healthy individuals there is a physiological limit, probably about 2 per cent., in the blood below which alcohol appears to be harmless to them. This explains why some of our hardest thinkers and workers have been moderate drinkers. If a man has regularly taken alcohol without apparent detriment during a long life, he has applied the most perfect test of mental equilibrium to himself, as well as to his power of judgment and control. But in these cases it will be found that he has taken it as a sedative to an overworked brain, and most emphatically not as an excitant nor as a stimulant to replace rest or nourishment.

Why People take Alcohol as a Stimulant.

There are two reasons why people who are mentally sound take alcohol as a stimulant to increase their capacity for work—

1. Ignorance.
2. Physical inefficiency.

In the British working man both these are, as a rule, combined. The amount taken will depend on the kind of work demanded of him, and the frequency with which he can have access to beer. Industrial alcoholism is greatest where there is the greatest need for crude brute strength, and where the intervals at which the workman can obtain drink are shortest. This is the case in riverside labourers, navvies, men under small employers—especially builders—and most especially in cases where the work is irregular, as here, after non employment, the bad food leads to a condition of resuming work in a state of nervous and

muscular inefficiency for which alcohol is an apparent and to some extent a real remedy. The average industrial drinker under these circumstances will take about 6 pints of ale daily, which amounts to about 5 oz. of absolute alcohol—three times the requisite amount for chronic alcoholism.

Industrial alcoholism is a minimum in the delicate crafts which demand keenness of perception and accuracy of muscular adjustment, because, as from the very beginning alcohol decreases sensation and co-ordination, its effect is soon realised to be detrimental instead of beneficial from the very first, and so is not taken. It is also low in those occupations where there is no chance of getting it for long stretches of time. This is especially exemplified in coal mining. As access to beer is impossible for eight hours, the miner soon loses his faith in its strength-giving virtues, and the depressing reaction creates a conviction that it is no good for his kind of work. But after working hours, convivial drinking among miners is, unfortunately, very great.

There is next least drinking in large factories where for four hours no time is allowed, as even this is sufficient for the onset of depression, and alcohol, to produce an effect on working capacity, must be taken in moderate doses only, but those so frequently repeated that the onset of muscular depression is prevented. Thus acute drunkenness does not occur, but chronic intoxication does. After working hours acute intoxication during convivial drinking is, of course, most likely to supervene.

Drinking among Women.

The effects of alcohol are frequently acquired in factories during girlhood. A succession of pregnancies, with the management of a number of children in cramped surround-

ings, and an ignorance of everything connected with cookery, cleanliness, and thrift, is very likely to lead to indulgence. There is also a very prevalent, but, of course, utterly mistaken, notion that stout is good for nursing mothers, which fallacy has ruined many a constitution, especially in those walks of life where spending money on beer means curtailing the necessary food at a time when it is most of all needed.

The Remedy.

The Mentally Defective Drunkard.—There is no excuse for the State allowing any feeble-minded person ever to become a drunkard. Mental deficiency is a condition very easily diagnosed in early childhood. These people ought to be segregated into colonies from their earliest youth and made to work according to their capacity. This will be by far the happiest life for them, and will also prevent them handing down their disease to a future generation, which is usually exceedingly numerous, all statistics showing that they have about twice as many children as normal people.

The preventive treatment of inebriety in the mentally sound would consist in, firstly, dispelling the ignorance which at present exists with regard to the real effect of alcohol, by making the teaching of Temperance a compulsory subject in every school in the land; and secondly, by raising the standard of physical efficiency of the working classes. This is to be attained only by the teaching of hygiene and domestic economy. Most of all is it necessary that the women should have a real practical knowledge of the relative value of the various foodstuffs, and be competent to buy and to cook. There is no wonder that the British workman requires an alcoholic condiment to enable him to swallow the monotonous and unpalatable meals

which the average wife will put before him, or that he will even forego very many of those meals and exchange for them an evening at the public-house. It is equally certain, also, that if they had both been properly educated—he to a sense of his responsibilities, and she to be clever enough to keep a clean and decent house and to provide attractive and wholesome food—that they would lead perfectly happy lives without ever feeling the need for a stimulant.

“Dreadnoughts” and Food.

I think that, taking into consideration the advanced state of our civilisation with regard to science and invention, one of the most astounding subjects for contemplation is the ignorance of most people with regard to their food requirements. If Englishmen are emulating Germans in preparing “Dreadnoughts,” it is time that Englishwomen were emulating Frenchwomen in preparing food. If the exact balance of what is required is once realised and acted upon, the need for a stimulant is never felt. It is not possible to enter into this subject this afternoon. I can only state that if there is a deficiency of either of the requisite components of a proper diet the result will be malnutrition; this soon becomes depression, and a craving for a stimulant is set up. On the other hand, if there is any excess in the diet, substances enter the blood more rapidly than they can be eliminated, with the result that the physical machinery gets, as it were, clogged, and now again a need for a stimulant is felt in order to act as an anæsthetic to painful sensations.

Champagne as an Anæsthetic.

As an example, I may mention a lady I saw yesterday who gave me permission to talk about her. She was in a

most advanced state of chronic alcoholism, although she had never been once the worse for drink in her life—such an idea would have shocked her beyond words! But she had always had a whole large bottle of champagne all to herself for dinner every night for the past four years. She was very seedy all last year, and became so rapidly worse during December that she took two bottles every night, and sometimes another at lunch. I stopped the champagne straight away, and just gave her huge doses of electricity, so that she should not be depressed, with the result that she is now perfectly well, and assures me that she has never felt the slightest desire to go back to the champagne, and that she never would have taken it if she had thought it was bad for her! Investigation showed that the need for so much stimulant was aroused purely by an excess of proteid in her diet.

The Cure of the Drunkard.

1. This I regard as impossible in cases where feeble-mindedness of any kind has led to the disease. They *must* be withdrawn from ordinary civil life.

2. Where the nervous system is involved secondarily as a result of intemperance, a cure ought to be effected. The patients should be placed in homes or institutions, with absolutely indeterminate sentences, and kept there till cured. Strict supervision with incessant occupation is necessary, and they should on no account be mixed with the above hopeless cases. If not placed under restraint these cases may at any moment suddenly develop dangerous mania most unexpectedly, with suicidal or homicidal tendencies: 80 per cent of the attempted suicides are chronic alcoholics.

3. Where the nervous system is not involved, but where

the internal organs have suffered from constant drunkenness.—I refer to the type of case like Jane Cakebread, who was convicted of drunkenness 400 times before she was found incapable of taking care of herself. There are thousands of these cases in our midst, and each one capable of cure if the trouble could be taken over them; and as they constitute such an appalling source of misery to themselves and everyone with whom they come in contact, it certainly is worth the trouble—especially as the germ-plasm is one of the first of the tissues to be affected; and although these people themselves are curable, the children to whom they give birth will be neuropathic and exhibit mental deficiencies of an incurable sort.

Electricity a Cure.

I have not time to discuss the various drug treatments. Personally, I consider electricity the most valuable means we have of suddenly replacing alcohol, but it has to be administered with discrimination, or much more harm than good may be done. The usual treatment must be followed in the endeavour to restore each organ to its proper function, and if the will-power has become defective the best remedy is hypnotism.

But the point which I am most of all anxious to impress upon everybody here this afternoon is this: The cure of the industrial and convivial drinker, with the alleviation of the untold misery they cause their families, is in many cases one of the most astoundingly easy things in the world, provided their mental integrity is fairly unimpaired. I don't suppose there is a single one of you here this afternoon who could not find and cure half-a-dozen of these drunkards during the next six months if you would only spend the time and take the trouble.

What one seems to need is some sound organisation which could utilise the wits of the practical middle-aged woman of our middle class, who has much more leisure than is good for her, by putting her into touch with families to whom her time would prove such a blessing that she would find it the happiest relief and change to hanging around ladies' clubs or attending interminable tea and bridge parties. It would need, of course, thoroughly thinking out, and have to be something very, very different from ordinary district visiting.

The first time that the ease with which these cases can be cured was brought home to me personally was when I was practising in Capetown eight or nine years ago. A woman who was expecting her accouchement asked me to tell her husband not to get drunk during that time. He got so nearly every night, but she said she was sure he would keep sober if I asked him to, although he would not do it for her! Accordingly he came to see me. He was quite intoxicated, but promised to keep sober during the next week or so. I said "Good-bye," remarking that I hoped never to see him again in his present condition, upon which he turned round in the greatest surprise: "But I'm not drunk now! I've only had one bottle of Pontac, and it takes two bottles to make me drunk." A further conversation ensued. A little simple philosophy and a box of the simplest tonic pills imaginable sufficed to make this man permanently a teetotaler. By way of reporting himself he used to bring me a bunch of flowers off Table Mountain every Sunday morning. He never showed the slightest tendency to return to drink, and the trouble I took over him was practically nil.

Shocks often Cure.

I know another man who had been a drunkard for twenty years, but was cured by his wife throwing a jug at him and slitting his face open.

Of another he was so shocked by his own wife getting dead drunk at one of his own dinner parties, that he never again drank himself.

I might go on citing these cases by the dozen, but trust that anything so much of the nature of a vain repetition will not be necessary.

ALCOHOL AND CHILDREN.

[By Dr. George Carpenter.]

THERE is a popular idea amongst the medical profession and the lay public that not only are the evil effects of alcohol, so well recognised in the adult, unknown in childhood, but that also the administration of alcohol in small doses is actually beneficial to children, in health as well as in disease.

With this latter question of therapeutic value I will deal later, as I first wish to emphasize the fact that alcoholism, with its bad effects, is by no means rare amongst children, and that alcohol plays a far greater part in the production of disease than has been generally recognised.

There are manifestly two ways in which the drug can reach the child—viz., (1) *via* the parent, and (2) by direct access.

Parental Alcoholism.

I will first consider the question of parental alcoholism. This can further be subdivided into (*a*) its action on the sperm or ovum, and (*b*) by its action on the maternal organism.

It has been proved that the presence of alcohol taken into the stomach can be demonstrated in the testicle or ovary within a very few minutes, so that theoretically it may be conceived that alcohol, like any other poison, may injure the sperm cell or the ovum.

This *a priori* contention has been supported by masses of statistics, which bring out the very high proportion of an alcoholic history in the parents of various degenerates.

The conditions I more specially refer to are epilepsy, idiocy, imbecility, and moral perversion.

These statistics have been separately gathered in very diverse countries, such as Italy, Scotland, the United States of America, Spain, Germany, and so on.

There is almost a complete unanimity of opinion amongst alienists of every country to the effect that alcoholism in the parents is one of the most potent factors in the causation of the above-mentioned conditions in the offspring. Other writers would extend its sphere of influence, and assert that it predisposes to the occurrence of organic disease in children, to various infections (more especially tuberculosis), and to the production of various congenital malformations and deformities.

Well-known teratologists, such as Nicloux, have demonstrated by experiment the influence of alcohol in the production of deformities, more especially in fowls. Alcohol injected into their eggs on various days was followed by the production of abnormalities in the chickens, such as the presence of eight toes.

Cause of Miscarriages.

Large numbers of statistics have been collected both in France and England which tend to prove that alcohol is a powerful factor in the production of miscarriages, more powerful than tuberculosis, though less so than syphilis. Not only is this so, but of the children born alive a fewer number reach maturity and a great proportion die, more especially of tuberculous meningitis.

Von Bunge, of Bâle, asserts that the deficiency in maternal milk, which is such an important predisposing cause at the root of our infantile mortality, is due to the imbibing of alcohol by the parents. His statistics, drawn from all Europe, show that women with an insufficient

supply of milk are usually the daughters of alcoholics. He asserts that if two generations have been alcoholic, the women of the third generation will almost certainly be unable to nurse their children.

I need hardly remind the assembly how essential this question is for the rearing of infants. Any step calculated to revive the custom of maternal feeding would be of the utmost importance to our national welfare, as tending to largely diminish our infantile mortality and subsequent morbidity. The important question of the hour is not how we shall best rear our infants artificially (at the very best a makeshift performance), but what steps shall be taken to encourage and render possible breast-feeding, if we would improve our national physique.

The Home.

Apart from the direct action of parental alcoholism in the production of disease, it will be universally admitted that intemperate habits play a no less important share in their indirect influence on children. The home in such a case is conducted under the worst circumstances possible. The meals are irregular, the environment is dirty, the food is ill-prepared, and often insufficient in quantity. The general habits of life of the inmates of the home, its want of moral tone, with its scenes of violence and debauchery, are not those calculated to the upbringing of healthy children.

Were it only for these reasons, apart from the other harm wrought by alcoholism, the medical profession should advocate the teaching of temperance as a part of hygiene in all public and board schools.

The Nursing Mother.

Another and a not sufficiently recognised rôle that alcohol plays by its action on the maternal organism is

directly through the milk. The belief is wellnigh universal throughout Europe that alcohol should be given to a nursing mother, with the intention of improving both the quantity and the quality of the milk. This idea is not unknown amongst the medical profession, and its use for that purpose is advocated in the medical text-books.

Some slight support for this view was thought to be gained about a dozen years ago by some experiments by Stumpf. He showed that the amount of milk was unaltered, that the percentage of fat was slightly increased, the other constituents remaining normal. No experiments have ever suggested that the amount of milk secreted has increased by its use, and recent experiments have shown that there is a slight diminution in the evening milk.

In these experiments by Rosemann far better technique was used, and even the increase of fat claimed by Stumpf was found to be not true. These experimental results have been entirely borne out by my own clinical experiences, and I have for quite a long time dissuaded nursing mothers from the use of alcohol.

The alcohol can be traced to the milk within twenty minutes of its ingestion, and for seven or eight hours afterwards. This has been done in the case of women as well as in animals.

Clinically, many cases of infants have been reported in which both acute and chronic alcoholic poisoning was due to the passage of alcohol into the milk. The possibility of such an occurrence cannot be too widely known among the medical profession. Any practitioner who is alive to the possibility of this will be surprised on investigation to find that this occurrence is by no means rare, and I recommend such a one to put to the test the truth of these assertions. Conviction will quickly follow on his clinical researches,

and he will become a firm advocate of alcoholic abstention for nursing mothers.

Danger of Spirits.

A similar superstition holds widely relating to the administration of alcohol to infants and children. In many parts of Europe, especially Normandy, this is given with the idea of stimulating the child's growth. It is not unusual for this purpose to put a teaspoonful of brandy into each bottle of milk, especially in cases where the child is not thriving. To older children wine and other alcoholic beverages are also given for the same purpose. In London gin is frequently administered to infants who suffer from flatulence. Brandy is given to crying babies.

In France sugar steeped in brandy is often given to infants, and various fruits preserved in alcohol to older children. In England this is not unknown, and there is a large sale of liqueur sweets which contain an appreciable quantity of alcohol.

It is popularly believed that there is no danger of a child acquiring a love for alcohol, but this idea is certainly incorrect. A large number of cases of infantile dipsomania are on record, and children have been known to indulge in secret drinking habits, having acquired the taste for alcohol through parental encouragement. Such habits as the giving of wine to sip after dinner cannot be too strongly deprecated. In this respect, home-made wines must not be looked upon as innocuous. Home-made wines contain a considerable quantity of alcohol, and even ginger-beer owes its keeping qualities to the alcohol which lurks in its innocent-looking interior.

Recently a South Monmouthshire coroner, at an inquest on a woman whose husband had cut her throat after he had been drinking rhubarb wine, said that that beverage figured in many of the crimes which he had investigated.

The recent law forbidding the sale of drink to children, who used, when conveying beer or other liquor home, to take the opportunity of drinking some of it *en route*, is a move in the right direction.

There is one case on record of an infant, aged ten months, who used to constantly cry for beer, and would not be pacified until it was given. There are several cases as early as three years old.

Indiscriminate Prescription of Alcohol.

I will at this stage draw attention to the too indiscriminate employment of alcohol by members of the medical profession. Without here referring to the therapeutic justification for the use of the drug, there can be no question but that it should never be used except under the strictest medical supervision. It is only too commonly the case that children have been medically ordered alcohol in the form of wine during convalescence without the doctor laying sufficient emphasis on the limitation of its employment. The mother at the cessation of the medical attendance is apt to continue the administration of the alcohol, under the impression that she has good authority for her action. Apart from the time limitation, the doctor often orders stimulants for children in a loose way, directions being given in this fashion, "Give it some brandy," or "Give it some port." It would appear that some members of the medical profession do not regard alcohol in the light of a drug, the dosage of which should be accurately estimated and the effects of which should be carefully watched.

Case after case has been reported in which a second medical man, having been called into consultation, has found the child suffering from either acute or chronic alcoholic poisoning, the alcohol having been ordered by the

first medical attendant, who was under the impression that the incidence of anomalous symptoms indicated the super-vention of some cerebral complication.

Especially striking are such cases when the example is a chronic one. More than one case is on record in Germany of a medical man increasing the dose of alcohol with a view to stimulating the nutrition of a child wasting from advanced alcoholic cirrhosis of the liver.

It must be understood that the amount of alcohol required to produce baneful effects in children is, even in proportion to body-weight, far less than in adults. This is supported by experiments made by Frick on puppies. These effects, however, are as variable as is notoriously the case in adults; in other words, individual idiosyncrasy is as diverse as is the case with most other drugs.

Carelessness of Parents.

Another means of access to alcohol is the carelessness of parents and others in the keeping of stimulants. It is a comparatively frequent accident for a thirsty child to innocently take a glass of brandy-and-water, or whisky-and-water, or other strong drink. The effect may be that the child becomes intoxicated for a few hours, but there are a number of cases on record of a fatal termination to such an occurrence.

This has happened on several occasions with even so small a dose as 2 to 3 ounces of brandy or whisky.

This carelessness on the part of parents and those who have children under their charge is dangerous as well as reprehensible, and is a fact which cannot be brought home too strongly.

It is not only in these acute cases that the public is ignorant of the dangerous properties of alcohol when given to the young, but also in cases where a small dose is given over a long period of time.

Thus, many instances of restless, screaming babies can, if the point be carefully inquired for, be traced to be due to the administration of small quantities of alcohol, either by the mother's milk or by being given directly to the infant. Perhaps you have not noticed such examples. If that be so it is only because they have not been sought for. We are apt to pass by things we are not on the watch for or specially interested in, and we are certainly prone to be sceptical of the observations of others if they happen to be outside our own experience, and, like Nelson, we apply the blind eye to the signal.

Certain unusual ways in which alcohol reaches the child may be mentioned here. The custom of cleansing the babies' bottles with an alcoholic solution has been arraigned as being responsible for a certain number of cases of chronic poisoning.

External Influence of Alcohol.

The custom of reducing the temperature by means of alcoholic compresses applied to the abdomen has more than once caused fatal poisoning from the absorption of alcohol by the skin. That alcohol can be thus rapidly absorbed has been experimentally demonstrated.

An observation, interesting on account of its unusual features, is related as having occurred in Paris. A child's nurse, an old lady of sixty, was engaged in the privacy of her apartment on the delicate operation of stimulating her scalp, and thereby inviting the growth of hair, with old rum. During the procedure the infant, a babe of ten months, was lying in her lap. The alcoholic fumes evidently affected the baby, for on being taken to the dinner table some half-an-hour later he presented a most startling appearance. His bright flashing eyes, flushed cheeks, and excited expression at once attracted the

attention of his parents. This increased to alarm when he seized a spoon in either hand, and proceeded to rap a tattoo on the dinner-table in front of him. The rhythm of this performance changed later to wild gesticulations, and, with arms flying, and legs kicking, he rapidly passed into a state of uproarious excitement. After a few minutes he subsided under his table, and fell into a deep sleep, which lasted for twelve hours. Fortunately for him, no lasting effect of the drunken carouse appeared later.

The ingestion of alcohol in repeated doses has led in children to much the same effects as in adults. Thus, it is the commonest cause of cirrhosis of the liver in children, in spite of the prevalent opinion to the contrary. There is no strong evidence to show that Bright's disease or fatty heart is ever produced by this agent in the young. Alcohol expends its main influence in the child upon the nervous system—upon the higher nerve-centres, especially in relation to retardation of development. Alcoholic neuritis is thus quite a rarity.

Delirium Tremens in Children.

Actual insanity is not frequently produced, but delirium tremens is relatively common.

An interesting case of this was reported in Berlin in a child, aged three years, who was admitted into hospital for a fractured femur, and developed this complication on the second day. It would appear also that alcohol plays no part in the production of infantile general paralysis of the insane—in children a syphilitic manifestation. This has an important bearing on the pathology of the adult of the complaint.

Esner asserts that even therapeutic doses of alcohol in healthy school children retard intellectual processes. Thus, he took two groups of children, twenty in each, and gave

to one group a glass of wine per diem. At the end of a fortnight, on testing the memory for recent events, he found it to be manifestly deficient in those who had taken the drug.

Medical Value of Alcohol.

The discussion on the therapeutic value of alcohol has long been a controversial one. Up to 1840, when Tod introduced the drug at King's College Hospital, alcohol was but little used in medicine. For forty or fifty years heroic doses were quite fashionable, but of late years the tendency has been to restrict its employment.

Experimentally a very large amount of work has been done, chiefly in Germany. The outcome of this seems to be that, although many individual points are still undecided, the weight of evidence tends towards the view that alcohol is a toxic drug, even in small quantities, and that there is no scientific justification for its employment in medicine. Any evidence, therefore, in favour of such employment is empiric, and rests on a clinical foundation. The opinion is gaining ground that even here the evidence of the good done by the drug is largely fallacious and based on deceptive observations.

Influences in Inspection.

Immunity to various infective processes has been experimentally demonstrated to be lowered by the use of alcohol. Many experiments have been done in America by Abbott, working with staphylococci; by Beard, with diphtheria; and in France by Nicloux, with rabies and tetanus. Many physicians abroad have on scientific grounds given up the use of alcohol, even in such conditions as diphtheria, pneumonia, and typhoid fever, and with beneficial results. These men have relied for stimulation on such drugs as caffein and strychnine,

There is fairly complete unanimity amongst workers at the subject on one point, and that is that alcohol, in whatever form it may be given, never does any good in any chronic disease. Thus, the treatment of chorea and anæmia by port wine, as has been advocated by some, cannot do any good; probably always does slight harm, and in many cases severe harm.

As I have above indicated, the important thing for the public to bear in mind is that, whenever employed and in whatever form, the administration of alcohol should always be under the very strictest medical supervision.

In conclusion, my paper will have been justified if I succeed in pressing upon the members of this Congress the importance of recognising the fact that alcohol is a greater poison to a child than to an adult. It should be looked upon as a drug with deadly properties, and should never be given without the most careful medical consideration and the amplest warrant. As Jean Jacques Rousseau has so pithily expressed it—

“ On n’arrosé pas les fleurs avec des vins.”

ALCOHOL IN RELATION TO SOME PHASES OF SURGERY AND MEDICINE.

[By Charles Corfield, M.R.C.S., &c.]

IN considering such a subject as the above, we have first to bear in mind how much the stress and fret of modern life have modified the habits and customs of a former generation. One of the most common arguments of those who would defend immoderate drinking (I use this word in its popular sense with reference to alcoholic liquors), is that our forefathers were able to stand with impunity daily bouts of alcoholic excess without any obvious interference in their usual health. A general statement such as this is as difficult to refute as to affirm; yet it is as probable that in every age or generation, excess in this direction brought, sooner or later, retribution in its path. However that may be, it is only necessary to point out that as the whole daily round of modern life has so vastly changed, the habits and circumstances of our daily life must needs be modified too. It may, for instance, be possible that greater physical exercise, made necessary by more meagre means of transit than exists to-day, helped in a bygone age to counteract the effect of the undue indulgence in alcoholic liquors. Again, also a simpler daily routine without telephones, tape machines, and all the various factors that make for high pressure to-day, no doubt made one less susceptible to the potency of its influence.

One thing, however, is beyond dispute. We in this generation have a far better opportunity of living to old

age—a prospect most of us, at any rate, wish for—than did our forefathers of a hundred years ago; and we owe this to two main facts—one is the diffusion of a more intelligent view of hygiene, and the other to the safety with which operations can be performed for maladies which in a former age were almost invariably fatal. The reason why even big operations nowadays may be safely carried out, is due, firstly, to a knowledge of antiseptics, and secondly, and perhaps more important still, to the fact that all pain and shock can be banished by what is termed a condition of anæsthesia. It is no idle boast to say that the possibilities of painless operations to-day have rescued many a patient from a premature grave and given them a longer leasehold on life and all that means to them and theirs.

Alcohol the Obstacle.

Yet the most serious obstacle to successful anæsthetisation and all the issues that hang on that is a patient saturated from long indulgence with alcohol and its effects.

There are probably a thousand operations done to-day to one a hundred years ago, and so in that way, at any rate, the progress of the years has profoundly enhanced the significance of alcohol as a daily beverage.

Without in any way having to keep before one the constant dread of operation, surely it must be a source of satisfaction to feel that, should this at any time become necessary, one is in the best physical condition to successfully submit to it. It may be urged that, after all, the chances of this happening, when worked out per head of population, are extremely remote. Well and good; but the chances of any of those liabilities occurring that one insures against, as burglary, fire, etc., are equally remote, and yet most of us consider it worth while to be covered against

these possibilities. At this juncture I may be asked what are the dangers to which I have alluded at some length, and whether they are not more or less the outcome of personal bias on my part. I have no hesitation in saying that every single medical man with experience of anæsthetics knows the insidious dangers of alcoholism to the patients under his charge. The reason, of course, is sufficiently simple for most people to understand.

Effect on the Nervous System.

Alcohol, putting it in general terms, has much the same effect on the nervous system and tissues as the inhalation of chloroform, or ether, and so constant use of it in one's daily life gives a certain amount of immunity to anæsthetisation. The result is that patients require more of either drug to get them safely under, and so are more liable to have a fatal overdose. Not only that, but alcoholic subjects generally struggle a good deal, and the extra gasping which this entails makes them liable to the same danger.

Dr. Hewit, perhaps the leading authority on anæsthetics, says in his book on the subject, that he once had to administer $5\frac{1}{2}$ ounces of chloroform in $1\frac{1}{4}$ hours to an alcoholic man of fifty-six. When one remembers that in a normal case probably an ounce and a half would have sufficed, it is obvious how much greater in these cases the risk must be. He also says that it is occasionally difficult, if not impossible, to get the requisite amount of muscular relaxation—which is generally essential for successful surgery—even though dangerously large quantities of the anæsthetic be administered. Another point has also to be considered here. Ether, according to statistical inquiry, is about six times as safe for anæsthetic purposes as chloroform. But in a large percentage of cases alcoholic subjects take ether badly or not at all, and one has to have recourse

to chloroform with its higher comparative mortality. Thus in such cases the risk is greater from the outset.

Recovery after Operations.

Having, then, considered this matter in its different phases with reference to anæsthetisation, one may conclude with a few comments on the after history and result of operations on those whose daily habit is to indulge too freely in alcoholic drinks, and also as a factor in relation to general health. As regards the first, there is no question that a patient of temperate habits stands an infinitely better chance of getting a good result from a surgical operation than one who indulges not wisely but too well; and this is so both in freedom from subsequent inflammatory trouble round the site of operation, and also in the rapidity with which the wound will heal.

Time after time one finds a case where the operation wound shows singular sluggishness in healing, and where on inquiry, one finds a history of non-temperate habits, often, too, when a patient in an adjoining bed will have recovered completely, and have been discharged long before.

Now I will conclude with just a few words as regards alcohol in relation to general health. As I have said before, it is frequently remarked how much our forefathers drank, and how often they kept extremely healthy, and frequently lived to a ripe old age. Adopting this line of argument, one may just as well say that warfare is an extremely healthy occupation, seeing how hale and hearty army veterans often look. These, however are the survivors who have come through in spite of, rather than because of, what they faced. So it has been with those who in days gone by drank too freely. Of the numbers whose vitality has been so lowered by alcohol that disease and injury found them easy victims scarcely a word is heard.

Predisposing and Exciting Causes.

One must remember that in disease there are always two factors, technically termed "predisposing and exciting causes." In the first are combined those conditions that so modify the body tissues that morbid processes engendered by microbic means take place. So in Nature we find, also, that soil and seed are essential for germination and growth.

What interests us here is this predisposing influence in disease; in other words, the condition of our tissues and their power of resisting the effects of microbic activity. One may, to illustrate this, take the case of pneumonia. A person, apparently in fairly good health, will sometimes after a days hard toil, become exposed to damp or chill. This lowers the body resistance. The microbes of pneumonia, ever on the watch for an occasion when unresisted by the tissues they may grow, settle down, scatter themselves rapidly over the lung, and give rise to pneumonia.

One has only to take up any text-book of medicine to see that few things are so calculated to lower the body vitality as chronic alcoholism.

Quiet Drinking.

By this term I mean a condition in which a person, though he may say with pride that he has never in his life "been over the line," yet takes his five or six whiskies or brandies, day after day, as regularly as he takes his meals. Though the amount drunk, if spread over eight or nine hours, may leave the mind quite clear, its final effect will be the same physically as if taken altogether.

In conclusion, I may say that if it be found impossible to exercise a rigid spirit of moderation, it will be far better for our health and vigour, and all that that means to us, to totally abstain from it, rather than run those very real risks which I have briefly tried to outline.

ALCOHOL AND HEALTH.

[By the late Sir Andrew Clark, M.D., F.R.S.]

Senior Physician to the London Hospital.

I HAVE come here to-night not to deliver a formal lecture, but at the request of your Chairman — a request which under the circumstances I could not choose but accede to—to help him ever so little in the good work in which he is engaged, and to say a few informal words in quite an informal way upon the subject of alcoholic drinks and their influence upon health, upon work, upon disease, and upon the generation which is to follow after this generation through us. Now I think it is just to say of ourselves that we are a patriotic people, and I, for my part, know of no question which strikes home so forcibly upon the character of the nation as this one question of the most appropriate mode of using alcoholic drinks. If we wish to see this nation prosperous, if we wish to see this nation take its right and just place among the other nations of the earth, and if we wish to be sure that the influence which this nation shall exert upon the progress of civilisation, upon the welfare and the physical happiness as well of mankind, we should be well assured of the justness of the answer which is to be given to this question.

The Individual Life.

But, also, whilst we are a nation we are a people. Two lives go to make up the life of a nation.

There is, first of all, the individual life, and then the collective life of the individuals which makes what is called "the life of the nation;" but if I may be forgiven for saying so, far before the life of a nation is the life of every individual soul who forms part of it, and if the question of the proper use of alcoholic drinks is important for our welfare as a nation, surely in a much stronger sense is it important for us, as individual souls fraught with all the business of eternity upon our backs, to determine the right use of alcohol. Now if this question is important in this two-fold aspect what solemn sense of responsibility must be upon the shoulders of those who come forward and speak about it, and especially upon the shoulders of those who come forward and speak upon it with authority. Two things as it seems to me are necessary—one is that he who presumes to speak authoritatively upon this subject shall know it, and the next is that, however dear a certain side of the question may be to him, he should speak about it, not with the mere desire to succeed, not with the desire to triumph, but with a loving, reverent, solemn desire to state the truth about it, and nothing but the truth. Now I venture to say in your presence that I know something about this question. For twenty-five years at least I have been physician to one of the largest hospitals in this country. It has been a part of the daily business of my life to ascertain the influence which alcoholic drinks exert upon health, and I have taken a personal interest in this part of my duty, and not only through this professional channel I have mentioned to you, but often through personal experiment. I have endeavoured *most earnestly* to get at the truth on this subject, and certainly I think I am justified in saying to you that after these twenty-five years I know something

about it. In the next place, I wish to speak, and I am determined to speak nothing but the truth. It would be very pleasant—it is very attractive in one who has a cause to advocate—not to be too particular in his statements which will advance it. I do not mean to say that a man who has a cause at heart, any good man, will be disloyal to the truth; far from it, but I do mean to say that sometimes in our earnest advocacy of a good cause we forget what is to be said upon the other side. Now I do not mean to forget to-night what is to be said upon the other side, and I begin, therefore, the first statement which I have to make to you as a statement with a qualification.

Alcohol a Poison.

I am going to speak about the influence of what I call the excessive use of alcoholic drinks. Alcohol is a poison. So is strychnine, so is arsenic, so is opium. It ranks with these agents; but of these agents, arsenic, strychnine, opium, and many others, there is this to be said, that in certain small doses they are useful in certain circumstances, and in certain very minute doses they can be habitually used without any *obvious*—mark what I say—prejudicial effect; without any obvious and sensibly prejudicial effect upon health. Therefore when I speak of alcohol, you will remember that I am speaking of it with this reservation, that as far as human knowledge has gone, as far as the most earnest and unprejudiced inquiry has led us, there are certain doses of alcohol—they are very minute, depend upon that, exceedingly minute—in which this poison can be habitually taken without any obvious, without any sensibly prejudicial influence upon the human frame. What these minute doses are—I repeat to you they are very minute—I am not going to stay to discuss to-night, but for the truth's sake to which I choose, as I told you

to-night, to appeal on this occasion, I must mention it, and I must remind you when I am speaking of the effects of alcohol I am speaking of the effects of alcohol in these very minute doses.

Influence of Alcohol upon Health.

And now, having thus far cleared the way, let me proceed to say in a word what my experiences are with respect to the influence of alcohol upon health. I dare say people would like to know what health is, and I should like exceedingly to be able to tell you, but though I have been twenty-five years a doctor I do not know to this day what health is, but I will try and indicate it to you. I cannot define it because it is indefinable. Health is that state of body in which all the functions of it go on without notice or observation, and in which existence is felt to be a pleasure, in which it is a kind of joy to see, to hear, to touch, to live. *That* is health.

Now that is a state which cannot be benefited by alcohol in any degree. Nay, it is a state which, in nine times out of ten, is injured by alcohol. It is a state which often bears alcohol without sensible injury, but I repeat to you, as the result of long continued and careful thought, it is not one which can in any sense be benefited by alcohol. It can bear it—sometimes without obvious injury, but be benefited by it—*never*. I go further than that. I do not pretend to speak to you as a total abstainer, but I hope all the rising generation will be total abstainers.

The Joy of Existence.

I venture to say to you that there is a certain state of joy of existence—for I cannot call it anything else—a sense in which one feels what a pleasure it is to look out, for instance, upon the green fields, to hear pleasant sounds, to touch pleasant hands, to know that

life is a satisfaction—this, I say, is a state which, in my experiences, is always in some way or other injured by alcohol. This is a state in which a sort of little discord is produced by alcohol. This is a state in which, sooner or later, the music goes out of tune under the continuous influence of alcohol. This is an ideal life which rarely in this age, and to us dwellers in towns, comes to us. From the sins of our forefathers, or from the unsuitable surroundings in which we dwell, or from our own doings, somehow or other this ideal life seldom or never comes to anyone of us, and there is, therefore, a secondary sort of health, not like the one described, which is the health of most of us, and the question is—What of it?

What does alcohol do to it? I have two answers. The first is that sometimes this sort of health bears better with the alcohol apparently than the other; and the next answer is that sometimes this state of health *seems* for a time to be benefited by alcohol, and this is exactly the sort of health which forms the great debating ground of the experience of different people with respect to the use of alcohol. There are some nervous people, people who are born into the world to be always ailing and yet never ill. There are people of this stamp who always feel a relief from taking a little alcohol, and they come to the conclusion that they could not live without it. Now I have a profound sympathy for all people of this sort. Health of this sort is a heavy burden to bear in life. It is always oppressive and is the sort of burden which makes people say—"I could always be happy but my health is always coming between me and my happiness." This is the sort of health in which alcohol seems sometimes to do good, and this is the sort of health with which I have such a sympathy that if the alcohol (and here you will see my first and only

heresy, from which these people get an immense degree of comfort) be taken in the minutest doses described, I have allowed it, and have not observed that they have suffered for it. This, I say, is a class of people for whom I have such a profound sympathy that I say sometimes—"Take your little drop of beer, but take care you never go beyond it." I do not defend it as right, but I show you simply what I think.

Injury of Small Doses.

Now, as regards the influence upon *health*. I would sum it up in this: first, that perfectly good health will, in my opinion, always be injured even by small doses of alcohol—injured even in the sense of its perfection of loveliness. I call perfect health the loveliest thing in this world. Now alcohol, even in small doses, will take the bloom off, will injure the perfection of loveliness of health, both mental and moral. Therefore, seeing that there are some people born into this world with a very feeble health, particularly nervous people, who are not really benefited by the use of alcohol, but who do feel a certain comfort from the use of it, and who, because they do feel that comfort, imagine themselves better fitted to do their duty, and this little help being within the minute quantity of a poison which I think safe to take, I forgive them, and I say—"Well, you have got into a habit of it, go on, but take care that you don't get your children into the habit with you."

Influence upon Work.

I will ask your attention next to the question of work. There are two ways in which this question of the influence of alcohol upon work can be determined. One way is by appealing to personal experience, and

the other, and perhaps the better way, is by appealing to a carefully-conducted experiment with bodies of men. Now I will try both questions. First, what is the average result of an experimental inquiry into the effects of alcohol upon individuals as regards their work? Now, here I must draw your attention to a fallacy which is very apt to arise in performing an experiment of this kind. I should say to a man—"If you want to determine this question about the influence of alcohol upon your work, do perform your experiment fairly. You will please go for a month with alcohol and see how you get on, and then cut it off altogether and see how you get on then." People are of different constitutions, and there are some of such nervous types of constitution that mere habit is such a force with them, that they think if they do not have their daily allowance of alcohol they must be ill. The first difficulty in the way of experimenting with such people is that when they try the experiment of doing their work without alcohol they say they think they must be ill, and when the accustomed time of taking the alcohol comes round they think it is evidence that the plan is not going to answer well because they miss their accustomed beverage, and they begin to be on the side of expecting failure.

A "Mad Experiment."

They are sure to tell me of some of their friends who, of course, condemn the "mad experiment," and say—"Beer is necessary, and you are not looking so well already, and if you go on you'll see where you'll land." The poor man is in the position of an army going up to battle, with the consciousness that it is going to be defeated, and you know the chances of success in such a case. I have no hesitation in saying that if a man has the courage to cast aside the imaginative difficulties which surround an experiment of

this kind and say—"None of your nonsense, I mean to try this fairly; I'm not a coward, and I will try it honestly," he will succeed. People always look a little paler or thinner under such an experiment, *but bulk is not measure of power nor colour the measure of health*. Now, I venture to say, as a working man myself (I take it that I work as hard as most, for I have eighteen hours a day at my work, working in a hurry, and with very anxious subjects to work upon, and if that is not hard work when it goes over Saturday and Sunday as well, I know not what is), that I have my personal experience to speak of, and I have the experience of the enormous number of people who pass before me every year. That does not go for nothing after ten years. If I don't know something about the subject now I must be a bigger fool than I imagine myself to be.

If there is any honest man who really wants to get at the truth, and will not be set from his purpose by people condoling with him about his appearance, and the result of his experiment, and will try the effect of alcohol upon work, I would tell him fearlessly, and I would risk all that I possess upon the back of the statement, that as certainly as he does try that experiment for a month or six weeks, so certainly will he come to the conclusion that, however pleasant alcohol is for the moment, *it is not a helper of work*.

A Hinderer of Work.

It is not only not a helper of work but it is a certain *hinderer* of work, and every man who comes to the front of a profession in London is marked by this one characteristic, that *the more busy he gets the less in shape of alcohol he takes*, and his excuse is—"I am very sorry, but I cannot take it and do my work." The most loyal, careful, faithful, and truthful of observers whom ever it was my good fortune to know—the late Dr. Parkes, of Netley—began life as a

physician in London, and would have risen, I have no doubt, had he remained there, to be one of the first physicians of this metropolis, but his health was not good, and he went down to Netley. He was an earnest lover of truth, and this question of alcohol exercised his mind continually, and he tried in various shapes and ways to bring the question to such a test that even the most sceptical might be convinced by the results of his experiments.

The Two Gangs of Soldiers.

He performed this one amongst others. He got a number of soldiers of the same age, of the same type of constitution, living under the same circumstances, eating the same food, breathing the same atmosphere, and he did this that the experiment might be fair, and he divided the soldiers into two gangs — an alcoholic gang and a non-alcoholic gang—and he engaged these two gangs in certain works for which they were to be paid extra. He watched these gangs and took the result of their work, and it turned out that the alcoholic gangs went far ahead at first. They had buckets of beer by their side, and as they got a little tired they took beer, and the non-alcoholic gang were, in an hour or two, left nowhere; but he waited and watched, as I told you, and as the experiment went on the energies of the beer drinkers speedily began to flag, and do what they would, before the end of the day the non-alcoholic gang had left them far behind. When this had gone on for some days the alcoholic gang begged that they might get into the non-alcoholic gang that they might earn a little more money; but Dr. Parkes, in order to make the experiment clenching and conclusive, transposed the gangs. He made the alcoholic gang the non-alcoholic gang, and *vice versa*—the men being very willing to lend themselves

to the experiment, and the results were exactly the same. The alcoholic gang beat the non-alcoholic gang at the starting, and failed utterly towards the end of the day. This is most conclusive, and, I think, by far the most crucial experiment that I know of upon the question of the relation of alcohol to work. With that I will set aside this question by saying, from personal experience and from experiments most carefully conducted over large bodies of men, it is capable of proof, beyond all possibility of question, that *alcohol in ordinary circumstances, not only does not help work, but it is a serious hindrance of work.*

Now, as to the effect of the use of alcoholic drinks upon disease. I went to my hospital to-day thinking that I should have this terrible ordeal to go through to-night, and not knowing, indeed, how I should go through it. Well, thinking of my lecture, I walked through my wards, and I asked myself this question, How many of these cases are due to natural and unavoidable causes, and how many are due to alcohol? Now, remember what I said at the beginning of these informal remarks. I do not desire to make out a strong case, I desire to make out a *true* case. I am speaking solemnly and carefully in the presence of truth, and I tell you I am considerably within the mark when I say to you that going the round of my hospital wards to-day *seven* out of every *ten* there *owed their ill-health to alcohol.*

Hospital Experience.

Now what does that mean? That out of every hundred patients which I have charge of at the London Hospital, 70 per cent. of them directly owe their ill-health to alcohol—to the abuse? I do not say these 70 per cent. were drunkards, but to the excessive use. I do not know that one of them was what you call a drunkard. Nay, I must here put in a curious word which will shock your Rector

in the chair very much, that, on the whole, it is not the drunkards that suffer so much from alcohol. There are a number of men that we know to be drunkards. They get drunk and they get sober, and they are so much ashamed of themselves that they won't touch the accursed thing for months to come until somebody tempts them. These are not the men who suffer most from alcohol. These are the men who, conscious of their infirmity, and horribly ashamed of themselves when they recover, will remain virtuous for months and months. No, the men to whom I allude are the men who are habitually taking a little too much. The curse of this is that they feel so jolly and comfortable, and full of jokes and fun, that other shortsighted people almost envy them their condition. These are the men who go into company, who are full of life, who are always begging you to have another glass, and all that sort of thing. They are very good fellows, do their work well, but they are always drinking just a little more than the physiological quantity I mentioned at the beginning. Now these are the men who, taking a little more than they require or can use, looking well, yea, often feeling well, are yet being sapped and undermined by this excess.

Daily Tippling.

Day by day—just as the grass grows, and you cannot see it—day by day this little excess—often a little one—is doing its work. It upsets the stomach, the stomach upsets the other organs, and bit by bit, under this fair and genial and jovial outside, the constitution is being sapped, and suddenly some fine day this hale, hearty man, whose steps seemed to make the earth resound again, and the rafters re-echo with his tread, tumbles down in a fit. That is the way in which alcohol saps the constitution. As I looked at the hospital wards to-day, and saw seven out of ten who

owed their diseases to alcohol, I could not but lament that the teaching about this question was not more direct, more decisive, more home-thrusting, than ever it has been. Though I do not want to appeal to your emotions, or to make a fine speech with fine phrases to catch you through your feelings, I want to catch you, if I can, by your plain reason or common understanding. I must ask you in passing—What do these seven men in ten, stricken down by alcohol, represent in social life? Each one of these men was perhaps a husband and a father, with a wife and family depending upon him for their daily bread. Any man of but a small experience who knows what it is to have the head of the house cast down at an early age by early disease (as almost all the diseases produced by alcohol are) any such man must know what a terrible history is the history of the family which depends upon the head when that head is stricken down by the disease produced by alcohol, and it is too terrible for me to enter into upon such an occasion as the present. I am not saying, because I have no means of saying, in human life in society at large, what is the percentage of victims which alcohol seizes upon as its rightful prey. I do not know.

Alcohol in Fashionable Life.

I have no method of coming accurately to the conclusion, but I know this, that not only a large percentage of such diseases as I have mentioned, but a great mass—certainly more than three-fourths of the disorders in what we call ‘fashionable life’—arise from the use of this very drug of which I am now speaking. Now, if you think of that, and think for one moment of the fact I have told you, that in this London Hospital seven out of ten of those whom I have seen to-day, and seen for one reason, to present the statement to you to-night, lie there maimed

for life by this agent; that a great mass, perhaps the greater mass, of the disorders, as distinct from the diseases, with which mankind is afflicted, arise from the abuse of this drug—surely, surely you will agree with me, that a terrible responsibility lies upon those who, forgetful of these plain and certain teachings which the commonest experience can yield, will stimulate people to keep themselves up with glasses of wine and glasses of beer.

There is another side as well of this question, and it is no abuse of language to say it is an *awful side*. It would be bad if we men who abuse alcohol were to suffer in ourselves and to suffer in those around us whom we love or ought to love; surely that is terrible enough to prevent men from using alcohol freely, but there is even a more terrible statement than that behind.

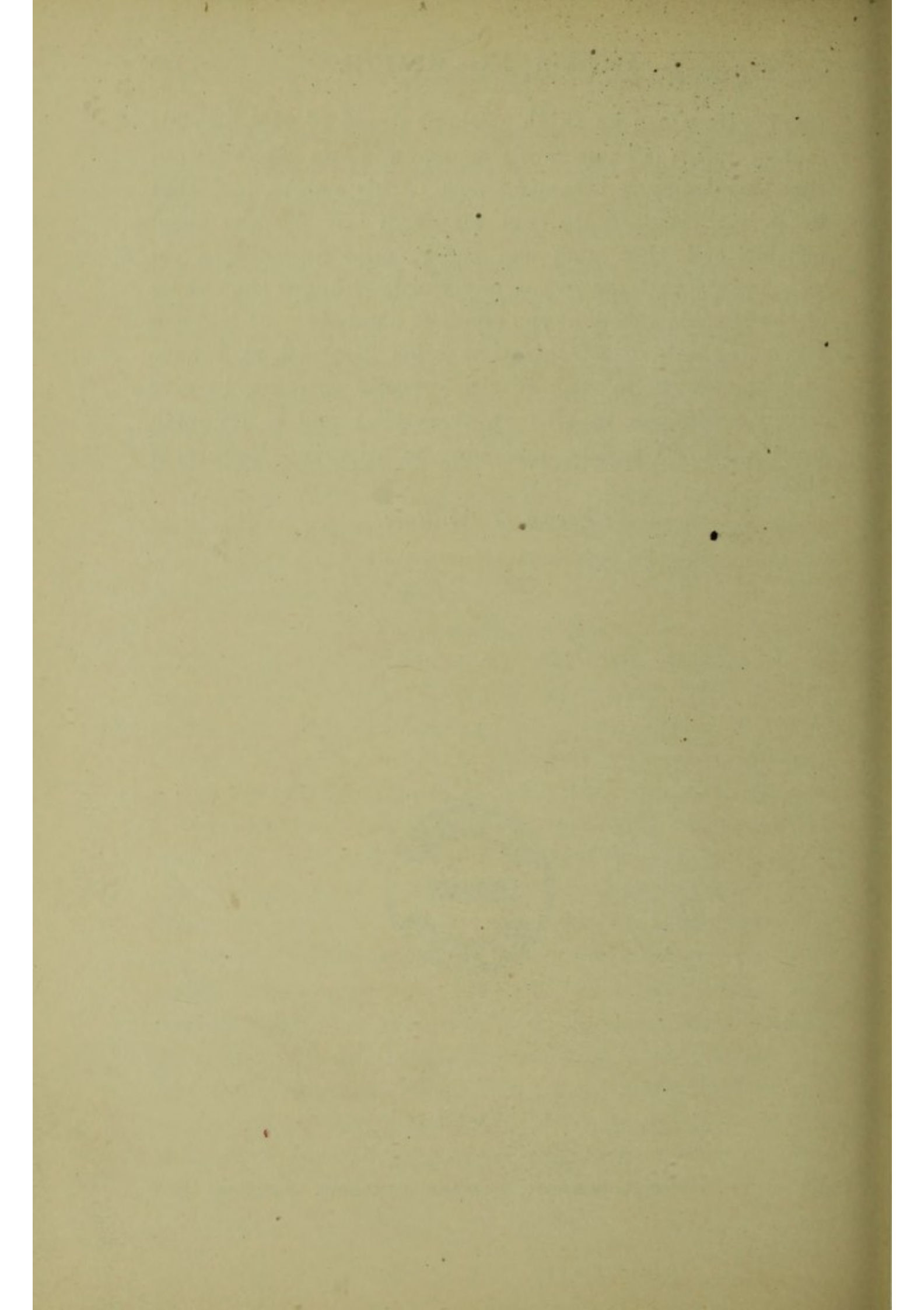
The Hereditary Taint.

It is not they alone who suffer, but so soon as a man begins to take one drop more than what I have called the physiological quantity, the desire of it is not only begotten in him, but the desire of it becomes a part of his very nature, and that nature so formed by his acts, is calculated to inflict curses inexpressible upon the earth when handed down to the generations that are to follow after him as part and parcel of their being. And I ask—What are you to think of those who are born of drunkards, who come into this world, so to speak, with a curse not only upon them, but in them, the terrible desire for that which is to blast them, and to blast them speedily—a desire which no human power can save them from, and which God alone, in His wisdom and mercy, can protect them from? What an awful thought is this. Can there be any man here present who, if he is taking more than he ought to take, is indifferent to all

this? How can he think without dread of this terrible fact—for fact it is, as surely as two and two make four—that this desire is becoming part of his nature, and that he is handing it down, not for good, but for the most terrible evil that man can suffer, unto generations yet unborn? Can I say to you any words stronger than these of the terrible effects of the abuse of alcohol? It is when I myself think of all this that I am disposed, as I have said elsewhere, to rush to the opposite extreme, to give up my profession, to give up everything and to go forth upon a Holy Crusade, preaching to all men—Beware of this

Enemy of the Race.





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