mercial classes, numbering about 1,000,000, we have over 9,000,000 aged twenty years and upwards, with their families, who may be, in the event of sickness, reduced to apply for the assistance of gratuitous medical relief; of these, 1,400,000 reside in London. Mr. Fairlie Clarke shows how largely those avail themselves of hospital relief, when 1,156,016 patients received gratuitous relief during the year. I have already mentioned that 70,000 was the average of destitute poor from sickness in the metropolis. The whole of England and Wales, exclusive of the metropolis, gives outdoor paupers, exclusive of insane and vagrants, 880,709; of these, over 406,000 were pauperised from sickness, and 168,000 destitute from temporary sickness. If we deduct 800,000 for the professional and commercial classes and their families in the metropolis, and 140,000 poor from the total, there will be considerably over 2,000,000 persons in the metropolis by whom provident dispensaries may be established and supported. A similar calculation for England and Wales, exclusive of the metropolis, will give somewhat over 2,000,000 for the professional and commercial classes and their families, and 1,037,360 paupers of all classes, leaving a balance of over 16,000,000 by whom provident dispensaries may be established and supported.

Thus amongst the three classes—domestic, agricultural, and industrial—there are over 2,000,000 in the metropolis, and 16,000,000 throughout the rest of England, to establish and support provident dispensaries. The total population of England and Wales is close upon 23,000,000; of these, 12,000,000 reside in cities. The number of medical men in England and Wales is a little over 14,000. The slightest calculation will show that there is, therefore, an average of 1,700 persons in England and Wales to each medical man. If each of these paid four shillings a year, or less than one penny a week, it would enable them to form 14,000 medical clubs, with an income of £350 a year to each. I take the number 14,000, as it happens to be the number of medical men at present, though the number is diminishing rapidly. This does not appear to be an extravagant amount to pay for medical attendance; and there are probably many members of the profession who would accept clubs on these terms. But medical clubs are not formed; and why? The fault rests principally amongst ourselves. We have squandered our skilled advice and assistance; we have almost thrust it on the public, in spite of themselves. It has come to that point, that it is not accepted as a compliment, but demanded as a right. A medical man now-a-days is expected to be the incarnation of charity. Who would ask a clergyman to undertake a cure of souls for nothing? Yet, in the establishment of a hospital, the treasurer, the secretary, matron, nurses, all are provided for; but the medical officer is honoured by being privileged to act gratuitously. His responsibility, however, is not diminished by non-payment. The legal profession, wise in their generation, have long since adopted the fiction of "travelling opinion" against any mistake in advice unpaid for. Amongst medical men, however, the term is "malaprapaxis"; and errors of judgment are dealt with in a summary and often arbitrary manner, without taking into account circumstances which would be looked upon as of the first importance in other professions. In legislation, it appears to be considered to be almost unnecessary to take any notice of the interests of the medical profession. This is due in great measure to the want of cohesion which marks the medical profession. Whilst such an *embarras des richesses* of medical assistance exists, it is, of course, foolish to expect that the public will contribute to, or join in, the provident medical clubs; "it would be mere money thrown away." The effect of this on the individual members of the profession is simply ruinous, and on the public demoralising. If Mr. Fairlie Clarke's figures be correct, the population of the metropolis may be thus accounted for from a medical point of view: Attending out-patient hospital departments, 1,156,016; Poor-law medical, 70,000; professional and commercial, 800,000; leaving, of the total 3,263,000 inhabitants of London, but 1,000,000 unaccounted for, of whom there was an average of 37,000 in the workhouses, a considerable number in the various hospitals; and it is to be hoped that very nearly the whole of the remainder were not sick during the year.

It is, then, to this catholicism of gratuitous practice of medicine, that the want of success in the establishing of provident dispensaries is mainly due. To put a stop to this, it will be necessary for the hospitals to draw a hard and fast line somewhere; and, to enable them to do so without being accused of uncharitableness, it will be necessary to establish a system of dispensaries in connexion with the Poor-law, to which persons will be admitted by tickets given by responsible persons, as the relieving officers, who shall adopt some principle of selection. It is only in some such way that the present abuse of medical relief can be abated; and, until this is effected, all endeavours of establishing independent sick-clubs, I fear, will be vain. Whether a Charity Organisation Society is the best adapted for establishing these clubs, leaves

room for argument. They should be established by the members themselves; and it is probable that any attempt to thrust them upon them will be resented, rather than otherwise. These classes, many of whom are on the brink of pauperism, and who are liable at any time to be immersed in it, have a dislike even to the name of charity. Having a keen appreciation of its want of discrimination and its abuse, they do not believe in it. They know that professional pauperism is begotten of it; and, of all phases of pauperism, they hold that in the greatest abhorrence. Any one acquainted with the history of indiscriminate charity will not be surprised at the conclusion to which they have arrived.

THE USE OF ALCOHOL IN HEALTH AND IN DISEASE.*

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AT no period within the present century has it been necessary to apologise for introducing such a subject as this to the consideration of medical men; for alcohol in its various forms has played a prominent part, whether for good or for evil, in our national habits as an article of diet, and in our systems of treatment as a medicinal agent. Some years ago, however, within our own recollection, there would have been less toleration for discussing this question than at the present time. A spirit of inquiry has arisen, and we can no longer take for granted the dicta and the practices of our fathers, whether it be on this or any other subject. Some of the very principles of medicine, once laid down so clearly and authoritatively, that it were heresy to disbelieve them, are in an unsettled state, and we must find our way out of this uncertainty as best we can. That the result will be satisfactory, for nothing is more fatal to progress than indifference, or than *jurare in verba magistri*. To no subject are these remarks more applicable than to the one I have chosen to bring before you, in the hope that, if I can say nothing positively new, it may lead to useful discussion and careful observation for the future. At the present time, I am glad to see so large an amount of interest taken in this question throughout the country, not only by those who are professed total abstainers, but by scientific men and others who are in no way disposed to admit extreme views. Of the importance of the subject, it is only necessary to state that during each year about 1,000 millions of gallons of alcoholic beverages are drunk in this country. And in one of the annual reports of the Registrar-General, we find among the causes of death, under the head of alcoholism, the following numbers.

	Males	Females	Totals
Delirium tremens	390.....	49.....	439
Intemperance	247.....	102.....	349
	637	151	788

And this is only a small part of the mortality and disease produced by this cause.

Under the term alcoholics, I shall include all the varieties of drinks in which alcohol is the principal element. They may vary in strength, in colouring and other matters, but they owe their active effects to the quantity of alcohol they contain. There are undoubtedly good and bad articles; but we hear some people say that good wine or good brandy—and it must be really good, they tell us—never did any one harm; which means, when translated literally, that no amount of alcohol will do harm.

The subject is naturally divided into two parts: firstly, the dietetic use of alcoholics in ordinary health; and secondly, their medicinal use in feeble health and in disease. When used in health, they act as stimulants, especially to the nervous system, and, according to some persons, as nutritive agents. The different kinds of spirits, wines, and malt liquors owe so little of their use to the presence of anything except alcohol, that we may very briefly dismiss this part of the subject. The presence in gin of a diuretic, in champagne of an exhilarant, carbonic acid, or in beer of hops, does not materially alter the general effect produced.

At the present time, there is an extensive use of alcoholics as articles

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of diet in all classes of society, notwithstanding the efforts of total abstinens for many years past. The inquiry that is now taking place is not exclusively in connection with the so-called temperance movement; for many men have come to the conclusion, as I have myself, that teetotalism has failed to produce any serious impression upon the drinking habits of this country. On the social part of the question, it is not my intention to do more than mention that I read a paper on "Intemperance in its Medical and Social Aspects," in the Public Medicine Section of the British Medical Association at Newcastle, which is published in the JOURNAL for January 28th, 1871. The universality of alcoholic drinking—for there is scarcely a country where it does not exist—is certainly an argument in favour of its moderate and dietetic use, founded on gratifying a natural desire. The precise manner in which the alcohol acts has been, and still is, a most uncertain question. So important a matter cannot be settled by any man's private observation; and though I was for years a total abstainer, whilst now I am not, yet I cannot pretend to throw any light upon the subject from personal experience. The question must be decided by reference to larger numbers than have yet been brought systematically together. Whether alcohol acts as a useful nerve-stimulant, or as a nutritive, or as neither, is the great question to be solved. I have frequently found myself that moderate quantities of wine produced neuralgia of the scalp. The uncertainty of the whole subject, and the want of some general principles to go upon, is being felt seriously by many members of the profession.

We are concerned now with the dietetic and moderate use of alcohol, and in the *Practitioner* this is stated to be six drachms of absolute alcohol, or two glasses of wine for women, and twelve drachms or two ounces for men, equal to about four or five glasses of wine daily. Are these or any other quantities necessary to persons in health, and does their use in any way assist in the performance of healthy functions or in prolonging life? A statement was made some years ago, and signed by about two thousand medical men, some of them of great eminence, and not total abstainers personally, that persons in health required no alcoholics, and were better without them. Is this opinion as general now, and if not, why so? Can we give any reasons for the opinion that alcohol is necessary in health? Let us do away with mere individual statements, and trust to results obtained from the experience of larger numbers carefully compared. The fact exists, that many persons take moderate quantities of alcoholics and enjoy good health, and many other persons take none at all and likewise enjoy good health. It has, however, been observed that total abstainers of the second generation are not good examples of the truth of their practices; but then, again, the children of moderate drinkers are also sometimes unhealthy. We know that the children of drunkards are often imbecile or insane, or in some way degenerate in health. What, then, becomes of the alcohol taken in dietetic quantities? Is it given off as alcohol, or is it consumed in the system, or is it partly given off, and partly oxidised? Perrin, Lallemand, Duroy, Percy, Edward Smith, and others believe that it is all given off; whilst Anstie, Thudichum, Dupré, and others believe that only a small part is given off, and the rest consumed. The experiments of Dr. Parkes and the late Count Wollowicz are amongst the most interesting which have been made, and they proved that even one ounce of alcohol taken daily caused increased action of the heart to the extent of four or five beats, which increase continued almost in proportion to the quantity taken; so that, with eight ounces of alcohol, the average pulsation was increased seventeen beats per minute. Thus a large amount of work was thrown upon the heart, and no corresponding good obtained. The fall of temperature under the use of alcoholics has been very distinctly ascertained by Dr. B. W. Richardson, who says: "So soon as the alcohol makes its way into the organism, and diffuses itself through the fluids, so soon there is depression, so soon respiration falls, carbonic gas from respiration decreases, and muscular strength, consciousness, and sensibility decline." Notwithstanding this, he is prepared to admit that a certain amount of oxidation of alcohol takes place, but only under certain circumstances. The last experiments of Dr. Dupré show that only a small portion of the daily quantity of alcohol is eliminated by the secretions. Dr. Subbolin states in a German journal that he has made a series of experiments on rabbits, and he found that about 7 per cent. of alcohol was eliminated. More recently, the amount has been as much as 12 to 16 per cent. He thinks alcohol cannot be considered as a food, as it diminishes the metamorphosis of the tissues, lessens the temperature and the amount of carbonic acid secreted, and diminishes the discharge of urea. The old notion that alcoholics keep the body warm is shown by actual experiment to be false. In the brandy and hot water taken to keep the cold out, there is some excitement and decrease of sensibility produced, with a temporary increase of heat; but this last result is owing simply to the hot water, whilst, after this effect has passed off, the temperature of the body is lower than it was before. The experience of all arctic voyagers

leads to the same conclusion, and it is so well known, that the medical officers of northern expeditions forbid the men to take spirits in the extreme cold of the frozen regions. The decision, then, as to the precise value of the dietetic use of alcoholics, can only be made by a collection of a large number of facts carefully and scientifically observed, for which we have not as yet sufficient trustworthy materials.

Let us now examine the use of alcoholics in feeble health and in disease, in which they may be regarded as stimulants, tonics, depressants, anæsthetics, narcotics, and arresters of decomposition. The practice of the late Dr. Todd did much to make the use of large quantities of alcohol fashionable in the treatment of disease; for, though his plan was not to use them indiscriminately, yet he is generally considered as having done so. Of late there has been a considerable reaction against this plan of treatment, so that more moderate doses are now given. There is even at the present time a great difference of opinion amongst the profession as to the quantities used, especially at our public institutions. At St. Thomas's Hospital, the patients cost annually £826, or 1s. 7½d. per head weekly; at the Sheffield Infirmary, 1s. 4½d.; at Leeds, Newcastle-on-Tyne, and Manchester, 1s. 1d.; at Glasgow, 8½d.; at Edinburgh, 8d.; and at Birmingham, 5½d. At the Newcastle Infirmary the amount has been diminished to the extent of £90 during the last year. In the county asylums for the insane poor there is a great diversity in the amount of wine, spirits, and porter consumed, beer being included amongst provisions. At the asylums for Lancaster, Dorset, Notts, and Warwick, the weekly cost is 3d. per head, at Worcester 4½d., at Durham 6d.; whilst at the borough asylums at Leicester and Norwich it is 7d. and 9½d. respectively. The total cost for the maintenance of each patient varies only from 6s. 10d. in Dorset, to 10s. 6d. in Surrey, per week, but it is more in the borough asylums. From the official reports I cannot find that the recoveries or the deaths bear any reference to these expenses. At the Cumberland Asylum no beer is given as an article of diet, and the patients appear as well off as those in other asylums. To invalids, however, stimulants are given in the usual manner, as the cost per head appears to be 2½d. weekly. At the various workhouses the same irregularity prevails. The 825 inmates of the Whitechapel Workhouse cost £503, or 2½d. per head weekly; Shoreditch and Bethnal Green pay 3½d. each, the City of London, 6d., Camberwell 7½d., whilst Paddington pays 9d. The comparison of the number of deaths with the supply of alcoholics affords no correct information as to their value, but it certainly does not prove anything in their favour. On what principle is there this difference in practice amongst the hospitals, asylums, and workhouses of this country? Surely none; and yet hundreds of pounds are spent every year, and no one can say to what good, if we look at the results. Almost every man will tell you that he is guided by experience; but when so many different experiences exist, who shall decide which is best?

The stimulating property of alcohol is well marked; and no one will deny its use in a depressed state of the system, when a sudden effect has to be produced. Its continuance requires care, for it produces depression of temperature, and for this reason it is thought to be useful in fevers. As a tonic, it is supposed to assist in promoting digestion and in giving strength to the system, but no one can say exactly how. If it be burnt in the body, it ought to keep up the animal heat; but its invariable effect is to lower the heat, and for this reason it is forbidden to be used by arctic voyagers. In larger doses than are required to produce stimulant effects, alcohol is an anæsthetic, diminishing sensibility; and for this purpose it is used for relief of pain, much more frequently being prescribed at home than by the medical man. As a narcotic, it is also chiefly a domestic remedy. Its power of arresting decomposition in the body is doubtful, though out of the body its effect is well known.

No class of diseases has experienced greater change of treatment than fevers, in relation to alcoholics. Not many years ago it was the custom to give alcohol indiscriminately in large doses. Twenty years ago, when suffering myself from a severe attack of typhus, I was dosed with large quantities of alcohol, to the extent of one bottle of port wine and one pint of brandy every twenty-four hours for at least a week, and smaller quantities for several more weeks. Whether owing to the alcohol, or in spite of it, I made a good recovery. The pulse became slower, and I can only come to the conclusion that the alcohol was taken up so eagerly by the system, that it was oxidised and supplied the elements necessary for life until food could be taken in sufficient quantities. There were no symptoms of intoxication produced, although at the time I was a total abstainer, and the coma came on before these large doses were given. I have never prescribed it in such large quantities myself—not even whilst I was physician to the Newcastle-on-Tyne Fever Hospital, when 400 cases were treated in one year. The practice which I followed then was, to give no alcohol in mild cases, and in

young persons under 20 or 21 years of age, unless there were special symptoms requiring it. In more severe cases, I gave four, six, or eight ounces of wine daily, and seldom more than that quantity, or its equivalent, in the form of spirit. On the whole the cases did well, and I had no reason to regret the treatment in comparison with that of other hospitals. Dr. Gairdner of Glasgow has carried out the moderate use of alcohol in fever, and found it to answer best after trying to do without it. The same was the case with Dr. Murchison at the London Fever Hospital, and with the same results.

The connection with insanity and nervous disorders, would require a paper itself. It is one of the most frequent causes of the breaking up of those delicate nerve-cells, on the integrity of which depends the *mens sana in corpore sano*. If the homœopathic doctrines were true, alcoholics ought to be largely used in insanity; for, having produced the disease, they ought also to cure it. This was at one time closely acted upon in the treatment of delirium tremens. To leave off the accustomed stimulant was sure to bring on the complaint, and when brought on it must be cured by the same means by which it had been caused. There is no greater fallacy than this; and I have treated many cases of delirium tremens without any stimulant, soothing the patient with a warm bath and an anodyne, allowing at the utmost a nightcap of hot spirit and water, where it was difficult to do without it. Even this is unnecessary, and chloral, judiciously used, will answer far better than any quantity of alcohol; besides, in such cases, moral treatment is of great importance, and it is best to begin by teaching the patient to do entirely without his accustomed stimulant. Total abstinence becomes the only practical way to cure the patient and keep him well. In other forms of nervous disorder, there is no special treatment required, except that many insane patients cannot bear much alcohol, being readily influenced by it.

At the present time many eminent surgeons dispense with the use of alcohol before a surgical operation, once a very common plan; and chloroform does duty far better. In diseases where there is much waste by suppuration, it has been the custom to give large quantities of porter and wine, when the same amount of milk would, at least on theoretical grounds, afford more support to the system.

The most important movement which has recently been made has been the "medical declaration respecting alcohol," which, in a very short time, obtained the signatures of 269 London and provincial physicians and surgeons of eminence. Though a step in the right direction, originating with leading members of the Association, it has not been generally approved of by the profession. The *Edinburgh Medical Journal*, the *Pall Mall Gazette*, and other papers and periodicals, were in favour of it, and it was speedily published in almost every newspaper in the kingdom. The medical men of Cheltenham supported it with some important verbal alterations. The North Staffordshire Medical Society considers the first paragraph of the declaration as being "an exaggeration and undeserved slur upon the whole profession," and does not approve of medical declarations issued to the public. The Islington Medical Society protests against the declaration, and does not agree with its censure upon the profession. The Northern Branch of the British Medical Association considers the first paragraph objectionable, but that the time had gone by for making any alteration. From the paragraph alluded to, it would appear that the prescriptions of medical men are to blame for a large amount of drunkenness. I propose, instead of the objectionable sentence, to substitute one which is not only more correct, but more in harmony with the opinion of the profession. In place of the preamble of the original declaration, which runs thus, "As it is believed that the inconsiderate prescription of large quantities of alcoholic liquids by medical men for their patients has given rise, in many instances, to the formation of intemperate habits, the undersigned, while unable to abandon the use of alcohol in the treatment of certain cases of disease, are yet of opinion that no medical practitioner should prescribe it without a sense of grave responsibility," I would substitute the following: "The undersigned have paid much attention to the use of alcohol in health and disease, and, whilst they admit its value as a remedial agent, they are satisfied that a large amount of mortality, disease, and suffering, is produced by the immoderate use of alcoholic liquors." With such an alteration, I believe larger numbers of our profession would have signed the declaration.

I cannot conclude this paper without expressing a hope that the scientific and rational elucidation of this important subject has really commenced. Both in the literature of the day, and in the action which is taking place on the part of the non-medical public, the use of alcohol has become a prominent question. The recent declaration has shown that leading members of the profession have thought it necessary to take some steps to vindicate themselves from the charge of indifference. The whole question would be a very desirable one for a committee of

members of the Association to examine carefully. The important points for them to consider would be the following:

1. Is alcohol food or medicine, or both?
2. Is it necessary in ordinary health, or is it injurious?
3. For what definite objects can it be recommended in feeble health and disease?
4. What is its mode of action?

Let us not be led away by prejudice or custom, but manfully grapple with what is really the most important medical and social question of the day, and be true leaders in the scientific education and moral advancement of the people.

SANITARY STATISTICS OF CHELTENHAM FOR THE YEARS 1865-71 INCLUSIVE.*

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THE present paper is in continuation of one on the same subject read before the Statistical Section of the British Association in the year 1864. Instead, however, of relying on the figures published in the Reports of the Registrar-General, I have in this instance collated for myself, from the pages of the local register, the facts on which my conclusions are based. They apply to Cheltenham, the registration subdistrict—to Cheltenham proper; and I have prepared a map, on the plan first suggested, I believe, by Dr. W. Budd, which shows roughly the chief points to which I wish to draw attention.

I. The *Nature of the Soil*—an important item, as controlling to a large extent the source of water-supply and sewage-soakage—is indicated by the faint colouring: *yellow*, a porous sand, varying in depth, with clay below; *neutral tint*, an impervious clay; *reddish brown*, a mixed clay and sand.

II. The chief *Sewers* are marked in red and green lines; the former denoting the modern, the latter the older sewers. For valuable information on this and other matters, I am indebted to Mr. D. J. Humphris, borough surveyor to the town.

III. The supply of *Hill-Water* from the company's reservoir is marked in blue.

IV. The locality of each death occurring during the last seven years from small-pox, diphtheria, scarlatina, fever, and diarrhoea, is marked in distinct colours: *black star* for small-pox; *crimson cross* for diphtheria; *scarlet dot* for scarlatina; *blue* for diarrhoea; and *green* for fever (including typhus, enteric, and continued). In this, I have derived much assistance from the local knowledge of Mr. Bennett, the registrar of births and deaths.

I cannot pretend that the map is more than a rough indication of certain life-conditions and their results. It has been completed under some difficulties. The Water Company, for instance, not being identical in interests or aims with the sanitary authorities of the town, could scarcely be expected to afford full information on some points regarding the water-supply, nor can the sanitary authority demand it. I have reason to think, however, that, through the kindness of Mr. Swinnett and Mr. McLandesborough, all that relates to the poorer parts of the town has been fully entered on the map.

On the subject of *area and population*, it is important to notice that the parliamentary borough of Cheltenham, to which 270 acres were added by the Boundary Commission of 1867, is no longer continuous with the registration subdistrict and sanitary jurisdiction which goes by the same name. The population of the latter, which was 39,693 in 1861, was 41,923 at the census of 1871, showing an annual increase of 223, against 464 in the previous decenniad. Any calculation of the mortality, therefore, based on the estimated population for the last five or six years, would be very wide of the mark; and the same observation will apply to nearly all the large towns in the kingdom. A biennial or at least a quinquennial census would be the only corrective to an error so misleading, yet so common in sanitary statistics. During the seven years, the natural increase by excess of births over deaths has averaged 281 yearly.

The *Sewers* of Cheltenham are of two kinds; those marked *red* on the map, constructed by the Town Commissioners since the year 1857; those marked *green*, by private individuals, or by a Sewer Company which existed before that date. And the importance of this distinction will be seen, when I come to deal with the water-supply and the mortality from certain kinds of disease. I would now merely draw attention to the fact that the red lines denoting the modern sewers are

* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.