

As a medical student, and as Resident Physician to the Edinburgh Maternity Hospital, I worked for years during the relevant period of time in the very population which Professor Pearson chose, and I am only too thankful to believe that attention to nurture—of which Professor Pearson thinks so little—has somewhat improved its indescribably degraded and diseased state. But things are bad enough still; and I have the permission of Mr. Andrew Young, the head master of the school—who has worked during nearly two decades amongst and for this very population, who knows the homes and the relatives almost as well as the children, and to whom, as to the rest of us who have seen with our own eyes, Professor Pearson's conclusions are simply ludicrous—to say that Professor Pearson will be heartily welcome in the class-rooms, and for a tour of inspection in the district, should he have any curiosity to see the population about which he has so disastrously misinformed the world. In biology the microscope is more useful than the telescope.

What we want now, of course, is a report which not even its authors could be argued into calling "idle." We must observe the order in time of the poisoning and the offspring—lest we confound correlation with causation (which the correlation method, ignoring time, cannot distinguish), and thus be found estimating the "influence" of something on something else that antedated it. We must, if possible, as I suggested in my last letter, compare the offspring of the same parents, who satisfy us as initially healthy, before, during, and after the alcoholism; and even so, there will remain the rest of the fallacies which the "idle" report includes. Above all, we must distinguish real alcoholism, with its inevitable soakage of the germinal tissues, and possible blastophthoria, from the inebriety of the feeble-minded who may take very little alcohol at all; and we must use, for example, delirium tremens, rather than the number of convictions for drunkenness, as a measure of the intensity of alcoholism; notwithstanding Professor Pearson's fantastic preference for the latter as a criterion in his latest report.

In a word, we must follow the lines of the experimental work on this subject already done with alcohol, lead, and arsenic—perhaps the principal "racial poisons," as one may call them. I say "we," but I do not practise, and the work can only be done by combining the expert, analysed, and prolonged observations of many practitioners. These could be collected and submitted to Professor Pearson, who, after some weeks or months of labour, would doubtless then produce the result which the figures would evidently bear upon their faces, as he has just done in his report on the feeble-minded inebriate—whom he found to be feeble-minded.—I am, etc.,

London, W., Feb. 4th.

C. W. SALSBY.

SIR,—Professor Pearson has arrived at the conclusion that "the children of the intemperate are healthier than the children of the sober." He states this as a "fact, as shown in these figures." Whether his figures be or be not correct—and he can argue that point with Sir Victor Horsley—they do not demonstrate any such fact as he alleges. In reality, they demonstrate the direct contrary.

His figures (Table, JOURNAL, January 7th) show that "in a population of 1,400 children with a majority of drinking parents" the percentage of dull and mentally defective offspring lies between 15.6 and 25.8; whereas in an examination of 100,000 school children, Dr. Francis Warner found that "8 per cent. of the boys and 6.8 per cent. of the girls were reported by the teachers as below average ability in school work." The comparison speaks for itself.

Again, if we eliminate the suspected cases and deal only with parents of known habits, the difference between the percentages of healthy offspring in the two alcoholic and in the two sober classes is negligible; and hence, if we accept the view that alcoholism connotes superior physique and virility, we must also conclude that alcoholism neutralizes these advantages, as measured in terms of healthy offspring. It is clear, then, that what Professor Pearson terms "a fact, as shown in these figures" is not a fact at all, but an incorrect deduction.

One would have thought that a statistician's eye would have been attracted by a feature in the table which is *prima facie* evidence of its unsoundness. For both healthy and unhealthy offspring it gives a much higher percentage

among the "suspected" than among either drinkers or sober. If alcohol has no effect, what reason can be given for so marked a variation in an unselected sample? Superior physique would help us when the mentally deficient are in excess. The other parent cannot be introduced as a factor without destroying the whole scheme of the table. Nor does the alleged evil influence of alcohol explain why "suspected" parents should have more healthy children than drunkards. Statistically the table is too crude to be of any value whatever, and it bears on its face the stigmata of worthlessness.

If the question is worth solving, would it not be as well to carry out an inquiry on a more extensive scale, and preferably among a population that was not subject to so many other influences toward defects in the offspring?—I am, etc.,

DONALD F. SHEARER, M.B.Oxon., F.R.C.S.

Exeter, Feb. 6th.

SIR,—Professor Pearson's confused letter will be difficult to follow by those who have not had the opportunity of reading the original papers, "memoirs," his letter in the *Journal of the Royal Statistical Society* and the letters which have recently been published in the *Times* by Professor Pearson and ourselves.

From these last Professor Pearson, with what he and Miss Elderton called "judicial calm," has refurbished statements which he evidently considers quite good enough for our JOURNAL, but the errors of which we have, as a matter of fact, already fully exposed and corrected in the columns of the *Times*. To bring order out of the unwarrantable confusion¹ which, designedly or not, has been cast over this perfectly simple question, we will follow the order of our detailed criticism of his and Miss Elderton's work which we published in the BRITISH MEDICAL JOURNAL, January 14th, 1911.

In passing we shall correct the numerous errors of fact scattered throughout Professor Pearson's letter.

One preliminary observation is necessary. We at any rate have no paradoxical mission to further, but are solely concerned in a critical examination of what purported to be highly accurate, scientific, biológico-statistical memoirs on the subject of parental alcoholism, its effects on offspring and on the wage-earning power, mentality, and physique of the drunken workman compared to the sober one.

We will begin with the first two errors which we found in Professor Pearson and Miss Elderton's papers:

Error 1. *Absence of controls.*Error 2. *Unscientific use of terms.*

We showed on January 14th in your columns that the authors had not only neglected to provide as controls a really non-alcoholic class of parents to compare with the drunken, but had committed the scientifically inexcusable fault of labelling the less alcoholic parents as "non-alcoholic." Professor Pearson says in another part of this letter that a charge like this amounts to an accusation of "falsifying data." If it does, nobody is to blame but himself and Miss Elderton, for they are responsible for what they have done in this matter of wrongful description, not only in this part of their work, but in many others, as we have already shown, and shall again directly, on further points which we did not discuss in our paper of January 14th.

Professor Pearson, in his last letter to you of February 4th,

¹ Professor Pearson's intellectual confusion, as your readers must have noticed, really amounts to a scientific obsession. The following are examples:

- Sir Victor belongs to that small group of temperance advocates who apparently believe that moderate and excessive uses of alcohol are identical in their results (p. 279).
- If Sir Victor and Dr. Sturge succeed in showing that the wage-earning power of the alcoholic man is markedly lower than that of the sober man, apart from disabilities due to periods of alcoholic incapacity, they will find it absolutely impossible to investigate whether alcoholic and non-alcoholic are initially of the same stock (sic) (p. 280).
- That there has been very little change in the habits of the parents is demonstrated by the fact that the number of quite young children relative to all the children is practically the same in our sober and drinking sections (p. 279).

The italics are ours.

- I have several times asked Sir Victor Horsley for an explanation of why he has elsewhere cited with approval Dr. Mac-Nicholl and other authors, etc. He has given no answer to this question.

Sir Victor Horsley and Dr. Sturge answered this question in the BRITISH MEDICAL JOURNAL, December 31st, 1910, p. 2048.

does not seek to defend Miss Elderton or himself on either of these two grave charges; indeed, on January 7th he abandoned any further attempts to defend his absence of controls and misappropriation of scientific terms; consequently he is now by default forced to admit that their uncontrolled results are, as Mr. Keynes said, both "valueless" and "misleading."

Error 3. *Selection by the authors of a non-representative population.*

In our paper of January 14th we showed, as Professor Marshall, Mr. Keynes, and Sir Thomas Whittaker, M.P., had already done, that the material chosen by Professor Pearson and Miss Elderton was a slum population of such a character that by no possible means could any comparison be drawn as they professed to do between "alcoholic" and "non-alcoholic" people, but only between "very alcoholic" and "less alcoholic" individuals. Consequently that:

1. Without the strictest analysis (wholly neglected by the authors, vide Error 4) no results as regards physique, etc., of the offspring could be obtained.
2. Any reference to teetotalers as compared with alcoholics was scientifically impossible.

To the first of these considerations no answer has been attempted by Professor Pearson, either in his letter of last week or in the *Times*. Again, therefore, by default he admits his and Miss Elderton's memoirs to be valueless on the essential point, namely, the influence on the offspring of alcoholism in the parent.

On the second point—"teetotalers," we have more to say.

In the first place, we showed in the *JOURNAL* on January 14th that Professor Pearson and Miss Elderton never had before them any parents known to be teetotalers as parents. Teetotal parentage, therefore, they have never dealt with. This fundamental point Professor Pearson, writing to you on February 4th, does not meet at all, although it renders inexcusable his and Miss Elderton's conduct in speaking and writing as though their figures related to offspring of known "teetotalers." We showed, in fact, both in our paper of January 14th and in our letter of the same date that their so-called "teetotalers" column in their tables was unreal and misleading, because Professor Pearson and Miss Elderton had no knowledge in the cases they used whether the parents became teetotalers before or after the children were born.

Professor Pearson says that this is tantamount to his and Miss Elderton having fabricated statistics. We agree with him in his mode of thus regarding the facts. He and Miss Elderton in their memoir and in his letters of January 7th and February 4th dare to say they have the figures of the children of at least fourteen teetotal fathers. They have not the facts of one such teetotal father, for they do not know (since the Edinburgh report does not show it) when any of the fourteen parents they allude to began his teetotalism.

Here we must digress for a moment to point out that Professor Pearson has for three weeks evaded answering our challenge to him of January 14th, and that of Mr. Furneaux Jordan, to substantiate the accuracy of his statements by publishing in your columns the actual figures, the pages in the memoirs in which they appear, and the actual case numbers given in the Edinburgh report. So long as these facts are concealed it is easy for him temporarily to escape condemnation. We return to this matter under Error 4, vide infra. It is extraordinary, too, to observe with what carelessness Professor Pearson writes. Thus he says in his last letter (February 4th): "Sir Victor at first charged us with not separating out the teetotalers from the mass of the sober." This is another example of Professor Pearson's mental confusion, for Sir Victor Horsley has never made any such charge, but the exact opposite.

We now must draw attention on this point to another grave instance of what Professor Pearson with good reason terms as "fabrication." It is that on this question of teetotalers, that is, total abstainers, he does not hesitate to quote in our *JOURNAL* on February 4th just as he did in the *Times* on January 19th, a letter he received from the Edinburgh Report Committee relating to "sober" people, that is, "less alcoholics," and he uses this letter as though it applied "to teetotalers," although the Edinburgh Com-

mittee specially limited the statement in their letter to the word "sober." This he does in the *JOURNAL* twice, namely, at the heads of the columns 5 and 6, p. 280 and 281, of his letter of February 4th. Nay, more, he actually makes the following statement:

"The humour of the situation is that we never claimed to do more than separate our population into sober and drinking groups." (Column 6, p. 281, February 4th.)

What "humour" there can be in self-contradiction we are unable to see, but the facts are that, so far from only dividing their population into "sober and drinking groups," he and Miss Elderton, besides constantly speaking of "alcoholic" and "non-alcoholic" parents, give no less than twenty-six tables exactly like the one Professor Pearson published in his letter in the *JOURNAL* of January 7th, p. 50, the headings of the columns of which are "Teetotaler, Sober, Drink Suspected, Drinks, Bouts." Here there are not two groups only, but five. Thus he stultifies Miss Elderton and himself in the most wholesale manner.

Finally, since these authors did not know whether the so-called teetotalers were real teetotal parents, their statistics about the offspring of these persons can only be adequately described by the word Professor Pearson uses, namely, "fabrications," because they are manufactured out of their heads by conjecture and guessing, as indeed we pointed out nearly three months ago in our letter in the *JOURNAL* of November 19th.

Of the five individuals whose teetotalism is known to have commenced on a certain date but who, as we showed, were not teetotal parents at all, he admits having used one in his statistics but denies having included the others. We accept this denial, especially as it has no bearing on the discussion and his misuse of the word teetotal parent.

We now come to the so-called teetotal mothers. As we showed on January 14th, there are no facts given in the Edinburgh statistics which make it possible to speak except in one instance out of the whole nineteen as to whether the wife was a teetotal mother or not, and of that one instance—namely, No. 336—Professor Pearson says our objection to her being included is, he contends, what "only fanaticism could convert into what is really a libellous account of a probably quite steady woman." On turning to the Edinburgh Report, this so-called teetotal mother is plainly described in the following language: "The wife not teetotal but never seen the worse for drink." We fail to see how our objection to this individual being included among the teetotal parents is a mark of fanaticism, or that we were guilty of libelling her. It is on this matter that Professor Pearson has committed the most serious of his literary misdemeanours, namely, using the information he received in a letter from the Edinburgh Committee relating to merely so-called sober people as though it related to total abstainers. This conduct appears to us to quite well come within Professor Pearson's definition of "fabrications."

Error 4. *Absence of any proof of alcoholism beginning before the birth of the children.*

The fundamental necessity of proving that the alcoholic parents began their drinking before the children were born was never recognized, as we have repeatedly pointed out, by Professor Pearson and Miss Elderton, and that the whole mass of their mathematical formulae and graphs were mere deceptions. Professor Pearson now, in his second column, p. 279, says this point is "pure quibble." He applies a ridiculous expression of this sort to what is a fundamentally necessary condition of a research into the effects of parental alcoholism on offspring, instead of answering, as in honour he was bound to do, the challenge we made to him in our letter of January 14th in the *JOURNAL*, p. 112. Those who have done us the honour to read the controversial correspondence in the *JOURNAL*, which began with our letter of November 19th, 1910, will know that for six or seven weeks we have endeavoured to learn from Professor Pearson where, in his and Miss Elderton's memoir, this biological condition was satisfied, and at last on January 7th he said of their memoir, "Of course it does contain such figures and what Sir Victor is confessing is only that he is constitutionally or by training incapable of interpreting them." To this we replied as follows in the *JOURNAL* of January 14th:

"We must repeat that there are no such figures in-

existence, and if Professor Pearson wishes to be believed he must publish in the next issue of the JOURNAL:

"1. The figures, together with the numbers of the pages of his and Miss Elderton's memoir, on which, as he alleges, they are printed.

"2. The reference case numbers of the Edinburgh Report Schedules belonging to the parents and children to whom the figures individually refer."

To this challenge Professor Pearson has returned no answer, although the JOURNAL has appeared three times since—namely, on January 21st, 28th, and February 4th. We are sorry that, for reasons we do not fully understand, a letter which we wrote to the JOURNAL a fortnight ago—that is, immediately after we noticed Professor Pearson's failure to respond—has never been published. This point stands by itself, because it is obvious, as we stated, that these figures which Professor Pearson solemnly asserted existed, and that it was only Sir Victor Horsley's stupidity which prevented his recognizing them, are statements both wholly untrue. We earnestly hope that his failure to produce his "proofs" will be appreciated by those who are in sympathy with his views on the alcohol question. To our mind it is intolerable that the memory of Sir Francis Galton and the work of the Eugenics Laboratory founded by him should be marred by such an act on the part of Professor Pearson.

We now come to their great generalization respecting the parents:

Error 6. *Erroneous conclusion that the efficiency, as measured by wage earning capacity, of an alcoholic male parent is at least equal to that of a less alcoholic male parent.*

The central point of their paper, which found such ready acceptance in certain quarters, was that the drunken workman was as good as the sober, and the standard on which this extraordinary conclusion was founded was his wage-earning capacity. Now in this subject there are two distinct issues. First, how much does the drunken and sober workman respectively earn? and, secondly, what use did Professor Pearson make of the conclusions he drew from the Edinburgh data on this subject?

1. How much does the drunken and sober workman respectively earn?

We showed on January 14th (p. 77) that Professor Pearson and Miss Elderton's statements on this subject were absolutely contradictory, and we tabulated this contradiction, showing that in May, 1910, they said the drinker earned 25s. and the sober 26s., whereas in September, 1910, according to Professor Pearson, the drinker earned 25s. 6s. and the sober 25s. 5d. Whether this gross contradiction in these authors' own results was due to carelessness or not there was no evidence to show; but, to whatever it was due, Professor Pearson in his letter of last week does not attempt to account for this result. In fact, he makes no reference to it whatever. The only thing he does do is to make a series of disconnected statements, all untrue; and, inasmuch as they are disconnected, we must now proceed to expose them in detail. In the first place, your readers must understand that Professor Pearson published in the *Times* of August 10th, 1910, a wage and sobriety table, which he subsequently republished in a supplemental memoir, and which he called "Analysis of the Fathers' Trades." This table is given on pages 10 and 11 of the supplemental memoir, and is constructed as follows. We will quote the first three lines:

"Class A.—Papercutters (24s.; S 1, D 1); cabmen (18s. 5d.; S 1, D 10); goldbeaters (21s. 6d.; S 2, D 1); stablemen (21s. 2d.; S 1, D 5); millworkers (19s.; S 2, D 0); porters (20s. 6d.; S 9, D 8)," etc.

Professor Pearson states, in describing the table, that "in each case the average of the recorded wages of the individuals following that trade is given. S = sober, D = drinks, and the numbers following these letters give the number for each type." The only conclusion that can be possibly drawn from this table and the statements of Professor Pearson is that the name signifies the trade, the drunken and sober are the individuals following that trade, and the sum stated as the wage is the average of the recorded wages of the individuals mentioned in the table. Professor Pearson actually says in his letter on February 4th that his table "has nothing to do with sobriety or intemperance." If this were true we are to suppose

that the headings S. and D. have not got the meaning which Professor Pearson in his memoir and in the *Times* said they had. But we need not spend time on a contradiction such as this, but pass on to show once more that his other statement about this table is equally untrue, namely, that the figure indicating the wage of the trade is "the average of the recorded wages of the individuals following that trade." As Mr. Keynes pointed out in the *Journal of the Royal Statistical Society*, and as we fully demonstrated in our paper of January 14th, p. 77, Professor Pearson did not give the real average of the wages earned by the individuals he mentions in his table, but again, with a great saving of his time and trouble, and with a large share of "judicial calm," he copied for each trade a wage from a verification wage table of the Edinburgh Committee, which, as we showed on January 14th, only applied to a limited number of the cases among the people he gives in his table. This way of treating statistics we think is very suitably described in the way Professor Pearson mentions as a "fabrication." It might have been supposed that this having been pointed out by us, he would have expressed some regret for having misled his readers, but nothing of the kind appears in his letter of last week. On the contrary, he evidently hopes that the nature of this table will be buried in the involved description which he gives. Further, having by giving to alcoholic workmen in 18 per cent. of the cases a wage that does not belong to them, arrived at his and Miss Elderton's chief generalizations concerning the relative value of the drunken and sober, quoted above, he says, "I am quite ready to abide by those words." This interests us, because on January 16th, in the *Times*, he denied having made any such statement at all, and was only brought up short by our publishing on the 19th the actual words of their generalization from the memoir. He takes credit to himself in like manner for having stated in his supplemental memoir the well-worn truism that drinkers, being more often out of work, had lower average wages. Even this, however, he did not acknowledge to be a fact until Professor Marshall had driven it home by his letters to the *Times* in July and August of last year. This discovery, therefore, was not Professor Pearson's. In the middle of the fourth column of his letter he gives an involved statement on the wage question, of which he says "details are discussed in my contribution to the current number of the *Royal Statistical Society's Journal*." If your readers have the curiosity to turn to this, they will find a most extraordinary compendium of estimates as to how much the drinker and the sober man respectively earned, but not from beginning to end does he mention the original estimate published in the first memoir. This, we may suppose, therefore, will also be buried, like various other inconvenient conclusions to which we have drawn attention. We note in perusing this paragraph one characteristic expression—namely, where he says that the figures we quoted from his supplemental memoir were "verbally" accurate. It no doubt requires a high mathematical mind to realize that though two and two "verbally" make four, the real result is something else which can be given in a footnote. Professor Pearson seems to feel that this mode of treating arithmetic is not usual, and therefore hastens to say that "the meaning of the word parent seems to be quite overlooked by Sir Victor." We are not afraid of your readers thinking that we do not understand the meaning of the word parent, but we would point out that even a divagation of this sort is of no use to Professor Pearson, because the original estimate of Miss Elderton and himself, which is now relegated by him to the dark ages, referred to "fathers only" exactly in the same way as his table, consequently the footnote he quotes has nothing whatever to do with the different explanations he has published of the wages earned of the alcoholic and non-alcoholic workman respectively. We will now turn to his tabulation of the different trades. We have extracted from him at last the admission that his masons, porters, railway porters, etc., are not the people called such in the Edinburgh Report from which he professed to get them, but that he has jumbled together persons of widely varying occupations, and he attempts to justify this by reference to the instructions of the Registrar-General to a census clerk. What serves for the crude statistics of the

Registrar-General is totally inadequate, of course, for any tabulation of trades which is to give an accurate computation of the wage earned by those trades. There is no necessity either for Professor Pearson to thus mishandle the Edinburgh statistics, and as for his group of porters, a messenger is not a porter. It is interesting to notice that he carefully abstains from explaining in your columns the far more glaring case we gave of the railway porters, which he represented to be nine in number, although only two exist in the Edinburgh statistics. The reason is this—from his letter to the *Statistical Journal* it would appear he concocted his nine railway porters by jumbling together anybody who had anything whatever to do with a railway; and he even admits that his "railway porters" varied in wage-earning rate from a guard who earned 45s. a week to a porter who earned 14s. a week and tips. Can any one pretend for a single moment that this is scientific statistical examination of the wage-earning capacity of different trades and sections of the community? The proof of our position is that our estimations obtained by keeping strictly to the Edinburgh facts gave the same results as the Edinburgh Verification and Wage Table, results which are in absolute opposition to Professor Pearson and Miss Elderton's. As we showed on January 14th, this is due to their having created statistics where real data did not exist. A very good example of this is his belated attempt in his last letter to support his and Miss Elderton's theory that the reason why the children of alcoholic parents have such a high death-rate is not so much that there are any toxic effects of the alcohol present in the offspring as that they die from accidents directly caused by the drunkenness of their parents. If statistics are selected in which no information is given concerning the actual cause of death, naturally any theory can be bolstered up. Professor Pearson therefore endeavours to meet our police statistics in which precise cause and mode of death is given in each instance, by quoting the returns of the Registrar-General. We have shown in a letter sent to the *Times*,² that these returns are worthless for the purpose to which Professor Pearson applies them, except in one single particular, that is, "overlying." As we show in our book, *Alcohol and the Human Body*, alcoholism has a direct causative relation to this accident. In the Registrar-General's returns, which Professor Pearson quotes in his letter without the slightest qualification, the remainder of the deaths from suffocation are put down as due to "otherwise." As this, of course, has no meaning whatever, one-third of Professor Pearson's figures are useless for his purpose, but that, as we have seen before, is no hindrance to his quoting them. Our point now is that to use such figures to make statistics is to execute what Professor Pearson rightly calls a "fabrication." Even if we took the overlying cases at the fullest possible estimate, the proportionate number of instances that would have occurred in the population to which the Edinburgh Report refers would be less than one. This completely confirms the conclusion we drew from the more minutely analysed police returns. Taking the view that we do that alcohol is a great national evil, if, as Professor Pearson asserts, we were only regarding this question from that point of view, it would make no difference whether the parental alcoholism killed the children by negligent accidents or by toxic consequences. What we did show on January 14th was that Professor Pearson and Miss Elderton, endeavouring to minimize the toxic effects of the drug, invented, without the slightest inquiry into the facts, a theory that the higher death-rate was due to accidents. We have therefore disproved, first, this gratuitous hypothesis of Professor Pearson and Miss Elderton; and, secondly, we have shown reason why further research should be made into the general physical condition of the children of alcoholics.

In conclusion, we observe that Professor Pearson intends to produce from his apparently unlimited financial resources a pamphlet purporting to be an additional answer to our paper of January 14th, just as his and Miss Elderton's first memoir purported to be an inquiry into parental alcoholism.

² The *Times*, for reasons which may be well understood, has suddenly closed the correspondence after publishing Professor Pearson's last letter.

We have no doubt that the one will be as incorrect as the other.—We are, etc.,

London, W., Feb. 7th.

MARY D. STURGE.

VICTOR HORSLEY.

*** In the note on the pamphlet published by Professor Karl Pearson in *Questions of the Day and of the Fray*, published in the *JOURNAL* of November 12th, 1910, p. 1545, it was said that it appeared to us that "the assailants of Professor Pearson have been somewhat over-hasty." It is now abundantly clear that this epithet was ill chosen, and we regret that the expression was used. In the longer article published in the *JOURNAL* of June 4th, 1910, p. 1367, on the "First Study of the Influence of Parental Alcoholism on the Physique and Ability of the Offspring," by Miss Elderton and Professor Pearson, after stating that they held that "parental alcoholism, bad housing, and other environmental evils do not produce large effects upon the next generation," we pointed out that "Even if these views merited universal acceptance—as to which we express no opinion—it would still be our duty to strive at least as hard as at present for the amelioration of environmental conditions. Hunger, filth, and alcoholic excess may not affect the intelligence and physique of the rising generation, but, beyond all question, they materially affect the health and happiness of the generation in being." It appears that this warning might have been even more strongly expressed.

HYDROTHERAPY.

SIR,—We feel it our duty to protest against the depreciatory tone of an article on hydrotherapy appearing in your issue of January 7th. We believe that such an article is calculated to discourage the general body of the profession from paying due attention to a method of treatment for which, when properly conducted, there is in many instances no satisfactory alternative. We think, too, that it may tend to check the flow of subscriptions to our mineral-water hospitals.

It is certain that patients who have derived benefit from hydrotherapy will continue to seek its aid and will advise their friends to follow the same course. But if they ascertain or are led to believe that hydrotherapy is undervalued or imperfectly understood by the medical profession in Britain they will be disposed, more and more, acting on their own initiative, to place themselves in the hands of unqualified persons in this country, or to proceed to the Continent, where balneology is recognized as an independent and indispensable branch of the science of therapeutics.

While associating ourselves with the writer of your article in deprecating the exaggerated claims put forward by some zealots we protest against the statement that in the scheme of management of a modern spa the various baths and hydropathic (*sic*) applications are regarded as a secondary though essential element.

True as this relegation of hydrotherapy to a secondary position may be for a limited number of resorts, the names of which will readily occur to any one versed in crenotherapy, it is the reverse of true when applied to the majority, whether in Britain or on the Continent.

We demur, moreover, to the suggestion that hydrotherapy has become, in the older countries of the world, a therapeutic method within the compass of the leisured and moneyed classes only. The inaccuracy of this statement is shown by the fact that in 1909, at three English spas alone, in addition to out-patients there were admitted to the wards 5,779 patients of the poorer classes, sent from all parts of the country; while at one spa no less than 35,327 mineral water baths were given at the bathing establishment belonging to the charity.

While there are other passages to which we take exception, we prefer to refrain from further comment, but would state our position affirmatively, as follows, adopting the words of a recently published monograph on spa treatment:

That for one group of patients the benefit received from spa treatment accrues entirely, and not merely in great part, from change of surroundings and habits. But a sufficiently radical alteration in the manner of life could not always be induced in this class of patients, save by the compelling influence of the ritual associated with mineral water treatment. That for a second group of