

Science and the Community.

IN an address delivered in connexion with the recent celebration of the centenary of the Franklin Institute, Philadelphia, and published in the Journal of the Institute for November, Dr. A. D. Little directs attention to the curious anomaly that although all the distinctive features of modern civilisation are due to discoveries made by scientific men, yet in no country in the world is the governing and directing power in their hands. It is an interesting but very familiar fact. Dr. Little, in his own engaging and energetic style, is only saying over again something that has been said by various eminent men of science for very many years. It is a fact that not more than 100,000 men throughout the world are creatively engaged in the advancement of science, and yet a list of those features of our modern civilisation which distinguish it from the middle ages would show that they are dependent upon these men and could not continue without them. Nevertheless, the opinions of scientific workers are not asked on the direction of the civilisation that their kind have built up, nor are their services considered worthy of any special reward.

At first sight this state of affairs appears to be fantastic. Dr. Little vividly illustrates the astonishing disparity between service and award in a modern community:

"It is incomparably more profitable to draw The Gumps for a comic supplement than to write 'The Origin of Species.' There is more money in chewing gum than in relativity. Lobsters and limousines are acquired far more rapidly by the skilful thrower of custard pies in a moving-picture studio than by the no less skilful demonstrator of the projection of electrons. The gate receipts of an international prize fight would support a university faculty for a year."

All this is, of course, quite true, but the implications are a little doubtful. Is it suggested that Einstein should be paid more than the custard-pie expert, or that the expert's income should be reduced below the level of that of a professor of physics? The custard-pie expert is paid directly by the public; for the amusement he gives them they pay him an immense income. But the professor of physics does not amuse them; for the most part he bores them, and they are in no position to understand that his work is of real importance to their lives and to the lives of their children.

It seems that Dr. Little is really finding fault with the cultural level of modern communities. We may look forward to a Utopia where the proletariat would rather attend a lecture on the tensor calculus

than see a comedy by Charlie Chaplin, but we must admit that that time is not yet. A more pertinent comparison would be between the salaries of scientific men and of other public servants, since the value of the work in these cases is not directly assessed by the public.

The implicit claim in the passage we have quoted, that scientific men should be rewarded with gigantic salaries, is probably not intended by Dr. Little, although the confused feeling which gives rise to it is often apparent in discussions on this subject. The money value of work done is, with nearly every kind of work, extremely difficult to assess. Indeed, the problem is probably best defined in the case of the custard-pie expert, since, if a million people (including men of science) are willing to pay a shilling for his performance, it seems that the monetary value of that performance is one million shillings. But who could possibly have assessed the monetary value of Gilbert's experiments in magnetism, or of Euler's researches on elliptic integrals? And what is the *monetary* value of the theory of relativity which, so far, has had no direct influence whatever on the life of the community? But although we think the scientific man is wrong to envy the income of the successful cinema actor, it is true that science has now sufficiently proved its value to enable the scientific man justly to insist on rewards that shall enable him to keep in good health, prosecute his work in proper conditions, and encourage him to produce and rear children. It is established that he and his offspring are a very desirable social asset; and the real injustice and stupidity of those in power are shown in the fact that even these minimum demands are not properly met.

Dr. Little also complains that scientific men are not admitted to positions of power in the community. In spite of the fact that some of them, particularly during the War, have shown themselves possessed of great administrative abilities, scientific men are not invited to co-operate in the task of government. Yet, seeing how much the modern community is dependent upon their labours, it would seem only natural that they should be given a voice in the direction of affairs. But here again we are met by a demand that requires careful consideration. For good or ill, democracy is the prevalent form of government, and, as Dr. Little says:

"An electorate, which regards itself as free, listens to the broadcast noise of manufactured demonstrations and is blind to the obvious mechanics of synthetic bedlam. The result is too often government by gullibility, propaganda, catchwords, and slogans, instead of government by law based on facts, principles, intelligence, and good will."

These are the conditions which result in the appointment of our leaders, and we may take it that the fittest survive. It is not likely that the men who can swim successfully through this welter will have much knowledge of, or reverence for, the scientific attitude of mind. It is too much to expect that they will demonstrate to the whole world their own incompetence by handing over their business to larger and better-trained intelligences. Once more, what is required is a higher cultural level on the part of the public, a general recognition of the value of the scientific mind in all departments of public life. But here we are hampered by the fact that we have no clear evidence that the majority of scientific men would be of any particular use in the conduct of affairs. It is not wise to make claims that cannot be substantiated, and the views of scientific men, taken as a whole, on political questions seem indistinguishable from the views of an equal number of ordinary citizens. With the majority of scientific men their habit of cautious weighing of evidence, their ingenuity in reducing a problem to its essentials, their lack of prejudice in coming to results, do not noticeably extend to their political opinions. They read newspapers as uncritically as does any other kind of educated man, and far more uncritically than the most insignificant Fleet Street journalist. There is no evidence that the views of the Royal Society on international politics are worthy of any special consideration.

While, however, it is true that scientific men, as a whole, rank with the rest of the community in these questions, it may be that there are branches of science in existence which could make valuable contributions to the actual problems of government. This is obviously true of problems which involve technical processes. A general scheme of electrification, for example, should obviously be committed to men of science. Questions concerned with national defence, also, should be, and largely are, in the hands of scientific men. But Dr. Little thinks that men of science could make still more fundamental contributions. He refers us to psychology, and apparently thinks that its findings could already be profitably applied to the general problems of government. This may be true, although it seems likely that the science of psychology should be further developed before any body of legislators should be encouraged to attempt striking improvements by its aid. Undoubtedly science can already furnish much besides "practical applications," but chiefly, we suggest, in giving problems a new orientation and by suggesting new methods of attacking them.

There is another aspect of the general question, an aspect that Dr. Little has not touched upon. Granted that some scientific men possess great administrative

ability and that they could play a very effective part in solving problems now left to the politicians, do we want to use our scientific men as administrators? In the United States they are already employed in that way to a greater extent than is customary in Europe; but whatever the benefit to the American community, it is not clear that science in the United States has benefited by it.

Mr. Bertrand Russell has recently given it as his opinion that, in the United States, Einstein would probably have been made the administrator of a large university and, as a consequence, would never have had the leisure necessary to develop his generalised theory of relativity. Would that have been a gain? Was it a gain that Newton should have become an industrious and conscientious Master of the Mint, seeing that he produced no more original work in science for the rest of his life? Newton's work in science certainly saved the labours of two or three generations of scientific men. It is difficult to say when the theory of relativity would have been hit upon if Einstein had devoted his time to other things.

It is not at all clear that a scientific man, as soon as he has proved himself to be of great value to science, should be immediately called upon to do something else, even though the something else should be of more immediate practical utility. Dr. Little informs us that American men of science are not in Congress. Well, they are presumably in their laboratories, which may ultimately be a better thing for the world. Nevertheless, it is desirable that so valuable a group should have a means of making the weight of its opinions effective in government.

The true issue is that the scientific contribution should be worthily employed. It should no longer be left to random and sometimes base exploitation. This means that scientific men must come into the arena, and take a greater part than they have yet taken in impressing their ideals, as well as their ideas, on the public. It would not be a bad thing if scientific men developed a "class-consciousness." If scientific ideals are to gain any hold on the community it must be by vigorous propaganda, not by annual laments at the paucity of government grants. There should be lecturing campaigns and periodicals devoted solely to this end. As it is, the writers quoted by Dr. Little are able to say, with some show of justice, that science touches only the fringe of life, that it has no bearing on the centre of life at all. In a democracy one must appeal to the people. Science has a spirit as well as a body, and it is its spirit, even more than its body, which is the potential saviour of mankind.