LETTERS TO THE EDITORS

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Science Teachers in Schools

As a member of the Appleton Committee considering the shortage of teachers of science and mathematics in Scotland, I have read with very great interest the editorial comments in *Nature* of January 30, p. 177. I have found the comments of great interest and value. There is, however, one small passage of which the implication is not too clear. The passage in question states: "Are not these small science sixth forms due partly to the fact that some of the science teachers are of such moderate ability and personality that they cannot attract any more pupils to their side of the school, and partly to the fact that, where the teacher is competent, he has already attracted all the pupils capable of doing sixth-form science?"

Surely the two possibilities visualized here are rather contradictory. In one case it suggests that the smallness of the science classes is due to incompetence on the part of the science teachers. If this is the case, the obvious solution is to improve the quality of the science teachers. If, however, the second possibility is true, improvement of the quality of the science teachers would be of no avail. However competent the science teacher he cannot teach the subject to pupils incapable of absorbing it, and the problem is impossible of solution. After all, you cannot make a silk purse out of a sow's ear. I may, however, have misunderstood the implication of this passage.

I also note that the National Advisory Council suggests that "the glamour of research should be counteracted by putting the case for teaching as a satisfying career to undergraduates in the pure science departments of the universities". While I agree that too many unsuitable people are attracted by the glamour of research, I am appalled by the suggestion that those responsible for advising undergraduates should be expected to pretend that teaching is a satisfying career if this is not in fact the case.

In Scotland, great emphasis is laid upon the desirability of science teachers holding first- or second-class honours. While agreeing that teachers should be of the best quality, I cannot agree that the holder of first- or second-class honours is likely to be a better teacher than a man holding a good pass degree. In fact, I feel that the honours man tends to be a narrow specialist, whereas a schoolmaster should be a man of broad general culture. It is surely not necessary to hold a first- or second-class mathematics degree to teach quadratic equations. I have been assured by a professor of mathematics in a Scottish university that it is the realization that they will not use their academic knowledge to the full which creates a reluctance of honours graduates to go in for teaching.

In conclusion, I should like to say that I heartily agree with the last paragraph of the article. Legislation on education of the past twenty years or so has

been too much the prey of the popularity-seeking politician.

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Nature's campaign to promote action on the part of the various authorities concerned with the future of science and science teaching is admirably persistent and constructive. One of the suggestions (*Nature* of February 27, p. 368) is of particular interest. It reads as follows: "If more of the graduates in arts, for example, left the universities of Britain with some sound knowledge of general science, they might well be qualified to assist in the general science teaching which is so desirable for the ordinary citizen, whether or not he proceeds beyond the grammar school or technical school level". This is an admirable idea which I should be delighted to see carried out as an educational policy; but it is well to examine the difficulties that lie in the way to see if they can be surmounted.

First of all, let us take a historical fact. More than thirty years ago, in one university at least, intending teachers entering the faculty of arts were compelled to take either mathematics or science as part of their studies if they had not included Latin in their matriculation. The result was not happy for those taking compulsory science. Lecturers and demonstrators were not particularly interested in students who were pursuing subjects that were regarded as makeweight. The students themselves felt they were intruders or 'poor whites'. The scheme was not continued. It would be folly to make further attempts along the same lines.

Secondly, let us deal with general science—an admirable conception, rarely if ever realized. If general science is ever to become, what it should become, the peer of English as the main educational discipline for children of school age, the organization will have to start in the universities; but this will need men and women imbued with the fervour and enthusiasm of a T. H. Huxley. It will need in its pioneers a combination of humanist, philosopher and scientist, together with willingness to sacrifice possible fame as scientific discoverer to the more humble reputation of teacher. If such a discipline could be instituted to reach down from the universities to the schools and outwards from the schools to all human activities, it would, in the words of the article, facilitate "the absorption of science into the general culture . . . and it would also assist the graduate science teachers to concentrate more on the sixth forms or the teaching of those with a scientific career in mind". However, it is unlikely to succeed unless general science becomes as important in general esteem as particular scientific studies.

The arts graduate is already in danger of becoming a poor relation because the science graduate is attracting an inordinate proportion of special posts in the schools. This regrettable tendency to devalue the arts degree is already having unhappy results and can lead only to ill-effects on our general culture.

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