

problems by heart on the chance of getting a question on them in the examination". In practice it is designed to make them think, and relate theoretical and applied biology to the problems of their time and to their other school subjects. I do not, of course, claim that my outline syllabus is the only answer, or necessarily the right one. It is the result of only fourteen years of experiment in one school. But I am sure that something of the sort is well worth while, and that professors of any of the biological sciences could help by making constructive suggestions as to what scientific ideas the future Civil Servants, lawyers, industrial leaders or clergy of Great Britain should be made aware of. It must be remembered that most of these will come from the sixth forms of our grammar schools, and that for many of them a course of this kind will be the last formal science teaching they will receive. Prof. Cannon does not, however, make constructive proposals.

The accusation that there is too much emphasis on what Prof. Cannon calls 'Neo-Mendelism' is based on a misreading of my paper. The second term's work is not "devoted very largely to a study of Mendelism", but centres on evolution, and embraces also the study of population growth, variation and environmental influences and extinction. When Prof. Cannon writes, of Mendelism, "It is easy to teach, that is certain", I leave it to those who have experience of teaching even highly intelligent non-specialists to judge whether my course or Prof. Cannon's review is the more 'fantastic'.

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The College,
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Mr. LUCAS in his original pamphlet is emphatic that his proposed syllabus is for sixth-form boys specializing in classics, history, mathematics: in fact, in anything other than natural science. Now in the third paragraph of his letter above, he says that if these boys have "not done any practical biology at an earlier stage . . . it is useless to start here". I can only take this to mean that unless these arts students have done some elementary biology in their earlier years at school and so done some *practical* biology, his syllabus for the course of study at the sixth-form level is useless. Is he assuming, therefore, that in these enlightened days all boys, whatever subject they may ultimately specialize in, have had a ground-work in the elements of biology in their early school days? This may be so at Winchester; but does he not know that, in the greater number of secondary grammar schools in which biology is taught at all, it is only taught on the science side, and in many of these schools is only dealt with in the sixth form? His pamphlet, as I pointed out, "purports to deal with the way in which biology and social biology at that can be introduced to a sixth form who have done no biology before"—not the sixth form of any particular school but presumably at any secondary grammar school. That is the way in which I maintain his pamphlet will be interpreted and that is why I criticize it.

But also perhaps I have been guilty of inaccuracy in my review because Mr. Lucas seems to have deduced that I would insist on practical work in the type of biology course he is considering. I did not,

however, say this. I merely pointed out that a university professor had the advantage of adequate time for practical work guided by a bevy of demonstrators. If time is short (and nobody disputes this as regards Mr. Lucas's course) then practical work is the last thing I should insist upon. Why, almost as much time can be wasted over practical work in biology as over field-work in botany! By all means have as many demonstrations as possible, as Mr. Lucas suggests, but heaven forbid that I should ever be called upon to demonstrate an F_2 generation of *Drosophila* to any class, sixth form or otherwise, let alone teach these same boys how to culture the annoying little creatures. No, if I had two periods a week for one year at my disposal and an intelligent sixth form, then, always remembering that the boys had done no biology before and also that the time must be carefully used and not frittered away in snippets here and snippets there, I feel that I could use that time profitably by talking about the *elementary* facts of biology—giving the students some idea of what an organism is, particularly what a human organism is and its relation to its surroundings. This would then enable these boys later on to develop their ideas on these foundations, to ask themselves and others questions that were of importance and not mere trivialities. Mr. Lucas says that his sixth-form boys "want to put the questions to a biologist that an adult would ask". They may want to: but are they equipped to do so? When they have been given the foundations of the subject they certainly can, if they are intelligent, ask valuable questions; but until then it will be more by luck than judgment if they manage to avoid the type of inanity with which we are so familiar in our first-year students—and, after all, our first-year students are only glorified sixth-formers. That is why, by the way, I may not be so unfamiliar with the type of student that Mr. Lucas deals with as he appears to imagine.

Then he reproaches me with having an eye on examinations—but why not? I have had plenty of experience of how schools *do* cater for examinations—especially those for open university scholarships. We all know of the irrational scramble for scholarships among schools, and this all involves catering for examinations: so why not assume that this sixth-form 'culture' is encouraged with one eye on the examinations? What about this general knowledge paper which it is proposed to introduce into the new examination? Mr. Lucas's syllabus is just the sort of thing for this paper: and who suggested it?—Was it the schools or the examining boards? It was certainly not the latter in this part of the country.

Finally, I am sorry that Mr. Lucas finds genetics a difficult subject to teach. I can only repeat what I said at the meeting of the British Association at Brighton last year, referring to this aspect of biology, "despite the profundities of the Neo-Mendelians, it is still possible to deal with this matter adequately in a few lectures".

But why should Mr. Lucas worry over such a trifle? As his original pamphlet points out—if a subject is too difficult for the student or the teacher, just drop it and go on to something more entertaining.

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