

the needs which it was originally called into being to serve, and to supply the wider vision which can avert the evils of excessive specialisation.

The obvious need for the fullest and most efficient use of professional technique in the service of the community should undoubtedly slowly intensify the spirit of service and vocation in the professional community. Co-operation is urgently needed to-day on the part of professional men of mature experience in the working out of the methods by which the special contribution of the professions to the service of the State should be made—how their advice should be presented and utilised. With a clear vision of social and national service and an understanding of the fundamental purposes of professional associations, professional men, and above all scientific workers, might not only use their associations for the improvement of their own technique and status but could also shape those organisations into effective instruments for the service of the wider needs of society.

General Science in Schools

THE final report of the committee appointed by Section L (Educational Science) of the British Association to inquire into the teaching of general science, with special reference to the teaching of biology, in schools, was presented at the recent meeting at Leicester. It contains a historical survey of previous reports on the teaching of science; an analysis of replies from 358 schools to a questionnaire by the committee; discussions and suggestions regarding examinations and the place of out-of-school activities in relation to science; and a summary of the present position and of the suggestions approved by the committee.

The report, without being unduly optimistic, is certainly encouraging; for it makes clear that general science in the broader sense, that is, including biology as well as chemistry and physics, is becoming increasingly popular in schools; and that the fusion between botany and zoology into the one subject biology is extending further. But it is to be hoped that these tendencies in the right direction will make yet further headway, and that the broader general science will before long become universal in the years before the school certificate examination. At present, only 25 per cent of the boys', 41 per cent of the girls', and 32 per cent of mixed schools take biology; and the percentages of pupils taking biology in these are 21, 26 and 28

respectively. It would thus seem that even in these schools, biology is included during a portion only of the school career, and not throughout it; and it is clear that neither general science (including biology) nor biology itself as a separate subject, is taught as much as the other scientific subjects.

The reasons assigned for the absence of biology are chiefly: (1) the requirements of some school certificate examinations; (2) lack of suitable teachers; (3) lack of suitable accommodation. The report shows, however, that, speaking broadly and excepting a few dissentients and a few 'sitters-on-the-fence', the schools are alive to the educational value of biology, but are confronted by obstacles which at present they do not see their way to overcome. Probably the most serious of these obstacles is the non-acceptance for matriculation, by most universities, of general science, including biology, in the school certificate examination. Where, as is the case at some universities, candidates can take chemistry and physics in this examination, both being accepted for matriculation, it is almost certain that schools will teach these two subjects, and will not teach biology. If all universities (and those professional bodies which do not accept general science as a qualifying subject in the preliminary examination) would fall into line and agree to accept general science including biology, the road would become easier for many schools.

Among the objections to general science quoted in the report is the statement that it is scarcely possible to obtain science scholarships unless specialisation in physics and chemistry begins at fourteen years of age. To begin at this early age to "learn more and more about less and less" is educationally criminal. Protest has already been made against the excessively high standard of scholarship papers in these two subjects; and it is to be hoped that lowering that standard will render it not only possible but also profitable for all candidates to have taken general science, including biology, in the school certificate examination before proceeding to specialise in any subject.

It is satisfactory to note that it is becoming more possible for boys, both younger and elder, to take part in out-of-school activities other than organised games. Natural history clubs and science societies are valuable allies to the class-room and laboratory, especially the biological, and afford opportunity for the development and spontaneous manifestation of the true scientific spirit of research.