

underground parts of their hosts: indeed it is not too much to say that a new chapter in soil microbiology has been opened with the recognition of this factor of biological antagonism. The pathogenicity of fungi which cause foot-rot of cereals may be completely suppressed by the antagonistic influence of soil saprophytes, either through the secretion of some toxic substance or perhaps by the stress of competition. When more is known about the antagonism of other micro-organisms to pathogenic fungi in the soil, it may be possible to devise methods of biological control, such, for example, as altering soil conditions so as to favour the antagonistic action of other members of the micro-flora.

The Schools and Citizenship

DR. A. W. PICKARD-CAMBRIDGE has chosen "Education and Freedom" as the title of his presidential address to Section L (Educational Science). In Germany, Italy and Russia the suppression of freedom is largely carried out by the control of education, of which the aim is to teach the individual not to think. If freedom is to be maintained, it can only be by an education designed to teach the young to think freely and accurately, and to act as responsible citizens of democracy. The ideal community will be one which allows all to take a share in the formation of public opinion (and trains them to do so), and in which no one is simply a means to the ends of others, but each is free to realise the highest values and able to make his contribution to the common good. In the individual life, freedom, which is at first possessed only in a small measure, cannot usually be acquired without discipline and the presentation of the higher values by authority, and one function of education is to give the young a chance of appreciating these higher values, both by suggestion and example, and also in school work, for example, in the study of literature and history and the much-neglected study of the Bible.

Another function is to produce the habit of clear and accurate thinking. For this a citizen needs in later life access to the facts about which he is to form judgments, and this (as the popular Press is at present) is hard to obtain. In his education he should have practice in forming judgments upon evidence, and in all his work there should be insistence on individual thinking, not on mere absorption of lessons or rules-of-thumb. In many of the secondary schools of Great Britain—which are the key to the situation, since from them will come most of the teachers of the

mass of the people and the leaders of opinion in most of the smaller circles in which public opinion is made—more practice might be given to the pupils in the management of their own affairs out of school, and in activities which encourage self-expression.

Examinations as at present treated in schools, largely owing to the excessive stress laid upon them by education authorities and employers, are serious obstacles to the acquisition of freedom and independence of mind, and here serious reforms are necessary. Other reforms, such as the prolonging of the time of education and the reduction of the size of classes, are urgently required, if the young citizens' capacity for freedom and for the citizenship of a free State are to be developed. All educational institutions and methods must be tested at every point by their tendency to produce or to hinder such freedom, and everything eliminated that makes for the standardisation of individuality or is hostile to ultimate independence of judgment, while at the same time the higher values (which make for good life and good citizenship) are so presented to the young that they may have the chance of freely making them their own.

State Control in Agriculture

IN his presidential address to Section M (Agriculture), Dr. J. A. Venn discusses the "Financial and Economic Results of State Control in Agriculture". A rather full criticism is made of agricultural economics and organisation from the end of the Napoleonic wars, until the beginning of the Great War—including that "period of rural depression of the 'nineties . . ." which finally passed "without affecting either the National outlook or the National purse".

The War years were a period of rigid control, and are therefore not considered. The present period began in 1922. The cost to the State of reliefs and disbursements are estimated. For example, the subsidising of sugar and molasses derived from home-grown sugar beet has been, during eleven years, slightly more than £47,000,000. The Forestry Commission will, in fifteen years, have expended £6,000,000. Non-returnable State contribution to the Milk Marketing Board amounted in 1934-35 to £1,600,000, and within a year £2,924,000 have been expended on the beef subsidy. Reliefs from rating must represent some £15,000,000 annually.

Recent tendencies involve a slight increase in output of the soil, a decline in arable area, a transference from production of feeding-stuffs to