

is changed. Poverty in the sense in which it was then defined, the sense in which the word is intelligible to the social biologist, is not materially inevitable. War is not a moral picnic. It threatens to destroy the entire fabric of our civilisation, if we do not eradicate it with as much promptitude and ruthlessness as we have eradicated, or are eradicating, smallpox, malaria, and yellow fever" (page 1081).

Science is a part, and an essential part, of the great struggle in which we are all willy-nilly now engaged. It has something definite to offer, something which, in his conclusion, Prof. Hogben calls the New Social Contract.

"Advancing scientific knowledge has swept away many beliefs which sustained popular aspirations in the formative stages of modern democracy. . . . In their place modern science offers us a NEW SOCIAL CONTRACT. The social contract of scientific humanism is the recognition that the sufficient basis for rational co-operation between citizens is scientific investigation of the common needs of mankind, a scientific inventory of resources available for satisfying them, and a realistic survey of how modern social institutions contribute to or militate against human needs" (page 1089).

We may or may not like this book, but we cannot deny that it raises issues which we all have to face.
J. D. B.

Plant Viruses and their Hosts

A Textbook of Plant Virus Diseases

By Dr. Kenneth M. Smith. Pp. x + 615. (London : J. and A. Churchill, Ltd., 1937.) 21s.

DR. KENNETH SMITH, having written an earlier volume upon the physiology and general behaviour of plant viruses, has recently completed another book with a pronounced taxonomic flavour. It is here possible to obtain, for the first time, a detailed conspectus of the whole number of plant viruses known at present.

One gratifying feature is that plant viruses are arranged upon a plan of classification which has already reached a considerable degree of success in the hands of Prof. James Johnson of Wisconsin University. Dr. Smith uses a slight modification of the Johnson classification, and employs the scientific generic name of the host, followed by a number, to denote a particular plant virus. Thus 'Nicotiana Virus 1' is the disease formerly known as tobacco mosaic. A list of synonyms is given for each disease, and the text is somewhat of the calibre of a critical fungus flora, in so far as it crystallizes one definite name from a number of varying designations. It is delightful to be guided among the formerly bewildering potato viruses by so sure a hand, and the relations of virus maladies upon tobacco and tomato also become clearer. Properties of each virus are given in relation to external physical and biological agents, to various methods of transmission, and to particle size. The diseases caused by the particular virus are described for the various host plants, and Hutchinson's classification is used both for this and in the general arrangement of the volume.

An appendix, which gives the most characteristic symptoms of virus diseases, is arranged

alphabetically by the names of the hosts, and should be particularly valuable for general diagnosis. A chapter upon the insect vectors of plant viruses describes the various species, with all the resources of Dr. Smith's specialist work, and includes notes upon life-histories and geographical distribution. More than a hundred plates embellish the volume, and the author has enlisted the co-operation of numerous research workers in many parts of the world, to provide adequate pictorial representation of the subject. The extensive references to published work are further evidence for the completeness of knowledge collected in the present volume.

A text-book is usually an exposition of a science already organized ; a portrayal of clarified thought which has withstood the test of continual teaching. Dr. Kenneth Smith's book actually does the organizing and performs the clarifying. It does more ; for it provides a framework into which future results may be fitted. The scheme of classification is already sufficiently accepted by research workers in plant viruses, and is backed in the present volume by a wealth of description. It would seem inadvisable for any research worker to depart from it until the time shall have arrived when it will be possible to give each virus a more satisfactory binomial nomenclature. There is also, at the present time, sufficient information upon virus diseases of plants collected into volumes which are readily available, so that the subject might well enjoy a new popularity with the profession of teaching. Viruses are economically of greater importance, as causal agents of plant diseases, than are bacteria, and the volume under review removes the last excuse for a somewhat neglected exposition to students.
J. G.