advancement of the subject, they might perhaps have given more consideration than they have to the established work in this field.

Though there is still room for considerable variation of opinion in the interpretation of some of the experimental findings, there is no doubt that all who are interested in the subject of blood coagulation will be indebted for many years to come to the authors, for the clarity and wisdom with which they have compiled this comprehensive and most readable monograph. R. A. Kekwick

PLANT DISEASES AND HUMAN WELFARE

Principles of Plant Pathology

By Prof. E. C. Stakman and J. George Harrar. Pp. xi+581. (New York: The Ronald Press Company, 1957.) 8 dollars.

THE names of Prof. E. C. Stakman and Dr. J. G. Harrar are in themselves almost guarantee enough that this would not be just another academic text-book, but the fact could well have been emphasized by a title more appropriate to their vivid treatment of the subject. "Principles of Plant Pathology" tends to imply dull reading, of the sort needed to pass examinations, whereas there is nothing dull about this book. The student who has to pass examinations in plant pathology will certainly find much here to help him with this chore, but this is a minor part of the book's value. What is much more valuable is that he will soon realize that he has entered a subject of immense and varied scientific interest, the fascination of which is surpassed only by its economic and sociological importance. A better title, however, is less needed for plant pathologists, for whom the book will be essential reading anyway, but to attract the wider audience that could read much of it with interest and profit.

Its style, theme and contents are most simply illustrated by a few quotations. "Man occupies this planet as a guest of the plant kingdom." "Unless plant diseases are contained, the world's efforts to feed itself cannot be successful." "This problem is by its very nature international in scope." "The health of plants is vital to society and human progress, and this volume is essentially a discussion of the problems and principles involved in protecting the health of domestic plants." The only comment called for is to say that the discussion is excellently conducted and the conclusions amply justified.

Prof. Stakman and Dr. Harrar show that much has been achieved in the short history of plant pathology, but they make it equally clear what a lot still needs to be done before the world's crops reach even a moderate state of health. Their unique international experience, first at the famous school of plant pathology in Minnesota and later through the Agricultural Division of the Rockefeller Foundation, allows them to write with equal authority on present and future problems. Although they have no doubt that what needs to be done could be done, they are far from complacent; indeed their awareness that present research is inadequate gives an impelling sense of urgency to much of their writing. Food is far from plentiful in some parts of the world, mainly those where losses from pests and diseases are greatest, and with human populations increasing rapidly, more than is now harvested is soon going to be needed everywhere. There is some comfort to be gained from the fact that man need not starve provided he stops sharing his crops with pests and diseases; but the reaping of full instead of part harvests will not come about automatically. Those responsible for deciding what proportion of scientific endeavour should go to different subjects seem often not to put first things first, and biology tends to become an increasingly poor relation of other sciences. To reach the Moon may be a laudable ambition, but its fulfilment will butter no parsnip, and surely it should wait until both the Moon visitors and those left on Earth are assured of enough to eat. This assurance will not be gained unless agricultural research is much increased. The cost would be small, not only in relation to the gains, but also relative to what is spent on less essential problems.

But this book is far more than an eloquent plea for increased research. It deals adequately with all kinds of diseases, and describes the conditions that affect their prevalence and how they can be combated. Considering its scope, it contains few errors, and these on minor matters that do not affect the general conclusions. The text is matched by many excellent photographs, and the whole book is finely produced. Each of the eighteen chapters has a selected list of references; there are three appendixes listing books on plant pathology and the principal pathogens and insects cited in the text, and there are a subject index and an index of names. F. C. Bawden

LAVOISIER'S LETTERS

Oeuvres de Lavoisier

Correspondance. Recueillie et annotée par René Fric. Fascicule 2: 1770–1775. Pp. 251–536. (Paris: Éditions Albin Michel, 1957.) 2,750 fr.

THE second fascicule of Lavoisier's correspondence covers the years 1770–75, one of the most interesting periods of his life in which he was beginning his investigations into the phenomena of combustion. This volume contains 160 letters and documents, seventy of which are by Lavoisier himself. They give an intimate picture of his varied interests in these years and, thanks partly to the biographical footnotes, of the personalities with whom he was in contact. However, the most important and fascinating documents are a number of Lavoisier's own drafts of his notes and letters which reveal the meticulous care that he took in their composition.

Of the thirty-seven letters written in 1770, twenty-six deal with Lavoisier's responsibility as a 'farmer-general' for administering the control of the processing and sale of tobacco. Most of them were written to his father-in-law Paulze, under whose direction he was working, and they show Lavoisier's conscientious devotion to the details of his task and his efforts to prevent the adulteration of tobacco. His shrewd comments and his appraisals of the characters of his officials show his sound business acumen. During his annual tour of his district he reported almost every day on what he had seen and done.

One of Lavoisier's earliest interests had been the improvement of the water supply of Paris, and some of the letters of 1770 deal with this and with a comparison of the efficiencies of the primitive steam