for special arrangements to stimulate attention to the new opportunities it may provide. Once a procedure has become generally accepted and widely used, as tracers now are, such arrangements may become redundant, or even a disadvantage; they may encourage undue emphasis on one type of approach relative to others—and also inflate an already distended literature. The present volume suggests that it may now be timely to consider whether this situation has been reached in the Vienna agricultural enterprise. It would be of much interest if the Food and Agriculture Organization were to review this subject. With its wide responsibility for agricultural development throughout the world that organization is well placed to assign tracer methods to their appropriate place side by side with other modern methods for studying the field problems of agriculture. If the volume should stimulate such discussion, its publication would be most welcome.

R. SCOTT RUSSELL

KEEPING FOOD FRESH

Radiation Preservation of Foods

A Symposium. (Advances in Chemistry Series, No. 65.) Pp. viii + 184. (Washington, D.C.: American Chemical Society, 1967.) $7.

ALTHOUGH attractively turned out, this volume represents a classic example of a symposium publication which might have served a useful purpose had it been available within a reasonable time after the meeting it reports (September 16–17, 1965). As it is, it is limited to work done in the United States and Great Britain, and much of the material which it contains has been superseded by the rapid publication of the proceedings of the International Symposium on Radiation Preservation of Food sponsored jointly by the FAO and the International Atomic Energy Agency, which was held in Karlsruhe in 1966 (*Proceedings of an FAO/IAEA Symposium on Food Irradiation*, Karlsruhe, 1966, STI/PUB/127, Vienna, IAEA, 1966. H.M. Stationery Office). Indeed, much of the blame for the delay in publication of the present volume can be laid squarely on the editor, as two papers by one author bear a "date received" which is one full year later than that on the remaining papers.

If papers given at specially organized symposia are to be of value, they must appear promptly, and the discussion which develops from them is often of greater importance than the papers themselves. As it does not include discussion, the present volume fails on both grounds; however, the quality of the individual papers is good. Of particular interest to me was the voluminous (but data-packed) contribution on *Radioactivity Criteria for Radiation Processing of Foods* by H. W. Koch and E. H. Eisenhower. They point out that a useful criterion for induced radioactivity is its non-measurability—by limiting the maximum energy of the radiation used to less than 10 MeV, radioactivity induced by irradiation of foodstuffs is unmeasurable. T. R. Benn, in a report on shallow irradiation of oranges to delay or prevent mould infestations, shows the technical feasibility of the process but underlines the lack of a commercial market for this process in the United States, while A. F. Novak *et al.*, in a report on the radiation pasteurization of fish and shellfish make the cogent point that radiation processing offers no panacea to replace quality control in the selection of wholesome products for preservation. Radiation processing will not improve the quality of poor food, but it will retain the attributes of good food.

In the preface to this volume, the symposium chairmen point out that in a world where more than half the human race is ill-fed, more than one-third of all food grown or raised is spoilt. The application of ionizing radiation for food preservation has great potential, but because it is not yet a commercially competitive process in the well developed countries and is thus little used, the developing world views irradiated foods with suspicion—"if you don't eat it, why should we?" This very real problem seems to have received little attention in the present volume, and indeed, despite the wide ranging topics of the fifteen papers it contains, this book cannot be regarded as a comprehensive view of its subject.

ROGER J. BERRY

LIFE UNDER CONTROL

Regulation and Control in Living Systems

Edited by H. Kalmus. Pp. viii + 468. (London, New York and Sydney: John Wiley and Sons, Ltd., 1966.) 90*s*.

THE most characteristic feature of living organisms is their capacity to adapt themselves, by means of regulatory responses, to a wide range of different circumstances. Until a generation ago many biologists ascribed this regulatory capacity to "vital" forces, not amenable to a mechanistic analysis. This attitude has radically changed during the last two decades. The gap between "mechanistic" and "vitalistic" systems has been greatly narrowed by developments from both sides of the gap. Mechanistic systems, thanks to progress in engineering, mathematics and computer science, can closely simulate the regulatory responses of living systems, and the analysis, by the methods of biochemistry and molecular biology, of biological controls has provided an extensive understanding on the basis of the physical and chemical properties of the molecules concerned.

In this book, Dr Kalmus and twelve other experts (mostly from University College, London) survey various aspects of biological control mechanisms. The emphasis is on the conventional "biological" type of control based on hormonal rather than molecular analysis. Brown-Grant discusses extensively regulation and control in the endocrine system. Other chapters deal with the regulation of plant growth, by P. R. Bell, of animal development, by D. R. Newth, and with circadian regulation, by H. Kalmus. Three chapters review the control of populations. These are by J. B. Free, on seasonal regulations in the honey bee colony, A. D. Blest, on relationships between insects and their predators, and V. C. Wynne-Edwards, on regulation in animal societies and populations.

The molecular aspects of regulation are discussed by D. Lewis. There are also chapters on the basic mathematics of control and on control in engineering, by B. R. Wilkins, and on the early history of biological regulation, by J. S. Wilkie.

This book will be of great value to those who are interested in a broad survey of the subject.

H. A. KREBS

MAN, TREES AND HISTORY

Forestry in the English Landscape

By Roger Miles. Pp. 303 + 39 plates. (London: Faber and Faber, Ltd., 1967.) 105*s*. net

MULTIPLE land-use is a much discussed topic nowadays but implementation of planning is frequently difficult to achieve. Often forestry has a part and sometimes an important part to play in land-use because it can provide utility, amenity, recreation and sport. Roger Miles combines the professions of forester and landscape architect and in his book he traces the importance and the neglect that have been given to trees in the English landscape. This historical account is not only interesting but essential to a proper understanding of the subject because it does show the background to the present philosophy of landscape design. Evelyn's concern at the devastation of England's woodlands and the likelihood of a shortage of oak for the navy brought about a short-lived campaign of