administrator to accept uncritically such solutions. This is in part a task of education, but it is also a task of organization—flexible and appropriate to this purpose, including the necessary professional institutions as well as Government structure. This book is admirably suited to stimulate the thought and study which must go to the discovery of ways of integrating the technical and political knowledge in policy-making which are effective in the conditions prevalent to-day.

R. BRIGHTMAN

VETERINARY SCIENCE

Advances in Veterinary Science

Vol. 7. Edited by C. A. Brandly and E. L. Jungherr. Pp. xi + 403. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1962.) 100s.

AS in the case of previous volumes, Volume 7 of this book embraces in eight chapters a number of subjects of particular interest to veterinary scientists at this present time.

The first chapter deals with cardiac dynamics and its clinical significance. At a time when cardiac abnormalities, especially in horses and in dogs, are receiving the attention of research workers in many countries, this chapter is of particular interest and value.

The second chapter, which deals with experimental and spontaneous tumorigenesis, is of particular significance at a time when the origin of cancer is being sought and the roles of the endocrines system, viruses, parasites, food and radiation in this field are being examined. A consideration of all these factors is discussed in this important chapter.

In the realms of parasitology, current thought is largely centred on helminth immunity, a subject which is very fully dealt with in the third chapter. The widespread use of irradiated larval vaccines calls for a thorough understanding of the antibody reactions involved, and this chapter, which discusses each animal parasite in turn, covers very fully the story as it is now understood.

Of particular interest to workers in South Africa, the short but informative fourth chapter deals with enterotoxaemia-like conditions among sheep in that country.

The fifth chapter, dealing with non-specific or cross-sensitivity reactions to tuberculin in cattle, is of particular interest to scientists in all parts of the world, but more especially to those in countries where the tuberculin test is being applied as a means of eliminating or controlling bovine tuberculosis. The interpretation of the tuberculin test in cattle may be rendered complicated by the presence of the human or avian types of tubercle bacilli as well as by the presence of Johne's disease, nocardiosis, the so-called skin tuberculosis and the presence of other micro-bacteria. All the implications arising from these inter-current infections are here discussed.

Skin diseases are dealt with in the following chapter. Of all the problems which concern the practising veterinarian, skin diseases, especially among small animals, are frequently the most baffling. The reader will find much in this chapter to enable him to crystallize his ideas on this subject and to appreciate the correlation between skin diseases in domesticated animals and those in man.

The seventh chapter is devoted to the subject of shipping fever in cattle, a condition which has been known in many parts of the world for a very long time, but about which there have been many conflicting ideas. The evidence put forward in support of a viral origin of this condition and the suggestion made that it is essentially a disease-complex rather than one of simple aetiology will attract the attention both of research workers and clinicians interested in or confronted by this problem.

The last chapter embraces the subject of mycotoxicoses. Quite recently, owners of poultry in particular have

received sharp warning of the toxicity of certain mouldy feeding stuffs and it is very opportune that this subject should be so ably dealt with in this volume of *Advances in Veterinary Science*.

As in previous volumes, the author-index and subject-index leave nothing to be desired and the bibliography set out at the end of each chapter is admirably comprehensive. Chapters I, VI, and VIII, which readily lend themselves to illustration or diagram, are well supplied in that respect and their value is thereby enhanced. The authors of the several chapters are to be congratulated both collectively and individually on this production, which will be of the utmost value to its readers and which fully maintains the high standard of previous volumes.

H. BURROW

PHYSICAL CHEMISTRY IN METALLURGY

Physical Chemistry of Process Metallurgy

An International Symposium, Pittsburgh, Pennsylvania, April 27–May 1, 1959. Edited by George R. St. Pierre. Part 1: Pp. xiv + 644. 22.50 dollars. Part 2: Pp. xiv + 645–1374. 25 dollars. (Metallurgical Society Conferences, Volumes 7 and 8.) (New York and London: Interscience Publishers, 1961.)

IN 1920 and again in 1949 the Faraday Society arranged symposia on the application of physical chemistry to process metallurgy. Since the latter date, there has been a considerable broadening of the field in many parts of the world, and in 1959 the American Institute of Mining, Metallurgical and Petroleum Engineers organized the conference the papers and lectures of which are contained in these volumes. How wide the interest was is shown by the fact that papers were received not only from the United States and Canada but also from Great Britain, Japan, Australia, Belgium, France and Switzerland. In any such symposium there is an inevitable variation in the quality of the contributions, but the standard here is almost invariably high, and the editors have done an excellent bit of work in their presentation. In addition to the papers themselves, the discussions add appreciably to the value of the information provided. This information is not only in the collection and re-presentation in condensed form of the authors' own work but also in not a few instances there is quite new information or new interpretations of earlier work.

Although the major emphasis is, somewhat naturally, on ferrous problems, the scope of the contributions also ranges over non-ferrous subjects varying from the vapour pressures of liquid metals and the velocity of sound in liquid lead-tin alloys to the oxygen content of copper mattes and the kinetics of the reduction of nickel sulphate in aqueous solutions. One of the outstanding features of the work discussed is the importance of the molten state, especially of slags, and the significance of the advances made to our knowledge of this field is most striking.

In spite of this, however, very much more needs to be done. As Prof. F. D. Richardson remarks in his introductory lecture to the conference, it is improbable "that in the foreseeable future we shall be able either to extrapolate our data or to calculate thermodynamic properties from first principles with the kind of accuracy that the operator of processes would like. The properties we need to know with great precision will still have to be measured. On the other hand, by means of our imperfect models and intelligent correlations, we should be able to predict accurately enough to avoid futile experiments in both works and laboratory".

The value of the symposium can scarcely be over-estimated.

F. C. THOMPSON