from the breadth of knowledge and interests of the author. The conclusions concerning the nature of gene action are refreshingly different. Haldane feels that biochemical genetics is approaching a critical epoch, a time one may well be able to specify what a given unit of genetic material is doing. With this most geneticists will agree. He feels, however, that this knowledge will stem from a study of 'vitaminless' mutants rather than 'amino acidless' mutants, as he feels the action of gene-controlling vitamin synthesis may well be direct, while the genetic control of amino-acid synthesis must be indirect. The evidence for such a difference in the action of genetic material is scant indeed, and, in the opinion of this reviewer, based on studies not referred to by Haldane, this difference is improbable. The discussion of problems of this nature makes, however, for pleasant speculation. Lastly, Haldane concludes that genes need not act by a direct replicating process, but rather that genetic material in its action and replication passes through a cycle involving intermediate states. Considerations of this sort have been given scant attention in recent years, and it is with pleasure that one reads and ponders these ideas, since the straws in the wind suggest that they will be the problems of the future.

DAVID M. BONNER

STRESS WAVES IN SOLIDS

Stress Waves in Solids

By H. Kolsky. (Monographs on the Physics and Chemistry of Materials.) Pp. x+212+3 plates. (Oxford: Clarendon Press; London: Oxford University Press, 1953.) 25*s*. net.

STRESS propagation in solids has recently become the object of a remarkable revival of interest. This is partly due to the recent development of electronic apparatus capable of generating and detecting stress pulses; for, without this, experimental work was a matter of considerable difficulty. Further, the study of stress pulses of large amplitude is obviously of military importance, and the Second World War not only focused attention upon elastic waves but also led to the initiation of plastic wave theory. However, those who are interested in stress waves have been handicapped by the lack of a reference book on the subject and by the state of the literature, which has become scattered in journals of engineering, physics, seismology, acoustics and mathematics. In writing this monograph, the author has materially improved the situation.

The book is divided into two parts and, of these, the first is concerned with elastic waves. The introduction to this subject is very clear and includes a brief treatment of æolotropic media. The theory of the extended isotropic solid is dealt with in detail, and some of the effects which are associated with boundaries are discussed; these include the two-dimensional problems of Rayleigh waves, reflexion and refraction. A chapter on propagation in bounded solids includes an outline of the various engineering theories of thin rods together with the 'exact' Pochhammer treatment of cylinders and a discussion of the ways in which the former approximate to the latter. The rest of this part of the book deals with experimental investigations, and mention is made of the well-known pressure-bar experiments of B. Hopkinson and of R. M. Davies. Some recent work on ultrasonics is summarized very briefly.

In the second part of his book, the author deals with stress waves in imperfectly elastic media; this is particularly welcome. It starts with a treatment of internal friction and stress propagation in visco-elastic solids. A chapter is devoted to the experimental determination of dynamic elastic properties and includes a discussion of results. A very interesting treatment is given of plastic and shock waves in solids, which includes the theories of G. I. Taylor, Th. von Kármán and K. A. Rakhmatulin for the infinite wire. In the last chapter, the author deals with the important subject of fractures produced by stress waves; he mentions the work of J. Hopkinson and of B. Hopkinson and describes the very illuminating experiments which he and his associates have made and which will surely become very well known.

The list of references indicates that the work is intended chiefly for the physicist; while it is excellent for this purpose, the engineer will find this list inadequate in some respects. The book is written lucidly and the mathematics is simple. Thus, the elasticity equations are presented in component form in the manner of Timoshenko, and the use of vectors is reserved as the subject of an appendix. There can be no doubt that this book will be widely read. It is excellently written and is a valuable contribution.

R. E. D. BISHOP

MKS UNITS

The M.K.S. System of Units

A Guide for Electrical Engineers. By T. McGreevy. Pp. xii+283. (London: Sir Isaac Pitman and Sons, Ltd., 1953.) 21*s*. net.

IN Britain, general interest in the MKS system of electrical units really began some four years ago with the publication by the Institution of Electrical Engineers of a symposium of papers on the subject. Since that time, the rationalized MKS system has gained considerable popularity with teachers, quite apart from its adoption in technical practice, and several short explanations of it have been published. Mr. T. McGreevy's book is considerably fuller than any of these, and is written both for the engineer who is concerned with using the system, and the teacher of electrical engineering for whom it offers new approaches to the subject. It will interest also teachers of physics, for the author discusses the fundamental principles of measurement in some detail.

The œrsted, gauss and maxwell always seemed to have a firm co-opted status as practical units, and it may be harder for the engineer to learn to think habitually in amperes per metre and volt-seconds than it is simply to accept the change of units. Here the book should be most helpful. The author derives many of the chief results in motor, generator and transformer theory from first principles, gives some worked examples on the properties of magnetic materials, and has tabulated formulæ and conversion factors for reference.

The earlier chapters are directed chiefly to teachers in technical colleges. A scheme for introductory classes at two different standards is outlined, in simple terms for part-time students and in a more analytical form for full-time students. With the ampere established as the fourth fundamental unit, the definitions of H as the line integral of I and of B in terms of a flux-cutting e.m.f. are logical first