Plant Cell Structure and Metabolism

J L Hall, T J Flowers and
R M Roberts.

An up-to-date treatment of plant metabolism in relation to cell structure. Current knowledge of the plant cell is frequently reviewed in the light of what is known about mammalian or microbial systems, particularly for the areas where plant science is not so far advanced.

The text assumes a basic knowledge of chemistry and biology and is suitable for undergraduate students of plant and biological sciences, postgraduate students of plant biochemistry and physiology
£4.95 net.

East African Vegetation

E M Lind and
M E S Morrison

This book describes the major types of vegetation to be found in Uganda, Kenya and Tanzania. These are dealt with under the main headings of forests, rangelands, inland aquatic vegetation, the vegetation of the sea coast, high mountain vegetation, the factors affecting vegetation, climate and soils, and a short history of the vegetation of the region.

£6.00 net.

Longman
1724 - 1974

detailed results in a first textbook is that they may be regarded as being more reliable than they really are. Although in some cases it is made clear that the results quoted only represent one point of view, this is not always true. In the discussion of the evolution of stars approaching the main sequence, the Hayashi theory is fully tabulated but no mention is made of the later work by Larson which casts considerable doubt on the previous results.

More detailed criticisms of the book include the feeling that far too much space is devoted to the Vogt Russell theorem which is certainly not generally true and that the concepts of thermodynamic equilibrium and local thermodynamic equilibrium should have been described much more clearly. It is also a pity that the discussion of numerical methods does not include the Henyey technique, which has been most widely used in recent years.

Now that I possess the book I may well find it very useful to have in one volume so many tables and figures illustrating recent studies of stellar structure and evolution and students will similarly be able to use it as a reference book. But it seems very unlikely that for students it will replace such texts as that by Schwarzschild, which is considerably cheaper and which gives a much deeper physical understanding of the subject.

R. J. TAYLER

Magnetic rocks

The Physical Principle of Rock Magnetism. By Frank D. Stacey and Subir K. Banerjee. Pp. ix+195. (Developments in Solid Earth Geophysics, Vol. 5.) (Elsevier: Amsterdam, London and New York, 1974.) Dfl.60; \$2.10.

THIS book was advertised for over a year before its appearance, but it has been worth waiting. It is a slim volume deliberately planned as a physical supplement to Irving's *Palaeomagnetism and its Application to Geological and Geophysical Problems* (Wiley, 1964). It must also be considered to effectively replace Nagata's excellent, but outdated book, *Rock Magnetism* (Maruzen, 1961) although it does not contain any instrumental discussion that formed a significant part of Nagata's work.

The organisation is logical, starting with the basic magnetic properties of solids and then turning to the common ferromagnetic minerals, magnetite and haematite and their solid solutions with ilmenite and ulvospinel. This chapter certainly brings the reader up to date on the current view of the changes in parameters for synthetic solid solutions and pure minerals, but more informa-

tion on the effects of impurities would have been useful. Only the two pages on pyrrhotite are not really adequate for a mineral that is extremely complex and not all that rare. Single and multi-domain theories are considered next, first in relation to grains of magnetite and then haematite. The outline and discussion tends to follow closely Stacey's ideas, originally published in 1963, as does the subsequent treatment of the effects of time and temperature.

The next chapter is devoted to the remanence of sediments and is followed by a discussion of chemical remanence that is largely confined to exsolution behaviour as titanomagnetite solid solutions are oxidised. The effect of anhysteretic magnetisation and stress fields then receive considerable, warranted attention. The latter is, however, concerned almost entirely with stress effects on the direction of remanence and does not consider the converse, that is using magnetic anisotropy as a means of determining strain and hence evaluating past stress fields. The evidence for reversals of the geomagnetic field and possible self-reversal mechanisms are considered in rather a generalised way; the correlation between petrology and polarity that has been established in some regions is dismissed as being "paradoxical" in only four lines.

Finally extraterrestrial magnetisation is discussed and the remanence of meteorites is attributed to strong solar fields when the Sun passed through a T-Tauri stage. Strangely no mention is made of the magnetic properties of lunar rocks—presumably to avoid being overtaken by more recent findings.

The book is well written, adequately illustrated and its production is up to the usual high Elsevier standard. The only significant weakness is really in terms of the magnetisation of sedimentary rocks which are discussed in less than 5% of the total book, yet more and more sedimentary rock types are now being investigated and the magnetic effects during cementation and the diagenetic changes of detrital grains are much more important than simple detrital magnetisation. A little more on rotational hysteresis and physical techniques for identifying both the composition and physical parameters of ferromagnetic particles in rocks would have been beneficial. The bibliography is really a reference list that effectively only goes up to 1971 (only six references for 1972 with one "in press" and one "in preparation" for 1973). The authors defend their continued use of c.g.s. units, although the use of MKS can only come about when the textbooks adopt the system. These, however, are essentially quibbles about a book which must form part of any geophysics library.

D. H. TARLING