

### Radio Astronomy

Edited by H. C. van de Hulst. (International Astronomical Union Symposium No. 4, held at the Jodrell Bank Experimental Station, near Manchester, August 1955.) Pp. xi+409. (Cambridge: At the University Press, 1957.) 50s. net.

**P**RIOR to the main assembly of the International Astronomical Union in the late summer of 1955, a symposium on radio astronomy was arranged at the Jodrell Bank Experimental Station of the University of Manchester. This important meeting brought together most of the leading radio and astronomical workers taking part in this expanding field of research. The book is a collection of the eighty papers contributed to the symposium, together with succinct reports of essential parts of the discussions. Minor revisions and notes of more recent results have since been introduced, and the book provides a valuable guide to the developments in radio astronomy now being pursued in different parts of the world.

Although meteor astronomy is included, the main emphasis of the symposium is on the observation and interpretation of spectral line and continuous radiation, discrete radio sources and the problems of their identification, and radio emission from the quiet and active Sun. The spatial distributions of the interstellar radiation and of the localized sources are considered in relation to the structure of the galaxy. There are several papers on theories of the origin of non-thermal radio emission.

As the results of research in radio astronomy are published in many journals of various countries it is particularly valuable to have available the account of a symposium such as this in which principal lines of work and progress are summarized. The different parts of the symposium include useful introductory surveys which put the various papers into perspective. The book is excellently produced. J. S. HEY

**Reports on the Progress of Applied Chemistry**  
Vol. 41, 1956. Pp. 795. (London: Society of Chemical Industry, 1957.) 100s.

**T**HIS indispensable annual now appears in a more attractive binding, which may provide some compensation for the very high price. A good feature is the inclusion of supplementary references at the ends of many sections, giving publications not specifically referred to in the text. A large proportion of the references are to American sources, and one reason for this is pointed out by Dr. Hardie in the section on acids, alkalis and salts, namely, that British manufacturers are much less inclined than their trans-Atlantic counterparts towards providing information. Out of 260 items in Dr. Hardie's bibliography, only 30 or so refer to British developments. This is a matter which the information organizations of the firms concerned should treat seriously, since they are losing face.

So much information is contained in the volume that it is possible only to mention one or two items. Seven new phases in crystalline and vitreous silica have been described. The process of zone refining in purifying metals has increased the purity of aluminium from 99.997 to 99.9995 per cent in laboratory work and it is to be expected that the physical properties of pure metals will now for the first time soon be available. In the use of germanium in transistors, very high purity is essential. The industrial use of zirconium requires that the hafnium shall be practically all separated. A blast furnace method of

zinc extraction is being successfully operated. Out-moded dyes such as Doebner's violet are coming back into use with synthetic fibres. In the section on tranquillizing drugs it is stated that, while there is a considerable demand for them, there is criticism in medical circles of their indiscriminate use. Attention is being given to the possible use of acetoglycerides as food, and various enzyme concentrates in bread-making. The deterioration of food in deep freezing is being offset by various additives after treatment. The problem of the emergence of synthetic detergents in sewage and water supplies continues to offer difficulties. J. R. PARTINGTON

### Man and Mammoth in Mexico

By Dr. Helmut de Terra. Translated from the German by Alan Houghton Brodrick. Pp. 191+17 plates. (London: Hutchinson and Co. (Publishers), Ltd., 1957.) 25s. net.

**A**S the dust-cover indicates, this is one of a series of travel books, and it would be perhaps unfair to expect it to be a contribution to knowledge. It consists of an assorted collection of scraps, based on Dr. Helmut de Terra's travels and studies in Mexico and Guatemala. There are visits to the snow-line and to the new volcano of Parícutín; trips to archaeological sites here and there; a heartfelt cry about soil erosion, and the old story of Tepexpan man, spiced with some good photographs which give local colour even if they are not all of obvious relevance to the text. The map on the end-papers retains some words in the original German.

De Terra's field of study lies on the border-line between archaeology and geology, and he is known particularly for his part in the discovery of the Tepexpan skeleton, belonging to a man who, he claims, lost his life when hunting mammoth. He may be right since it is known that mammoth were killed by man at Istápan nearby, but unfortunately it is not certain that the skeleton is contemporary with the deposit in which it and the mammoth were found. The matter can only be settled by the discovery under proper conditions of another skeleton, and de Terra begs the question by repeating, as he does here, that the bones "must be as old as the other fossils found in the same level. We had discovered the first man from the late glacial strata of Central America". Elsewhere he claims to have found artefacts which "afforded the first proof of very early man in Guatemala" but gives no details. Since the book covers the period 1946-52, this discovery, if it amounted to anything, would surely have been published by now, but it is not even mentioned in the new edition of Wormington's "Ancient Man in North America", which contains notices of all the recent discoveries of importance, whether published or not.

There are numerous other references to archaeological matters, and no one need complain that, in a travel book, they are not very informative or the author has used his imagination, but there are a number of irritating minor mistakes in the facts which could easily have been avoided. Apart from this, the statements that stone spear-points are "known by the technical name of 'Folsom Culture'", and that Folsom man is "mysterious" sound more like the writing of a journalist than of a scientist, but perhaps the translator is responsible. Finally, "the mighty empires that lasted for more than a thousand years before Cortes and Pizarro" are even more of a mystery to this reviewer. G. H. S. BUSHNELL