that every atom in a specimen surface could be imaged. For those of us who studied gas adsorption, however, this "mirage" has faded with the realization that most of the observations made so far must be explained as artefacts. Such difficulties must be accepted by the microscopist as the price to be paid for the atomic resolution he achieves, because they are associated with the use of electric fields strong enough to tear atom apart from atom.

Accepting this situation, Bowkett and Smith's book gives a well balanced account of the areas of metallurgy for which the field-ion microscope is proving to be a tool of considerable power. Experimental techniques are outlined in the first chapter and there is an interesting contrast between the descriptions here and in Müller's recent book of the method of specimen preparation developed at Cambridge. Subsequent chapters cover techniques used for studies of point defects, dislocations, grain boundaries, precipitates, and alloying in metals. The principles of each topic are clearly presented and are illustrated by well chosen and well reproduced micrographs. There is a careful appraisal of artefact problems in interpretation and a judicious caution in the discussion of conclusions reached by other workers. A good feature is the emphasis on correlating field-ion microscope observations with electron microscope observations on the same sample, and there is a useful chapter describing how the sample holders of commercial electron microscopes can be modified for such studies.

In summary, although this book leaves the impression that the mirage has faded for metallurgists too, there remains a clear appreciation of what problems can usefully be tackled by field-ion microscopy and an increasing body of new knowledge that could have been obtained in no other way. One hopes, perhaps forlornly, that the mirage of the ultimate tool for the study of structure has not merely been transferred to Müller's new atom-probe microscope. D. W. BASSETT

RADIATION BELT PHYSICS

Dynamics of Geomagnetically Trapped Radiation

By J. G. Roederer. (Physics and Chemistry in Space, Vol. 2.) Pp. xiv+166. (Springer-Verlag: Berlin and New York, 1970.) 36 DM; $9.90.

THE first thing to be said about this volume is that it is not light reading. Nor is it the sort of book an outsider to the subject would find of use or of interest if his aim were to discover what progress has recently been made in the study of the Earth's radiation belts. But it is likely to be required reading for graduate students starting research in the subject, and will no doubt prove to be a useful work of instant reference for the more experienced worker who is a little shaky on theoretical background. It is, in short, a concise monograph on the basic physics of charged particles in magnetic and electric fields, with special attention given to the magnetic field produced by the Earth. As such it is largely a mathematical treatise, though its author claims that the only prerequisite for reading it is a knowledge of classical (but relativistic) electricity and magnetism and some familiarity with the morphology and phenomenology of radiation belts. So as not to erect terminological barriers the author has chosen not to employ Hamiltonian theory, though the subject demands that considerable attention be devoted to adiabatic theory and, to a lesser extent, diffusion theory.

This is not the first book on radiation belts and the magnetosphere to appear over the past few years; but it is the first to offer in concise form the basic physics and the quantitative framework underlying the behaviour of radiation belts. Its scope is, of course, limited but basic —characteristics likely to lead to a wide circulation.

PETER J. SMITH

Short Notices

State School. By R. F. Mackenzie. (Penguin Education Specials.) Pp. 140. (Penguin Education: Harmondsworth, Middlesex, September 1970.) 5*s*.

THIS little book is a vivid and highly personal account of the bitter struggles between the staff of a secondary modern school in a depressed Scottish mining district and the local education authority which controlled it. But the chief struggle is between two concepts of education. On the one hand the staff, under the leadership of Mr Mackenzie, the headmaster, were convinced that children in the school should be given every opportunity to educate themselves from their own experiences. On the other hand, the education department took the view that the education process is a series of accepted academic pursuits which must be fitted into the straitjacket of examinations. The book, as Mr Mackenzie points out, is "the story of what one state school made of the attempt to alter the age-old and admired national system of education". It tells more than just a parochial struggle—it is an account of how educational ideas which differ from the accepted view of education are bitterly resisted by public opinion. It provides no answers to this problem—the book does not set out to do that—but it does provide much food for thought backed up with a wealth of personal experience.

Aldabra Alone. By Tony Beamish. Pp. 222+24 plates. (Allen and Unwin: London, October 1970.) 50*s*.

TONY BEAMISH'S story of his visit to Aldabra eloquently explains why biologists became so distressed when they realized that this Indian Ocean atoll was in imminent danger of becoming the site of a Royal Air Force staging post. The tale of his expedition, in the company of Professor H. Hirth, a devotee of the green turtle, and Mr Guy Lionnet, Director of Agriculture and Fisheries in the Seychelles, is interspersed with a chronicle of man's influence on Aldabra. Mr Beamish was converted to the cause of saving the atoll after seeing the giant turtles, frigate birds, flamingoes and other rarities. His story culminates triumphantly in an account of the Parliamentary tussle between the proponents of defence and conservation, with the anticlimax at the end of 1968 when plans for Aldabra were eventually shelved. Anybody who wondered what all the fuss was about should definitely read this book.

Countryside Recreation: The Ecological Implications. Pp. 125+7 maps. (Lindsey County Council: Lincoln, 1970.) 37*s* 6*d*.

IF all planning authorities in Britain were as conscientious and foresighted as Lindsey County Council in approaching the problem of reconciling the need for recreation with nature conservation in rural areas, there would be much less cause for alarm among conservation-minded persons. This report has been prepared for the council by Mr R. J. Lloyd, a research ecologist supported by the Natural Environment Research Council, as part of a more comprehensive survey of recreation in the countryside in this part of Lincolnshire, which the council is undertaking with the help of the Department of Geography at the University of Nottingham. The report is a model for other authorities to follow; after detailed descriptions, accompanied by excellent maps, of the structure and vegetation of Lindsey, Mr Lloyd considers in more general terms the effects of recreation on lowland areas in Britain, and then possible ways of minimizing the worst effects of public use of specifie habitats in Lindsey. This problem should surely be the subject of much more research effort.