reinterpret early pollen diagrams as well as to interpret his own more effectively. The results confirm the conclusions reached by other methods as to the Late Quaternary climatic succession in the region — a cool, dry Late Pleistocene period from about 20,000 to 12,000 BP being preceded and followed by wetter millennia, and current climates becoming established about 4,000 BP.

The significance of Late Quaternary climatic change for the history of the equatorial rain forest has been underlined by J.R. Flenley in *The Equatorial Rain Forest: A Geological History* (Butterworths, 1979). Flenley's field experience was mainly in south-east Asia, however, and evidence of such effects is greater in Africa. Hamilton has worked, on and off, for the last 16 years in East Africa and knows the highland areas intimately from his own field studies made, in recent years, in collaboration with R.A. Perrott.

In this book he considers the altitude zonation of the vegetation and presents, with interpretations, pollen diagrams from Elgon, Cherangani, Mount Kenya, Kilimanjaro, Badda and Bale in Ethiopia, Ruwenzori and the Rukiga Highlands in Uganda, the Kamiranzovu swamp in Rwanda and the dambos of the Nyika Plateau in Malawi (the last by M.E. Meadows). A feature of many of the cores is the absence of peat for some millennia before 4,000 BP; Hamilton explains this in terms of greater surface wash under the wetter conditions of the Early Holocene; but could it rather be the result of wastage accompanying desiccation about 4,000 to 4,500 BP?

Hamilton argues that the key to an understanding of the evolutionary processes in East African vegetation is the recognition of core areas of limited extent where rain forest survived the dry periods of the Quaternary. From these core areas in west Africa, Cameroun–Gabon, eastern Zaire and the Usumbara and Uluguru mountains near the east African coast the diversity of species diminishes outwards. He briefly reviews the past and probable future effects of man on the east African environment and recommends that conservation of the core areas should receive special attention.

This is a welcome addition to the literature on environmental change in low latitudes by one of the most active and experienced researchers in the field. Hamilton presents the botanical evidence bearing on the Quaternary history of East Africa clearly and simply enough to allow the non-specialist to appreciate the implications of the pollen records and see them within a more general setting. Earth scientists and ecologists at both the undergraduate and research level will find his study useful and stimulating. □

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Old space dust

David W. Hughes

Interplanetary Dust. By P.W. Hodge. Pp.280. ISBN 0-677-03620-5. (Gordon & Breach: 1982.) $38.

DUST gets everywhere and this is certainly true of the interplanetary variety. As it orbits the Sun, it scatters radiation, resulting in a cone of light extending along the ecliptic known as zodiacal light. It collides with the Earth, is brought to a halt in the atmosphere and drifts down to the surface where it can be recovered from deep-sea sediments, in Antarctic and Arctic ice, and as a component of airborne dust. It can be sampled using balloons, rockets and high-flying aircraft. Interplanetary dust continuously bombards the lunar surface producing microcraters in exposed glasses and rocks. It can be measured using satellite-borne instruments and was once regarded as a serious hazard to space missions. In the interplanetary context any particle smaller than 100 μm, about a millionth of a gram, is regarded as dust.

The history of dust investigation is fascinating. It is a science that got off to a bad start. Early satellite experiments both in the United States and the USSR agreed well — and fitted rocket data — but all produced results which were a factor of 10^6 wrong. Microphones were detecting the creaking of spacecraft and not the impact of dust. Contamination has always been a problem; in airborne dust less than one particle in 10^9 is extraterrestrial.

P.W. Hodge, the author of this book, played an important part in many of the early dust studies and has produced a short (about 45,000 word) summary of the subject — published in a camera-ready format. His book is easy to read, and provides a reasonable overview of the early days of the subject. I stress "early days" because the references tail off sharply after 1976. The standard of coverage is patchy and the concentrations of technicalities occur in the areas of micrometeorites, fossil dust collection and particles around meteorite craters — all subjects on which Hodge has worked. The illustrations are of a rather mixed quality and many of the photographs of the particles are printed without scales.

This is the sort of book I might recommend a research student to read if he had nothing to do for an afternoon. But I would then insist that he spent much, much longer with, for example, the IAU Symposium 90 report (*Solid Particles in the Solar System*, edited by I. Halliday and B.A. McIntosh and published by Reidel in 1980) to give him an up-to-date overview of the subject, a feel for the excitement of the work of the cosmic dust men and a taste for the potential avenues of research. □

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