and hope to see rewritten in the future—is that introducing the Actinopterygii. This contains, for example, misleading and contradictory information about the age of teleostean orders, and the implication that these evolved in the Central Indo-Pacific. Doubtless the latter statement was intended to apply at the species level, but this is not clear in its context. Finally, I would contest the idea that typical actinopterygians are perch-like, even if one could define a typical actinopterygian.

These are, however, minor criticisms, and I expect that "Munro" will be in constant use in museums and laboratories throughout the world, as well as in the field nearer home.

P. H. GREENWOOD

FISHES FROM MAIKOP

Bony Fishes of the Maikop Deposits of the Caucasus

By P. G. Danil'chenko. Translated from the Russian. Edited by D. V. Obruchev. (Transactions of the Palaeontological Institute, Vol. 78.) Pp. vii + 247 + 28 plates. (Jerusalem : Israel Program for Scientific Translations. Distributed in the UK by H. A. Humphrey, London, July 1968.) 84*s*.

THE Maikop deposits are a series of clays and marls of marine origin, up to 2,000 m thick, which outcrop widely in the Caucasus and Crimea. These beds provide an almost complete section from early Oligocene to middle Miocene times, and contain a restricted invertebrate fauna (molluscs, ostracods, foraminifera) and abundant well preserved teleost fishes. This work is a translation of Danil'chenko's monograph on these fishes, originally published in 1960. Danil'chenko's previous publications on this fauna cover the period 1946–59 and their results are summarized here, together with much new material.

The bulk of the book is a systematic account of seventy-two species "selected as the most widespread fishes": twenty-five of these species are new, twelve were described by the author in earlier papers. The species are placed in fifty-one genera of which nineteen are extinct and nine are new. The descriptions are short, rarely occupying more than a page, and concentrate on meristic features, proportions and posteranial characters. Skulls are almost entirely neglected after an introductory statement that "the cranial elements are invariably deformed and disarticulated". A minority of the species are illustrated by reconstructions or sketches of specimens, the majority only by photographs in the plates, which are hardly more than dark smudges as reproduced here. Though skull characters and other essential features such as the caudal skeleton and fin-ray count are omitted, the concise descriptions contain a good deal of information and I feel confident that the fossils are correctly placed. The principal groups represented are the clupeoids (six spp.), stomiatoids (five spp.), gadoids (fourteen spp.), aulostomoids and syngnathoids (nine spp.), percoids (twelve spp.) and scombroids (ten spp.). Families previously unknown by fossil skeletons include the Alepocephalidae, Argentinidae, Chiasmodontidae and Brotulidae.

The work ends with a section on the stratigraphic distribution of the fishes in the various horizons of the Maikop series, and brief accounts of the phylogenetic relationships of selected groups. From the stratigraphic analysis, Danil'chenko concludes that the Maikop sea originated as a deep open arm of the Tethys system, with a rich pelagic and bathypelagic fauna, but in middle Oligocene times the bottom waters became polluted, probably by hydrogen sulphide, and the bathypelagic fauna was killed off. In late Oligocene and early Miocene times the basin became isolated and developed an endemic fauna of pelagic and littoral forms. Maikop times ended when a new connexion with the open sea developed, reducing pollution and introducing widely distributed oceanic fishes. The phylogenetic discussions of stomiatoids, myctophoids, trichiuroids and scombroids are seriously out of date because of more recent work: the section on gadoids is still the best available.

The translation is satisfactory, but there are many typographical slips: such things as the duplication of three lines on page 142 say little for the editing. This is an important work, but certainly one for the specialist, not the general reader, and I can hardly predict a ready sale for it at the published price. Prospective buyers may prefer to get a paperback copy from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia.

COLIN PATTERSON

WAYS OF CONTROLLING PESTS

Isotopes and Radiation in Entomology

(Proceedings of a Symposium jointly organized by the International Atomic Energy Agency and the Food and Agriculture Organization of the United Nations, and held in Vienna, 4–8 December, 1967. Proceedings Series.) Pp. 428. (International Atomic Energy Agency: Vienna; HM Stationery Office: London, 1968.) 233 Austrian schillings; 75*s*; $9.

Control of Livestock Insect Pests by the Sterile-Male Technique

(Proceedings of a Panel organized by the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture, and held in Vienna, 23–27 January, 1967, Panel Proceedings Series.) Pp. 102. International Atomic Energy Agency: Vienna; HM Stationery Office: London, 1968.) 78 Austrian schillings; 25*s*; $3.

Isotopes and Radiation in Parasitology

(Proceedings of the Research Coordination Meeting organized by the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture, and held in Vienna, 31 July–4 August, 1967.) Pp. 157. (International Atomic Energy Agency: Vienna; HM Stationery Office, 1968.) 91 Austrian schillings; 29*s* 2*d*; $3.50.

Radiation, Radioisotopes and Rearing Methods in the Control of Insect Pests

(Proceedings of a Panel organized by the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture, and held in Tel Aviv. Panel Proceedings Series.) Pp. 148. (International Atomic Energy Agency: Vienna; HM Stationery Office: London, 1968.) 104 Austrian schillings; 33*s* 4*d*; $4.

THESE four publications by the International Atomic Energy Agency contain altogether eighty-five papers read at symposial or panel meetings organized by the IAEA and FAO, three in Vienna during 1967, one in Tel Aviv in 1966. Most of the papers are about entomological and, for one publication, parasitological researches involving the use of the atomic tools, isotopes and radiation, but a number are concerned with methods of rearing particular insects in bulk, an important consideration in connexion with control methods using irradiated insects. The papers are by scientists of repute and from numerous laboratories widely representative of the world.

The largest and most current volume, reporting as it does on a symposium as recently as December 1967, is *Isotopes and Radiation in Entomology*. The scope of subject matter is wide. Seven papers are on ecological topics, such as use of isotopes for studying the behaviour in nature of bumble bees, aphids, weevils and ticks, for