

ally the structure illustrated surely cannot be a potato tuber?).

The book is well produced and mostly well illustrated. I found it interesting and, as is often the case with cross-disciplinary texts, helpful in areas where my knowledge was slight. For a person of the right background it could well be very useful general reading, though the serious student would probably be irritated by

the very sparse referencing. This is a characteristic it shares with a number of modern texts, and in a book well laden with facts the inability of the reader to gain direct access to sources is regrettable. The hardback seems over-priced at £9.60.

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## Geological atlas

*Geological World Atlas*. 1:10,000,000. (Commission for the Geological Map of the World.) (UNESCO Press: Paris, 1977.) Ffr. 650.

THE first six sheets of the *Geological World Atlas* have been published. Two cover North and Central America, three cover Africa, and the sixth sheet covers the Pacific Ocean. There will be 22 sheets in all; the remainder are expected to be ready before the end of 1980.

The continental maps are on a geographical base of 1:10,000,000 provided by the American Geographical Society; the Pacific Ocean is at a scale of 1:36,000,000. Much of the ocean floor bathymetry was provided by the Soviet Academy of Sciences. The projection used for America is the bipolar oblique conical conformal projection; that for the remaining sheets is the conformal Miller oblate stereographic projection. The maps were compiled at UNESCO in Paris and printed in Australia.

A short explanatory text in French and English outlines the most significant geological features of a region, describes the principal sources of the data and gives a useful reference list. The sheets show and name the principal rivers and capital cities, but all other cities are shown by initial only. Political boundaries and the names of countries have been omitted. Oceanfloor topography is shown at 200 m, and 1, 2, 3, 4 and 5 km.

Technically the maps are excellent: the colours are bright, clear and in register. Scientifically, they are a considerable achievement. The stratigraphic subdivisions are well placed; the scales and projections judiciously chosen. The maps reveal features that might otherwise escape the eye. For example, most geologists have some idea of the outcrop area of the Columbia River lavas in the western United States. But fewer will know that the outcrop areas of lavas in western Mexico, Honduras and Nicaragua is much greater—a fact immediately apparent from the Atlas. By turning a page, one may also see that the Lower Jurassic lavas of southern Africa were once of comparable extent.

In the Pacific map, the age pattern of

the oceanfloor is clearly revealed at a glance. The oldest, of Upper Jurassic age, lies next to the Marianas. West of the Marianas lies one of the several subduction-coupled basins of the western Pacific, all of which are Cenozoic in age (unless one includes the oceanfloor between Lord Howe Rise and Tasmania). The systematic changes in the ages of the Hawaiian-Emperor volcanic chain is clear, as are similar but less well-known changes in the innumerable islands to the west.

## Reproductive biology

*Reproduction*. By J. Cohen. Pp. 356. (Butterworths: London, 1977.) Paperback £4.95.

To attempt a description of virtually all aspects of reproduction throughout the whole Animal Kingdom in the space of 330-odd pages is a formidable task, especially when attention is given to such peripheral topics as the arithmetic of reproduction, the evolutionary significance of larval forms, and the reproduction of human cultural patterns, in addition to the expected range of material. This is evidence of the author's strongly individualistic approach to the subject of reproduction, for which there are many other indications throughout the work, and which contributes in a major way to its readability. The aim has been to show how reproductive biology, despite its very interdisciplinary nature, can be shown to constitute a single integrated body; and to a noteworthy degree the goal is attained.

Much is achieved by a broadly comparative approach to a subject like reproduction, which must necessarily have been a major function of living organisms from the beginning. This approach is used consistently and the book starts with a consideration of general issues, such as kinds of reproduction, the role of cell division, the theory of the germ plasm, and the influence of selective processes in reproduction, and passes on to methods of aggregation of sexes and germ cells (with some thought on restraints in animal and human societies).

The morphology of reproductive organs, the germ cells and the fertilisation

Minor criticisms were noted: the fold-out maps do tear easily where tucked in. This is unfortunate, and should not happen in such a volume. The volume is expensive and is unlikely to reach as large an audience as it deserves to, particularly when library funds are so limited. The transform faults in the Pacific map are somewhat diagrammatic.

The publication of the completed Atlas will be a splendid achievement. The foreword outlines some of the previous attempts, begun well over a century ago, that culminate in the international compilation of the present *Atlas*. It is certain that geologists with global interests will spend many hours poring over the maps. Perhaps they can look forward to a Tectonic World Atlas to complement this one?

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process receive detailed treatment, but the statement that uncapacitated spermatozoa of man, guinea pig and wallaby can penetrate and activate eggs is misleading and reveals some unfamiliarity with the data. The role of the maternal environment on early development is set out interestingly, though it is questionable whether some of the influences thus ascribed are strictly maternal in origin, and the author errs in implying increase in cytoplasmic mass in the mammalian cleavage embryo. The mechanisms of gastrulation and neurulation are described carefully and some time is spent on the ways in which the zygote genome finds expression.

Attention is then switched to wider issues—the developmental and evolutionary significance of larval forms (in which children make a curious appearance), the relative advantages of viviparity (including ovulation rhythms, nidation, placentation and birth), and the care of offspring (which brings together such diverse topics as egg yolk, milk, protection and education). The last four chapters are concerned with life cycles, regulation of numbers, reproduction and evolution, and reproduction in mammals. The final chapter is essentially concerned with hormones in reproduction, but includes also even some sociology.

This is a remarkable compilation of data, highly ambitious but on the whole dextrously and vigorously handled, so that the reader receives not merely a useful introduction but also a stimulus to thought. Its main appeal will be to the comparative biologist, whether student or teacher, and for them it can be warmly recommended.

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