Awash in an ocean of information

David Smythe

The Geology of the Atlantic Ocean.
By K. O. Emery and Elazar Uchupi.
Springer-Verlag: 1984. Pp.1,050. DM 360, $104.80.

THE Atlantic Ocean has grown a few centimetres wider in the past few years. It has also undergone a change in location. The North Atlantic is nowadays thought of as the segment between Europe and Greenland, and the Africa – North-America segment is now the Central Atlantic. The South Atlantic remains as before, between Africa and South America. This sensible shift in nomenclature avoids such possible infelicities as "southern Central North Atlantic", or even "northern Northern North Atlantic". Emery and Uchupi's encyclopaedic compilation, some eight years in the making, sticks to the older (oceanographic) rather than the new (plate tectonic) Atlantic, and barely reaches Iceland. The book is therefore incomplete, which is a pity; many of the current problems in understanding the complex plate history north of 50°N or so have arisen through an artificial division of expertise and interest north and south, respectively, of the Greenland–Scotland Ridge.

Eleven pairs of large, loose-leaf charts cover the region 60°N to 60°S. They include bathymetric, physiographic, sediment isopach, and tectonic maps. Each chapter is ocean-wide in scope, ranging from history, through physiography, geology and evolution, to a final chapter on geography and economics, including waste disposal and hydrocarbons. The most up-to-date and comprehensive of them are the accounts of syn-rift and drift sediments — subjects on which the authors are long-established authorities. These chapters, making up some 40 per cent of the book, draw upon many references of 1980–1983 vintage, and take advantage of good-quality reproduction or re-drawing of original figures.

Where the discussion strays beyond the book's title — both sideways and downwards — I have increasing reservations. Some sections have a definite air of obsolescence. Why, for example, write about the North Sea at all if you have to lean heavily on review papers, one or two of which were mediocre even when they were read at the first major conference on the North Sea in 1974? Why try to write about the Neolithic and Early Bronze Age sailors of north-west Europe (incorrectly referred to as Celts) if you neglect their knowledge of navigation? They were able to predict complex lunar motions and presumably, therefore, the powerful Atlantic tides on which their maritime civilization depended. The North Sea has become a mature oil province since the early 1970s, and in the same period the whole new science of archaeoastronomy has blossomed.

The chapter on internal igneous structure begins at the core and works upwards through geomagnetism, the mantle, heat flow and seismicity, petrology and so on to the ocean crust itself. On the way up there is a short excursion to the Moon. The heart of the subject — the structure, petrology and magnetic properties of oceanic crust — is dealt with in rather cursory manner; for example, there are no diagrams here showing the great variety of evolutionary models that have been thought up for the basaltic Layer 2.

Even more unfortunately, an important section on the geomagnetic polarity reversal timescale picks upon one of the least satisfactory revisions for the late Mesozoic and Cenozoic, which was published in 1980. An entire industry of reversal timescale "improvements" has sprung up in the United States in the past few years, but Emery and Uchupi perpetuate an inexplicable omission by the specialists of any reference to the superb work of Hailwood and co-authors, which appeared in the Initial Reports of the Deep Sea Drilling Project in 1979 — hardly an obscure source. Six years ago you could have taken Hailwood's scale, added it to the Gubbio timescale for the late Cretaceous, run it through a pocket calculator to update the radiometric decay constants, and you would have had a "working" timescale for the past 100 million years or so, essentially as good as any of today's efforts. The moral of this example seems to be that you have to publish loud, fast and often in order to get cited, which will merely hasten the day when we are all drowned by the rising sea-level of publications.

Emery and Uchupi have obviously had difficulty in keeping their ambitious project watertight in the decade since they laid its keel. Although they have made a valiant effort, I think that the scope of the subject, at least in the terms that they see it, is now simply too broad for any two people to tackle successfully. □

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New journals review

On 26 September *Nature* will publish the fifth annual review supplement devoted to science journals. Publishers and learned societies wishing to submit material should refer to last week's issue of *Nature* (p.607) or contact the Book Review Editor (London 836 6633).

BWP four

John Andrews

Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of Western Palearctic. Vol.IV: Terns to Woodpeckers.
Chief editor Stanley Cramp.
Oxford University Press: 1985.
Pp.960. £60.

THE latest volume of "BWP", as it has come to be known, describes a further 113 species of birds from the 760 or so which occur in the Western Palearctic. Commencing with the terns, skimmers and auks, it progresses through sandgrouse, pigeons and parrots — whose sole representative is the introduced ring-necked parakeet — to cuckoos, owls, nightjars, swifts, kingfishers, bee-eaters, roller and hoopoe, concluding with the woodpeckers.

Each species entry runs to about 6,000 words. As well as giving field identification characteristics, it provides detailed descriptions of plumages necessary for the identification of specimens in the absence of reference skins, and data on moult measurements, weights, structure and geographical variation. The colour plates, all of them by artists with field experience of most if not all of the subject genera, show the main plumages, including downy young (and eggs) with an acceptable consistency of style.

Once the text moves on to material derived from research it is inevitably more varied in quality and comprehensiveness. The habitat descriptions enable one to look for a given bird in the right place but are often insufficient, even when considered together with information on food, to guide either habitat management or conservation judgements on the implications of subtle changes in land use. In general, more is known of breeding requirements than of wintering habitat usage, and that too is reflected in the book.

Distribution maps show separately the world and Western Palearctic ranges, while the text concentrates upon historic changes in range (which yet often remain inexplicable). Population size is usually based on national estimates, which are notoriously questionable.

The bulk of the text is devoted to social patterns and behaviour, and breeding biology. In bringing together all of this material, the book — and the series — has value not only in its own right but as a basis for comparison which may in time extend our knowledge of "why" as well as "what". By implication, this massive and invaluable exercise in ornithological publication raises the question of whether the work should be allowed to end with the appearance of each volume or whether some continuing process of updating is practicable and worthwhile. □

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