

Belts of ignorance

The Geology of Continental Margins. Edited by Creighton A. Burke, Charles L. Drake. Pp. xiii+1009. (Springer: Berlin and New York, 1974.) DM85.30; \$34.80.

FOR 600 million years the level of the North American continent as a block seems to have deviated by less than 60 m from the levels of the surrounding oceans. Yet during that time the Atlantic and Indian oceans came into being, the shape of the Pacific must have changed considerably, and the entire ocean floor has been renewed possibly twice or thrice. There must, therefore, be some mechanism which maintains a balance between the capacity of the ocean basins and the quantity of water available to fill them. It is very difficult at the moment to see what this mechanism may be. That is but one of the problems to which this book contributes.

The book provides a first rate summary of what is known about the continental margins—belts of ignorance as they have been termed—which extend sinuously across the Earth's surface for 350,000 km. These remarkable regions, which were necessarily ignored by the early landbound geologists and which have to some extent been left on one side by the recent rapid advances in our knowledge of the deep oceans, remain of critical importance.

It has long been known that sediments produced by the wearing away of continents contribute to the continental shelves, but what has become clear only in recent years is the effective way that such deposits are retained near the continents and the small extent to which they contribute to the sediments of the deep oceans. We now know of some of the ways in which sedimentary material is clawed back to form, once more, parts of a modified continental crust.

This book provides both a synoptic view of the margins of the present day continents and a conspectus of more general matters, such as bathymetry, the transition from continent to ocean, recent sedimentation, and the deformation of continental margins, all of which are treated in a score of contributions. The latter parts of this 1,000-page book deal with problems of the small ocean basins, such as the Black Sea or the Mediterranean, and with questions concerning ancient continental margins, the subject of a dozen or so papers. There is no index, but an excellent concluding article by the editors puts matters in perspective in an effective fashion, and the lay-out, consisting as it does partly of articles grouped under general headings, and partly of articles dealing with geographical regions, makes reference not too difficult. Nonetheless, in my opinion an index would have been a most useful addition.

One of the main virtues of this book arises as a result of the factual information that it contains, arranged as it is in a readily accessible fashion. But perhaps of greater importance are the discussions of still wider problems, which come up time and again. Why are continental margins situated where they are? How is it that, despite the great changes in the shape and distribution of oceans, the water rarely overflows on to the continents by more than a few tens of metres? One gets a vivid impression of the way in which geophysical evidence as to the structures of recent continental margins, supplemented by drilling, is bringing our knowledge to a point from which direct comparisons can be made with the remnants of ancient continental margins whose structures have been gradually pieced together by two centuries of geological enquiry.

From an economic point of view one is left with an intriguing question: whether petroleum may be present within the continental rise, the deepest lying part of the continental margin. Existing technology could probably be developed to recover hydrocarbons, should they be present, from the sediments of the continental rise, though these are covered by as much as 2–3 km of water.

All in all this is a first class book which does justice to the immensity of its subject.

J. Sutton

Aggression

Determinants and Origins of Aggressive Behavior. (New Babylon: Studies in the Social Sciences, vol. 22.) Edited by Jan de Wit and Willard W. Hartup. Pp. xiv+623. (Mouton: The Hague and Paris, 1974.) Dfl.84.

THE papers in this collection “were prepared for” or, alternatively, “grew out of” a NATO conference held in Monaco two years ago. The first and more modest estimate of their origins is that of the editors, whose thoughtful concluding paper testifies to the limits of growth that can be expected from such a conference. The 45 papers embrace a good range of current experimental approaches to the understanding of aggressive behaviour: the perspectives of ethology, physiological psychology, psychogenetics, social psychology, psychometry, pharmacology, psychopathology and anthropology are all represented to some degree.

In such a jamboree, coherence is almost inevitably missing. At least, the editors make little pretence of finding it: their own consideration of the effects of domestic punishment on children's aggression in other situations involves alarming discrepancy across just 11 pages; and at no point does their discussion owe anything to the one experimental report in the volume which explicitly concerns

Miller's displacement model of aggression. Perhaps out of deference to the many other assembled experts, few of the authors show much proselytising zeal for their own perspectives, and so the clarity born of dramatic confrontation is absent: even such giants as Berkowitz and Eibl-Eibesfeldt make few claims to each other's territory.

Nor are the editors helped by the largely unsurprising, if occasionally contradictory nature of the results which the papers report. Disagreements as to the effects of social isolation, of parental socialisation practices and of television violence rumble through these papers; but there are no dramatic breakthroughs. Perhaps the papers which best combine topicality and substance are those of Christiansen and Hutchings: by using both cohort twin-study and adoptive methodology, the partial heritability of criminality is reasserted; and Christiansen's data show that offences against the person are no exception.

Looking to the future, the editors finally opt to stress the need for “field studies”. But it seems an open question whether the armchair would not initially be a better location than the field if the laboratory does have to be left undermanned for a time. Both Hinde and the editors provide cogent illustrations of the diversity of aggressive behaviour and of the problematic nature of the concept of ‘aggression’ itself. Such a position doubtless reflects current academic wisdom in this area. But other papers—especially that by Olweus—note the way in which conceptually distinguishable ‘types’ of aggressive behaviour tend to appear together: across individuals, it can often be said that some are more generally ‘aggressive’ than others.

Trait and factorial approaches to aggression—especially if informed by the experimental and psychogenetic input which they have lacked in the past—would certainly help to settle some of the current confusion as to how many types or dimensions of aggressive behaviour are worth recognising. It is idle to rehearse for long ‘the multifactorial nature of aggression’ without using all appropriate methods of asking what the factors are and what proportion of natural variance they could possibly explain.

The general dimension of ‘aggressive behaviour disorder’ that seems so commonly in epidemiological work on individual differences remains largely unexplored in these papers; as do the processes of competition and conflict in human social hierarchies that might have had more relevance to NATO and more chance of incorporating the ethological notion of the normality of ‘aggression’. The volume is a competent and catholic sampling of the experimental studies of aggression conducted during the early 1970s; but it yields no very satisfying vision of the future.

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