University College of North Wales—Messrs. T. Thomson and M. R. K. Jerram. The aims of the book are not so clear cut as those of the two American books already discussed. The authors suffer from having attempted too much. They state that their "main object is to provide for students on their initial approach to the subject an explanatory outline of the kind of knowledge they will have to acquire; it is hoped that it may prove useful to others who are interested in the subject". If we consider Chapter iii, on the practice of sylviculture, which forms one fourth of the book, the material dealt with is far beyond the ordinary reader and comes under the definition 'technical'.

In two hundred pages the authors have attempted in reality to cover the whole subject of forestry, as shown by their own table on p. 6, which exhibits their four main divisions: forest policy; forest bionomics, subdivided into the foundations of sylviculture, the practice of sylviculture, and forest protection; forest economics, subdivided into forest valuation and finance, and forest utilization; forest management, subdivided into general considerations, the regulation of the yield and the preparation of a forest working plan.

It is somewhat difficult to say to whom the book will appeal. Most trained foresters nowadays hold the opinion that the above branches of forestry require to be kept apart and considered separately in text-books to be used by the student training for the forestry profession—as in fact is shown in "American Forestry Series" alluded to above. For example, Chapter x is entitled "The Preparation of a Forest Working Plan". This important subject is discussed in some three and a half pages. For the ordinary reader possessing some knowledge of forestry, the book may be commended, as it contains much useful material.

SOME EARLY GANOID FISHES

The Triassic Fishes of Besano, Lombardy
By James Brough. Pp. ix+117+7 plates. (London: British Museum (Natural History), 1939). 20*s*.

DURING the Triassic period the ganoid fishes with a gristly skeleton, belonging to the same grade as the existing sturgeons, were gradually replaced by ganoid fishes with a bony skeleton like the surviving Amia and Lepidosteus of North American fresh waters. Links between the two grades have already been recognized among Triassic fishes, and there can be no doubt that the one evolved from the other. The transition, however, evidently took place in the sea, and it has hitherto been studied chiefly when it was beginning (as in the Lower Trias of Spitsbergen, East Greenland, and Madagascar) and when it was almost completed (as in the Upper Trias and Rhætic of Italy and Austria). The ganoids of the Middle Trias—those of the critical period—are still well known only by freshwater forms from Australia and South Africa; and it must be noted that from early geological times onwards fresh waters have always been retreats for life which is no longer in the forefront of progress.

A large collection of marine fishes from the Middle Trias of Besano, Lombardy, recently obtained by the British Museum, is therefore of great interest, and it is now made available for science by a descriptive catalogue which has been prepared by Mr. James Brough. There is a varied series of new forms intermediate between the older and the later ganoid grades, and they are well illustrated by numerous outline sketches, restorations, and beautifully clear untouched photographs.

The essential changes in the bones of the cheek and in the median fins are especially traceable, and there seem to be all possible gradations. In fact, as Mr. Brough remarks, the ganoids of the later or 'Holostean' grade appear to have originated in several parallel lineages from the earlier or 'Chondrostean' grade. At first the preoperculum is a broad plate extending over the cheek above the long maxilla; it then gradually shrinks backwards until it forms merely the front rim of the gill cover, while the maxilla is reduced behind and is left comparatively free. At first the tail is completely heterocercal, but the upper lobe soon becomes extremely reduced or even disappears; and the dorsal and anal fins are made more efficient by the exact correlation of the dermal rays with their endoskeletal supports.

There are so many variants in this evolution that Mr. Brough classifies the new Middle Triassic fishes in seven families, and he suggests that they should be separated both from the Chondrostei and from the Holostei in an order Sub-Holostei. He also describes in detail two of the earliest holosteans of the family Eugnathidæ, and discusses the relationship of the Triassic bony fishes to those of later date. Mr. Brough's volume is much more than a museum catalogue, and he is to be congratulated on having formulated problems of wide biological and geological interest.

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