

*couverte*) on the same site, as in Guernsey, is another fruitful line of thought, and no synthesis should neglect M. de Guérin's amplifications of Déchelette's views on ancient incised figures and idols.

The movements outlined above must be taken into account by linguists who wish to find a link with archæology, and it will probably be through the forging of that link that the great advance we look for will occur. It is possible to argue for the spread of at least some elements of the languages of the older philologists along the lines of distribution of beaker pottery, but it is quite likely that those language elements travelled far later, with other archæological correlatives, along the line determined in large measure by the presence of loess and the consequent weakness of forest and swamp. One may venture the statement that probably rather by such study than by the more exclusively philological ones suggested by Prof. Tyler will our knowledge of the sources of the European languages be improved, and our views as to their adoption, with modification, by peoples who were not bred with them, made precise. Anyhow, it seems more than likely that our great families of European languages in several cases illustrate adoption of a language-basis from foreigners rather than differentiation of languages by process of time from a single common ancestor. The references to early religion that Prof. Tyler gives seem specially dangerous in the dim light of present-day doubt.

(2) Mr. Crawford's book shows he has been trying to set his thoughts in order after the trials and difficulties of war service, and, in the midst of discursive generalities, one does frequently come upon points of value for the student who wants to take his archæology regionally and to see man at each period in his proper relation to the local environment of that period. Fortunately, Mr. Crawford is alive to the fact that the environment changes with the period even after the close of the Ice age. He sees that the clearing of forests and the draining of swamps have made vast differences to men's opportunities for movement and lines of communication, and he understands the difficulties of argument on these complex problems. He is an impassioned eulogist of old roads and of the joys of tracing them, and the beginner in prehistory who is anxious to get hold of method, rather than of fact, will find Mr. Crawford's book interesting and profitable, though he may be left wondering why the author did not omit a good deal of general talk and give the student a great deal more help along his way.

H. J. F.

### Rosenbusch's Petrology.

*Mikroskopische Physiographie der petrographisch-wichtigen Mineralien.* By H. Rosenbusch. Band 1. Erste Hälfte. *Untersuchungsmethoden.* Fünfte, völlig umgestaltete, Auflage. By Prof. E. A. Wülfing. Lieferung 1. Pp. xvi + 252. (Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung (Erwin Nägele), 1921.) 16s.

ALL who are interested in petrological studies will welcome a new edition of this familiar text-book, which made its first appearance nearly forty years ago. Every subsequent edition has exceeded its predecessor in size and completeness, and the fifth, to judge from this instalment of the first half of the first volume, is not likely to prove an exception. It is true that some of the topics dealt with in earlier editions, such as the principles of stereographic projection, are omitted as being now sufficiently familiar to the student, but the space thus saved, and more, is required for the developments during the seventeen years that have elapsed since the previous edition was published.

This issue is the work of Prof. E. A. Wülfing, the author of the admirable account of the methods employed in the microscopical examination of minerals in the fourth edition of the book, and the successor of Rosenbusch at Heidelberg. It has been to a large extent rewritten, and there is a decided advance in the clearness with which the fundamental principles are explained, even if the mathematical aspect of the subject is perhaps still somewhat over-emphasised in places.

The first forty pages are mainly devoted to a detailed description of the most up-to-date methods of cutting, grinding, and mounting thin slices of rocks. This is followed by an exposition of the author's views on the nature of light and an account of its properties in both isotropic and anisotropic media, including the phenomena of absorption and pleochroism. There is also a useful section devoted to the methods of producing polarised light in which the different forms of prism that have been devised for the purpose are described, and another to the production of monochromatic light.

The text is accompanied by numerous clearly drawn illustrations, many of which appear for the first time, and there is a handsome coloured plate giving the succession of Newton's colours, the amount of relative retardation corresponding to the different tints, and the usual graphic representation of the relation between birefringence, thickness, and relative retardation.

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