

The book is clearly printed and illustrated, but would be improved if the numbers of the diagrams were given and referred to in the text. Where more than one diagram is found on the same page, it is not always evident to which diagram the lettering refers. The phrase "addition of interest" might also, with advantage, be changed to some other, less suggestive of commercial arithmetic. These, however, are small defects which can easily be corrected in a subsequent edition. The merit of the book is not in *what* it teaches, but in *how* it teaches; and not the least valuable part of it will be found in the introductory remarks addressed to the teachers.

PHILIP MAGNUS.

THE PYRENEES.

Les Pyrénées. Par Eugène Trutat. (Bibliothèque Scientifique Contemporaine.) (Paris: J. B. Baillière et Fils, 1894.)

IN this volume Dr. E. Trutat gives a sketch, as the full title states, of the mountains, glaciers, mineral springs, atmospheric phenomena, flora, fauna, and man in the Pyrenees, illustrated by woodcuts and diagrams, together with two small maps. The mountains differ from the Alps in their greater simplicity of structure, for they form "the most perfect type of a regular chain." Like the Alps, this consists of an axis of crystalline rocks, granites, gneisses, and schists, flanked on both sides by deposits comparatively unaltered. But there is one important difference: in the Alps, systems anterior to the Carboniferous are only recognised in the extreme east; in the larger part of the chain, rocks of that or of a later age rest on crystalline schists, which must be very ancient. But in the Pyrenees schists truly crystalline are succeeded by great stratified masses which have been much less markedly changed. The most ancient of these are assigned to the Cambrian, though as yet fossils either have not been found, or are too ill-preserved to afford any certain evidences of age. It seems, however, clear that they are older than the Silurian system, for the different members of this can be identified in several places by their characteristic fossils. The Devonian system is well developed, and followed by limestones (marine), conglomerates, and slaty rocks of the Carboniferous period. The occurrence of Permian rocks is considered by Dr. Trutat to be doubtful. Trias, of the Lorraine type, is found, followed by representatives of the various systems in orderly succession up to the Neocomian. Between this and the Cretaceous is a break, then the sequence continues till after the Nummulitic age. Then, as in the Alps, began the great series of movement, of what the present chain is the outcome. Masses of eruptive rock are connected with these disturbances. The enormous beds of conglomerate, called the *Poudingues de Palassou*, which sometimes surpass 1000 metres in thickness, recall the Alpine *nagelfluhe*. Strata partly marine, partly freshwater, represent the Miocene and the Pliocene; the Quaternary deposits presenting a general resemblance to those of the Alps.

The glaciers of the Pyrenees at the present day are comparatively small, the length of the largest not exceed-

ing about 4300 metres, while that of the Great Aletsch is 32 kilometres, but their former extent, as in the Alps, was much greater. They filled the valleys, and even debouched on the lowland; that of the valley of Ariège must have been about 70 kilometres long. The glacial deposits have been assigned to two epochs, and Dr. Trutat claims for the earlier a considerable antiquity. In the Ariège he states that they underlie Pliocene marls, and near the plateau of Lannemezan pass under the Miocene deposits of Sansan. The sections which he gives are very rough, and further proofs of these statements, which involve obvious difficulties, are likely to be demanded. The Pyrenees owe their existence, as has been said, to post-Nummulitic disturbances, but they also afford evidence of great movements, both anterior to the Carboniferous and after the Neocomian, the latter apparently being less marked. Movements occurred after the great post-Eocene elevation, but of much less importance than they were in the Alps. The other topics, mentioned on the title-page, receive due notice, and the volume will be found useful, as it gives, in a concise and convenient form, much information about one of the most important mountain chains in Europe.

T. G. B.

OUR BOOK SHELF.

Les Courants Polyphases. Par J. Rodet et Busquet. (Paris: Gauthier-Villars et Fils, 1893.)

To those desirous of obtaining a general knowledge of the principles used in the calculation of the efficiency and of the dimensions of polyphase motors, &c., this book will be of considerable use. In the first part, the calculation of the dimensions of, and losses in, the conductors conveying the currents are worked out at some considerable length, numerical examples being given. In the other sections the generation of polyphase currents, motors with rotating fields, and transformers are dealt with; in each case the general principles of the machines now in use being described, though no account is given of the details of their construction. There is also a short account of some of the plants for the transmission of energy by polyphase currents which have been installed, with a table summarising the tests and measurements made during the Frankfurt Exhibition.

Solutions of the Examples in the Elements of Statics and Dynamics. By S. L. Loney, M.A. (Cambridge: Camb. Univ. Press, 1893.)

MR. LONEY is indebted to a friend for these solutions, and also for the revision of the whole of the proof-sheets. We have glanced through many of the examples, and they seem to be fully and clearly worked out on the whole, very little being taken for granted. Students who cannot depend on the presence of a teacher, will find that with a judicious use of this key much may be self-taught.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Sir Henry Howorth and "Geology in Nubibus."

SIR HENRY HOWORTH, in his reply to Dr. Wallace and Mr. LaTouche, concerning the excavating power of ice, remarks that he is "speaking to every man of science, geologist or