

unfamiliar with the commonest vocabularies of other departments of natural knowledge, but also regard the endeavour to create a comprehensive interest in nature as a thing of little importance.

There are, unfortunately, very few, if any, men of science in these days of minute specialisation who are capable of writing such illuminating papers on scientific methods and results as those in this volume and the collection which preceded it. The papers are perfect models of scientific exposition: simple, yet not childish; informative, but not tedious; bright without being flippant; sparkling with human interest and original always. Thirty-one main topics form the subjects of the chapters of the present volume, and upon all of them the author writes with freshness and breadth of knowledge that command admiration. For the student of science whose work is running in a narrow groove the papers provide a pleasant antidote; and to readers engaged in other activities they will be a revelation.

One minor point is worth mention. Sir Ray Lankester, writing on the work of glaciers, refers to glaciated rocks that have "the form of rounded humps, compared to a sheep's back, and hence called '*roches moutonnées*.'" We thought that several years ago Prof. Grenville Cole had shown this interpretation to be incorrect, for the reason that de Saussure, who first used the term, meant to suggest a resemblance of the rocks, not to a flock of sheep, but to the wigs styled in his day *moutonnées*.

*An Analysis of the Church of St. Mary, Cholsey, in the County of Berkshire.* By Prof. F. J. Cole. Pp. viii + 62 + 23 plates. (Oxford: B. H. Blackwell; London: Henry Frowde, 1911.) Price 5s. net.

THE professor of zoology in the University College of Reading teaches, in this book, a valuable lesson to church architects and archæologists, "that only an investigation by methods of precision can bring the study of the parish churches within the cognisance of serious research." Ecclesiastical architecture is now quite a dead art. It has lost the living touch with nature. Of its true natural basis even Dr. Cole has nothing definite to say. Still, he has discovered the nearest thing to it, and is well qualified to teach his lesson. The case may be put in stronger terms, but let Dr. Cole speak:

"But, unfortunately, the morphological method is hardly, if ever, carried to its legitimate extreme. The amateur, finding it easy to classify his detail according to the Norman, Early English, Decorated, and Perpendicular convention, cultivates the deadly shade of that architectural Upas. 'Yet that way perdition lies.' On the other hand, the professional architect gives us a set of drawings, of the greatest value let it at once be said, but unaccompanied by any attempt to wrest the secrets from the building he has been measuring." (Pref. iv.)

It is the author's insistence on exact measurement that will lead the student "to the bed-rock

of ascertained fact." It is measurement, more than fashions or "styles," that differentiates periods in architecture. But while the author has succeeded in making out successive periods by measure, it seems not to have occurred to him to consider why certain measures were adopted, and why they should differ with the lapse of time. To some extent, the value of orientation is recognised, but it is to be hoped that the author's next "attempt to wrest the secrets" from St. Mary's, Cholsey, or any old church, will be to show that the individual measures represent celestial spaces or distances, and that the orientation is the key to the structural symmetry. JOHN GRIFFITH.

*Experimental Physiology.* By Prof. E. A. Schäfer, F.R.S. Pp. viii + 111. (London: Longmans, Green and Co., 1912.) Price 4s. 6d. net.

EXPERIMENTAL physiology is a convenient, but not very logical, name for that part of physiology which is not chemical. The present little book is a handy guide to the student in the practical class. It is the outcome of many years' experience in the teaching of such classes, and will form a trustworthy laboratory companion. The descriptions of the experiments are clear and concise, and a special word of praise is to be accorded to the excellent diagrams which accompany the text. The great bulk of the work which the student can himself perform is necessarily limited to the pithed frog. Experiments on living animals under anaesthesia can only take the form of demonstrations. Experiments on man himself are not restricted by law, and the present-day tendency of the physiological teacher is to increase the number of exercises which the students can perform upon themselves or upon each other, and to diminish the importance of the humble but still necessary frog. W. D. H.

*The Centenary of a Nineteenth-Century Geologist—Edward William Binney, F.R.S.* By James Binney. Pp. 58. (Taunton: Barnicott and Pearce, 1912.) Price 2s. 6d. net.

EDWARD BINNEY was born on December 7, 1819, and died in December, 1881. He was three times president of the Literary and Philosophical Society of Manchester, was president of the Manchester Geological Society, and in 1856 was elected a fellow of the Royal Society. With Young and Meldrum he commenced the manufacture of mineral oils from Boghead coal obtained from Bathgate, near Linlithgow, in 1850; and in fourteen years—when the patent had run out—a net profit of 60,000l. was made.

Mr. J. Binney's little book is a tribute to a successful man of business and a keen student of nature. Prominence is given to details of litigation of little interest to scientific readers; and filial regard will perhaps account for the remarks as to the want of acknowledgment by Williamson of what he owed to Binney in the study of fossil plants. Whether local printers or the author are responsible for the neglect of elementary rules of punctuation throughout the book is not for us to decide.