

anatomically, for they have that kind of accuracy which no artist who is not the investigator and author ever can portray.

As a work of reference and a storehouse of accurate information, Prof. Eisler's monograph will be invaluable.

(3) In the notes upon the other two volumes we have been dealing with facts, normal and pathological; but in Dr. Rádl's excursion into transcendental philosophy we are invited into the realms of ultra-Bergsonian casuistry, which is certainly not the normal environment of the biologist. The major part of his book is devoted to a discussion of the comparative anatomy of the visual organs and related nervous structures, chiefly of invertebrate animals; and the author uses these facts, or rather his speculative interpretation of them, as the ammunition for an attack upon the usual methods of biological argument, and especially upon theories of phylogenesis. It is easy to see why he chose the visual organs for this purpose: the data relating to the other sensory mechanisms, if employed as he uses his materials, would all have pointed in the direction opposite to that desired by Dr. Rádl. But the retina grows out from the central nervous system: therefore it is not formed by the influence of environment; it is the material expression of the "neue Lehre" that the mind makes its own instruments! This is the kind of argument, if such speculations can be called argument, that Dr. Rádl indulges in. It seems to the reviewer that Dr. Rádl has not sufficiently acknowledged his indebtedness to Bergson; but, on the other hand, his statement lacks even the superficial plausibility of Bergson's writings.

OUR BOOKSHELF.

Tracks of the Sun and Stars, A.D. 1900 to A.D. 37900. Photographs from Stereoscopic Perspective Drawings made at Tenby, A.D. 1912-13. By Thomas Edward Heath. Pp. 17 + photographs. (London: W. Wesley and Son; Manchester: Flatters and Garnett, Ltd., n.d.) Price 5s. net.

It has probably occurred to many who are interested in the study of stellar motions that it would be instructive to have a model of those star-tracks which are known, so that the phenomena in the three-dimensional aspect might be more easily grasped. By means of Mr. Heath's stereoscopic drawings it is now possible to have such a model before our eyes, and to see in a vivid manner the complex system of motions of a portion of the stellar universe. We have been delighted with the clearness with which the varying inclinations and directions of the interlacing movements are shown. Perhaps the most striking impression is the very considerable change of relative position which takes place in the selected interval of

36,000 years—a period by no means long from the astronomical point of view. The great range of difference in the speeds of the stars is also brought out prominently.

In order to ascertain the complete motion of a star, the proper motion, radial motion, and parallax must be known, the parallax being generally much the most uncertain of these quantities. In some cases where the value is small, Mr. Heath's tracks are rather hypothetical; but recent researches have increased considerably the number of trustworthy parallaxes, and the data used for these drawings appear to be well selected on the whole. Two views are given, in one of which the observer is supposed to be removed 100 light-years, and in the other 200 light-years, from the present position of the sun. The letterpress contains useful instructions for the reader who wishes to make for himself other drawings of this character.

A. S. E.

Die europaeischen Schlangen. Kupferdrucktafeln nach Photographien der lebenden Tiere. By Dr. Fritz Steinheil. Erstes Heft. (Jena: Gustav Fischer, 1913.) Price 3 marks.

ALTHOUGH there is no lack of good figures of most of the snakes of Europe, yet these are mostly executed from preserved specimens. We therefore welcome the publication, of which the first fascicle has just appeared, undertaken by the enterprising firm of Gustav Fischer, in which Dr. Steinheil intends to represent, by means of photographs taken from living examples, the different species of snakes inhabiting Europe, as well as their principal varieties. The five copper-plates now issued could scarcely be surpassed.

The letterpress accompanying each plate is short, and deals merely with the geographical distribution and the habits in captivity; no information is given concerning the mode of reproduction, a subject of particular interest not only to the herpetologist, but also to the amateur who keeps snakes in the terrarium. No systematic order is followed, but a brief introduction explains the classification followed, which, as well as the nomenclature, is in accordance with the British Museum catalogue of snakes, also adopted in Schreiber's recently issued second edition of the "Herpetologia Europæa." In fact, as the author tells us in the preface, this work is intended to serve as an atlas to the "Herpetologia Europæa," and as such will prove of great service.

G. A. B.

Die Methoden der exakten, quantitativen Bestimmung der Alkaloide. By Prof. Anton Ritter von Korczynski. Pp. iv + 82. (Berlin: Gebrüder Borntraeger, 1913.) Price 3.50 marks.

THIS little work deals with the methods by which alkaloids may be accurately determined quantitatively, but not with the methods by which the total alkaloids may be extracted from crude drugs or their preparations, although an appendix of fifteen pages contains the details of the alkaloidal drug-assays of the German Pharmacopœia. One-third of the book is devoted to the determination