

The following is an ingenious play on the double sense of *bella* :

"Sectatur bellas eques Anser ubique puellas
Et sibi cognomen bellipotentis avet."

The variety of sources from which the versions are made gives to this little book a higher interest than it could otherwise claim.

R. ELLIS.

PHILOLOGICAL BOOKS.

Linguistisch-historische Forschungen zur Handlungsgeschichte und Warenkunde. Part I. By O. Schrader. (Jena: Costenoble.) Prof. Schrader's remarkable work on "Sprachvergleichung und Urgeschichte," which has introduced a new epoch in Indo-European palaeontology, and dissipated that idyllic period of primitive Aryan life to which Pictet and others had accustomed us, has now been before the world for five years. The author has just supplemented it by a new volume devoted to an investigation of the names of objects connected with trade in the several Indo-European languages. His aim is the same as in his earlier work—to arrive at some conclusions in regard to the nature and development of commerce in the primitive period of Indo-European history by examining the records of it preserved in words. The general results to which he comes agree with those of his former book. At the earliest time to which our linguistic monuments take us back the Indo-Europeans were but slowly emerging from a state of savagery, and a rudimentary sort of trade was beginning to exist among them. From time to time Prof. Schrader's researches lead him beyond the limits of the Indo-European family. Thus he seeks to show that cotton was unknown in the West, even in Egypt, until the rise of intercourse with India, and that the meaning of "cotton" was not attached to *bysus* until the second or third century of the Christian era. It may be noticed that *σάβαν*, the Hebrew *sadin*, seems to be of Babylonian origin, since an old Babylonian list of clothing describes *sindhu* as "vegetable cloth." The word evidently means "Indian." It need hardly be said that Prof. Schrader's investigations are characterised by the same sobriety and accuracy of method which have given so great a value to the conclusions of his earlier work.

Allgemeine Sprachwissenschaft und Carl Abel's Aegyptische Sprachstudien. By A. F. Pott. (Leipzig: Friedrich.) A new series of works on Linguistic Science started by Messrs. Friedrich, of Leipzig, has been fittingly opened by the veteran philologist, Prof. Pott. The subject has been suggested to him by Dr. Abel's theory of counter-sense. Dr. Abel, it well be remembered, has sought to show that words have started with an indeterminate meaning which gained precision through their coming to possess two opposite senses, like *black* and *bleach*, the two senses defining and determining one another. Survivals of this period in the history of language he believes can still be discovered, more especially in ancient Egyptian, the oldest form of speech of which we have monumental evidence. Abel's theory is criticised with a firm but kindly hand; and, though Pott does not accept it in its entirety he insists on the importance of the principle embodied in it, and on the services rendered by its author to the psychological study of language. Progress in thought, and therefore in language, can be attained only by comparison. Knowledge is essentially relative, and ideas become clearer by successive limitations. The Latin *finis*, for example, signifies the "end"; but with the end commences another beginning, so that while *finis* is "the end" of one object,

finis are the "frontiers" of another. The end is defined by its comparison with a beginning, which is necessarily conceived of as soon as we wish to realise what an end is. Whatever Prof. Pott writes is learned and stimulating, and the publisher has spared no pains to make paper and type alike attractive.

Mr. HORATIO HALE has published a very interesting address on *The Origin of Languages*, read last summer by him before the American Association for the Advancement of Science. He brings forward in it a new and suggestive theory to account for the origin of the many different families of speech now recognised by the students of language. Cases have been brought before his notice of children who have invented wholly new languages for themselves, which they have persisted in speaking for some years instead of the languages they have heard around them. The tendency of civilisation is of course to diminish the number of such cases, while a condition of savagery would be favourable to them. Mr. Hale, therefore, proposes to see the origin of most of the existing families of speech in languages which have thus been invented by children, and, instead of dying out, as would necessarily happen in civilised societies, have been allowed to develop and spread. The theory would reconcile the two apparently inconsistent facts which meet the inquirer into the origin of speech—on the one side the large number of totally unallied families of language, and on the other side the difficulty of believing in the independent creation of language in different parts of the world. It would also throw light on the curious fact that particular geographical areas are characterised by particular morphological types of language, though the individual families of speech included within each area are unrelated to one another. Thus the isolating type prevails in Eastern Asia, the agglutinative in Central Asia, the inflectional in Europe, the prefixal in Central Africa, and the polysynthetic in America. But while Mr. Hale's theory seems to offer a satisfactory explanation of the origin of many, if not most, of the existing families of speech, it fails to explain the origin of language itself. The children who invent new languages for themselves are not only born with an inherited aptitude for speech, but are surrounded by those who communicate with one another by means of language. The idea of imitating those about them is thus suggested to them, just as the idea of inventing a system of writing was suggested to the Vai negro Doalu by the sight of a European book. Consequently Mr. Hale's further speculations on the short period of time during which man has been endowed with speech, as compared with the time during which he was "homo alalus," all fall to the ground. His theory cannot claim to do more than throw light on the origin of families of speech. The problem of the origin and growth of language itself still remains where it was.

CORRESPONDENCE.

THE BABYLONIAN ZODIAC.

London: Jan. 18, 1887.

I notice that Dr. Edkins, in his paper on "The Babylonian Origin of the Chinese Astronomy," read before the Society of Biblical Archaeology, and printed in the *ACADEMY* of January 8, asks if the Babylonians had a zodiac of twenty-eight signs. Having for over two years devoted my attention to the difficult question of the Babylonian astrology and astronomy, I think I am able to answer his query. The Babylonians never made use of a zodiac of twelve signs, but divided the ecliptic into thirty divisions. I have found a tablet in the collection of the British Museum

giving their names. The zodiac of twelve signs, which seems to have been devised by the Egyptians out of the thirty Babylonian divisions, was introduced into Babylonia only during the Greek period, and into India, no doubt, from Babylonia, at a comparatively modern date.

GEORGE BERTIN.

SCIENCE NOTES.

IN examining some volcanic ash which had been ejected from Cotopaxi during the eruption of July 22 and 23, 1885, Prof. J. W. Mallet, of the University of Virginia, has detected the presence of silver—a metal hitherto unknown among volcanic products. The dust was collected at Bahia de Caraguez, on the Pacific Coast, about 120 miles west of the volcano, where it fell to the depth of several inches. It appears that about one part of silver is present in 83,600 parts of the ash, or two-fifths of an ounce troy per ton. Although this proportion seems insignificant, the mass of ejected ash was so vast that it really represents a large quantity of silver in the total bulk. Lead, which had been found in ash from Cotopaxi in 1878, was not detected in that of 1885.

THE lecturer on Apiculture at South Kensington, Mr. F. R. Cheshire, has put out the first instalment of *Bees and Bee-keeping, Scientific and Practical.* (Upcott Gill.) Sixteen chapters are devoted to the anatomy, architecture, and development of the hive bee. The illustrations are excellent, being microscopic drawings of the different organs of bees; and the whole treatment of the subject is exhaustive, embracing all modern lights that have been thrown on the growth and economy of the bee, the development of the drone and queen bee—all in short connected with their marvellous economy. The book is simply indispensable to every bee-keeper; and he will look impatiently for the second volume, which will contain the results of Mr. Cheshire's own experience.

Fifth Annual Report of the United States Geological Survey. By J. W. Powell, Director. (Washington: Government Printing Office.) In addition to the record of work during the official year which ended in June, 1884, this volume contains a number of independent essays of more than ordinary interest, inasmuch as they are not confined to mere local details, but deal in most cases with subjects of wide bearing. Mr. G. K. Gilbert, who has had charge of the "Division of the Great Basin," contributes an essay on "The Topographical Features of Lake Shores." The subject is carefully worked out, and useful suggestions are made, with the view of enabling the observer to recognise vestiges of ancient lacustrine margins. An article in which Mr. T. C. Chamberlain discusses the conditions requisite for Artesian wells will commend itself to practical geologists. Prof. Irving presents a preliminary paper on his work among the Archæan formations of the North-Western States. This investigation embraces so many problems of profound interest to geologists that it promises to become one of the most useful branches of the survey-work. The few glaciers existing in the United States are described in an interesting article by Mr. J. C. Russell. Palæozoology is represented by Prof. Marsh's essay on the gigantic mammals of his order *Dinocerata*; while palæobotany finds a place at the end of the volume in the form of a masterly sketch of the history and principles of the science, from the pen of Mr. Lester F. Ward.

PHILOLOGY NOTES.

M. BRÉAL has been elected president and the Marquis d'Hervey de Saint-Denys vice-