

sorry to see he has not altered his view of the ἀμφιβρότη (2.389). Dr. Gemoll's objections in *Bursian's Jahresbericht* were not, perhaps, very weighty; but it must be clear to every reader of Helbig's *Homeric Epos* that the shield in question was not a *scutum*, but of a long oval type (Helbig, p. 220). On the other hand, Mr. Leaf seems right in rejecting Helbig's view of the ῥαβδοί (12.294), which requires one to believe that some lines have fallen out. Still, some archaeological proof of Grashof's explanation, adopted by Mr. Leaf, would be welcome. Another good example of Mr. Leaf's range of subject is an interesting note (5.412) on relationship through the mother.

The philology of the notes seems to be good. One excellent etymology, if we mistake not, is Mr. Leaf's own, that of *καίριος*, which, till his paper on the word, was always explained "suitable." The derivation of ἀμφιγυήεις (1.607), taken from the *Hellenic Journal*, is not so successful. We should infer that Mr. Leaf distrusts the new school. The note on ἀλαστῆν (12.163) is good; but there are several "obsolete" explanations to be found in the book.

We venture to add a few detailed criticisms on the notes to book 12. In 53 *σχεδόν* is translated "in serried ranks." This seems very dubious, though the word is confessedly difficult. On 153 the rare omission of *ὄσσι* might have been noticed. In 213 *παρέξ* surely means only "otherwise"; and in 222 we incline to Mr. Monro's way of taking the words. On 255 Mr. Leaf corrects what seems to be a slip in the latter scholar—*θάλας* must mean "enchanted." On 285 we would suggest that *ἐρύκεται* is not a rare middle, but a passive. The reference then would be to the smoothness of the sea in some snowstorms, such as that described in *L'Homme qui rit*. The note of 274 ought, if we are not in error, to ascribe *πρόσω ἔσθε* to Leo Meyer (Bezzenberger's *Beiträge*, i.), not to Mr. Monro only. The explanation of *πύργος* in 333 and 334 as "wall" is distinctly good. In 370 some little difficulty is made about the *κασίγυγρος καὶ ὄπατος*. Surely it is said in the same spirit as the opening of the Egyptian "Tale of Two Brothers" (published by M. Maspero in vol. iv. of "Les Littératures Populaires"): "There were once two brothers, children of one mother and one father." The conjecture in 385, *ὁ δὲ* (for *ὁ δ' ἄρ'*) is good, though the MSS. evidence is weak in the extreme, and Mr. Leaf's reading, however original, can hardly have stood in the fifth century B.C. One may add that, if *ἀργευρή* has the digamma, the connexion with Lithuanian *neris*, given by Mr. Wharton, after Fick, must fall through. Mr. Leaf's reading must then be adopted in *Iliad* 16.742 and *Odyssey* 12.413. The note to 421 is another example of an interesting "general" note. In the note to 433 what are "spoken works"? and why is *χερῶν* derived from *χεῖρ* so decidedly?
F. HAVERFIELD.

OBITUARY.

W. H. WATERS.

MR. WILLIAM HORSBRAFT WATERS, the senior demonstrator and assistant lecturer in physiology at Owens College, died very suddenly at his residence, Elsmere, Manley

Road, Manchester, on the night of Thursday, January 20. He was engaged at his work at the college on the afternoon of that day, apparently in good health. On his mother going to his room next morning, she found him dead. For the past ten years he had suffered from epileptic fits, and it is supposed he was suffocated while in a fit.

Mr. Waters, who was thirty-one years of age, was educated at the City of London School, and in 1875 he obtained an open scholarship in natural science, and entered Christ's College, Cambridge. He graduated in 1878 (First-Class Natural Science Tripos), and was immediately appointed demonstrator of physiology by Prof. Michael Foster. During the summers of 1879 and 1880, Mr. Waters studied under Profs. Kutne and Lüdwig. In the summer of 1882 he was appointed demonstrator and assistant lecturer in physiology under Prof. Gamgee. During the interval between the resignation of Prof. Gamgee and the appointment of Prof. Stirling, Mr. Waters undertook the management of the physiological department and delivered the lectures. To the *Journal of Physiology* (vol. vi.) he contributed papers in which he gave an account of some researches undertaken by him under Prof. Lüdwig, and he published in 1884 a little manual entitled *Histological Notes for the Use of Medical Students* (Manchester: Cornish, 1884).
E. P.

CORRESPONDENCE.

THE BABYLONIAN ZODIAC.

Barton-on-Umber: Jan. 24, 1887.

Referring to Mr. Bertin's interesting letter in the ACADEMY of January 22, I understand his answer to Dr. Edkins's enquiry to be, that the Babylonians had a (lunar?) zodiac of 30 signs. With respect to the lunar connexion of the number 30, we may remember that

"a lunation, or synodical month, being the interval between two conjunctions of the sun and moon, is equal to 29d., 12h., 44m. It was founded on the most obvious determination of the moon's course, and furnished the original month of the Greeks, which was taken, in round numbers, at 30 days (Lewis, *Astron. of the Ancients*, 16).

It is to be hoped that Mr. Bertin will shortly publish the tablet, with text and transliteration. Meanwhile, I would call attention to the interesting confirmation which it appears to afford of the important statement in Diod. ii. 30-1, respecting Babylonian stellar arrangement.

Diodoros, who, it is admitted, had consulted excellent authorities, having explained the Chaldean theory of the 5 "Interpreters" (*ἑρμηνεῖς*—planets), says that under or in subjection to these are marshalled *πράκοντα ἀστέρων, οὓς προσαγορεύουσι βουλαῖος θεοῦς*. Surely these are the 30 ecliptic divisions in the tablet referred to by Mr. Bertin? It has often been proposed to read "36" instead of "30," and probably the passage will supply an excellent instance of the danger of attempting to alter classical authorities to suit supposed necessities. It will be very interesting to compare the names and stars of these 30 divisions with the moon-stations of other nations. I have long felt certain that sooner or later a Euphratean lunar zodiac would be brought to light.

Half of these 30 Chaldean star-gods were above and half below the earth; hence they formed a circle (the ecliptic). But this arrangement could not, and did not, in the least prevent a further division of the ecliptic into a zodiac of 12 parts; and, accordingly, Diodoros continues:

"And they say that the chiefs of the divinities [*τῶν θεῶν, i.e., of the 30 'Counsellors' previously mentioned]* are 12 in number, to each of whom

they assign a month and one of the 12 signs of the zodiac (*τῶν δώδεκα ζωδίων*). . . . And with the zodiacal circle they mark out 24 stars, half of which they say are arranged in the north and half in the south."

Here we have a division of the ecliptic into 30 parts, and also into 12 parts; and 3 groups of 12 stars (or constellations), northern, central or zodiacal, and southern, the northern and southern groups being numerical reduplications of the central. And this arrangement, be it remembered, is that of the Chaldeans themselves. There is no suggestion that the number 12 was borrowed from Egypt. But I will not further enter into the question of a Euphratean solar zodiac until I have heard the evidence in support of Mr. Bertin's rather startling statements that "the Babylonians never made use of a zodiac of 12 signs," and that such a zodiac was "devised by the Egyptians out of the 30 Babylonian divisions."

ROBERT BROWN, JUN.

SCIENCE NOTES.

THE first number of the new monthly journal called the *Essex Naturalist*, issued by the Essex Field Club, under the editorship of Mr. W. Cole, the hon. secretary, has just been published. It fitly opens with a paper by Mr. T. V. Holmes, the president of the club. In this article he offers an explanation of the origin of the subsidence which occurred in 1862 at Lexden, near Colchester. A nearly circular depression, at least ten feet in depth, was suddenly produced in gravel overlying the London clay. Mr. Holmes regards it as having been formed not by a vertical subsidence, as had been previously suggested, but rather by a landslip, the gravel having slid over the clay towards the River Colne. The last number of the *Transactions of the Essex Field Club*, issued in December, contains the presidential address delivered last year by Mr. Holmes. This deals in a comprehensive manner with the evidence bearing upon British ethnology, discussing the ethnic relations of the successive settlers in this country, and the extent of their probable survival in the present population.

PHILOLOGY NOTES.

THE opening number of the *Phonetische Studien*, edited by Prof. W. Victor, of Marburg University, is to appear in April. Among the contributors to this new periodical are Mr. A. M. Bell (Washington), Mr. A. J. Ellis, Docent J. A. Lundell (Upsala), M. P. Passy (Paris), Prof. E. Sievers (Tübingen), Dr. H. Sweet, Prof. M. Trautmann (Bonn), and other well-known phoneticians.

PROF. C. DE HARLEZ, of Louvain, has just published *Histoire de l'Empire de Kin ou Empire d'or*, translated for the first time from the original *Mandchu Aisin gu-run-i suduri bithe*, with a map. (Louvain, pp. xvi., 288.) The Kin, who were Mandchus, and the ancestors of the present dynasty, ruled over the north of China from 1114 to 1234 A.D. The translation has been done with great regard for accuracy, and is accompanied by interesting and useful notes. It is a worthy successor to the valuable and practical *Manuel de la langue Mandchoue: Grammaire, Anthologie et Lexique*, published by the same scholar some time ago. (Paris, 1884.)

MEETINGS OF SOCIETIES.

THE ENGLISH GOETHE SOCIETY (MANCHESTER BRANCH).—(Wednesday, January 19.)

AFTER the appointment of officers and committee, a paper was read by Mr. R. McClintock, of Liverpool, upon "The Five best English translations of *Faust*," viz., those of Anster, Prof. Blackie, Sir T. Martin,