

ORIENTAL ITEMS OF ETHNOLOGIC INTEREST.

THE seventeenth volume of the Journal of the American Oriental Society contains several articles of ethnologic interest. One is the date of Zoroaster, which fixes the definite form of the Mazdeistic cult. This is placed by Prof. A. V. W. Jackson, in a very erudite analysis of the testimony, 'between the latter half of the seventh century and the middle of the sixth century B. C.'

Dr. John P. Peters defends with strong arguments the opinion that "the original home of civilization in Babylonia was the strip of land from Nippur southward to the neighborhood of Ur," and the founding of the city of Nippur "considerably antedated 6,000 B. C. and perhaps 7,000 B. C." That there were city builders among men that long ago is a most interesting result.

Prof. Haupt, in a critical analysis of the Judaic account of creation, adds to the evidence that it is 'specifically Babylonian' in origin.

Dr. C. P. G. Scott has some remarks on the 'universal' qualities of language, apropos of Malayan, a subject of the greatest anthropologic interest.

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NOTES ON INORGANIC CHEMISTRY.

IN a recent number of the *Zeitschrift für physikalische Chemie*, Debus criticises some of the conclusions of Roscoe and Harden in the 'New Views of Dalton's Atomic Theory.' He holds that in 1801 Dalton was led to the hypothesis that equal volumes of gases under normal conditions contain equal numbers of molecules, and that this hypothesis and his study of the oxids of nitrogen led him to formulate his atomic theory. In 1805 he abandoned his earlier views as to the equal number of molecules. Avogadro was probably aware of Dalton's views and borrowed his hypothesis, which is now known as Avogadro's law.

To the number of metallic carbids produced in his electric furnace by Moissan must now be added lanthanum carbid, C_2La . It is, like most of the other carbids, decomposed by water and yields chiefly (71%) acetylene with 27% methane, a little ethylene and small quantities of liquid and solid hydrocarbons, thus closely resembling the carbid of cerium.

THE last Proceedings of the Chemical Society (London) contain accounts of experiments of E. Sonstadt on sea water. As long ago as 1872 Sonstadt showed that the iodine in sea water is in the form of calcium iodate, four parts per million. His experiments not having been repeated by others, he now shows that an oxidizing substance must be present in sea water. He compares the oxidizing action of sea water on ferrous sulfate with that of sea water which has been deprived of iodates and similar compounds by evaporation and heating with mercury. He finds that the oxidizing quality of sea water is far greater than would be due to the presence of the iodate, and infers that other oxidizing substances are present. It seems ordinarily to be taken for granted that iodine is present in sea water as sodium iodide, analogous to chlorine and bromine, but, aside from Sonstadt, Balard and Pfaff are the only observers who have been able to even detect the presence of iodine in any form in sea water.

Sonstadt also shows that silver and gold can be detected in as small quantities as two liters of sea water, by continued agitation with mercury. The mercury on evaporation leaves a film partly soluble in nitric acid showing silver, while the insoluble portion dissolves in aqua regia and on cupellation gives a very minute bead of gold. Sonstadt concludes that, inasmuch as silver chloride is not decomposed by mercury, the silver may be considered to be present practically as metallic silver, and the gold probably in a similar condition.

H. N. WARREN contributes a short article to the *Chemical News* on calcium carbide as a new reducing agent. He finds that when it is heated with many metallic oxides they are reduced, forming generally alloys of the metal with a small amount of calcium. Even the oxides of chromium, molybdenum and uranium are readily reduced. Calcium carbide, which is so cheap, may come to replace for reduction the more expensive sodium or potassium.

M. GUNTZ, to whom has just been awarded the Saintour prize of the French Academy of Sciences, shows in a recent *Comptes Rendues* that the lithium nitride obtained by him is not pure. Lithium combines directly with nitrogen, but the nitride on formation dissolves a portion of the substance of the vessel in which the lithium is contained. Iron is least readily attacked; silver, platinum, quartz and graphite-carbon are readily acted upon, and cannot be used; hence all of the lithium nitride formed is more or less contaminated by foreign matter.

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ASTRONOMICAL NOTES.

THE Nichols Press, of Lynn., Mass., has published a large quarto volume of 258 pages by Dr. T. J. J. See, entitled 'Researches on the Evolution of the Stellar Systems.' Dr. See gives a comprehensive account of the present state of our knowledge of the binary systems, and, while he includes but little matter which has not already appeared in print, he has produced a book which will certainly be of great interest to students of the subject.

The volume contains excellent accounts of the methods in use for the determination of binary star orbits, as well as reprints of Dr. See's own recent articles published in the *Astronomische Nachrichten*. These articles relate to the use of spectroscopic observations for the study of the binary stars and for the application of a rigorous test

of the universality of the law of gravitation. They have been criticised in the same journal in which they appeared, but in the present volume no notice is taken of these criticisms. Following the theoretical introduction, Dr. See gives his determinations of the orbits of forty stars, together with the observations on which they are based. We have not space to enter into a detailed criticism of this part of the book, but we are not sure that Dr. See's methods will meet with the complete approval of astronomers in general. Thus in the case of Zeta Sagittarii, Dr. See says: "While in Virginia recently I took occasion to measure this star, and, although the object was seen with difficulty, owing to its low altitude, I could discover a distinct elongation in the direction $194^{\circ}.7$; the distance could not be fixed with much confidence, but my settings of the micrometer gave $0''.35$. The estimates of distance were substantially the same, but I am now convinced, from my distinct recollection of the appearance of the object, that both the measure and the estimate were too large." We doubt whether recollections of the appearance of a double star should have any place in the discussion of an orbit. Another thing which students might expect in the present work is a series of extended ephemerides computed from the orbits given by the author. But the ephemerides usually extend for a year or two only, and this circumstance will diminish somewhat the practical usefulness of the work.

THE observatory of Karlsruhe has issued the fifth volume of its publications. We find in it observations of stars south of the equator, made during the years 1892 to 1894, together with a catalogue derived from them. This volume is the last which will be issued from Karlsruhe, as the observatory has been moved to Heidelberg, where new buildings have been erected on one of the hills overlooking the Neckar valley.