

Copper river, and other water routes of the Territory, the United States Congress having granted 100,000 dollars for the purpose.

SCIENTIFIC facts are presented to the public freely and attractively in three lectures which have been arranged at the Whitechapel Free Public Library and Museum. On Tuesday Prof. Hobday lectured on "The Horse and Dog and their relations and friends." On Tuesday, May 10, Prof. W. F. R. Weldon, F.R.S., will discourse upon "Butterflies"; and on June 7, Prof. Marshall Ward, F.R.S., will give an address upon "A Piece of Wood." Admission to the lectures is free by ticket, which can be obtained in the Museum and Library.

APPENDIX II. for 1898 of the *Kew Bulletin* is entirely occupied with a list of New Garden Plants of the year 1897, including also the most noteworthy of those which have been re-introduced after having been lost from cultivation. In addition to species and botanical varieties, all hybrids, whether introduced or of garden origin, with botanical names, and described for the first time in 1897, are included.

MESSRS. J. AND A. CHURCHILL announce that they will publish in a few days a new work on "The Blood: how to examine and diagnose its diseases," by Dr. Alfred C. Coles, illustrated with six coloured plates. They will also issue a fifth edition of "A Manual of Dental Anatomy, Human and Comparative," by Mr. Charles S. Tomes, F.R.S., with many new illustrations. The part dealing with comparative odontology has been expanded to meet the requirements of students of biology.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mrs. Grace Currie; a White-tailed Sea Eagle (*Haliaeetus albicilla*) from the Liautung Peninsula, China, presented by Mr. J. W. Carrell; ten Californian Quails (*Callipepla californica*) from California, presented by Captain Thos. Yardley Powles; a Common Viper (*Vipera berus*), British, presented by Mr. R. Tucker; an Egyptian Jerboa (*Dipus aegyptius*), four Egyptian Ichneumons (*Herpestes ichneumon*), six Gulls (*Larus*, sp. inc.), a Common Kestrel (*Tinnunculus alaudarius*) from Egypt, a Leopard (*Felis pardus*) from West Africa, a Reticulated Python (*Python reticulatus*) from Malacca, deposited; a Chimpanzee (*Anthropopithecus troglodytes*, ♂) from West Africa, a Rosy-billed Duck (*Metopiana roseosaca*, ♀) from South America, purchased.

OUR ASTRONOMICAL COLUMN.

THE DOUBLING OF THE CANALS ON MARS.—The origin of the doubling of the canals visible on the surface of the planet Mars has again come to the front, and this time M. Antoniadi has put forward an explanation. His suggestion is that the doubling is only a phenomenon caused probably by the eye of the observer; in fact, it is the result of slight focusing errors when observing these markings. A full account of this curious cause of error is contributed to *Cosmos* (No. 687) by M. Th. Moreux, and M. Antoniadi himself gives a complete summary of his suggestion in the *Bulletin de la Société Astronomique de France* for April. According to the latter, a thin line, when gradually put slightly out of focus, becomes slowly double, the inner parts of which are blurred; in fact, a regular germination is observed. In addition to this, he finds that if several lines be made to cross at a point, all of these do not become double, but only certain of them. Not only do straight markings, but round and elongated spots become alike doubled. At the end of his paper, after remarking on the curious phenomenon of canals, as actually observed, becoming double in the course of a few hours, he says:—

"Ainsi, si Mars est couvert de 'canaux,' la vision imparfaite devra dédoubler ces lignes. Pareille vision indistincte peut provenir, ainsi que nous venons de le voir: 1° d'une minime erreur de mise au point; 2° d'oscillations diplopiques (fatigue)

de l'œil. Voilà ce qui doit fatalement arriver, et ce qui arrive en réalité."

M. Camille Flammarion tells us in the same journal that M. Adolphe de Boe, of Anvers, in the year 1891 suggested, in a letter to him, that this doubling might be the result of secondary images which, under certain conditions, might be formed in the eye. M. Flammarion is, however, no great believer in this idea, as it does not seem to sufficiently explain all the phenomena of doubling, germination, &c., which have been observed on the surface of this interesting planet, although the arguments brought forward reproduce very ingeniously the greater part of the observations. With him we echo the sentiment of wishing to know what M. Schiaparelli has to say on the subject.

COMET PERRINE.—The latest elements and ephemeris of this comet have been calculated by Prof. H. Kreutz, who gives the results in No. 4 *Circular* recently distributed.

The elements computed from the observations of March 19, 23, 27 and 31, differ slightly from those we have previously given, being:—

$$T = 1898 \text{ March } 17 \cdot 37558 \text{ Berlin M. T.}$$

$$\begin{aligned} \omega &= 47 \text{ } ^{\circ} 34 \text{ } ^{\prime} 12 \text{ } ^{\prime\prime} \cdot 1 \\ \Omega &= 262 \text{ } ^{\circ} 33 \text{ } ^{\prime} 59 \text{ } ^{\prime\prime} \cdot 6 \\ i &= 72 \text{ } ^{\circ} 27 \text{ } ^{\prime} 48 \text{ } ^{\prime\prime} \cdot 1 \\ \log q &= 0 \cdot 040842 \end{aligned} \quad \left. \vphantom{\begin{aligned} \omega \\ \Omega \\ i \\ \log q \end{aligned}} \right\} 1898 \cdot 0$$

The ephemeris for the ensuing week is as follows:—

1898.	R.A.	Dec.	log r	log Δ	Br.
	h. m. s.				
April 14	23 7 15	+40 47 7	0 0757	0 2233	0 77
15	12 13	41 32 9			
16	17 15	42 16 9			
17	22 20	42 59 7			
18	27 27	43 41 3	0 0851	0 2330	0 71
19	32 37	44 21 6			
20	37 49	45 0 6			
21	43 3	45 38 4			
22	23 48 19	+40 15 0	0 0953	0 2438	0 64

It will be noticed that the brightness of this comet is gradually decreasing, and by the end of the month it will be about half that at the time of discovery.

THE APRIL LYRIDS.—As pointed out in this column on March 31 (p. 519), the April shower of meteors is due on 19-20 of this month. The conditions for viewing these bodies if they should be numerous will be very favourable, as the moon will be absent. As Mr. Denning tells us, the periodical maxima of this stream of Lyrids has a computed time of revolution of 415 years, a brilliant display having occurred on April 20 in the year 1803. The radiant point is $270^{\circ} + 32^{\circ}$.

THE MEUDON OBSERVATORY.—Prof. Janssen is evidently bringing together a very strong force at the Astro-Physical Observatory at Meudon. We hear now that, in addition to the other experienced astronomers who are working there, M. Deslandres has been transferred from Paris, and will in future continue his valuable spectroscopic researches at Meudon.

PREHISTORIC RUINS OF HONDURAS AND YUCATAN.

IN 1891 the Directors of the Peabody Museum secured from the Government of Honduras (through the liberality of Mr. C. Bowditch, of Boston) the right to explore the ruins of Copan, and to take away half of the objects found in the excavations, during a period of ten years. The preliminary report of the exploration,¹ now published by the Directors of the Museum, gives the result of the first two years' work, and is accompanied by a plan and many excellent photographic plates.

All those interested in American archaeology must be for ever grateful to the Committee directing the expedition for one instruction given to the explorers; it was to the effect that a wall should be built round the principal group of ruined structures and carved monoliths, so as to save them, if possible, from further destruction. This work has now been most satisfactorily carried out, and the ruins, which were always safe from approach on the river face, are now enclosed on the land side by a substantial stone wall nearly one mile in length.

¹ *Memoirs of the Peabody Museum, &c.* Vol. i. No. 1: "Prehistoric Ruins of Copan, Honduras." "A Preliminary Report of the Explorations by the Museum, 1891-95."