

centre of study and research in palæontology. Increasing interest in the Museum has been evinced by all classes of the citizens of New York. Every course of lectures has been attended by crowded audiences, and pupils of public and private schools, as well as students of science, have derived advantage from the library as well as from the collections.

SEVERAL new editions of scientific works have reached us during the past few days. The first volume of a new edition of Prof. Fleming's systematic treatise on "The Alternate Current Transformer," dealing with the induction of electric currents, has been published by the *Electrician* Printing and Publishing Co. The great progress made during the seven years which have elapsed since the appearance of the original work, has necessitated a thorough revision of the matter, and the volume as it stands now will be appreciated by all who are concerned with alternating-current practice or investigations. Another volume having practical electricity for its subject is "Electric Lighting and Power Distribution" (Whittaker and Co.), by W. Perren Maycock. The first volume of the third edition of this work has been issued in an enlarged form, after careful revision. The second edition of the first volume of Dr. Schlich's "Manual of Forestry" has been published by Messrs. Bradbury, Agnew, and Co. The original was reviewed in NATURE in December 1889 (vol. xli. p. 121), and quite recently (April 2, p. 510) was referred to in these columns. The second edition contains a new part on the State in relation to forestry, and a general review of the timber requirements of the British Empire. Messrs. Longmans, Green, and Co. have issued a second edition of "The Essentials of Chemical Physiology," by Dr. W. D. Halliburton. The chief alterations made are those rendered necessary by the advance of knowledge since 1893, when the first edition was published. The fifth edition of "Southall's Organic Materia Medica," by J. Barclay, has been published by Messrs. J. and A. Churchill. To quote the sub-title, the volume is "a handbook treating of some of the more important of the animal and vegetable drugs made use of in medicine, including the whole of those contained in the British Pharmacopœia." New editions of two volumes by the late Dr. J. E. Taylor, have been received from Messrs. W. H. Allen and Co. The books are "Nature's Byepaths," a series of recreative papers in natural history, and "The Aquarium," a popular manual on the history, construction, and principles of management of public aquaria. Dr. G. Herbert Fowler has edited the sixth edition of the late Prof. Milne Marshall's valuable work on the anatomy, histology, and embryology of "The Frog" (David Nutt). A few additions and alterations have been made, but the work remains substantially the same practical and educational handbook that it ever was. Finally, the recent changes in the Physiography Syllabus of the Department of Science and Art have resulted in the production of a new edition (the sixth) of "Earth Knowledge" (Part II.) by W. Jerome Harrison and H. R. Wakefield. The book follows the Department's Advanced Syllabus, and appears to fulfil the purpose for which it has been designed.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Sir William Call; a Blue-bearded Jay (*Cyanocorax cyanopogon*) from Para, presented by Mr. H. C. T. Beadnell; four Puff Adders (*Vipera arietans*), two Ringhals Snakes (*Sepedon hemachates*), an Egyptian Cobra (*Naja haje*), three Cape Vipers (*Causus rhombeatus*), a Cape Bucephalus (*Bucephalus capensis*), two Infernal Snakes (*Boodon infernalis*), a Nilotic Monitor (*Varanus niloticus*) from South Africa, presented by Mr. J. E. Matcham; a Grey Ichneumon (*Herpestes griseus*) from India, deposited; two Indian Tree Ducks (*Dendrocygna javanica*) from India, purchased; a Japanese Deer (*Cervus sika*), born in the Gardens.

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OUR ASTRONOMICAL COLUMN.

TEMPERATURE ERRORS IN MERIDIAN OBSERVATIONS.—M. Hamy has applied his method of interference fringes to a study of the errors caused in meridian observations by the radiations of the sources of light usually employed in observatories, as well as those due to the presence of the observer himself (*Bull. Ast.*, vol. xiii. p. 178). The researches have completely demonstrated that the unequal distribution of light sources may produce errors in the measures amounting to several seconds of arc, while the heat from the observer may affect the results to the extent of several tenths of a second. It is evident therefore that the subject is one of great importance, and the interferential method is specially adapted for its investigation. M. Hamy has arrived at his conclusions from experiments made with the Gambey meridian circle of the Paris Observatory. In the case of an ordinary gas flame at a distance of 0.83 metre from the telescope, the mean angular displacement of the optic axis with respect to the meridian amounted to 2".1, the flame being lit for ten minutes. Other observations indicate that the deviation is sensibly in inverse proportion to the square of the distance of the flame from the optic axis. The effects of different sources of light were also compared at one metre distance, and the practical outcome is that gas flames provided with chimneys are to be studiously avoided, the variation in collimation amounting in this case to 4".4. The errors due to the heat of the human body are greatest in the case of declination measures, owing to the greater heating of the under side of the telescope tube. It is evident that these errors will depend to some extent upon the materials of which the instrument is constructed, and M. Hamy is of opinion that the best possible material is a metal of high conductivity, such as copper, in which case inequalities of temperature would be almost impossible.

SEARCH EPHEMERIS FOR COMET 1889 V.—The following is a continuation of Dr. Bauschinger's search ephemeris for the return of Brooks's periodic comet (1889 V) (*Ast. Nach.*, No. 3350).

	R.A.	Decl.	Bright- ness.
	h. m. s.	° ' "	
May 28 ...	22 2 38	- 19 44	0.44
June 1 ...	7 17	19 29	0.48
5 ...	11 43	19 14	0.52
9 ...	15 54	19 1	0.56
13 ...	19 49	18 49	0.61
17 ...	23 26	18 39	0.66
21 ...	26 44	18 30	0.71
25 ...	22 29 44	- 18 22	0.77

The unit of theoretical brightness is that on 1889 July 8, the date of the first accurate observation. The comet was last seen in January 1891, at the Lick Observatory, when the calculated brightness was only 0.08. During June the computed path lies in the southern part of Aquarius, so that observations can only be made in the early morning.

CONSTANTS FOR NAUTICAL ALMANACS.—At a convention of Directors of Nautical Almanacs, held at Paris after the recent congress of the International Photographic Chart, Dr. Gill's value of the solar parallax (8".80), resulting from heliometer observations of minor planets, was adopted, and consequently the constant of aberration becomes 20".47. Dr. Gill's value for the mass of the moon, leading to 6".21 for the nutation, was also adopted, and Newcomb's value was accepted for the precession.

THE PLANET MERCURY.—A postcard from Dr. Kreutz, Kiel, contains the information that Mr. Leo Breaner, of the Manora Observatory, saw the dark part of the planet Mercury sharp and distinct on May 18, at 23h. Manora time.

STELLAR PHOTOGRAPHY WITH SMALL TELESCOPES WITHOUT DRIVING-CLOCKS.

STELLAR photography has now become such an important branch of astronomy, that anything which will encourage possessors of small telescopes to turn their energies in this direction will tend towards the advancement of the celestial sciences. It is proposed to show here that useful work may be done by amateur astronomers with their ordinary small refractors, and with none of the mechanical contrivances which are essential for such large telescopes as are used in the international photographic survey of the heavens, which are driven by elaborate and