

scientific instrument makers. A catalogue just received from Messrs. W. and J. George, Ltd., the successors to the late firm of Becker and Co., contains illustrations and prices of apparatus described in the volumes on practical physics by Schuster and Lee, Stewart and Gee, Watson, and Glazebrook. Similar catalogues have lately been published by Messrs. Griffin and Sons and Messrs. Philip Harris and Co. It is satisfactory to know that scientific instrument makers are beginning to understand the necessity of producing simple apparatus at a low price, now that students of physical science are expected to gain their knowledge by individual experience, even in the most elementary stages of the subject. What some of them have yet to learn, however, is that the apparatus is not intended as toys, but as a means of obtaining quantitative results; and unless this end is attainable, the instruments are of little value.

THE annual report for 1896-97 of the Director of the Field Columbian Museum, Chicago, is of interest to curators of museums, and records much progress. It is profusely illustrated by photographs of the rooms, and case-objects. In the division of economic botany, what is called a monographic installation of material exemplifying the North American forest trees is being pursued. The elements of the series comprise a branch, flowers, and fruit from the same tree, a photograph of the tree in summer, and in winter, a seven-foot length of trunk, and transverse section, a two-foot map, coloured to show the distribution of the species, and ornamental cabinet specimens. In the department of zoology the cases have been painted black inside. The report on the expedition and field work is of unusual interest. An account is given of the party which entered Somaliland under Mr. Elliot. He regards the collections made as very valuable, and probably the most important, especially as regards quadrupeds, ever brought out of any country by an expedition. Casts of heads and parts of bodies showing the muscles of the large animals were made, which will prove of the utmost service during mounting. Besides these, over 300 photographic negatives are in hand illustrating the scenery, the people, and also the animals, both living and dead. The last-named will be used in conjunction with the casts. It may be noted that the museum mostly does its own printing.

THE additions to the Zoological Society's Gardens during the past week include two Prairie Marmots (*Cynomys ludovicianus*) from North America, presented by Mr. J. Maurice Glyn; a Spotted Ichneumon (*Herpestes auropunctatus*) from Nepal, presented by the Rev. Sidney Vatcher; a Great Eagle Owl (*Bubo maximus*), European, presented by Captain Betram Goff; two Indian Chevrotaints (*Tragulus meinina*, ♂ ♂) from India, a Mantell's Apteryx (*Apteryx mantelli*), an Owen's Apteryx (*Apteryx oweni*) from New Zealand, two Cardinal Grosbeaks (*Cardinalis virginianus*) from North America, eight Undulated Grass Parrakeets (*Melopsittacus undulatus*) from Australia, a Brown Gannet (*Sula leucogastra*) from South America, a Black Lark (*Melanocorypha yellowi*, ♂) from Siberia, four Chinese Quails (*Coturnix chinensis*) from China, a Black Woodpecker (*Picus martius*), a Solitary Thrush (*Monticola cyanus*), European, purchased; a Leopard (*Felis pardus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

CONSTANT OF ABERRATION.—Prof. C. L. Doolittle, from observations made at the Flower Observatory of the University of Pennsylvania, contributes a paper on this subject to the *Astr. Jour.* 428. He states "that in view of the present interest in the values of the astronomical constants, the investigation is published earlier than was intended. The result is preliminary in the sense that it is derived from a limited amount of material, which will ultimately be combined with other data."

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Küstner's method was employed, and he obtains a result of $20''\cdot572 \pm 0''\cdot009$, which is even larger than his recent deduction of $20''\cdot55$ from his South Bethlehem observation.

Since the adoption, then, of $20''\cdot47$ at the Paris Conference, the four most recent deductions all give higher values, viz. $20''\cdot55$ (Doolittle), $20''\cdot533$ (Fergola), $20''\cdot57$ (Finlay), and $20''\cdot572$ (Doolittle).

WINNECKE'S COMET (α 1898).—This comet will make its perihelion passage in a few days—March 20. In *Astr. Nach.*, No. 3480, Dr. Hillebrand publishes a continuation of the ephemeris, which shows that the comet is on the borders of Aquarius and Capricornus, having passed between α and β Capricorni some few days ago. It is moving slowly in an easterly direction, but is badly placed for observation; so that it is unlikely to be seen again in ordinary telescopes until its next return in 1904.

NEW VARIABLE STARS.—We learn from the *Astronomical Journal*, No. 428, that the variability of the star S.D.M. -20°2007, announced by Mr. Perry in No. 398 of that *Journal*, has been confirmed by Mr. Parkhurst, and in consequence the definite notation 2689 Z Puppis has been assigned to it.

The star in Gemini, announced as variable by Mr. Anderson in *Astr. Nach.* 3463, has also been confirmed by Mr. Parkhurst, and accordingly it has been called 2404 X Geminorum.

ASTRONOMICAL SERIALS.—The *Berliner Astronomisches Jahrbuch* for 1900 has recently been issued, under the editorship, as before, of Prof. Bauschinger, Director of the Rechen-Institut at Berlin. It contains particulars of the solar eclipse which will occur on May 28 of that year, and will be visible as total in the States of Georgia and South Carolina. Leaving North America the shadow band crosses the Atlantic, and strikes Europe on the coast of Portugal near Oporto, passing over Spain and Algeria.

The *Jahrbuch* contains the elements of all the small planets up to No. 425, which was discovered December 28, 1896, by M. Charlois; also opposition elements of a selected number.

The data and arrangement are the same generally as in previous years, but some important changes are contemplated in the planetary table for future years.

In the *Bulletin de la Société Astronomique* for this month there are several reproductions of the partial eclipse of the moon which took place on January 7. The photographs illustrating the various phases were taken by MM. Quémisset and Touchet; one at maximum is from a negative taken by M. Rudaux.

In the same *Journal* there is a summary of Prof. Schiaparelli's fifth "Memoir on Mars," containing his observations made during the opposition in 1886. The author has not given a general chart of the planet for this year, but his observations of 1886 happily complete our aerographical knowledge, by a rigorous examination of the north-polar region. A fine chart illustrating this region accompanies the paper, together with various aspects of the planet on different dates.

Five instantaneous photographs of Jupiter are also reproduced from photographs taken by Prof. Barnard at the Lick Observatory with the 36-inch telescope.

THE SPITSBERGEN GLACIERS.

ON Monday last Sir W. Martin Conway delivered a lecture before the Royal Geographical Society, in which he described the principal results of his second expedition to Spitsbergen, undertaken in conjunction with Mr. E. J. Garwood, in July and August 1897. It will be remembered that in the previous summer Sir Martin Conway, with several companions, for the first time explored, with any thoroughness, certain parts of the interior of the main island of Spitsbergen, throwing much new light on the physical features of the island and their mode of origin. In that year the principal attention was directed to the country south of Ice Fiord, between it and Bell Sound, the result being to show that this region was by no means the ice-clad country it had previously been considered. The principal object of last year's expedition was to examine a new section of the interior, north of Ice Fiord, which was still believed by some to be covered with an ice-sheet similar to that found in Greenland. Two districts in particular were chosen as the field of operations, the one (named by the lecturer Garwood Land) occupying the area between the extremities of Wijde Bay and Ice Fiord in the west and the sea in the east; the other lying west of the line joining the heads