

been very largely increased during the year, the most notable item being a consignment of specimens from Sarawak, presented by Mr. R. Shelford.

THE results of a redetermination of the atomic weight of uranium by Prof. T. W. Richards and Mr. Merigold are published in a recent number of the *Proceedings* of the American Academy of Arts and Sciences. Of previous determinations the only one worthy of serious consideration is that of Zimmermann, who in 1886 found the value 239.59. Zimmermann's method, based on the preparation of pure UO_2 and its conversion into U_3O_8 , appears likely to give too high numbers, owing to the difficulty of obtaining the lower oxide free from occluded gases and also of oxidising it completely. After much preliminary work and a long search for suitable substances, Messrs. Richards and Merigold chose the analysis of uranous bromide as the basis of their method. The preparation of pure uranous bromide and its manipulation present considerable difficulties. Its analysis was effected by first oxidising it to uranyl bromide by means of hydrogen peroxide and then precipitating the bromine by means of silver nitrate. The results showed satisfactory concordance, and led to a conclusion expressed by the authors as follows:—"If oxygen be taken as 16.000 and bromine as 79.955, the atomic weight of uranium appears to be not far from 238.53." It is remarked that, although this number differs by more than a unit from that given by Zimmermann, the percentage difference (0.45) is smaller than many which have often been passed unheeded in the case of elements of smaller atomic weight. It is, however, a noteworthy difference, and the probability seems to be that Zimmermann's number was too high. The paper of Messrs. Richards and Merigold brings to light many interesting facts about the chemistry of uranium.

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcarius*) from South Africa, presented by Mr. E. G. Williams; a Patas Monkey (*Cercopithecus patas*) from West Africa, presented by the Rev. E. Millar; a Green Monkey (*Cercopithecus callitrichus*) from West Africa, presented by Mr. W. S. Hewitt; a Serval (*Felis serval*) from Africa, presented by Mr. P. Hayton; a Ground Hornbill (*Bucorvus*, sp. inc.) from South Africa, presented by Mr. F. H. O. Wilson; a Senegal Turtle Dove (*Turtur senegalensis*) from West Africa, a White-fronted Dove (*Leptoptila jamaicensis*) from Jamaica, presented by Mr. D. Seth Smith; a Barn Owl (*Strix flammea*) European, presented by Mr. G. Dundas; two West African Pythons (*Python sebae*) from West Africa, presented by Lieut. Lamprey; a Long-nosed Crocodile (*Crocodilus cataphractus*) from West Africa, presented by Capt. Gibson; an Orang-outang (*Simia satyrus*) from Borneo, an Alpine Chamois (*Rupicapra tragus*) from Savoy, a Suricate (*Suricata tetradactyla*), four Cape Crowned Cranes (*Balearcica regulorum*) from South Africa, two Grey Ichneumons (*Herpestes griseus*) from India, deposited; a Chimpanzee (*Anthropopithecus troglodytes*) from West Africa, purchased.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN JULY:—

- July 2. 6h. 27m. to 11h. 22m. Transit of Jupiter's Sat. IV.
 2. 14h. 3m. to 14h. 52m. Moon occults δ^8 Tauri (mag. 4.2).
 14. Minor planet Vesta in opposition to the sun.
 15. Venus. Illuminated disc = 0.807. Mars = 0.979.
 15. 10h. Mercury in conjunction with Neptune. Mercury $1^\circ 34'$ S.
 15. 15h. Mercury at greatest elongation $20^\circ 35'$ W.
 17. 13h. Saturn in opposition to the sun.
 18. 8h. 51m. to 12h. 34m. Transit of Jupiter's Sat. III.
 19. Saturn. Outer minor axis of outer ring = $16''\cdot 38$.

NO. 1704, VOL. 66]

- July 19. 10h. 56m. Minimum of Algol (β Persei).
 19. 10h. 58m. to 11h. 54m. Moon occults ρ^1 Sagittarii (mag. 3.9).
 23. 14h. Mars in conjunction with Neptune. Mars $1^\circ 37'$ N.
 25. 12h. 9m. to 15h. 51m. Transit of Jupiter's Sat. III.
 27. 7h. Venus in conjunction with Neptune. Venus $0^\circ 11'$ N.
 28. 14h. Venus in conjunction with μ Geminorum. Venus $0^\circ 2'$ S.
 28-30. Epoch of the Aquarid meteoric shower (radiant $339^\circ-11^\circ$).
 30. 14h. 46m. to 15h. 28m. Moon occults m Tauri (mag. 5.1).
 31. 21h. Venus in conjunction with Mars. Venus $1^\circ 18'$ S.

THE ANNA BREDIKHINE ASTRONOMICAL PRIZE.—The conditions of this new astronomical prize, founded by Prof. Th. Bredikhine in memory of his wife, are published in *The Observatory* for May. The prize is to be awarded for the most thorough investigations of any large comet, the investigations to be pursued on the lines followed by the donor in his own famous cometary researches.

OCCULTATION OF W LEONIS.—Mr. J. F. Cole, of Cambridge, Mass., writing to *Popular Astronomy* (June, 1902), notes an observed decrease in the magnitude of this variable double about one half-second before its occultation. He suggests that other observers might endeavour to discern the probable change of colour at the next occultation, which takes place at 9h. 21m. (Washington mean time) on July 7, magnitude 5.6, position angle 99° .

A REMARKABLE BOLIDE OBSERVED AT LYONS ON MARCH 19.—A correspondent of the Société Astronomique de France records the appearance of "a magnificent bolide" at 9.10 p.m. on March 19. The observer, who was situated at Lyons, states that the meteor first appeared in the neighbourhood of Arcturus and then travelled eastwards until lost in the haze on the horizon. Form, round; light, yellowish orange; magnitude, brighter than Venus; trail, none; duration, 2 seconds (*Bulletin de la Société Astronomique de France*).

NOTATION OF VARIABLE STARS.—At the suggestion of Mr. A. Stanley Williams, and with the idea of correlating the various notations, a list of eighty-one variables to which different names have been assigned in published lists of variable stars, has been prepared by Mr. H. C. Wilson and published in this month's *Popular Astronomy*.

Of the various systems of notation in vogue, Mr. Wilson favours that used in the *Annuaire*, where the first nine variables discovered in a constellation are named by the last nine letters of the alphabet in their normal sequence; the second nine variables discovered in that constellation are designated in the same way, but the suffix "2" is added to the capital letter, and so on for the third, fourth, &c., sets of nine. Thus the twentieth variable discovered in Sagittarius is catalogued as S^8 Sagittarii. As the author remarks, "This method is capable of indefinite extension without becoming cumbersome; but, unfortunately, it does not have the advantage of priority, nor of adoption by those who are doing the most valuable variable-star work," and he therefore suggests that the double-letter system, as adopted by the Variable Star Committee of the Astronomische Gesellschaft, should be universally used; further, he suggests that the assignment of the notation to individual stars should be left entirely to the Committee, and, for provisional purposes, he advocates the adoption of the notation now used in the *Nachrichten* when naming newly suspected variables, viz. to assign consecutive numbers and to add the year of discovery, e.g. 3, 1901.

STUDY OF BRIGHT POINTS AND CURVES.

THE study of "brilliant points and lines" is an application of the principles of geometrical optics which has not hitherto received the amount of consideration which it deserves, when account is taken of (1) the simplicity of the principles involved, (2) the elegance of the results obtained, and (3) the ease with which the subject can be studied experimentally. The writer of the present note has a dim recollection of having worked out in his undergraduate days a triplos rider in which it was required to find the equation of the bright curves seen