

THE additions to the Zoological Society's Gardens during the past week include a Chimpanzee (*Anthropopithecus troglodytes*, ♂) from West Africa, presented by Mr. Claude E. Bird; a Rhesus Monkey (*Macacus rhesus*, ♀) from India, presented by Mr. C. Ganz; a Brown Capuchin (*Cebus fatuellus*) from Guiana, presented by Miss May Hill; two White-throated Capuchins (*Cebus hypoleucus*) from South America, presented by Mrs. C. E. Cregan; three Black-eared Marmosets (*Hapale pentadactyla*) from South-east Brazil, presented by Mrs. Dal Young; a Common Chameleon (*Chamaeleon vulgaris*) from North Africa, presented by Mr. W. E. Raynes-Cole; a Red-vented Bulbul (*Pycnonotus hamorrhous*) from India, deposited.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN OCTOBER:—

- October 2. 10h. 27m. to 11h. 35m. Occultation of 47 Arietis (mag. 5.9) by the moon.
4. Tempel's comet (1867 II.) due at perihelion.
5. 9h. 46m. Minimum of Algol (β Persei).
5. 16h. 6m. to 17h. 27m. Occultation of 132 Tauri (mag. 5.1) by the moon.
7. Saturn. Outer minor axis of the outer ring = 16".09.
7. 17h. 0m. Mars in conjunction with the moon (δ 1° 25' N.).
8. 6h. 35m. Minimum of Algol (β Persei).
13. 11h. 0m. Jupiter in conjunction with the sun.
15. Venus. Portion of illuminated disc = 0.521. Diameter 34".0.
15. Mars. Portion of illuminated disc = 0.880. Diameter 8".0.
16. 4h. 0m. Mercury 2' S. of Jupiter.
- 18-20. Meteoric shower from Orion (radiant 91° + 15°).
20. Perrine-Chofardet's new comet due at perihelion.
22. 3h. 44m. to 4h. 57m. Occultation of π Capricorni (mag. 5.2) by the moon.
22. 5h. 5m. to 5h. 51m. Occultation of ρ Capricorni (mag. 5.0) by the moon.
23. 5h. 13m. to 6h. 13m. Occultation of 18 Aquarii (mag. 5.4) by the moon.
24. Uranus 54' S. of β Scorpii.
27. 5h. 0m. Venus at greatest brilliancy.
29. 13h. 21m. to 14h. 10m. Occultation of μ Arietis (mag. 5.8) by the moon.

THE PLANET BETWEEN THE EARTH AND MARS.—Herr G. Witt, of the Urania Observatory, Berlin, is to be congratulated on the fortunate discovery he has made while searching photographically for minor planets. On August 14 last he found on the plate he had exposed, in addition to the trail of the minor planet he was hoping to catch, a second trail which indicated the presence of another of these small bodies moving round the sun with a more than usual velocity. Herr Witt was not content, however, to let the matter rest thus, so he undertook a series of eye observations and measurements which are necessary for the determination of the elements of the body in question. Herr Berberich undertook the task of investigating its motion from these observations, and the result, as far as is known, is surprisingly interesting. Instead of the object being a new or a previously observed member of that system of bodies which travels round the sun between Mars and Jupiter, it proves to be quite an exception, its orbit lying *within* that of Mars; in other words, it travels in a path which is nearer to the earth than that of Mars. It completes its revolution in a period of about 600 days; that is, roughly, 80 days less than Mars takes: both the eccentricity and inclination of the orbit are considerable. This small body thus becomes our nearest neighbour after the moon, and, although small, will shine when closest to us as a star of the sixth magnitude. No doubt the discovery of this new planet will incite afresh observers of these small bodies; and who will say that this new object is the only member of its kind that performs its revolution round the sun in an orbit between the earth and Mars?

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PHOTOGRAPH OF THE CHROMOSPHERE.—In the *Astrophysical Journal* for August there is reproduced one of the photographs taken by Prof. Naegamvala during the recent eclipse of the sun in January last. Prof. Naegamvala, it will be remembered, was stationed at Jeur, and although his chief instrument (a six-inch Taylor Cooke triplet and two objective prisms of 45°) arrived from the makers as late as January 11, he was very fortunate in being able to adjust it as well as he did in the small amount of time he had at his disposal. The advantage of the prismatic camera over an ordinary slit spectroscope has during the late eclipse been abundantly proved, for one is easily able to differentiate at a glance between the spectra of the corona, the chromosphere and the prominences. There are, however, several points in photographs taken during an eclipse with such instruments which must be carefully considered, and which, when overlooked, are liable to lead to errors. An oversight of this kind occurs in the text describing the photograph referred to above. The writer states: "Perhaps the most interesting feature of the photograph is the prominence shown in two lines between H and H_β, but invisible in H and K and the hydrogen lines."

A glance at the photograph tells us that the prominence is recorded in both the H and K light, but the peculiar position of the prominence in the spectrum is due to the fact that the two "lines" are the images of the upper portion of a prominence on the chromosphere obscured by the dark moon on the side opposite to that represented by the arcs. This same prominence is depicted on most of the negatives that were secured at Viziadrug, and is recorded not only in the H and K lines, but in the hydrogen and other lines.

OBSERVATIONS OF JUPITER DURING THE OPPOSITION 1898.—Sig. J. Comas Solá, observing at the Observatory of Catalá with an equatorial of 22 cm. aperture, made some very interesting observations of the surface markings on Jupiter during the period extending from January 18 to June 12 during the present year (*Astr. Nachr.*, 3519). The general aspect of the surface did not offer evidence of very great change, but rather indicated that the planet was in a state of relative calm. More especially was this the case with the northern equatorial belt, which last year was very large, double and perhaps triple, but recently has been observed to be very simple, showing a uniform structure of a deep ruddy colour. The equatorial zone was found to be of an intense reddish yellow or yellowish orange colour, and was especially rich in details. In addition to the oblique grey markings usually seen, the whole zone appeared flaky, and when the definition was good this was found to be made up of large and small dark round spots. The south equatorial belt did not offer any new markings, but appeared in its normal condition. The red spot, according to Sig. Solá, was always very pale and grey, but in spite of its feebleness he could see the whole of its elliptic contour. The eastern portion always appeared darker than the rest, and sometimes a small dark spot could be seen in this position. From three transits of the eastern portion of this spot in April, May and June, the mean Jovian longitude was found to be 36°.6 for May 23. In the map showing the planisphere of this planet, which accompanies the article, the reader will gather a good general idea of the positions and shape of the markings which were seen by this observer.

PERIODIC COMETS.—In the *Bulletin Astronomique* for September there is a most interesting article, by M. Schulhof, concerning periodic comets and the present state of theories connected with them. The article covers no less than forty-one pages of the *Bulletin*, so we cannot do more than give a very brief outline of its contents. M. Schulhof restricts his remarks simply to the movements of the comets and their accompanying perturbations, but does not touch on their chemical or physical characteristics. After a brief summary of the general ideas concerning the motions of each of these comets, and the part taken by the several investigators who have worked out the orbits, he draws attention to the great similarity between groups of comets, caused, as he mentions, by the presence of our planets exerting their influence as these bodies approach our system. The origin of comets and their relation to meteor swarms are further discussed, also the views of Schiaparelli, Faye, and Tisserand. In concluding, M. Schulhof makes mention of the difficulty connected with a complete reduction of the observations of a comet of short period, with which all computers are familiar, pointing out that the perturbatory actions of all the planets except Neptune have to be taken into account.