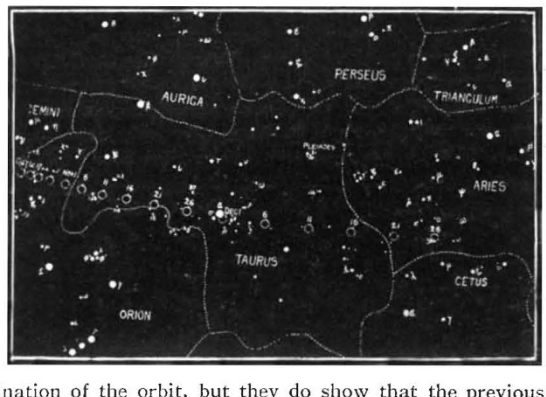
In *Geography and Travel.*—"The Basutos: the Mountaineers and their Country," Sir Godfrey Lagden, 2 vols., illustrated (Hutchinson and Co.); "Mediæval Researches from Eastern Asiatic Sources: Fragments towards the Knowledge of the Geography and History of Central and Western Asia, from the Thirteenth to the Seventeenth Century," E. Bretschneider, 2 vols. (Kegan Paul and Co., Ltd.). In *Mathematics and Physical Science.*—New volumes of the International Scientific Series:—"Music: its Laws and Evolution," J. Combarieu; and new editions of "Light and Photography," Dr. H. Vogel and A. E. Garrett; and "Colour-blindness and Colour-perception," C. W. Edridge-Green, illustrated; also "An Easy and Concise Guide to the Starry Heavens," D. M'Ewan, illustrated (Kegan Paul and Co., Ltd.).

## OUR ASTRONOMICAL COLUMN.

EPHEMERIS FOR HALLEY'S COMET, 1909c.—A corrected ephemeris for Halley's comet is published by Mr. Crommelin in No. 4359 of the *Astronomische Nachrichten* (p. 249, September 28). This ephemeris, like that published in No. 4330 of the same journal, is based on the elements published, for the Astronomische Gesellschaft prize, under the pseudonym "Isti mirantur stellum," Messrs. Cowell and Crommelin, it transpires, being the calculators. The new observations do not yet cover a sufficiently long arc to permit of an independent determination of the orbit, but they do show that the previously published elements are correct except that the date of perihelion passage must be advanced 3·4 days, thereby making it 1910 April 20·0 (G.M.T.); this modification has been taken into account in preparing the present ephemeris, which covers the period August 28 to December 26 in five-day steps. An extract follows:—




*Ephemeris.*

| Berlin M.T | R.A. (1910·0) | (decl. 1910·0) | log $r$ | log $\Delta$ | Magnitude |
|---|---|---|---|---|---|
| | h. m. | ° ′ | | | |
| Oct. 17·4 .. | 6 9·7 | ... +16 57 | ... 0·4785 | ... 0·3982 | ... 14·7 |
| ,, 22·4 ... | 6 5·1 | ... +16 56 | | | |
| ,, 27·4 ... | 5 59·1 | .. +16 54 | ... 0·4603 | ... 0·3447 | ... 14·2 |
| Nov. 1·4 ... | 5 51·7 | ... +16 52 | | | |

From this we see that the comet is at present in the northern limits of Orion, and is some 280 and 230 million miles from the sun and earth respectively; also that it is approaching the sun and the earth at the respective rates of about 1·12 and 2·7 million miles per day. The accompanying chart shows its positions in relation to the constellations so far as Mr. Crommelin's ephemeris gives them.

CHANGES ON MARS.—In No. 4359 of the *Astronomische Nachrichten*, M. R. Jonckheere, of the Observatoire d'Hem (Roubaix), gives a drawing of the south polar cap of Mars, executed on September 2, showing the new "land" which he discovered in longitude 120°. He points out that the crevasse and greyish region observed by M. Jarry Desloges are produced by the emersion of the two "lands," Argyre II. (longitude 60°) and the new one, from the polar snows. For the newly discovered area in longitude 120° he proposes the name "Stella," suggested by its brilliant appearance.

In the same journal M. Antoniadi records his observations, on September 19, of the Mer du Sablier, which to him appeared as Dawes recorded it in 1864. As Prof. Lowell's observations and photographs show it of a very different form during the period 1894–1907, M. Antoniadi suggests that periodic changes of form, probably irregular, may take place in this feature.

A number of interesting observations of the planet are recorded in No. 22 of the *Gazette Astronomique*, by M. P. L. Dupont, of Hoboken, Antwerp.

REMARKABLE METEORS.—No. 22 of the *Gazette Astronomique* contains the records of three remarkable meteors seen in Denmark during August. The first was at 9h. 25m. (C.E.T.) on August 19, and it was bright enough to illuminate the surrounding landscape. Apparently its actual path was from 128 km. above the town of Sorö, in Zealand, to 30 km. above a point on the coast about 22 km. west of Sorö; thus the path was nearly vertical, and the velocity was about 33 km. per second. The other two meteors were seen on the same night at 9h. 17m. and 9h. 38m. respectively. The former was attended by a noise similar to that made by escaping steam, whilst the second one was extraordinarily slow, and was seen for fifteen seconds, during which it passed, nearly horizontally, from 190°, +23° to 152°, +32°.

THE URSA-MAJOR SYSTEM OF STARS.—Following up Dr. Ludendorff's conclusion that the stars $\beta$, $\gamma$, $\delta$, $\epsilon$, and $\zeta$ Ursæ Majoris belong to a definite system of stars moving along parallel lines in space, Mr. Ejnar Hertzsprung has investigated the conditions for other stars having similar proper motions, and finds that a number of other stars probably belong to the same system. Among these may be noted $\beta$ Aurigæ, Sirius, $\alpha$ Coronæ, 78 Ursæ Majoris, and Groombridge 1930, while $\kappa$ Boötis is suspected. A number of the stars, nine out of fifteen given, are double, and a tabulation of the magnitudes and spectral classes suggests a development of spectrum, from one star to another, with an attendant decrease of brightness (*Astrophysical Journal*, vol. xxx., No. 2, p. 135).

SEARCH-EPHEMERIS FOR WINNECKE'S COMET.—A continuation of the search-ephemeris for Winnecke's comet is published by Herr C. Hillebrand in No. 4360 of the *Astronomische Nachrichten*. As the present southerly declination (−20°) is increasing, it is not likely that the comet will be generally observed in the northern hemisphere.

THE NATURE OF SOLAR FACULÆ.—An important result concerning the nature of bright faculæ seen on the sun's disc is published by M. Deslandres in No. 11 of the *Comptes rendus* (p. 493, September 13). The main conclusion is that the vapours in the bright faculic areas are, relatively to the surrounding dark areas, descending. This result has been deduced from the measures of the motion-displacements shown on negatives taken with the Meudon spectro-register of radial velocities, the pure $K_3$ line being employed.

Exhaustive measures of the absolute velocities have not been made, because to measure completely the whole disc on one negative would entail some 36,000 settings, and the Meudon staff is not sufficiently large for such an enterprise. But the measures of a number of displacements on bright areas near the centre of the disc, where the line-of-sight motions are independent of the solar rotation, indicate that the result is general. A diagram which accompanies the paper shows this result for a faculic area photographed on June 4.

M. Deslandres discusses this result in comparison with atmospheric movements on the earth, and suggests that it is in accordance with theory. When a mass of vapour descends it becomes compressed, and therefore brighter; when ascending, its pressure is decreased, and consequently the vapour becomes cooled and less bright.

The investigation of the nature of spots, on the same lines, has not yet been undertaken, M. Deslandres looking upon spots as a secondary phenomenon following the production of faculæ.



© 1909 Nature Publishing Group