A SIXTH edition of Prof. Strasburger's "Handbook of Practical Botany," translated and edited by Prof. W. Hillhouse, has been published by Messrs. Swan Sonnenschein and Co., Ltd. Considerable textual revision has been effected, some new figures have been introduced, the chapter on cell and nuclear division has been in part re-written, and Prof. Hillhouse has rearranged the material in such a way as to illustrate grades in cytological technique.

MESSRS. A. E. STALEY AND CO., Thavies Inn, London, E.C., have forwarded us a copy of the September issue of *Prism*, a little magazine published by Messrs. Bausch and Lomb Optical Co., Rochester, N.Y., U.S.A. This issue deals popularly with the manufacture of the microscope. Messrs. A. E. Staley and Co., who are the exclusive agents of the American company in England and the colonies, will send a copy of the magazine to any interested reader on receipt of a stamp for postage.

MESSRS. LONGMANS, GREEN AND CO. have published a second edition of Mr. J. P. Johnson's "The Stone Implements of South Africa," which was reviewed at length on its first appearance in our issue for May 30, 1907 (vol. lxxvi., p. 99). The volume has been revised and enlarged, further discoveries of the author have been incorporated, and a number of new illustrations added. The comprehensive terms adopted in the first edition have been replaced by the current European nomenclature, though most of the data remains the same. The volume possesses neither index nor table of contents. The price of the new edition is 10*s*.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN NOVEMBER:—

Nov. 4. 21h. 10m. Saturn in conjunction with the Moon (Saturn 2° 42′ N.).
,, 11h. 16m. to 13h. 56m. Occultation of 30 Piscium (mag. 4·7).
9. 8h. 16m. to 9h. 14m. Occultation of ε Tauri (mag. 3·7).
10. 9h. 45m. to 10h. 29m. Occultation of *o* Tauri (mag. 4·8).
12. 10h. 58m. Neptune in conjunction with the Moon (Neptune 2° 36′ S.).
13. Mercury at greatest elongation, 19° 18′ W. of the Sun.
16. 21h. 42m. Jupiter in conjunction with the Moon (Jupiter 4° 20′ S.).
20. 3h. 42m. Venus in conjunction with the Moon (Venus 3° 6′ S.).
,, 9h. Vesta in conjunction with the Moon (Vesta 0° 40′ N.).
21. 23h. 16m. Mercury in conjunction with the Moon (Mercury 1° 55′ S.).
23. 15h. Ceres in conjunction with the Moon. (Ceres 0° 14′ N.).
26. 14h. 6m. Uranus in conjunction with the Moon (Uranus 1° 17′ N.).
30. 11h. 15m. Venus in conjunction with Mars (Venus 1° 17′ N.).
,, 8h. 46m to 9h. 50m. Occultation of τ^2 Aquarii (mag. 4·3).

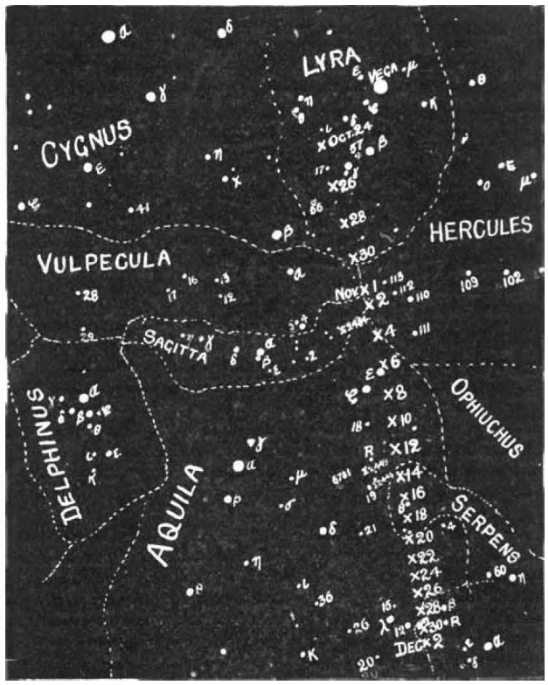
MOREHOUSE'S COMET, 1908*c*.—This object has now become visible to the naked eye, and may be picked up, on a clear night, by any keen-sighted observer who has an idea of its approximate position. Photographs taken at the Solar Physics Observatory, South Kensington, with the 6-inch Dallmeyer camera on October 23 show tails nearly 2° in length, whilst those taken with the 36-inch reflector show a complex series of streamers going to the edge of the plate.

Observations recorded in No. 4277 of the *Astronomische Nachrichten* (p. 84, October 20) appear to confirm the suggestion that the comet and tail have suffered some remarkable changes in visibility. Dr. H. Thiele states that both the length and breadth of the tail and the visibility of the comet have varied. According to his observations the length of the tail has varied between 10′ and 2°, and the breadth, within 10′ of the nucleus, from 15° to 40°; the dates of the longest and narrowest tails were September 12?, 15, 20, 23–27, October 4 and 5.

Prof. Hartwig also reports changes from October 2 to October 5 and 6, and suggests a periodic outrush of tail material.

A telegram from Prof. Pickering to the Kiel Centralstelle states that Messrs. Metcalf and Morehouse each announce a remarkable change in tail of Morehouse's comet on October 15, a change which is confirmed by the Harvard observations.

We give below part of the ephemeris published in No. 4276 of the *Astronomische Nachrichten* by Prof. Kobold, and the accompanying chart indicates approximately the



Path of Comet 1908*c*, October 24 to December 2, 1908.

position of the comet, in regard to the brighter stars, according to this ephemeris, for every alternate night from October 24 to December 2.

Ephemeris 12h. M.T. Berlin.

1908	α (true) h. m.	δ (true) ° ′	log r	log Δ	Brightness
Oct. 28	19 1·2	+27 58·6	0·1369	0·0443	5·6
29	19 0·2	+26 27·5			
30	18 59·3	+24 58·4			
31	18 58·5	+23 31·4			
Nov. 1	18 57·7	+22 6·5	0·1222	0·0629	5·5
2	18 57·0	+20 43·7			
3	18 56·3	+19 23·0			
4	18 55·7	+18 4·3			
5	18 55·2	+16 47·7	0·1073	0·0836	5·4
6	18 54·7	+15 33·2			
7	18 54·2	+14 20·6			
8	18 53·8	+13 10·0			
9	18 53·4	+12 1·3	0·0923	0·1054	5·2
10	18 53·1	+10 54·5			
11	18 52·8	+ 9 49·5			

EPHEMERIS FOR COMET TEMPEL$_3$-SWIFT, 1908*d*.—The recent observations of the Tempel$_3$-Swift comet have enabled M. Maubant to re-determine the most probable time for the perihelion passage and to calculate a new ephemeris. He finds that it is necessary to retard the

time of perihelion 3·646 days, and this reduces the mean diurnal motion by $0''·38$. As M. Bossert found that, in order to represent the 1891 observations correctly, he had also to diminish this factor by the same amount, it is suggested that this comet is subject to a negative acceleration, such as was found by M. Schulhof for the Tempel$_2$ comet, and by M. Lamp for Brorsen's comet.

In the ephemeris, which covers the period October 20 to December 31, the actual positions for 12h. (Paris M.T.) are given for each day, and observations made on September 29 and October 7 show that the ephemeris was correct for R.A. but required corrections in declination of $+1'·7$ and $+1'·8$ respectively. During the period November 1 to December 31 this comet will, according to the ephemeris, apparently travel through the constellations Cancer and Leo, from $\alpha=8$h. 45·1m., $\delta=+24°\ 34'·9$, to $\alpha=9$h. 22·7m., $\delta=+14°\ 8'·4$ (*Astronomische Nachrichten*, No. 4277, p. 79).

EPHEMERIS FOR JUPITER'S EIGHTH SATELLITE.—An ephemeris showing the position of J viii. in regard to Jupiter has been computed by Messrs. Crawford and Etal, and is published in Circular No. 105 from the Kiel Centralstelle. The following is part of it, and gives the differences:—

J viii. − ♃ for 12h. G.M.T.

		$\Delta\alpha$ m. s.		$\Delta\delta$ ′ ″
Oct. 27	...	−2 44·8	...	+26 56
31	...	−3 3·5	...	+27 14
Nov. 4	...	−3 21·9	...	+27 28

SATURN'S RINGS.—Further particulars of the new dark ring surrounding the bright rings of Saturn are published in a message from Herr Schaer, of the Geneva Observatory, to No. 4277 of the *Astronomische Nachrichten* (p. 81, October 20). On October 8 the white ring was seen to be bordered by two narrow bands of a brownish hue. When the seeing was good both bands were seen beyond the edge of the planet's sphere, and from these observations M. Schaer concludes that there is a dark exterior ring somewhat similar to the interior crape ring. This new feature is difficult to see with the Cassegrain telescope of 40 cm. aperture, using powers of 270, 450, and 660.

Prof. Strömgren, observing Saturn at Copenhagen on October 10, was unable to see any extraordinary feature, nor could Prof. Hartwig, at Bamberg on October 10 and 11, confirm M. Schaer's observation. Similarly, Senor J. Comas Sola, who observed the planet under good conditions during the beginning of the month, states that he saw nothing abnormal.

INTERNATIONAL CONFERENCE ON ELECTRICAL UNITS AND STANDARDS.

INTERNATIONAL agreement on the subject of electrical units was arrived at in Paris at the conferences of 1881 and 1884, and at Chicago in 1893. The results of these conferences have been of considerable value to electrical industries. In recent years, however, differences have occurred, partly in the definitions of the units and partly in their realisation, and the degree of precision in electrical measurements which is now possible rendered it necessary to remove these differences. The committee of delegates at the International Congress at St. Louis in 1905 expressed the desirability of summoning an International Conference on Electrical Units and Standards, and the British Government recently invited representatives from all the civilised countries of the world to discuss these subjects.

The conference was opened by the Right Hon. Winston S. Churchill, M.P., on Monday, October 12, at the rooms of the Royal Society. Delegates from twenty-four different countries, including Australia, Canada, and India, were then present. Mr. Churchill gave, as one of the main objects of the gathering, the establishment of a universal system of electrical standards acceptable to all.

Lord Rayleigh was elected president of the conference, and Dr. Glazebrook chairman of a technical committee, the members of which were nominated by the delegates.

Possibly the best general view of the results of the conference can be given by the reproduction of the first portion of Schedule B containing the resolutions which the conference adopted with the request that the delegates would lay these and the specifications which complete the schedule before their respective Governments with the view of obtaining uniformity in the legislation with regard to electric units.

Resolutions.

(1) The conference agrees that as heretofore the magnitudes of the fundamental electric units shall be determined on the electromagnetic system of measurement with reference to the centimetre as the unit of length, the gram as the unit of mass, and the second as the unit of time.

These fundamental units are (1) the ohm, the unit of electric resistance which has the value of 1,000,000,000 in terms of the centimetre and second; (2) the ampere, the unit of electric current which has the value of one-tenth (0·1) in terms of the centimetre, gram, and second; (3) the volt, the unit of electromotive force which has the value 100,000,000 in terms of the centimetre, the gram, and the second; (4) the watt, the unit of power which has the value 10,000,000 in terms of the centimetre, the gram, and the second.

(2) As a system of units representing the above and sufficiently near to them to be adopted for the purpose of electrical measurements and as a basis for legislation, the conference recommends the adoption of the international ohm, the international ampere, and the international volt defined according to the following definitions.

(3) The ohm is the first primary unit.

(4) The international ohm is defined as the resistance of a specified column of mercury.

(5) The international ohm is the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14·4521 grams in mass, of a constant cross-sectional area, and of a length of 106·300 centimetres.

To determine the resistance of a column of mercury in terms of the international ohm, the procedure to be followed shall be that set out in Specification A attached to these resolutions.

(6) The ampere is the second primary unit.

(7) The international ampere is the unvarying electric current which, when passed through a solution of nitrate of silver in water, in accordance with the Specification B attached to these resolutions, deposits silver at the rate of 0·00111800 of a gram per second.

(8) The international volt is the electrical pressure which, when steadily applied to a conductor whose resistance is one international ohm, will produce a current of one international ampere.

(9) The international watt is the energy expended per second by an unvarying electric current of one international ampere under an electric pressure of one international volt.

A comparison of these resolutions and those of the Chicago Conference will show two main changes.

In the first place there is no reference to the E.M.F. of a standard cell in the definition of the volt, while in the second the definitions of the international ohm, ampere, and volt have been made more precise. As to the first of these changes, after it had been decided that the volt was to remain a derived unit, there was no difference of opinion. The other, as a reference to the account of the proceedings will show, gave rise to much discussion. The increased precision, which it should be noted concerns the definitions of the units, and probably does not affect the concrete standards by which the units are expressed, is arrived at in two ways. In the first place, a distinction is drawn between the ohm—10^9 C.G.S. units of resistance—and the international ohm—the resistance of a definite column of mercury. Previously, some such phrase as that the ohm 10^9 C.G.S. units "is *represented* by the resistance" of a certain column of mercury has been used; in the new resolutions it is stated that the international ohm represents the ohm *sufficiently nearly* for the purpose of electrical measurements and as a basis for legislation, and *is* the resistance of a certain column of mercury of length 106·300 centimetres. Precision is given in the second place by the addition of the 00 after the 3 in the above length, the international ohm being thus defined to one part in a hundred thousand.