## OUR ASTRONOMICAL COLUMN.

COMET NEWS.—*Astronomische Nachrichten* (No. 4686) gives improved elements for comet 1913*b* (Metcalf), and also an ephemeris, including the current week, from which the following positions are taken :—

12*h*. *M.T. Berlin.*

| | R.A. (true) h. m. s. | Dec. (true) ° ′ | Mag. |
|---|---|---|---|
| Oct. 23 ... | 20 51 54 | ... +15 7·8 | |
| 24 ... | 50 52 | ... 13 18·9 | |
| 25 ... | 49 57 | ... 11 36·2 | ... 9·1 |
| 26 ... | 49 9 | ... 9 59·7 | |
| 27 ... | 48 26 | ... 8 28·6 | |
| 28 ... | 47 50 | ... 7 2·9 | |
| 29 ... | 47 19 | ... 5 42·0 | ... 9·4 |
| 30 ... | 20 46 53 | ... +4 25·8 | |

The comet is rapidly reducing its northern declination, and as its magnitude is also decreasing it will become an object only for larger apertures.

Westphal's comet is becoming an interesting object, and will for some time be in a good observing position. It is moving into the constellation of Vulpecula, and during the first week of November will pass into Cygnus and become involved in the Milky Way. A photograph taken on September 28 showed a broad tail 3·5° long, a round nucleus of 20 min. in diameter, and a distinct nucleus. It has been glimpsed with the naked eye, and is an easy object for binoculars. The following is an approximate ephemeris :—

| | R.A. h. m. | Dec. ° ′ |
|---|---|---|
| Oct. 24 ... | 20 48 | ... +19 46 |
| 28 ... | 43 | ... 22 23 |
| Nov. 1 ... | 39 | ... 24 50 |
| 5 ... | 20 36 | ... +27 16 |

It is worthy of note to mention that both Westphal's and Metcalf's comets are in about the same region of the sky, being less than two degrees apart on October 22.

The following are three positions for comet 1913*c* (Neujmin), now a faint object, published in *Astronomische Nachrichten* (No. 4685) :—

| | R.A. (true) h. m. s. | Dec. (true) ° ′ |
|---|---|---|
| Oct. 22 ... | 23 34 0 | ... +13 55·7 |
| 26 ... | 35 29 | ... 14 33·3 |
| 30 ... | 37 29 | ... 15 7·4 |

The same journal (No. 4686) publishes the information received by Banachiewicz to the effect that the brightness of Neujmin's comet appears to be fluctuating. Its magnitude is fainter than 11.

ORBITS OF EIGHTY-SEVEN ECLIPSING BINARIES.—Dr. Harlow Shapley contributes to *The Astrophysical Journal* for September (vol. xxxviii., No. 2) a summary of an important though laborious piece of work on the orbits of eighty-seven eclipsing binaries. In the present publication he restricts himself to a few of the general results, leaving the complete statistical discussion for a future Princetown University Observatory publication. Some of the conclusions here briefly summarised show that the better the observations of an eclipsing binary are, the more satisfactory is the theoretical representation of the light variations. Further irregularities in the shape of the light-curves disappear with increased photometric accuracy. The existence of darkening towards the limb of the stellar disc is clearly indicated, and actually demonstrated in a few cases. There is a positive indication that the fainter star is self-luminous, and no case arises where it is necessary to assume one component completely dark. In discussing the distribution of densities relative to spectra the first-type stars (spectra B and A) show a marked preference for an intermediate density. The second-type stars fall into two groups, one preceding and the other following in order of density the first-type stars. Dr. Shapley points out that these two groups are obviously identical with the two classes of second-type stars of very greatly different luminosity discussed by Hertzsprung and Russell, and the facts collected afford direct support of Russell's theory that the differences in brightness of the two groups are to be ascribed in the main to great differences in the mean density.

VARIATIONS IN THE EARTH'S MAGNETIC FIELD.—In a short article in *Science* (August 29, 1913) Prof. Francis E. Nipher states that a series of open-air observations has fully verified the conclusions he has published regarding local magnetic storms. It appears that clouds prevent the solar ionisation of the air in their shadows, just as does the earth. When the molecules of air are ionised they become little magnets, and arranging themselves along the lines of force add their effect to that of the earth's magnetic field. In the absence of the solar radiation, wind or falling rain destroys this arrangement. It is hence suggested that local, daily, and annual variations are due to local variation in the weather. In a previous article in *Science* (May 30) Prof. Nipher describes a model with which a somewhat similar magnetic storm can be produced experimentally. In the model iron filings take the place of the ionised molecules of air.

THE LIGHT CURVE OF *o* CETI.—In the *Memorie della Società degli Spettroscopisti Italiani*, September, 1913, Sig. G. B. Lacchini publishes the results of his observations of this variable made during the period July 12, 1912–March 11, 1913. He used a telescope of 6 cm. aperture, 80 cm. focal length, with powers of 20 and 40, the comparison stars employed being those of the variable star section of the B.A.A. The epoch of minimum found was December 10, 1912, a result differing by only one day from that found by Dr. E. Guerrieri (December 9, 1912). The star lost one magnitude per twenty-seven days, and gained one magnitude per eleven days, according to Sig. Lacchini, which figures compare with 29·6 days and nine days respectively as determined by Dr. Guerrieri. The actual faintest magnitude recorded was 9·09 on December 3, 1912.

## THE FRAUENFELD MEETING OF THE SWISS SOCIETY FOR THE ADVANCEMENT OF SCIENCE.

THE ninety-sixth annual meeting of the Société Helvétique des Sciences Naturelles was held, as already announced, at Frauenfeld in September. The set discourses were largely attended, and were listened to with considerable interest. Prof. Grubemann, in his lecture on the most recent methods employed in petrography, referred especially to the evolution of rocks, and the bearing of metallography and the chemistry of colloids on his subject. Prof. Maillefer gave an account of his researches on the geotropism of plants, partly from an experimental and partly from a mathematical point of view. He claimed to have proved that gravity has an effect on the curvature of a plant which requires time to take effect, and may be expressed by saying that the curvature possesses a velocity proportional to the sine of the angle made by the plant with the vertical and an acceleration proportional to the time of exposure. The effect is, he said, felt by the plant from the outset, though the time measurements seem to depend on the instruments used in the observations. His results were in a subsequent communication partly