

OUR ASTRONOMICAL COLUMN.

THE HOTTEST STARS.—Under this heading, Dr. Ant. Pannekoek communicates a short note to the *Astronomische Nachrichten*, No. 4657. It relates to the list of spectral-photometric measures made by Herr H. Rosenberg (see this column, May 29) of the temperatures of the hotter stars. Dr. Pannekoek states that from this list a regular increase of the figures takes places with the class-number of the spectra according to Miss Maury's classification. Whether this increase commences at the beginning or in which class the helium or the whitest or hottest stars are to be found cannot be clearly stated in consequence of the few stars discussed. Dr. Pannekoek utilises the large quantity of material available in the catalogue of colour-estimations by Osthoff, and while they give no results of absolute temperature, they are of value from a relative point of view. The comparison of these values with Miss Maury's types brings out the result that lowest colour number corresponds with her class IV. or IV.-V., or the typical helium stars. On either side of these classes the colour numbers increase, and the temperature decreases not only on the side of the Sirian stars of the first type, but also towards the Wolf-Rayet stars. The following is the complete table which he gives in the paper, but here Miss Maury's classes are preceded by the equivalents in Sir Norman Lockyer's classification for comparison:—

Class (Lockyer)	Class (Miss Maury)	Colour	No. of stars
Argonian ... ..	I	2.47	6
Alnitamian ... ..	II	2.36	10
Crucian ... ..	III	2.30	9
Crucian, Achernian ... ..	IV	1.94	14
—	IV-V	1.62	10
Taurian, Algolian ... ..	V	2.11	9
Rigelian, Algolian ... ..	VI	2.16	10
Algolian, Markabian ... ..	VII	2.27	23
Cygnian, Markabian ... ..	VIII	2.37	34
Sirian ... ..	IX	2.64	20
Sirian ... ..	X	3.11	14
Procyonian ... ..	XI	3.40	9
—	XI-XII	3.41	4
Polarian, Procyonian ... ..	XII	3.68	17
Polarian, Procyonian ... ..	XIII	4.12	13
Arcturian ... ..	XIV	4.45	12
—	XIV-XV	5.09	9
Arcturian ... ..	XV A	5.18	18
Arcturian ... ..	XV B	5.35	26
Arcturian ... ..	XV C	5.55	31
—	XV-XVI	6.34	5
Aldebarian ... ..	XVI	6.47	17
Antarian ... ..	XVII	6.80	15
Antarian ... ..	XVIII	6.74	15
Antarian ... ..	XIX	6.67	6

A PHOTO-VISUAL COMPARATOR FOR THE IDENTIFICATION OF MINOR PLANETS.—As the only means whereby a minor planet is distinguishable from a star of the same magnitude is its proper motion, its identification is often a matter of considerable labour proportional to the planet's magnitude and the uncertainty of the ephemeris. To this end M. J. Lagrula employs an ingenious arrangement which he describes in a note presented to the Paris Academy of Sciences (*Comptes rendus*, No. 15). It consists of a binocular combination of telescope and microscope, forming what is essentially a stereo-comparator, in which a coloured image of a photographic positive of the region to be examined is superposed on the image seen in the telescope. All objects visible in the field of the telescope, except small planets which have no counterpart on the photograph, are distinguished by the presence of a coloured disc. For use with the Gautier

equatorial of the Nice Observatory copies of the photographic charts of MM. Palisa and Wolf have been found eminently suitable. As an example of the rapidity and efficiency of operating with the device the author instances detecting within five minutes an error in the published ephemerides of (233) Asterope.

METEOR DUST AS A MEASURE OF GEOLOGIC TIME.—In *Science*, No. 957, Prof. Alfred C. Lane directs attention to the possibility of using the proportion of contained meteor dust as a measure of the rate of formation of strata, and hence as a criterion of geologic time. He calculates that the earth gains 20,000 grams of cosmically derived nickel per square kilometre per annum. From this figure and the nickel content of the abysmal red clay he estimates that a layer one metre thick of the latter requires 8700 years to accumulate. The professor urges members of proposed polar expeditions to complete Nordenskjöld's observations by determining the rate of deposition of cosmic dust, and optimistically anticipates that within this century there will be drilled a hole in the bottom of the sea which will give us the other datum to be determined.

THE ROYAL AGRICULTURAL SHOW.

THE extremely successful Royal Show held at Bristol, July 2-5, illustrated in a striking way the general progress being made in agriculture, horticulture, and forestry, but presented very little calling for comment from the scientific point of view. Among livestock, a remarkable novelty was the pen of primitive breeds of sheep—and crosses from the same—exhibited by Prof. Cossar Ewart and Mr. H. J. Elwes. This throws some light on the origin of domesticated sheep, and also suggests the possibility of establishing one or more new breeds capable of thriving on poor upland pastures in this country, and of yielding more valuable wool than that of the ordinary hill-breeds.

In the Agricultural Education Exhibition, Rothamsted showed an interesting series of tomato-plants in pots to demonstrate the advantage of partial sterilisation of soil in various ways. Wye College—as usual—exhibited a striking series of pests, fungoid (including a new disease of apple-buds) and insect (some in the living state). The University of Bristol was represented by the associated Royal Agricultural College (received in deputation by H.M. the King on July 4) and Long Ashton Fruit and Cider Institute. The chief feature of the former was a collection of wool-staples, including a series from the sheep in the above-mentioned exhibit of Ewart and Elwes. Long Ashton, as the chief British horticultural research centre, is evidently working with increased energy since its reconstitution and extension, and one of its most interesting exhibits consisted of specimens of a new disease of pear-blossoms, due to bacteria as yet unnamed, and causing the young fruits to fall early. The Nature-study Section, including exhibits from several western and south-western counties, was a decided improvement on past years, proving that school work is now more systematic than formerly. Gloucestershire is to be congratulated on classifying its material by subjects and not by schools.

The exhibit of British tobaccos attracted much notice, but most of those who sampled the specimens were not impressed by their quality, though no doubt home-grown material may prove useful for fumigation purposes. The Forestry Section was particularly