

coinciding with what should be expected for a star in this position and belonging physically to the group of the Hyades. From the comparison of two fine plates taken at Paris with an interval of 33·23 years I find that the star Gaultier 298 has a proper motion, relative to stars belonging physically to the Pleiades, of  $\Delta\mu_\alpha \cos \delta = +''^a.126$  and  $\Delta\mu_\delta = +''^a.001$ . The proper motion of the Pleiades in the system of Boss is  $\mu_\alpha \cos \delta = +''^a.020$  and  $\mu_\delta = -''^a.049$ . Hence the proper motion of Gaultier 298 in this system is  $\mu_\alpha \cos \delta = +''^a.146$  and  $\mu_\delta = -''^a.048$  or  $''^a.153$  in the direction  $108^\circ.2$ . The direction corresponding to membership of the group of the Hyades is  $110^\circ.0$  and the amount about  $''^a.150$ . The agreement is satisfactory and a determination of the radial velocity, which ought to be  $+33.5 \text{ km/s}$ , seems very desirable in order to look for further evidence of this star

being a physical member of the Hyades. The angular distance of Gaultier 298 from the centre of the Hyades ( $4^h20^m, +15^\circ.6$ ) is  $11^\circ.5$ . This is only about one degree more than the angular distance  $10^\circ.6$  of the very probable member  $\iota$  Tauri from the centre of the group. If the membership of Gaultier 298 of the Hyades is confirmed it means that the Pleiades and the Hyades overlap as projected on the sky.

The colourindex of Gaultier 298 is  $+1^m.13 \pm ^m.06$  (m. e.) (*Mem. de l'Acad. Roy. de Danemarck, Sec. des Sciences*, 8<sup>me</sup> sér, t. 4, no. 4; 1923), corresponding to a visual magnitude of  $11^m.59 - 1^m.13 = 10^m.46$ . The parallax of the Hyades being  $''.027$ , the corresponding absolute magnitude would be  $10^m.46 + 5 \log .027 = +2^m.62$  in good agreement with the colour-index  $+1^m.13$ .

### A new variable star of the $\delta$ Cephei type, by *Ejnar Hertzsprung*.

On plates taken at Johannesburg with the Franklin-Adams instrument of the region with centre at  $11^h.9, -62^\circ$ , following that of  $\eta$  Carinae, the star *C.P.D.*  $-62^\circ 2388, 11^h47^m23^s.0, -62^\circ 9'.5$  (1875),  $9^m.7$ , was found to be variable. A preliminary examination of the object on 97 plates shows it to be of the  $\delta$  Cephei type with a period so nearly equal to 4 days, that I am as yet unable to say, whether the period is greater or smaller than that. As practically only four points of the lightcurve have been observed, its form is still rather uncertain and the epoch of

maximum can only be indicated with a considerable mean error, which I estimate to be about  $\pm ^d.4$ . The provisional elements are

$$\text{Max. J. D. Grw. } 2423999.6 + 4.00 E.$$

The epoch when the magnitude midway between maximum and minimum is reached on the ascending branch of the lightcurve is less uncertain and estimated to be at J. D. Grw. 2423999.1.

The photographic range is found to be about  $^s.6$  equivalent to  $^m.8$  or  $^m.9$ .

### Provisional ephemerides of 7 variable stars of the eclipsing type in the region of $\eta$ Carinae, by *Ejnar Hertzsprung*.

During my stay at Johannesburg I have, in addition to those already published, treated the following 7 Algolvariables, one of which is AW Carinae, the other 6 being new. The results are given in the usual form in Table 1, including SW Carinae, the coordinates of which have been wrongly indicated in *B. A. N.* 77 by confounding it with the following variable given in Harvard Circular 151.

The details of the light-curves are given in Table 2 and in the accompanying diagrams. \*) The total number of estimates used in this note is 3180.

The individual stars give rise to the following remarks:

\*) I have asked the A. G. commission for variable stars to designate the stars before publication, but this has been refused.

*a.* Mean error of epoch  $\pm ^d.01$  and of period  $\pm ^d.00014$ . There is a doubtful indication of a secondary minimum of about  $^s.04$ .

*b.* M. e. of epoch  $\pm ^d.0016$  and of period  $\pm ^d.0000034$ . The star was found faint on two old plates, viz. from J. D. hel. M. T. Grw. 2420963.3209 ( $^s.94$ ) and 2421287.3297 ( $^s.69$ ).

AW *Car.* M. e. of epoch  $\pm ^d.02$  and of period  $\pm ^d.00005$ . This variable had previously been discovered at the Union Observatory and announced in *C. U. O.* 46 (1919 July 7). The variability was confirmed at Harvard, indicating a minimum at J. D. 2414426.6. The star was found faint on two old plates, viz. from J. D. hel. M. T. Grw. 2420605.2609 ( $1^s.70$ ) and 2420963.3209. The minimum seems to remain constant for about  $.015$  of the period.