

# British Astronomical Association

## VARIABLE STAR SECTION

### CIRCULAR 9.

*Deurne, Antwerp, 1930 April 15.*

26, rue Herry.

(1) **THE MEMOIR, Vol. XXVIII.** — The Director begs to congratulate the Section, and all the Members who contributed to the publication of the Tenth Report, containing 43,590 observations chiefly made during the quinquennium 1920-1924. It is hoped that the new arrangements made for presenting this important material in a condensed form, and the alphabetical order adopted for the Variables, have met with general approval.

The Director has received marks of encouragement upon the publication of the Memoir from several astronomers interested in the study of Variable Stars, both British and foreign. Notices announcing this work have appeared in astronomical journals and publications of learned societies, with appreciations of its value. At the Eighteenth Annual Meeting of the American Association of Variable Star Observers (A. A. V. S. O.), held on October 19, 1929, at the Harvard College Observatory, Mr. LEON CAMPBELL, the well-known authority on Variable Stars, presented a paper based on our last Memoir. He stated that light curves for R Andromedæ and  $\sigma$  Ceti derived from the two sources (V. S. S. and A. A. V. S. O.) gave practically identical results (*Variable Comments*, Vol. II, p. 18, No. 4, January 1930).

It is gratifying to find that the exertions of the Section as a whole are esteemed at their value in the astronomical world. In his important treatise „Die veränderlichen Sterne „ (Variable Stars) recently published as Chapter 3 of the great „Handbuch der Astrophysik „ (Band VI), Prof. LUDENDORFF says that the Variable Star Section of the B. A. A. observed a series of Variables „with exceptional care „. No less than five of our curves ( $\sigma$  Ceti, 1913-1914; R Draconis, 1915-1916; R Boötis, 1918-1919; X Camelopardalis, 1916-1917; and R Aurigæ, 1916-1917) are reproduced in this treatise from Appendix to Vols. XXII and XXV, as illustrating respectively the  $\alpha_3$ ,  $\alpha_4$ ,  $\beta_1$ ,  $\beta_3$ , and  $\gamma_1$  types of light curves of Variable Stars. It is hoped that this recognition of our efforts will stimulate the Section to further activity.

Members are earnestly requested to peruse attentively the headings to the observations of the following Variables on our Working List contained in the new Memoir, and to correct and complete their Blue Prints with the data contained in these headings: —

R Andromedæ, p. 1 ; W Andromedæ, p. 7 ; R Boötis, p. 56 ; S Boötis, p. 64 ; V Camelopardalis, p. 99 ; R Cassiopeiæ, p. 114 ; S Cassiopeiæ, p. 123 ;  $\sigma$  (Mira) Ceti, p. 160 ;  $\gamma$  Cygni, p. 186 ; T Draconis, p. 243 ; R Geminorum, p. 244, for which Hagen's 3 and 44 should *not* be used ; T Herculis, p. 259 ; U Orionis, p. 311, for which Hagen's 41 should *not* be used ; X Pegasi, p. 323 ; R Serpentis, p. 331 ; T Ursæ Majoris, p. 368 ; and R Vulpeculæ, p. 392, for which Hagen's 6 should *not* be used.

In the heading of  $\gamma$  Cygni, p. 186, Star D, for BD + 30° 3857, substitute 3837.

In the heading of R Hydræ, p. 274, Star P = Fl. 73 Virginis, is H. C. O. *m*, mag. 5<sup>m</sup>.85 (H. A., 37, 165).

**(2) CORRECTIONS TO BLUE PRINTS, THIRD LIST.** — The following is a List of corrections and additions which are needed in certain of the Blue Prints at present in use by the section, and is in continuation of the Second List issued in *Circular 7*, p. 23 (5) : —

*R Andromedæ.* — On Comparison Star List dated 6-7-10, change magnitude of Hagen's 48 from 13<sup>m</sup>.35 to 12<sup>m</sup>.6, according to an unpublished measure of the Leander Mc Cormick Observatory. C. F. BUTTERWORTH had remarked that this star was rated too faint.

*S Boötis.* — H. C. O. star A = Hagen's 5 + 6 = 8<sup>m</sup>12.

*U Boötis.* — A good additional Comparison Star is H. C. O. *d*, in position — 3<sup>m</sup>21<sup>s</sup>, + 34'.2, mag. 9<sup>m</sup>12. (H. A., 57, 245).

*S Cassiopeiæ.* — On Comparison Star List dated January 1923, Region 10' Square, change  $\Delta\delta$  of H. C. O. *w* (Hagen's 60) from + 0'.1 to + 0'.4, according to a remark by W. H. STEAVENSON, corroborated by HAGEN (*Aggiunte alle Carte*, p. 25).

*U Cygni.* — Two stars numbered 17 are shown on C. L. B.'s Chart No. 38. That on the right of the Chart, at + 5<sup>m</sup>33<sup>s</sup>, + 1'.9, should be changed to 18.

*V Cygni.* — Several Members have suggested the inclusion of Hagen's 17 (— 0<sup>m</sup>22<sup>s</sup>, + 5'.7) which is shown, but not numbered, on our Chart, among the comparison stars for this Variable, but as it is considered variable by two observers, it is thought best to make no change in this respect. Although conveniently placed, Hagen's 17 was *not* selected as a comparison star by the Harvard observers.

*U Orionis.* — Two stars numbered 5 are shown on the Blue Print Chart for this Variable. That further from the Variable should be 26. Positions :

	$\Delta\alpha$	$\Delta\delta$
25	+ 0 <sup>m</sup> 17 <sup>s</sup>	— 8'.4
26	+ 0 37	— 11.8

*S Persei.* — In VSS-BAA Chart 3, dated December 1923, Region 10' Square, change  $\Delta\delta$  of Hagen's 54 from + 3'.1 to + 6'.1 (outside the square). This is one of the very rare slips in the *Atlas Stellarum Variabilium*, which is so remarkably free of errors, and should be corrected in the Catalogue of Series III. The error was

pointed out by G. P. B. HALLOWES and also, independently, by A BRUN (*Bull. Obs. Lyon*, VI (1924), p.128). Father HAGEN kindly checked this on the sky in 1926, and writes that the error is due to a mistake in reading the glass scale used in measuring declinations, which is divided into 3' intervals. He adds : " I only wonder that the error is on the working chart, and that I overlooked it at the final comparison with the sky ".

*S Ursæ Majoris*. — The use of Hagen's 4 should be avoided, as its present magnitude, about 7<sup>m</sup>3, as pointed out by F. ADDEY, somewhat differs from Hagen's reduced to H. C. O., viz. 7<sup>m</sup>53.

*R Ursæ Minoris*. — W. M. LINDLEY points out that in Comparison Star List VSS-BAA 7, dated January 1924, Note to star *f*,  $\Delta\delta -32'.8$  should be read for  $-27'.2$ .

*R Vulpeculæ*. — Two stars numbered 69 are shown on the Blue Print Chart. That at  $+27^s$ ,  $-8'.4$  should be changed to 67. The position of 69 is  $+39^s$ ,  $+9'.3$ .

Observers are urged to enter the above corrections and additions on their Charts and Lists.

**(3) NEW BLUE PRINTS, SECOND LIST.** — Since the publication of the First List in Circular 6, the following new Blue Prints have been issued : —

Nº	STAR	KIND OF BLUE PRINT	DRAWN BY	DATE
13	S Cassiopeiæ	Region 10' Square	E. E. M.	1924 Aug.
14	"	Comparison Star List	"	1924 Sept.
15	W Cassiopeiæ	Durchmusterung and Telescopic Charts	F. D. R.	1926 Jan.
16	"	Comparison Star List	"	1926 Jan.
17	X Pegasi	Telescopic Chart	"	1926 March
18	"	Comparison Star List	"	1926 March
19	X Leonis	Telescopic Chart	"	1926 March
19B	"	" Corrected	"	1926 March
20	SS Aurigæ	Telescopic Chart	"	1927 July
21	"	Comparison Star List	"	1927 July
22	T Piscium	Telescopic Chart	"	1927 Sept.
23	"	Binocular Chart	"	1927 Sept.
24	"	Comparison Star List	"	1927 Sept.
30	V Ursæ Majoris	Telescopic Chart	"	1927 Sept.
31	"	Comparison Star List	"	1927 Sept.

The prints are very generously provided by Mr. C. L. BROOK, formerly Director of the Section. The Register for the same is now kept by the present Director. Members observing stars for which new Blue Prints have been issued, or wishing to take up additional Variables, are requested to apply for them to Mr. A. N. BROWN, Hon. Secretary to the Section, who keeps them in stock, simply quoting the Register number.

**(4) DATES FOR SENDING IN OBSERVATIONS.** — It would be a great convenience to the Director and Hon. Secretary if Members would kindly send in their observations *of the previous year* for the different classes of Variables, so that they may reach the addresses at Antwerp and Bucklebury *at the latest* as follows :—

- A. — SS Cygni . . . . . by January 31
- B. — Long Periods < 300<sup>d</sup> . . . . . " January 31
- C. — Long Periods > 300<sup>d</sup> . . . . . " February 28
- D. — Irregulars . . . . . " March 31

Observations of Members within the British Empire should be addressed to Mr. A. N. BROWN, Bucklebury Common, nr. Reading, England ; all other observations, to the Director, Deurne, Antwerp, Belgium.

If observations might be sent in *as soon as possible* in the New Year, and in no case later than the above dates, it is unnecessary for Members to trouble to forward any of their work for the year at an earlier date.

Each series of observations of *any star* — even the shortest — made in *any given year* should be written on a *separate* sheet or sheets, and in preference on Forms supplied by the Section, or at least on sheets *of the same size* (10 in. × 8 in.).

**(5) DESIGNATION OF COMPARISON STARS.** — It seems advisable to issue a short notice on this subject to supplement, for the guidance of Members, the information contained in the Preface to Memoir XXVIII, p. xxii. If a Comparison Star is contained in HAGEN's A. S. V., we designate it by its *number* as given in that work. To those stars which do not appear in the A. S. V., the H. C. O. *letter* is assigned. But the seven Variables V Camelopardalis, T Cephei,  $\alpha$  (Mira) Ceti, R Hydræ, R Leonis, W Lyræ, and X Pegasi ; and the four Variables X Camelopardalis, W Cassiopeiæ, W Coronæ, and RY Ophiuchi are exceptions to this general rule, the comparison stars for them having always been designated by H. C. O. letters. The reason is, for the former, that they were observed by the Section *before* the appearance, in 1907 and 1927, of Series IV and VII of the A. S. V., in which they are contained, when the H. C. O. letters only were available ; for the latter, that no Hagen Charts have yet been published for them. This principle has not been quite consistently followed in preparing the Blue Prints, *e. g.*, for R Leonis, and, partially, for  $\alpha$  (Mira) Ceti and for R Hydræ, but, if observers would kindly adhere to the designations of Comparison Stars on the Blue Prints, *as they are*, it would be a help in the work of compilation.

**(6) CIRCULARS 1-8.** — Copies of Circulars 1-8 are still available and will be sent upon request to any new Member.

The Director begs to present his good wishes for the New Year to the Members of the Section. He will always be prepared to examine any proposals which may be submitted to him to further our work and to increase its accuracy and usefulness.

FELIX DE ROY,  
*Director.*