

# THE PRESENT STATE OF A SPECTRAL SURVEY OF THE SOUTHERN MILKY WAY FOR STARS EARLIER THAN A5

E. H. GEYER

*Astron. Institut der Universität Bonn – Observatorium Hoher List, Germany*

**Abstract.** The present state of a spectral survey of the southern Milky Way for stars earlier than A5 is described.

In 1962 a duplicate of the original Schmidt-camera, owned by the Hamburg-Bergedorf Observatory, was installed at the Boyden Observatory Bloemfontein/South Africa. This instrument is also equipped with an objective prism, and it was at the author's disposal from April 1962 until November 1963, who obtained the plates for an extensive spectral survey of the Southern Milky Way.

(I) Instrumental and observational data are given by Geyer (1966).

(II) The survey for stars earlier than A5 on the plates.

This observational material had already been surveyed for OB and OB+ stars by Klare and Szeidl (1966). Yet the spectra are of such high quality that better classification can be achieved for early type stars. Therefore in 1968 the author started the thorough classification on a homogenous system of stars earlier than A5 in all this fields in the magnitude range  $6.0 \leq m_{ph} \leq 10.5$ . It was intended that the spectral classification should be close to the Henry Draper system. Therefore a classification system adapted for the given reciprocal linear dispersion was established making use of criteria given by Becker (1929) for the blue spectral region, and by Seitter (1970) for the ultra-violet region down to the Balmer limit. As a stand-by served the *Atlas for Objective Prism Spectra* by Seitter (1970) and *An Atlas of Low-Dispersion Grating Stellar Spectra* by Abt *et al.* (1968). The HD-pre- and suffixes were used as usual.

On transparent enlargements from the original plates the stars are marked together with their classification, and afterwards they are identified on star charts (Cordoba-Durchmusterung, Santiago charts, Vehrenberg's Atlas Stellarum), and also in the relevant star catalogues, mainly the Cape Photographic Durchmusterung, from where the photographic magnitudes are taken. For fainter stars not contained in catalogues rough positions with an accuracy of 1' are obtained, and they will be marked on finding charts. Finally all data for a star are punched on cards.

Up to now all fields in the galactic longitude interval  $230^\circ \leq l^{\text{II}} \leq 300^\circ$  have been surveyed and some 22000 stars registered. On the average 500 stars per plate are marked. From these 90% are contained in the Cape photographic Durchmusterung, but only about 50% are HD-stars.

A first volume of this spectral survey catalogue (galactic longitude  $230^\circ$ – $300^\circ$ ) will be published in 1972.

Nearly on every plate several star pairs with distances not exceeding  $1^\circ$  are found

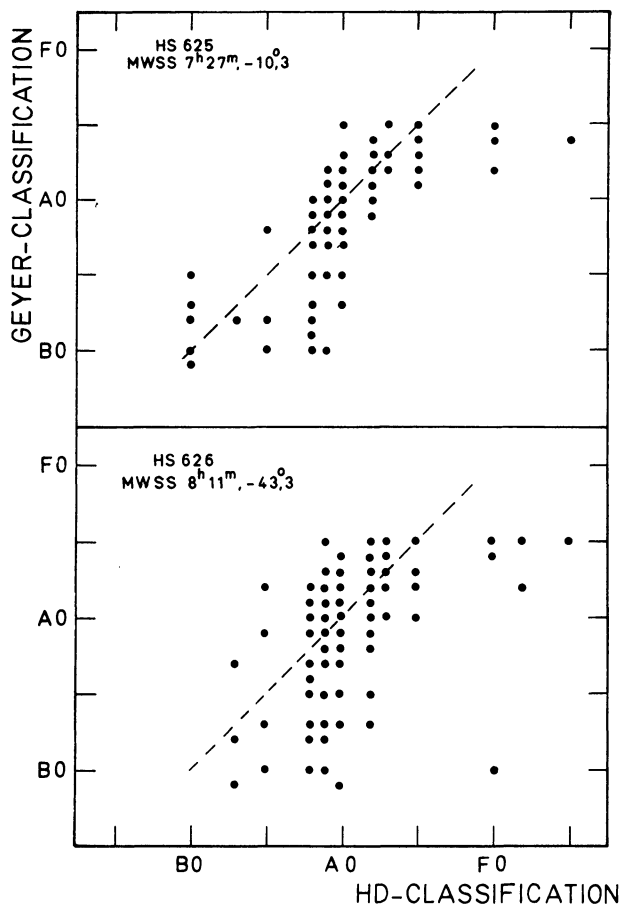


Fig. 1. Comparison of the HD-spectral classification with that of Geyer for two fields.

TABLE I

Star No.	Spectral type		
	Photom.	HD	Geyer
2	B0	B5	B0, B3
6	B0	B8	B0
10	B2	B8	B2
12	B3	B8	B5
14	B2	B8	B5
20	B3	B9	B3
25	B7	B9	B8
29	B2	—	B7
37	B3	B8	B5

having identical spectral types and magnitudes. To this also Lodén (1969) called attention.

For two Milky Way fields a comparison of the HD-classification with the author's is presented in Figure 1. Beside the well known fact that some fainter HD-stars are classified too early or too late, the general tendency reflected by the diagrams is that the author classifies the stars earlier. Finally in Table I a comparison of some stars classified photometrically by Haug *et al.* (1966) in the Circinus region is given which supports this result.

### Acknowledgements

This investigation is supported by the Deutsche Forschungsgemeinschaft, grants Ge 209/1-4.

### References

- Abt, H. A., Meinel, A. B., Morgan, W. W., and Tapscott, J. W.: 1968, *An Atlas of Low-Dispersion Grating Stellar Spectra*.  
Becker, F.: 1929, *Publ. Astrophys. Obs. Potsdam* **27**, Heft 1.  
Geyer, E. H.: 1966, *Veröffentl. Heidelberg-Königstuhl*, **18**.  
Haug, U., Pfeleiderer, J., and Dachs, J.: 1966, *Z. Astrophys.* **64**, 140.  
Klare, G. and Szeidl, B.: 1966, *Veröffentl. Heidelberg-Königstuhl*, **18**.  
Lodén, L. O.: 1969, *Vistas in Astronomy* **11**, 161.  
Seitter, W. C.: 1970, *Atlas for Objective Prism Spectra*, Dümmers Verlag Bonn.