Table 3: *Cameras used by the Sonneberg patrols. The last column gives their years of service.*

	Plate limit	Field size	Plate dimension	Number of plates	Years
Schmidt Telescope 500/700/1720 mm	18.5 (B)	3.8° × 3.8°	13 cm × 13 cm	8900	since 1952
Astrographs					
400/1600 mm	17.5 (pg)	10° × 10°	30 cm × 30 cm	12200	1938 – 45, since 1961
400/2000 mm	17.5 (pg)	8° × 8°	30 cm × 30 cm	6900	since 1960
Sky Patrol					
14 cameras 55/250 mm	14.5 (pg)	26° × 26°	13 cm × 13 cm	93000	since 1956
	13.5 (pv)	26° × 26°	13 cm × 13 cm	51000	since 1958
Several instruments: formerly used					
Field Patrol				16000	
Sky Patrol				43600	
foreign				8400	
Total				240000	

of the Sonneberg Field Patrol (Felderplan) and the Sonneberg Sky Patrol.

The Field Patrol aims at recording, in every clear night, 81 fields selected along, or near the northern Milky Way with astrographs; it was started in the mid-twenties by C. Hoffmeister. Table 1 gives a list of the fields most regularly recorded, and the numbers of plates taken. The Sky Patrol – going back to an idea of P. Guthnick's (1879–1947) – is a programme covering the entire northern sky in two colours with 14 short-focus cameras on two mountings. Table 2 shows in diagrammatic form how the plates taken in blue (pg) and in red (pv) during the last 30 years are distributed over the declination zones. Details about the instruments are given in Table 3.

On May 1, 1992, the number of plates of the Sonneberg vault totalled 240,222, not counting about 1200 older plates of uncertain identity with respect to camera, time of exposure, or coordinates of the field, etc. The annual increase has been 4500 recordings on average.

About 80 % of the plate data are archived and retrievable. The 20 MByte database consists of record files, each record containing information on one plate such as date and time of exposure, object or field recorded, photographic emulsion, sensitivity, filters, state of the sky, observers' comments, etc., a number of auxiliary files, and programmes for management and user. For the digitization of the photographic information on the plates themselves, a made-to-order, time- and cost-saving configuration using a 12-bit CCD line scanner has been invented and tested in cooperation with the Institut für Theoretische Astrophysik of Tübingen University. Comparative measurements were performed at the Garching PDS of ESO. Operation at Sonneberg, however, has hitherto been stalled by hesitating custodians of public funds.

Although its plate vault is still lacking computer-aided measuring devices, visitors to Sonneberg Observatory are always welcome and can readily profit from its wealth of information using its conventional equipment. The small Sonneberg staff, severely pruned by recent reforms in former East Germany, are doing their best to become a fully-fledged member of modern society soon.

A Scrutiny of HD 62623 and HD 96446

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There has been a general consensus that CP A stars are all near-main-sequence objects. If so, the chemical peculiarity might be a valuable luminosity criterion, useful, for instance, in connection with optical soundings in the Milky Way. In reality, however, the situation seems to be a little bit too complicated for practical application. Firstly there is an awkward fact that a considerable amount of peculiar features observed in (upper main-sequence) stellar spectra already coincide with well-established luminosity-classification parameters – although in the "wrong sense", i.e. some spectral lines typical for CP stars, tend to show a positive luminosity dependence. Secondly, there is a non-ignorable number of stars, classified as both peculiar and giants, or even supergiants, particularly in the Michigan Catalogue.

In a series of previous contributions, the authors have made attempts to reclassify a selection of such objects in order to either confirm or refute the "double" or "contradictory" classification of them (Lodén-Sundman 1987, 1989, Lodén 1990). In no case the result became definitely conclusive, but, for certain objects, there was no indication whatsoever of any combination of peculiarity and high luminosity. Some of them behaved in an awkward manner indicating neither "traditional" peculiarity nor particularly high luminosity. Rather there might be reason to suspect a superposition of two spectra, the appearance of which could give reason to misclassify the luminosity or the attitude of chemical composition or both.

The main result of the investigation was that a possible admixture of peculiar A-type stars in the observational material does probably not imply any enhanced risk of distance misdetermination at optical soundings in the Milky Way.

Still, however, there are a few notori-

ous stars which show a rather clear evidence of high luminosity and peculiarity of some kind as well, albeit this peculiarity may not always be considered as "traditional" in terms of enhanced Si, Sr, or Eu abundance. A few of these stars have now been subject to a more inquisitive study. The basis of the argument has been that if these stars could also be shown to be, in reality, rather normal, then it will probably go for the other ones too. The observing thesis would not be valid, however.

The targets of the present investigation are HD 62323 and HD 96446. The basic data for them are shown in Table 1.

Table 1.

Star	R.A. (2000)	Decl. (2000)	V	B-V	U-B	Sp.*
HD 62323	7h 43m 48.4s	−28° 57' 18"	4.16	0.18	−0.01	A2 labp
HD 96446	11h 6m 5.7s	−59° 56' 59"	6.68	−0.15	−0.82	B2 IIIp

* according to literature

The Observations

All observations relevant to the present report have been performed at La Silla. Photometric photometry was obtained with the 50-cm ESO telescope in 1988. Spectrographic plates were taken with the coudé spectrograph of the 1.52-m telescope in 1987 and echelle spectrograms with the same telescope in 1988 and 1991. The dispersion ranges from 3.1 Å/mm at 4000Å to 4.5 Å/mm at 5500Å. The reduction of the CCD echelles was performed at ESO Headquarters in Garching during the first part of August 1991.

HD 62623

This star has been subject to particular interest for a long time, and a series of papers dealing with it have been published.

The contributions generally concern identification of lines in the spectrum and also calculation of the atmospheric abundance of certain elements and estimation of the effective temperature and luminosity of the star.

In the present investigation the basic issue was to reveal possible systems of lines with radial velocity displacement deviating from the majority of lines and thus suggesting the presence of a companion star. About 500 lines have been identified and the 80 most certain ones selected for radial velocity calculations. The result clearly indicates that no single line or system of lines, within the limits of accuracy, show any significant deviation from the average value. It also shows that this average value, after correction for terrestrial motion, is completely unchanged during the run of the actual five observing nights. It is estimated to 28.7 ± 0.2 km/sec.

Hence there is no indication of a composite spectrum for this star. The apparently peculiar appearance of its spectrum might, at least partly, be explained as an accidental combination of high luminosity and very low *v sin i* value.

HD 96446

The study of this object is considerably more complicated than the corresponding study of the previous one. Particularly the technical circumstances are less favourable. As HD 96446 is fainter, the disturbance from the noise becomes more important, as well as the production of false lines, one of the major problems with the ECHELEC spectrograph at ESO. The identification of the lines in the spectrum of HD 96446 is also difficult as a consequence of the fact that many low-temperature lines, with or without mutual displacement, tend to appear very close to the position of certain high-temperature lines. A serious drawback at the study of any type of stars with the actual equipment is that one cannot record the whole spectral range at one and the same exposure. As it is not permitted to change the spectral region during a night, it is then impossible to follow the position of a certain set of lines from night to night without inconvenient restriction of the spectral range. Also the consequences of this circumstance were particularly harassing in the case of HD 96446.

At the actual observations in 1991, the total spectral range was split up into the following partial sections:

1. 3867 – 4153Å February 2
2. 4075 – 4390Å February 1 and 5
3. 4296 – 4622Å February 3
4. 4552 – 4863Å February 4

The conclusions concerning possible multiplicity are, because of the circumstances mentioned, less convincing for HD 96446 than for HD 62623. There is no palpable or unique indication of a component, only a series of vague vestiges. The following ones are to be mentioned.

1. A weak photometric variability. Spectrum variability has been reported by Pedersen and Thomsen [1977] and Kaufmann and Theil [1980].
2. Presence of a few spectral lines, characteristic for an atmosphere of considerably lower temperature.
3. A tendency for certain spectral lines to appear as double.
4. A corresponding tendency to show a Doppler displacement, significantly different from the average value for all lines.
5. An apparent symbiosis of sharp and structured lines in the spectrum.

These observations require some comments which are, in fact, highly important.

1. The light variation (Fig. 1) is not particularly well pronounced and it has probably nothing to do with any

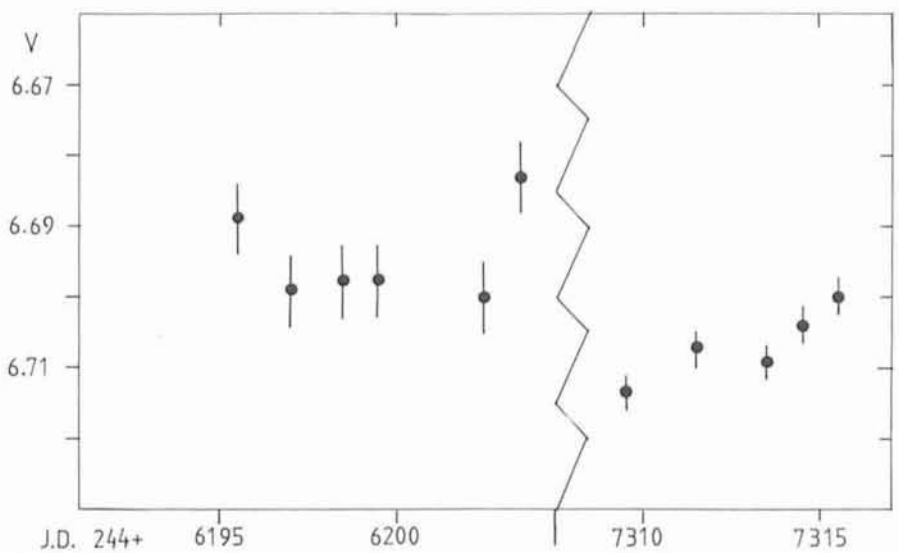

Figure 1: *UBV photometry of HD 96446 from two different occasions, 1985 and 1988. The accuracy in the measurements was higher at the last one. The overall impression is, of course, that the star is fairly stable. There is some reason, however, to suspect that the small variations visible are significant.*

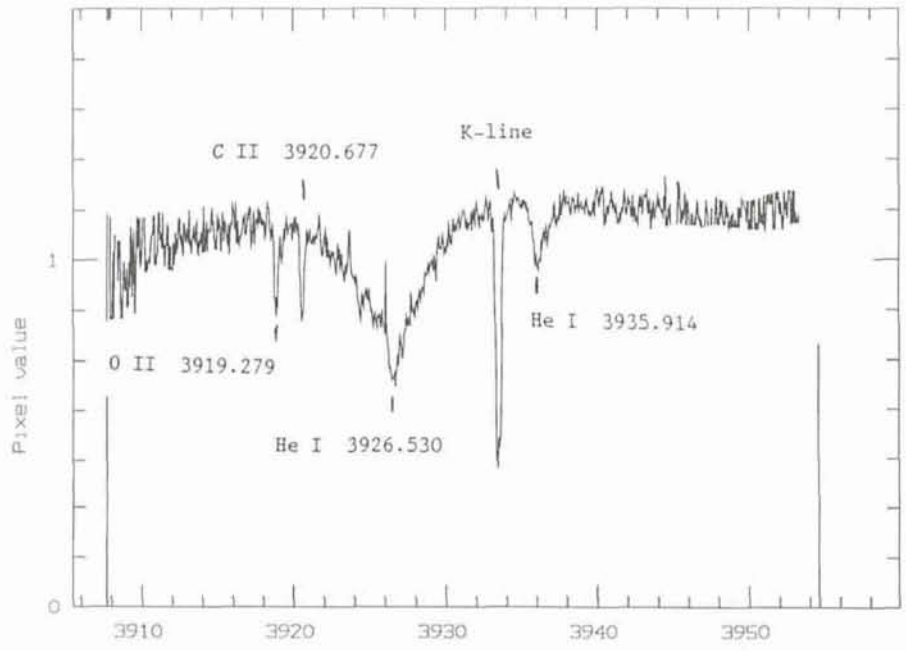

Figure 2: *A section of an ECHELEC spectrum of HD 96446. Most spectral features visible here seem to be real.*

eclipsing phenomenon. Rather it might indicate an intrinsic variability, not characteristic for early-type stars. It has to be noted, however, that, when observed on different occasions with considerable time-separation, the mean value of the photometric parameters has turned out to be constant. Thus the UBV mean values obtained from 7 nights in 1985 are: 6.696, –0.151, –0.823 and the corresponding ones from 5 nights in 1988: 6.705, –0.155, –0.826. The possible He-line variations, mentioned above, are actually not relevant and, besides, the routines of the CCD-ECHELEC reduction do not permit any high-accuracy measurements of line intensities.

2. Typical examples are some Fe lines crowding between 3935 and 3936 and some mysterious lines (Ti I?) around 4099. In an extensive contribution by Wolf (1973) a large number of "high-temperature" lines are identified. Unfortunately it is not self-evident that all lines found in a certain position really and entirely represent the expected ones. The lines themselves do not tell you explicitly who they are. As mentioned above, there are quite a few coincidences between high and medium lines in the spectrum without any possibility of convincing unbiased identification.

   In Table 2 I have added some identified high-temperature lines to the list, presented by Wolf. Besides, however, there are a few lines which I personally consider as not characteristic for a B2 star although another series of observations with still higher resolution is required for definite confirmation.
3. The H and K lines seem to be of interstellar origin. With respect to the star's location in the Milky Way one has to expect a considerable con-

A Panorama of La Silla

H. ZODET, ESO

The centrefold in this *Messenger* issue was obtained in late December 1991 and depicts the central part of the 180° panorama reproduced below.

It shows the La Silla observatory and most of the telescopes there, just before sunset. It was taken from the road that leads to the 3.6-m telescope. Quite a few cars with busy astronomers and engineers passed me and probably wondered what a photographer was doing there, with plenty of equipment in the middle of the road. Thanks for their kind consideration, a minor traffic jam was elegantly avoided.

This panorama covers half of the horizon and is a composite of eight individual exposures, made in rapid succession so that the illumination would not change too much.

I used a Hasselblad 2000FC camera, equipped with a Zeiss Planar 110-mm lens, stopped to 1:2. The film was Kodak Ektachrome 100 Plus.

In order to combine the slides so that there would be a smooth transition between all of them, they were scanned and re-assembled electronically by Reger Studios, Munich.

This photo is one of a series of panoramic views of the ESO observatory, which I obtained from various locations in and around La Silla. It turns out that due to the pattern of the telescope domes, there does not exist any spot (on the ground at least) frome where all buildings are simultaneously visible.

The La Silla Panorama which is well suited for the production of horizon panoramas in Planetaria, etc., is now available from the ESO Information Service (address on last page). It may be obtained as a 1-metre-long photographic print or a 24-cm-wide slide, both at a cost of 115 DM. Please be sure to indicate on the order which of the two is desired.

tribution from the interstellar matter. There should be noted, however, that the UBV colour excess looks surprisingly low and a certain caution would be appropriate. Furthermore, the H and K lines are slightly doubled, and the Doppler displacement for one of the components apparently coincides with that for the majority of the assumed stellar lines. In other cases of double-line appearances it is probably near at hand to interpret the phenomenon as a disturbance from a ghost rather than from a real Doppler shift.

4. Also in cases where a single line tends to show significant individual Doppler shift, one should in the first instance suspect some kind of blend effect.

When time-variation of the Doppler shift is concerned, there are certain differences between the mean values for the various nights of observation but, unfortunately, the overall accuracy is not high enough to convince us with certainty that these differences are really significant. The average radial velocities obtained were (when corrected for terrestrial motion)

May 28, 1988	+ 4.98	±2.75
30	+ 2.03	±2.45
31	+ 7.00	±3.00
Feb. 1, 1991	+ 8.48	±1.00
2	+ 8.64	±1.52
3	+ 8.97	±0.90
4	+ 7.85	±0.80
5	+10.43	±0.80

As can be seen from the scattering figures, it is hardly advisable to draw any conclusions about long-term variations in the radial velocity, but a very careful study of a few selected lines has given an indication that the relative difference between February 1 and February 5 might be significant.

Well, the present study of the two stars has not led up to any exciting result or definite answer to the question about their possible multiplicity. Epitomizing, however, one could at least vindicate that HD 62623 is probably alone and that HD 96446 is still under serious suspicion of having a baffling component. In no case, of course, we can exclude the possibility of a malicious component moving nearly perpendicular to the line of sight.

The project itself has been very interesting to carry out and particularly the experience from the use of the ECHELEC spectrograph has been stimulating. Possibly one could object that the reduction procedure with the observational material is a little bit too complicated and time consuming, as well as computer space consuming, in consideration to the outcome, and that the occurrence of false spectral features is still unreasonably frequent.

I am most grateful to Pascal Ballester for his devoted and competent assistance at the reduction of my tapes during a couple of hectic weeks at the ESO Headquarters in August 1991.

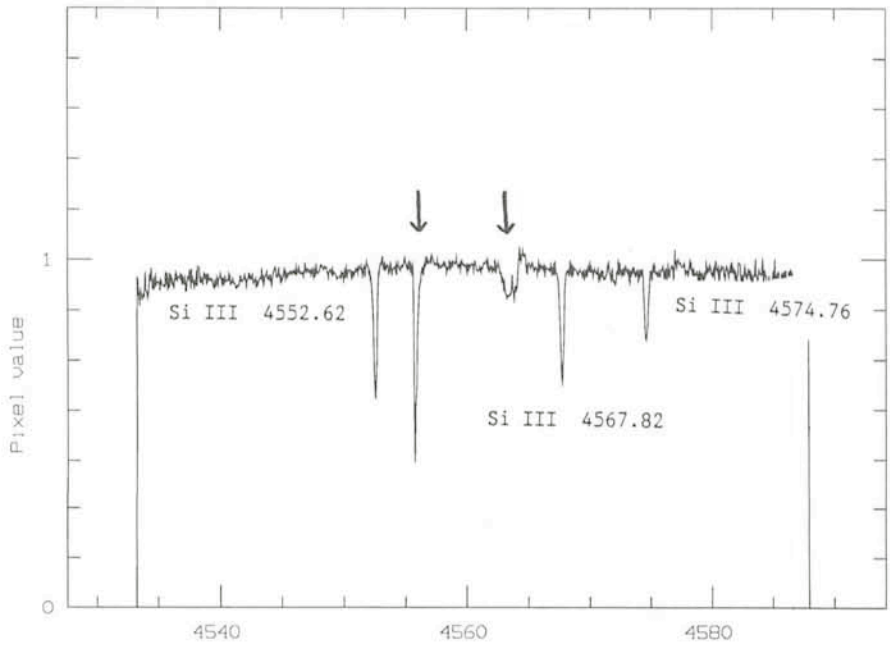

Figure 3: *Another section of an ECHELEC spectrum of HD 96446. Here one can see two characteristic delusive spectral features, produced somewhere in the system (arrows).*

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Table 2: *List of high-temperature lines, identified in the actual investigation but missing in Wolf's list (1973)*

3919.279 O II	4092.94 O II	4345.56 O II
3955.851 N II	4095.63 O II	4351.275 O II
3973.266 O II	4110.79 O II	4369.28 O II
4016.104 Si IV	4112.02 O II	4673.71 O I, II
4062.94 O II	4137.63 N I	4677.94 N II
4071.24 O II	4169.23 O II	4703.14 O II
4073.04 N II	4294.74 O II	4788.126 N II
4084.66 O II	4303.78 O II	4803.272 N II
4088.863 Si IV	4336.85 O II	

STAFF MOVEMENTS

Arrivals

Europe

CLÉVA, Frédéric (F), Coopérant
LOUSTALOT, Florence (F), Secretary to the Head of Administration
MARCONI, Gianni (I), Fellow
MEYLAN, Georges (CH), Astronomer
QUENTIN, Jutta (D), Draughtswoman (Mechanics)

Departures

Europe

BEELEN, Guido (B), Electronics Engineer
DOBBELS, Geert (B), Remote Control Operator
HES, Ronald (NL), Student
WANG, Li-fan (RC), Associate

Chile

HAINAUT, Olivier (B), Coopérant
HAINAUT-ROUELLE, Marie-Claire (B), Associate
HEYDARI-MALAYERI, Mohammad (F), Astronomer