

Some Remarks about V 348 Sgr

A few words about our attempt to observe this star. It was not possible, but the explanation has now been found by examining the GPO plates. On a plate from April 22, 1979, its magnitude was 11.5. However, on a plate that was obtained four days later by C. F. Caldeira, it was no longer visible, i.e. it was fainter than 16^m! The period of this variable star is about 200 days and it is neither constant, nor regular, or even well known. It is therefore no wonder that it eluded us this time.

It is a pleasure to thank ESO, the night assistants and the La Silla Computer Centre for all help received.

New ESO Slide Sets

The first of the two new ESO slide sets announced on page 3 of *Messenger* No. 17 has just become available.

This slide set consists of 20 5 × 5 cm colour slides showing the ESO installations on La Silla. Buildings, telescopes and views of the site are included. A full description in several languages explains the slides.

The second slide set—containing 20 of the best black-and-white photographs obtained with the ESO 3.6 m telescope—will become available in late autumn this year.

Spectra of the Variable Star RY Sgr Near Minimum Light

M. Spite and F. Spite

Very interesting spectral observations were obtained by Drs. Monique and François Spite (Paris Observatory, Meudon) of the southern variable star RY Sgr, near a minimum. The observations were carried out with the Lallemand-Duchesne electronographic camera at the ESO 1.52 m telescope, and for the first time the O-O Swan band was detected in a R CrB star.

The variable stars of the R Cr B type are in a very interesting phase of stellar evolution, since they are supposed to be progenitors of type I *supernovae* (Wheeler, 1978). In their atmospheres, hydrogen is scarce or absent and the abundance of carbon and helium is large. They sometimes display small quasi-regular variations and deep minima at irregular intervals. This irregularity does not facilitate the observations of these stars during the minimum phase. Moreover, the stars become rather faint at minimum. The physical processes producing the deep minima are not yet understood. Clouds of carbon grains play a role, but when and where such clouds are formed are still unanswered questions, because the temperature of the photosphere seems too hot for a condensation of carbon into grains.

In order to make some progress in our understanding of the deep minima, spectra should be obtained, with good resolution, at critical phases. This is why we decided to observe, at the 1.52 m telescope, the star RY Sgr, the

brightest star of this type after R Cr B, when a decay of its light was announced in 1977.

We had the opportunity to take advantage of the high sensitivity, high resolution and high photometric quality of the Lallemand-Duchesne electronographic camera, associated with the Echelec coude spectrograph (Baranne, Duchesne, 1976) and we obtained two 60 Å/mm spectra covering the violet, blue and green regions. An untraced photographic spectrum in the yellow range was obtained at the ESO coude spectrograph.

Near minimum light, the spectra display the same main features as those observed at a preceding minimum (Alexander et al. 1972):

(1) narrow bright emission lines, called "chromospheric lines" after Payne-Gaposchkin (1963) who analysed the 1960 minimum of R Cr B itself;

(2) three broad bright emission lines in the violet (Ca II and He I λ 3888);

(3) absorption lines.

The absorption lines show that the temperature of the photosphere is high, even during the minimum. This remark is backed up by a few measurements of the R-I colour index, obtained at the ESO 50 cm telescope: even neglecting the reddening by carbon clouds, the R-I index points to a rather high temperature.

Due to the good sensitivity of the electronic camera in the green region, the O-O Swan band is clearly visible: it is the first time that this band was ever observed in R Cr B type stars.

It is interesting to note that, for the moderately deep minimum of 1977, the main features of the spectrum



Spectrum of RY Sgr near minimum light in the blue-violet range, obtained with the Lallemand-Duchesne electronographic camera. In the underexposed (violet) part, the broad emission lines of Ca II (H and K lines) and of He I (λ 3888 line) may be recognized: they are evidences for violent motions of atoms.

are, qualitatively, the same as those noted by Alexander et al. (1972) for the deeper minimum of 1967, and this similarity shows that these features are essentially independent of the amplitude of the minimum and independent of its duration.

Some differences exist, however. The "broad bright lines" are displaced towards the red during the 1977 minimum, and they were displaced towards the violet during the 1967 minimum.

A possible interpretation of these differences is an unsymmetrical ejection of carbon clouds. An ejection mainly directed towards the observer would be linked with a deeper minimum and violet-shifted broad bright lines. An ejection mainly directed backwards would be linked with a less deep minimum and red-shifted lines.

Many observations are still necessary to elucidate the physical phenomena which take place in the course of a minimum. Although obviously difficult, such a programme could well be rewarding.

The observations with the electronographic camera were prepared, as usual, with great care, by J. Breysacher and his team. We are happy to thank them all.

The ESO Workshop

Methods of Abundance Determination for Stars

will take place in Geneva 25–27 March, 1980. Participation is by invitation only, but those interested in more information should contact Prof. P. O. Lindblad, ESO c/o CERN, 1211 Geneva 23, Switzerland.

References

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 Baranne, A., Duchesne, M.: 1976, in Sixth Symposium on Photo-electronic Image Device, *Adv. Electronics Electron. Phys.*, **40B**, 641, Morgan, B. L., Arley, R. W., Mc Clure, D., Eds.
 Payne-Gaposchkin, C.: 1963, *Astrophys. J.* **138**, 320.
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NEWS AND NOTES

ESO Planets Named

A number of new minor planets have been discovered with the ESO Schmidt telescope on La Silla. Some of these were named in a recent issue of "Minor Planet Circulars" from the Minor Planet Bureau of the International Astronomical Union.

One of the names has a special connection to ESO:

"(2145) BLAAUW = 1976 UF

Discovered 1976 Oct. 24 by R. M. West at the European Southern Observatory.

Named by the discoverer in honour of Adriaan BLAAUW, Director of ESO (1970-74), President of the IAU (1976-79) and professor at the Leiden Observatory since 1975. He has made

many important contributions to stellar kinematics, the structure of the Galaxy and the study of stellar associations. He has been very active in the furthering of collaboration in European astronomy. He is one of the founders of the European journal *Astronomy and Astrophysics* and has been chairman of the Board of Directors since 1969."

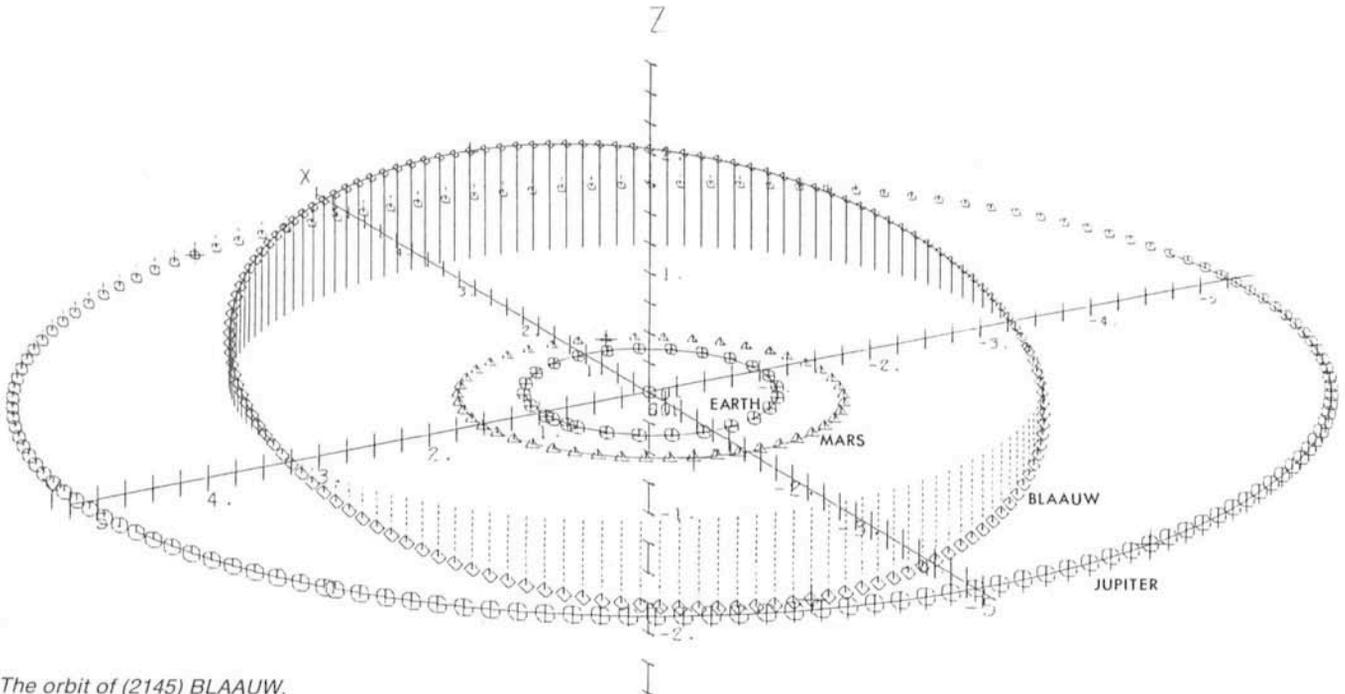
Two Trojan planets that were also found at ESO in 1976 have been given numbers (2146) and (2148). The first one is particularly interesting, because it has the highest known inclination among Trojans, more than 39°. The dedication reads:

"(2146) STENTOR = 1976 UQ

Discovered 1976 Oct. 24 by R. M. West at the European Southern Observatory.

This Trojan planet is named for the Greek warrior with the famous voice, as loud as fifty men together."

Further details about these discoveries were given in *Messenger* No. 8, page 3.



The orbit of (2145) BLAAUW.