

Fig. 2: Photograph of the comet with satellite trail. A 10 minute exposure taken on March 19 by H.-E. Schuster using the Schmidt telescope, 098-04 emulsion and a GG 495 filter.

minutes. Visiting astronomers at the 3.6 m, Dr. J. Lub and R. de Grijpe (Leiden) kindly agreed to include Crommelin in their observing list and made a trial integration using the IDS detector and Boller and Chivens spectrograph on March 8. The ephemeris provided by the IHW network (1984) proved very good and the comet was immediately visible in the field of the 3.6 m, moving quite quickly and with an estimated magnitude of $V \approx 13$ mag. A second integration 2×3 minutes was made on March 9 and is shown in Fig. 1 with the principal spectral features identified. The instrument configuration was optimized for observing emission line galaxies but was quite suitable for initial exploratory spectra of Crommelin. The two entrance apertures of the IDS subtended 4×4 arcsec on the sky and were separated by 40 arcsec. The spectrum shows the strong CN (0,0) Violet band at 3880 \AA , $C_3 \lambda 4050$ and well developed C_2 , $\Delta v = 0, +1, -1$ sequences. The other prevalent common molecule seen is NH_2 . The spectrum shown does not have the sky subtracted, however, as the second aperture was still in the comet coma but the reflected solar continuum is quite low in the blue and suggests Crommelin has a relatively low dust content. The grating used was 170 \AA/mm and gave a spectral resolution of approximately 13 \AA .

At the same time Dr. D. Cesarsky (Institut d'Astrophysique,

Paris) was observing with the recently commissioned 2.2 m telescope at La Silla, also equipped with a Boller and Chivens spectrograph but with a CCD detector. A 15 minute integration clearly showed the continuum spectrum from the comet's nucleus and emission bands from the CN (2,0) Red system.

Later, on March 19, H.E. Schuster took a fine photograph shown in Fig. 2 with the ESO Schmidt telescope. A satellite trail is seen crossing the field of view during the exposure which was made on 098-04 emulsion with a GG495 filter. The tail can be seen stretching to the east.

These are just a few of the results obtained on Crommelin at La Silla. Many visiting astronomers took spectra and carried out photometry including a group coordinated by M. Festou specifically for the HWI team. However, what is clear is that with the kind cooperation of visiting astronomers interesting and useful coverage of comets can be achieved.

I would like to thank the visiting astronomers who participated in obtaining these observations.

Reference

International Halley Watch Spectroscopy and Spectrophotometry Bulletin No. 1 (1984).

The Pickering-Racine Wedge with the Triplet Corrector at the ESO 3.6 m Telescope

G. Alcaíno and W. Liller, Instituto Isaac Newton, Santiago

Racine (1969, 1971) has revived the original idea of Pickering (1891) for extending photometric magnitude sequences on photographic plates, namely placing a slightly deviated glass wedge in the entrance beam of the telescope. This technique produces a faint secondary image next to the primary image of each bright star, and the apparent magnitude difference will be, in theory, constant over all the plate and in all colours. The

secondary images may then be compared directly with the primary images of fainter stars, thereby allowing the extension of the magnitude sequence to the plate limit.

In principle the magnitude difference Δm between the two images should depend only on the ratio of the wedge area to the rest of the beam area. However, in practice, Δm should be determined for each photographic plate since it can depend

on temporary circumstances such as the seeing, the correctness of focus, and the mirror's reflectivity directly underneath the wedge compared with the rest of the mirror. Recently Blanco (1982) and Christian and Racine (1983) have discussed the use of the wedge outlining the procedures to be followed to achieve good results.

A Pickering-Racine wedge has been available since 1979 with the Gascoigne configuration of the ESO 3.6 m telescope limited to a circular field 16 arc min in diameter, but now a wedge is available with the triplet corrector, thereby extending the field diameter to 1.0 degree. Mounted on an arm above the centerpiece of the telescope, the wedge may be moved into and out of the telescope beam by means of an on-off switch located in the control room of the dome. The wedge, manufactured by Zeiss, of Silica Herasil Top I glass, has a free aperture of 500 mm with provision for diaphragming down if required. With an apex angle of 30 arc sec, the wedge produces a separation of 14 arc sec between the primary and secondary images. The theoretically calculated magnitude difference has been given as $\Delta m = 4.0$.

On October 29, 1983, a night of high photometric quality, we tested the wedge on the telescope obtaining a set of plates of

the globular cluster 47 Tucanae and of the so-called Bok region situated in the northwestern part of the bar of the Large Magellanic Cloud. Because of the extensive range in the photometric sequences available in both fields ($8 < V < 19$), they are excellent for wedge calibration.

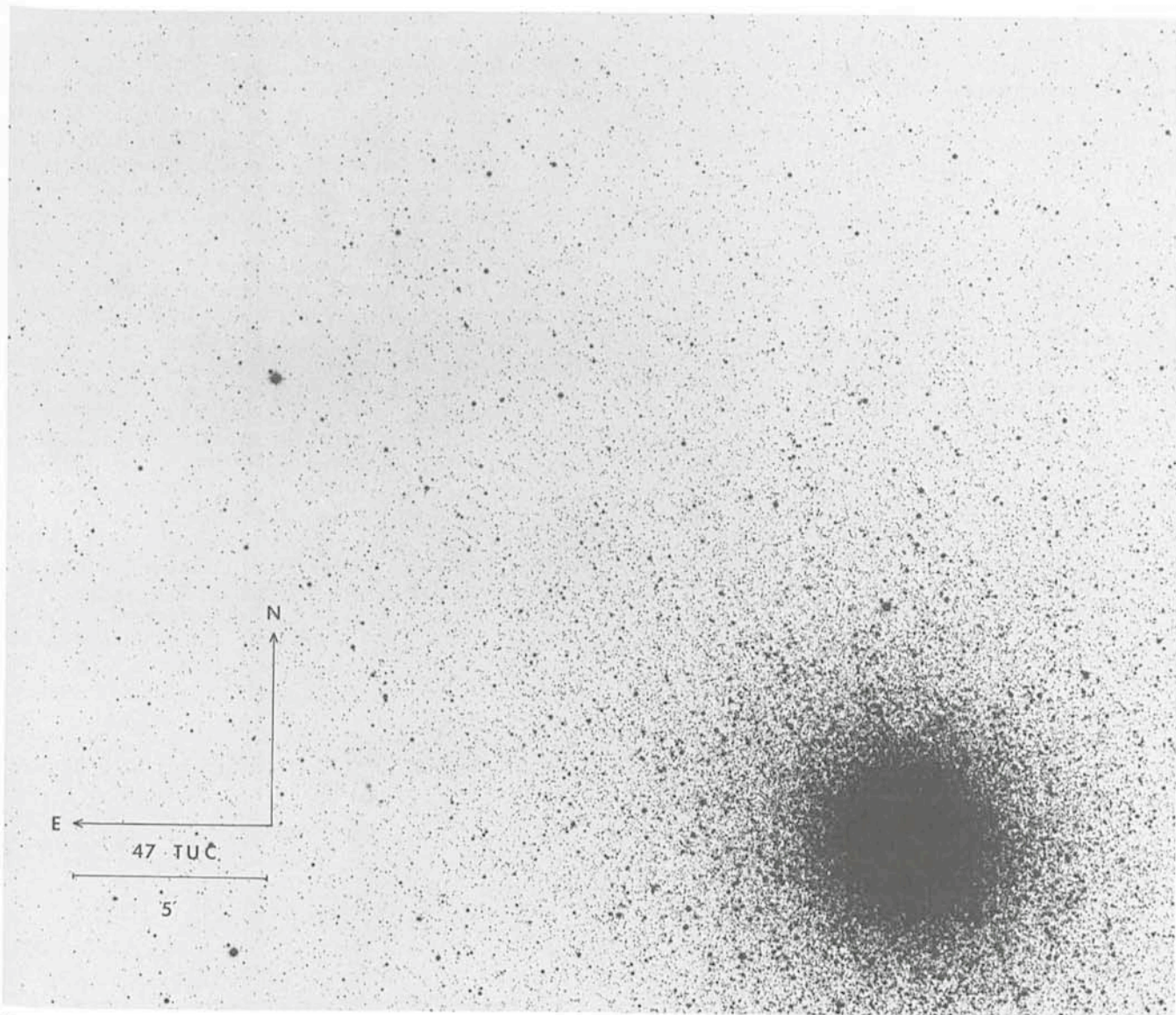
From the results from four V plates and two B plates we derive a magnitude difference $\Delta m = 4.02 \pm 0.02$. No measurable dependence of Δm on colour or magnitude or region of the plate was found.

The figure shows the northeast sector of 47 Tuc. The secondary images, displaced 14 arc sec northeast of the primary images, appear identical to the primaries in size and shape.

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References

- Blanco, V.M., 1982. *P.A.S.P.* **94**, 201.
 Christian, C.A., and Racine, R., 1983. *P.A.S.P.* **95**, 457.
 Pickering, E.C., 1891. *Ann. Astr. Obs. Harvard*, **26**, 14.
 Racine, R., 1969. *Astron. J.* **74**, 1073.
 Racine, R., 1971. *Astrophys. J.* **168**, 393.



The northeast sector of the globular cluster 47 Tucanae. The reproduction is from a 14-minute yellow plate (IIa-D + GG 495) obtained with the ESO 3.6 m telescope. Notice the secondary images produced by the new Pickering-Racine wedge, displaced 14 arc sec towards the northeast of the brighter primary images.