Computer Catalogue of ESO Schmidt Plates

Visiting astronomers to the ESO 1.52 m telescope are used to receive, soon after their observing runs, a computer list of the plates they obtained. The lists include all the plate data, from the exposure time and the celestial coordinates to the slit width and the quality of the plate.

No such service has until now been available for direct plates taken with the ESO telescopes. But during the past months, ESO programmer *Klaus Teschner* has implemented a very efficient system for storage and retrieval of Schmidt plate data. The system works so well that it will soon be enlarged to include plates from other telescopes as well, in particular the GPO and the 3.6 m telescopes.

The programmes were written and tested with the ESO HP system on La Silla, but a regular exchange with ESO/Geneva will ensure that all the information is available in both places. At the moment the more than 3,000 plates that were obtained with the Schmidt telescope are being put into the Catalogue, a task that will take some time. Thereafter, future plates will be entered as soon as they have been taken.

The Teschner system consists of one input and two retrieval programmes. The input programme is only of interest to the night assistants on La Silla who enter the new plates, but the two other programmes will be extremely useful for the astronomers. One programme will search for all plates with a certain characteristic or combinations of these: e.g. which plates were taken in March 1976 with filter GG 385 in seeing better than 1".5? The second programme will find all the plates that show a certain position. In this way, anyone who is interested in a given celestial object will immediately learn which plates are available at which epochs.

Further about ESO 113-IG45

The readers of the *Messenger* may remember ESO 113-IG45, the quasar-galaxy that was described in issue No. 11 on page 24. Further observations were obtained of this remarkable object at other southern observatories at about the same time as the initial ESO observations. It has also been investigated in some detail from La Silla.

Drs. A. C. Danks, W. Wamsteker, N. Vogt, P. Salinari and M. Tarenghi (ESO), together with Dr. H. W. Duerbeck from the Hoher List Observatory near Bonn, FRG, observed 113–IG45 by means of visible (UBV) and infrared (JHKLM) photometry. They find a strong infrared excess, as often seen in Seyfert 1 galaxies. They also notice that the object is very variable; a decrease of more than one magnitude in the L-band and somewhat less in the K-band was seen between November 1977 and January 1978. This sets an upper limit to the size of the infrared emitting region and helps chosing between the possible models.

The ESO velocity (13,600 km/s) has been confirmed by observers with the Tololo and AAT 4 m telescopes and Dr. A. P. Fairall, who called attention to this object in August 1977, has recently obtained a spectrum of the elliptical companion galaxy to ESO 113-IG45 (see the *Messenger* photo). Although the spectrum showed few lines, he was able to measure the velocity and found that it was the same as that of the main galaxy. They are therefore most likely at the same distance and are physically connected.

Dr. Charles C. Wu of NASA obtained ultraviolet spectra of ESO 113-IG45 with the International Ultraviolet Explorer (IUE) satellite in late June 1978. He is now reducing these observations together with Drs. A. Boggess and T. Gull and the preliminary results are very interesting.

Objects of the ESO 113-IG45 class are few—but they tell us more about what is going on in the nuclei of Seyfert galaxies and in quasars. Observations over the widest possible spectral range, from X-rays to radio, are continuing.

Spectra of the Brightest Stars in a Very Distant Globular Cluster

Among the vast number of new and exciting objects that have been found on the ESO Quick Blue Survey plates, some have been shown in the *Messenger*. One of these (No. 10, p. 13) has now been observed in more detail with the ESO 3.6 m telescope.

The object, a globular cluster in the southern constellation Eridanus, is rather faint. The brightest stars have an apparent magnitude fainter than 19, and the integrated magnitude of the entire cluster is about 15.8 in V, according to Dr. G. Wlérick, who obtained this measurement with the ESO 1 m telescope.

Spectra of the three brightest stars were obtained by ESO astronomer R. M. West with the Boller and Chivens spectrograph in the Cassegrain focus of the 3.6 m telescope. During a period of very good seeing and thanks to the excellent performance of the telescope and spectrograph, it was possible to obtain well-exposed 123 Å/mm spectra (3900–7000 Å) with a widening of 0.1 mm. The spectral resolution is slightly lower (about 4 Å) than what is needed to perform MK-classification, but enough to make a rough analysis of the stars.

Together with Dr. R. A. Bartaya from the Abastumani Observatory, Dr. West finds that the spectral types of the three stars are in the range G8–K2 III and that they all are severely metal-deficient. This is a common feature of stars in the halo (Population II). However, there are plenty of lines visible in the spectrum of the brightest star, many of which are of metallic origin, and the star cannot be completely deficient in metals. This confirms the conclusion by Cowley, Hartwick and Sargent (*Ap. J.* 220, **453**) and Canterna and Schommer (*Ap. J.* **219,** L 119) that there are metals even in the most distant clusters and that so far, there is no observational indication of a possible Population III (no metals).

From the apparent magnitudes of the brightest stars in the present cluster and their absolute magnitudes (from the spectral types), it is possible to estimate that the distance is probably well over 100 kpc, thus making it one of the most distant known in the neighbourhood of the Milky Way system. It may even be questioned whether it really "belongs" to our galaxy, or whether it is an intergalactic "tramp". The only clue we have is the radial velocity. From more than ten unblended spectral lines, a mean value of –42 ± 12 km/s is found (heliocentric, i.e. relative to the Sun); the cluster is approaching. Adding the component of the solar motion in the Galaxy, the measured velocity becomes even more negative. So who knows, may be this interesting cluster is really one of "ours"?

New Publications from ESO

Preprints: May–August 1978

23. J. LUB, J. VAN PARADIJS, J. W. PEL, P. R. WESSELIUS: Ultraviolet Photometry of the Cepheid B Doradus from the A.N.S. Satellite. May 1978. Submitted to: *Astronomy and Astrophysics,* Main Journal.
24. A. C. DANKS, L. HOUZIAUX: Spectroscopic Observations of 27 C Ma from 0.14 to 4.7 Microns. May 1978. Submitted to: *Astronomy and Astrophysics.*
25. WILLEM WAMSTEKER: The Continuous Energy Distribution of Nova Cygni 1975. May 1978. Submitted to: *Astronomy and Astrophysics.*
26. G. CONTOPOULOS, L. GALGANI, A. GIORGILLI: On the Number of Isolating Integrals in Hamiltonian Systems. June 1978. Submitted to: *Physical Review* – A.
27. I. R. KING: Astrometric Accuracy with Large Reflectors. June 1978. Colloquium on European Satellite Astrometry, Padova, 5–7 June 1978.
28. E. B. HOLMBERG, A. LAUBERTS, H.-E. SCHUSTER, R. M. WEST: The ESO/Uppsala Survey of the ESO (B) Atlas of the Southern Sky – VI. June 1978. Submitted to: *Astronomy and Astrophysics.*
29. G. CONTOPOULOS: The Dynamics of the Spiral Structure in Galaxies. August 1978. Presented at the "Strömgren Symposium" in Copenhagen, May 1978.
30. D. KUNTH, W. L. W. SARGENT: Spectrophotometry of Six Seyfert Galaxies from the Zwicky Lists. August 1978. Submitted to: *Astronomy and Astrophysics.*

Annual Report 1977.

Modern Techniques in Astronomical Photography. Proceedings of ESO Colloquium. Editors R. M. West and J. L. Heudier, 304 p.