rule them out. The weight of the old observations, the quality of which is not as good as the new ones, is too important. The standard deviation of the residuals is more than 1 arcsecond after complete calculation and it is difficult to choose which old plate has to be removed without seeing it. . . . The only solution is to get more plates of Nereid in order to increase the number of recent good positions. Observations are planned at both ESO and CFH observatories in 1982. Potential observers are also required: For such a work, it is important to diversify the source of available data.

Conclusion

This observing run at La Silla for studying the motion of faint satellites of outer planets has been very fruitful. We have obtained many results showing that both the site and the instrument are well suitable for accurate astrometric observations of faint objects. It would be very useful to get more positions of the satellites moving on the orbits of Thetys and Dione in order to precise their libration motion. The observations of the Uranian and Neptunian system have also to be carried on to reach a better accuracy in the determination of the orbital elements of their satellites. We plan to make again such a work with the Danish-ESO 1.5-m reflector in May and to extend the programme to the CFH 3.6-m reflector in March this year (1982).

PERSONNEL MOVEMENTS

STAFF

Arrivals

Europe

UNDEN, Christiane (B), Secretary, 8.2.1982

Departures

Europe

JANSSON, Jill (S), Secretary, 30.4.1982

FELLOWS

Arrivals

Europe

PERRIER, Christian (F), 15.2.1982 (transfer from Chile)
KOTANYI, Christopher (B), 15.2.1982
ROSA, Michael (D), 1.3.1982

ASSOCIATES

Chile

BEZANGER, Christian (F), Coopérant, 20.1.1982
DUFLOT, Christophe (F), Coopérant, 20.1.1982

EXPERIENCES WITH THE 40-MM MCMULLAN CAMERA AT THE 3.6-M TELESCOPE

Absolute B,V Photometry of cD Galaxies

Edwin Valentijn, ESO

The ESO 40-mm electronographic McMullan camera was delivered for general use at the 3.6-m telescope in April 1980 and has been used since then at regular intervals. A description of the camera, which can be mounted on both triplet correctors of the 3.6-m telescope, has been given in the *Messenger* No. 17.

The McMullan Camera Compared to the CCD

In 2-dimensional photometry the McMullan camera is a unique instrument, since it combines a relatively large field of view (12′ diameter at the 3.6-m telescope) with a relatively high sensitivity (detected quantum efficiency [DQE] ~10–20%). Therefore, the camera is a sort of intermediate system between the normal photographic plate (DQE ~2%, field diameter 1° at the 3.6-m) and the CCDs (DQE 40–90%, field 4′ × 2.5′). If one expresses the data rate of the cameras in terms of field of view and sensitivity, then the 40-mm McMullan camera has a 2.5 times higher rate compared to the present ESO CCD. The new ESO 80-mm McMullan camera, which will be installed in the near future, will exceed the CCD data rate by a factor of 10. The electronographic camera is UV sensitive, in contrast to the CCDs which are red sensitive. Another advantage of the electronographic camera is its supposed linear response, i.e. the density (D) on the plate relates linearly to the intensity of the exposed light: $m = C - 2.5 \log D$, m is the magnitude of the object and the so-called zeropoint (C), is a constant representing the total sensitivity of the camera plus telescope. For a proper working tube it was found that the gain of the system does not change (< 0.5%) over periods of a few nights. This property is important for doing absolute photometry and is better than the CCDs which can have much faster gain variations. A major drawback of the McMullan camera was that the only available nuclear emulsions from Ilford (uncoated high speed G5, and fine grain L4) were actually not manufactured for astronomy. These plates showed a lot of artifacts and non-uniformities. Besides this, it is very difficult to keep the large 3.6-m dome free of dust, which leads to dust particles on the filters, entrance window and mica window of the camera. I suspect that this was one of the main reasons why the 3.6-m McMullan camera was never taken seriously enough and only a few observers have tried the system. As a result they had to work with an untested system which came straight from the factory and ran into all sorts of instrumental troubles which occurred during their observing run. Most of these problems could have been avoided if more test time had been devoted to the instrument. Thus, the more or less bad reputation of the 3.6-m McMullan camera became self-fulfilling, in contrast to the electronographic camera used on the Danish 1.5-m telescope, where substantial testing has been done and the camera is often used with much more satisfaction. In a recent run, I have tested a new Kodak nuclear emulsion (fine grain SO-647) which was actually developed for astronomical specifications. The Kodak plates are supercoated and were found to be almost free of artifacts and very uniform. The introduction of this much more satisfactory emulsion makes the electronographic camera an up-to-the-mark instrument, unique in 2-dimensional astronomy because of its high data rate. One profits the most from the typical McMullan camera characteristics in doing 2-dimensional photometry of 2′–8′ sized objects.