

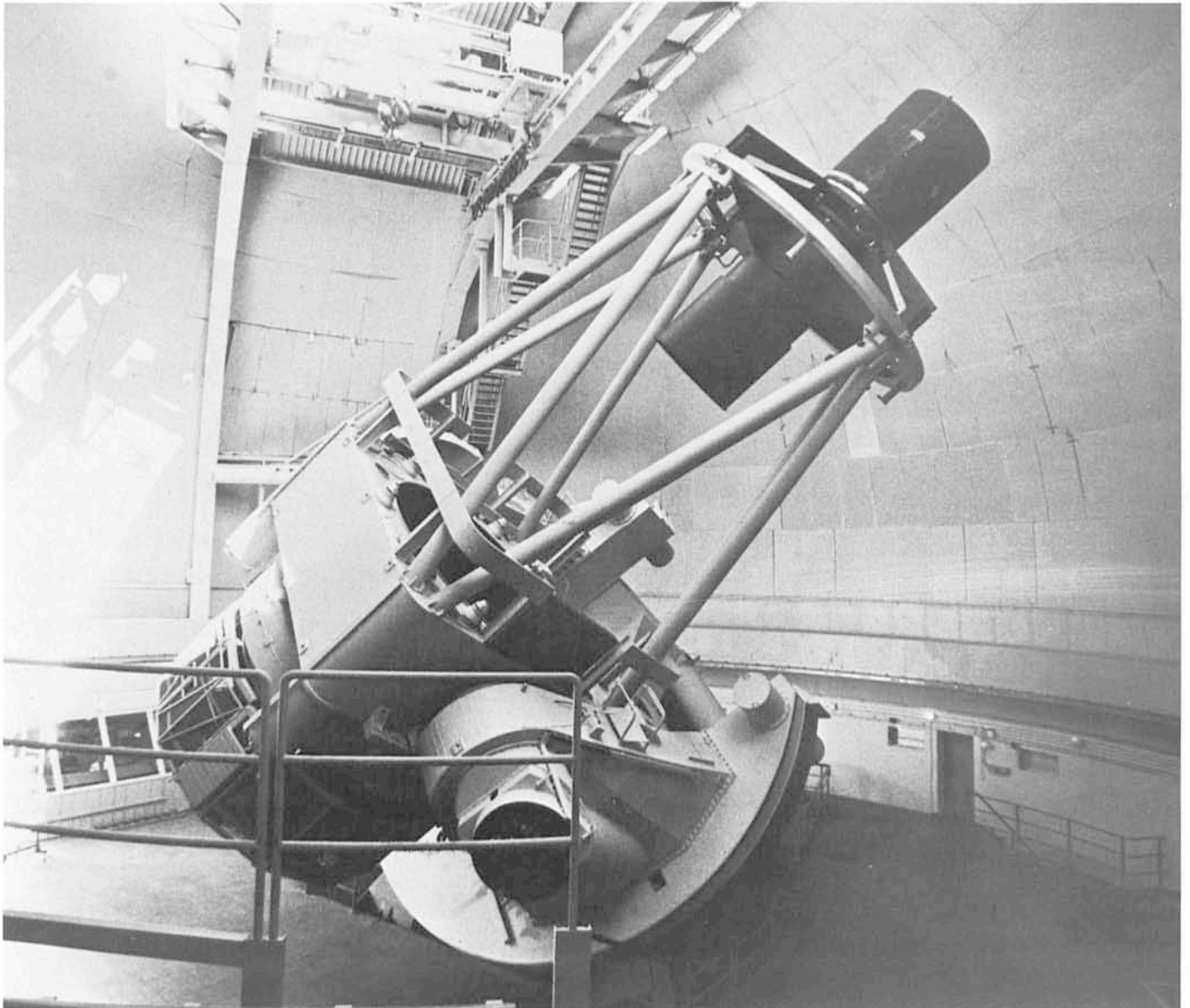
“First Light” for 3.6 m Telescope

A first look at the sky through the ESO 3.6 m telescope with its mirror aluminized was taken during the night of November 7–8. The “first light” to a telescope is a unique moment, and it was celebrated with a midnight tea. But apart from that, we had many troubles that night. Obviously you cannot expect everything to work at once in an instrument as complex as the 3.6 m telescope; much time must be allowed for debugging the entire system. The people who work with it have to learn how to handle the various procedures, but after a very successful aluminization, we had nearly forgotten that something could go wrong. And so, during the night of first light, the images (what a disaster!) looked like small hearts. Very romantic, although not exactly what astronomers are looking for in the sky. It took us two days to find and cure that fault. The 11-ton main mirror had chosen to rest on two of the back supports only. From the third one it kept a respectful distance of 1 mm.

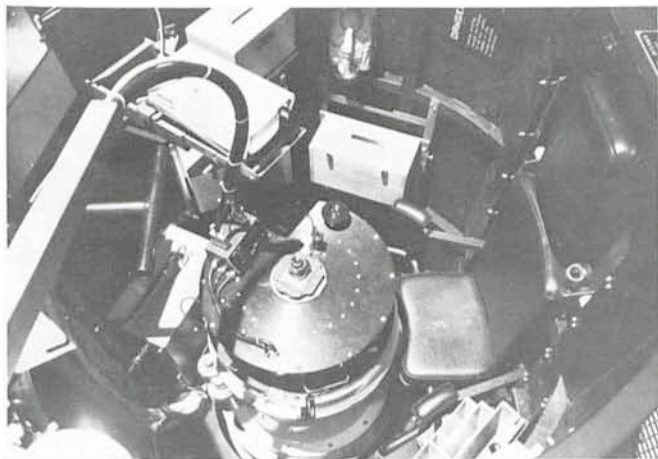
The third night (November 9–10) was much more successful. The newly-discovered dwarf galaxy in Sculptor

(see page 16) was on the programme, and a one-hour exposure revealed its beauty and showed a good number of its brighter stars resolved. This first plate has been followed by others of up to two hours exposure (see the cover photo). During the first five nights we have taken about 30 plates and the image quality looks very good. We still have to determine the limiting magnitude, but it should be at least 24^m, possibly even fainter.

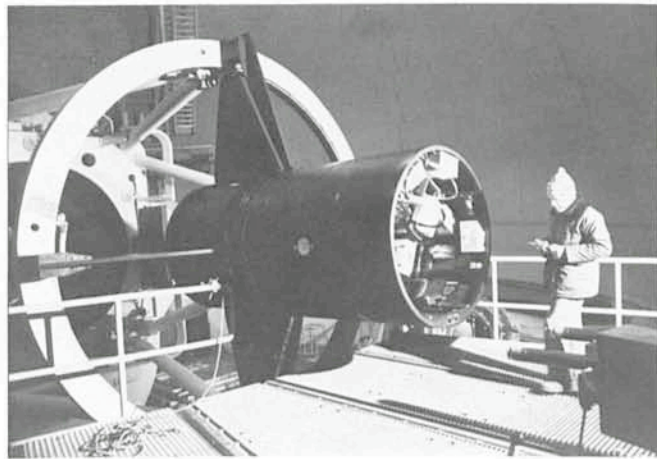
A lot of work has been done to get this far. In the last issue of the *Messenger* we reported that the mechanical assembly of the telescope was completed. Since then, the telescope controls have been put to work by a team from the Electronics Group from Geneva who spent more than a month on La Silla. The optics have been installed and a systematic alignment and test programme has been carried out by a team of three from the Optics Group in Geneva during the last two months. As mentioned above, the mirror has been aluminized. Not a small job either, but it was so well prepared that already the first aluminizing gave an excellent result. On these big jobs as well as on hundreds of smaller ones, the work has been progressing steadily, although not without minor setbacks. On August 26, a light-



The ESO 3.6 metre telescope on La Silla. In the front end the prime-focus cage.



A look down in the prime-focus cage. To the right, the astronomer's chair, from which he guides the telescope during the exposures. In the centre the adaptor with an eyepiece for direct viewing and focussing. Above this the TV-camera (see text).



Preparing observations. The astronomer is about to enter the prime-focus cage, which he rides during the exposure. To facilitate entry, the telescope is brought to horizontal position. The exchange of top-ends, which is a unique feature of the ESO telescope, is also done in this position.

ning struck the dome and caused a lot of damage to the electrical installation and the newly-installed electronics. A few weeks later a part of the building was flooded with oil, and cleaning-up took several days. Never mind, we feel that the photos of the last nights more than compensate the difficulties behind!

Now, however, we should be careful not to give the im-

pression that our work on the telescope is finished. So far, only the prime focus is in operation. A great many improvements and minor jobs still have to be made. But in between, the observations continue. And it is our belief and hope that the percentage of time devoted to astronomy will from now on steadily increase.

S. Laustsen, November 12, 1976

Optical Alignment of 3.6 m Telescope and First Tests

The Optics Group from Geneva has been intensively occupied for the last ten weeks with the alignment and testing of the prime-focus optics for the 3.6 m telescope.

The basic alignment of the optics of the telescope perpendicular to the declination axis was completed about three weeks ago. Since that time, an intensive period of Hartmann testing has fully occupied us.

The measuring facilities at present available on La Silla are not sufficiently accurate to give a final figure for the concentration of geometrical energy in a given diameter. However, there is clear evidence that the specification of 75 % within a diameter of 0.4 arcsecond should be fulfilled—we think probably by a clear margin. The computer analysis of the plates shows that the basic, lower-order-aberration terms are small; while the workshop tests had already established that the surfaces are very smooth. Turbulence effects in the dome and telescope seem, at present, to be the factors limiting quality and the precision of centring. However, even with the existing plate-measuring facilities, it has been possible to centre the system to within 0.2 arcsecond of tangential coma, in spite of dome turbulence and indifferent external seeing.

External seeing has been mainly poor during the whole test phase, but the first photographs with the telescope have shown very circular images of faint stars on IIIa-J plates with diameters of 1 to 1½ arcsecond. With the actual seeing conditions prevailing, the Hartmann tests are

at least an order of magnitude more precise than visual or photographic assessments.

As soon as the Hartmann plates have been measured on a more accurate measuring machine in Europe, a complete report of the test results will be published. These results will refer to the naked mirror and to the complete prime-focus system with the Gascoigne plate correctors. The triplet correctors will be available in a few months and will be the subject of a further report.

The Cassegrain-focus alignment and tests should take place about next March.

R. Wilson, October 29, 1976

The Prime-Focus Cage

The first plates have now been taken with the 3.6 m telescope. This was done in the prime-focus cage that allows the astronomer to ride in the front end of the telescope during the observations. In the following we shall explain how the cage was equipped for the first test of the telescope.

In the cage there is room for one astronomer, an adaptor and some auxiliary equipment needed by the astronomer