

industry, especially in those areas where extreme uniformity is desirable (stamp matrices, etc.).

#### 4. An Automatic Grid Developing Machine

It is obviously desirable to investigate whether these results are also valid for astronomical emulsions (IIa, IIIa, IV, etc.). For this purpose, and in order to improve the stability of the test conditions, an automatic grid developing machine has been built at the CERN mechanical workshop in Geneva, Swit-

Table 1: Mean densities and r.m.s. values

| Dev. time<br>(min) | Tray rocker |        | Grid (manual) |        | Grid (machine) |        |
|--------------------|-------------|--------|---------------|--------|----------------|--------|
|                    | Mean D      | r.m.s. | Mean D        | r.m.s. | Mean D         | r.m.s. |
| 4.5                | 1.475       | 0.037  | 1.756         | 0.008  | 1.970          | 0.010  |
|                    |             |        | 1.746         | 0.010  |                |        |
|                    |             |        | 1.718         | 0.011  |                |        |
| 6.0                | 1.644       | 0.030  | 1.878         | 0.011  |                |        |
| 7.5                | 1.784       | 0.032  | 2.009         | 0.012  |                |        |
| 9.0                | 1.996       | 0.033  | 2.156         | 0.011  |                |        |
| 10.5               | 2.123       | 0.049  | 2.250         | 0.016  |                |        |
| 12.0               | 2.235       | 0.030  | 2.369         | 0.018  |                |        |

The mean ANSI Diffuse density and the r.m.s. values are calculated from measurements in 256 points. Data are given for three plates which were developed 4.5 min. with the grid method, in order to demonstrate the reproducibility.



Figure 6: Automatic grid developing machine. The motor is contained in the lid.

zerland (Figure 6). In this machine, the grid agitation is ensured by a motor. There are two motions, one that moves the grid rapidly back and forth and another that more slowly shifts the center of the first motion. In this way, it is avoided that the extreme positions of the grid are always in the same place. The speed can be changed, but since the two motions are produced by the same motor, they are not entirely independent. The initial tests showed that some wave patterns still remain; apparently the human operator is better than the machine in this respect! However, when the plate is moved manually and randomly, during the automatic grid motion, excellent results have been obtained, both in terms of efficiency and uniformity (Table 1).

Mechanical modifications are therefore now being made in order to "decouple" entirely the first two motions and to add a third, that is a slow motion of the plateholder and the plate. As soon as it is ready, we intend to test the new machine with plates from the ESO 1 m Schmidt telescope. If the present results are confirmed, the tray-rocker will be replaced with the grid machine. The greater efficiency and uniformity will clearly be of importance for achieving the best possible use of the Schmidt telescope.

## VLT Documentation

Since the last issue of the *Messenger*, the following documentation about the ESO Very Large Telescope project has become available.

A **VLT Slide Set** has been produced in a very limited edition and reflects the status of the project by November 1986. It is provisional and future editions will be updated as more details of the project become defined. The set consists of 20 slides and may be obtained by sending DM 35,- (the equivalent of the cost

price plus postage) to the address below.

The **Proceedings** of the Second Workshop on ESO's Very Large Telescope, which was held in Venice, 29 September - 2 October 1986, have now been edited by S. D'Odorico and J.-P. Swings. The 448 page volume comprises more than 35 papers and records the important discussions that took place at the meeting. It is available at a price of DM 40,- (including surface mail postage), from:

ESO Information and Photographic Service  
Karl-Schwarzschild-Strasse 2  
D-8046 Garching bei München  
Federal Republic of Germany

In addition, the VLT Brochure is available free of charge (only one copy per order) in four different languages: English, French, German and Italian. A small number of the technical VLT Reports, announced in *Messenger* 45 (September 1986), are also available.