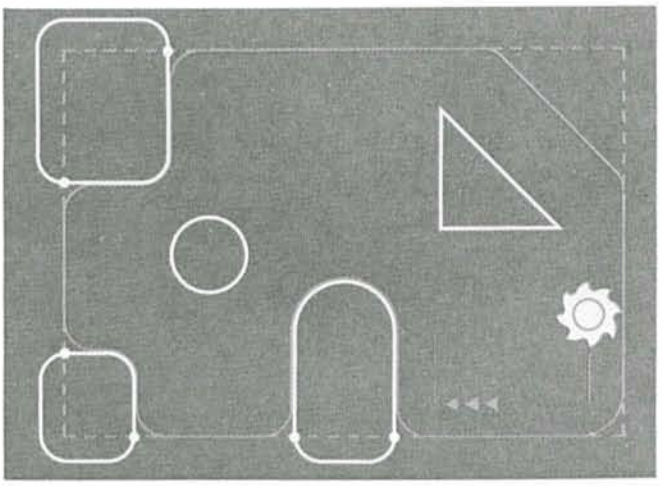

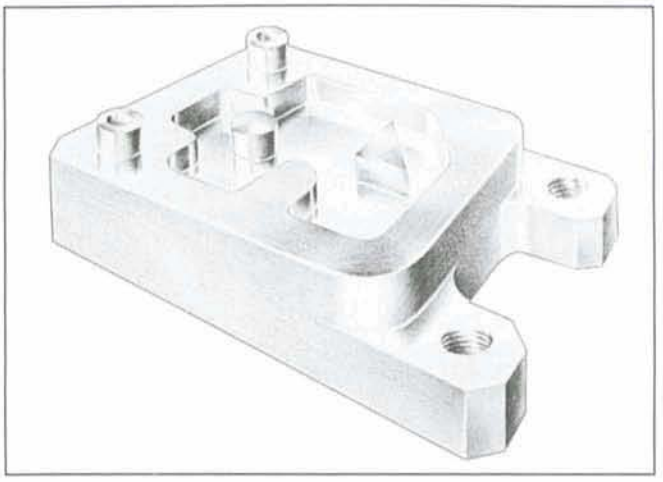

Milling cycles for variable contour pockets.

follows closely the functioning of Optopus, the results continue to be as impressive as before.

At the mechanical workshop in Garching we obviously had to replace the previous machine with a new Mikron in order to ensure compatibility and permit the possibility of an exchange of programmes between Garching and La Silla. As the mechanical workshop in Garching has only one milling machine, we have chosen one with a greater capacity than the previous one, which allows us displacements by 700 mm in X, 500 mm in Y and 500 mm in Z, thus enabling the manufacture of larger parts. The capabilities of this Mikron WF51D "TNC 355" machine are identical to its predecessor with a few new features:

- Programme input during machining
- Programming of chamfers
- Helical interpolation (enabling manufacture of larger diameter, external or internal screw threads)
- The standard cycles which already existed are retained (Heidenhain) but we have cycles unique to Mikron
- Milling of pockets with varied contours allowing us to retain the islands
- Scaling factor 0 to 100 enabling us to enlarge or reduce the forms or figures of geometrically identical holes.
- The control enlarges or reduces shapes or drilling patterns of similar geometry by a scaling factor.
- Shifts from point zero, but also coordinates system rotation, a feature which did not exist on the previous machine. If the milling or drilling patterns are repeated at shifted positions, there is no need for reprogramming, you only specify the offset. If a milling or drilling pattern is rotated on a circular arc, you programme a coordinate system rotation.
- Programme test: programming assurance through test run without machine movement

Jöran Ramberg (1906–1990)

Already in 1933, Jöran Ramberg joined as Research Assistant the newly established Stockholm Observatory in Saltsjöbaden – at the time an institution under the Royal Swedish Academy of Sciences. He remained at the Observatory at different posts – from 1948 as Associate Professor and from 1960 as Professor – until 1963, when he took up duty as Assistant Director of the European Southern Observatory. In 1968, he became the Technical Director of ESO and remained in this position until his retirement in 1971. Through this, Ramberg very actively contributed to the first development of ESO.

Jöran Ramberg's research in astronomy mainly dealt with the structure of the Milky Way system. The method he used is based on the determination of the distances of stars through a combination of spectral analysis and photometry. As both the observing and the data reduction were very time consuming, Ramberg's work had to be limited to deep surveys (as far as the telescopes in Saltsjöbaden could reach) in selected areas. In his thesis, Ramberg controlled and calibrated this method by observing the two nearby star clusters, the *Hyades* and *Praesepe*.

As a side-result, he discovered two white dwarf stars in the Hyades. This was the first time that these extremely compact objects, which represent the end phase of the development of a star, had been found in a star cluster – a discovery important in determining the ages of these stars. The deep surveys also required observations from the Southern Hemisphere; these were made at the Harvard Observatory Branch in Bloemfontein in South Africa. Ramberg's investigations reached a distance of 6000 light-years and are still unsurpassed. They showed that the stars, also those at a relatively high age, are strongly concentrated to the spiral arms that are lined up of gas and dust in the Milky Way. This result is remarkable because it cannot be fully explained by existing theories for the origin of spiral arms in rotating stellar systems.

All of us who have had the pleasure of knowing Jöran Ramberg as friend and colleague, have admired his untiring energy and deep engagement, his meticulousness in both research and instrument construction, and his self-sacrificing work making astronomy and its achievements known to the public. We have always enjoyed his perfect readiness to share his knowledge and his experience. His demise leaves big emptiness behind.

P. O. LINDBLAD