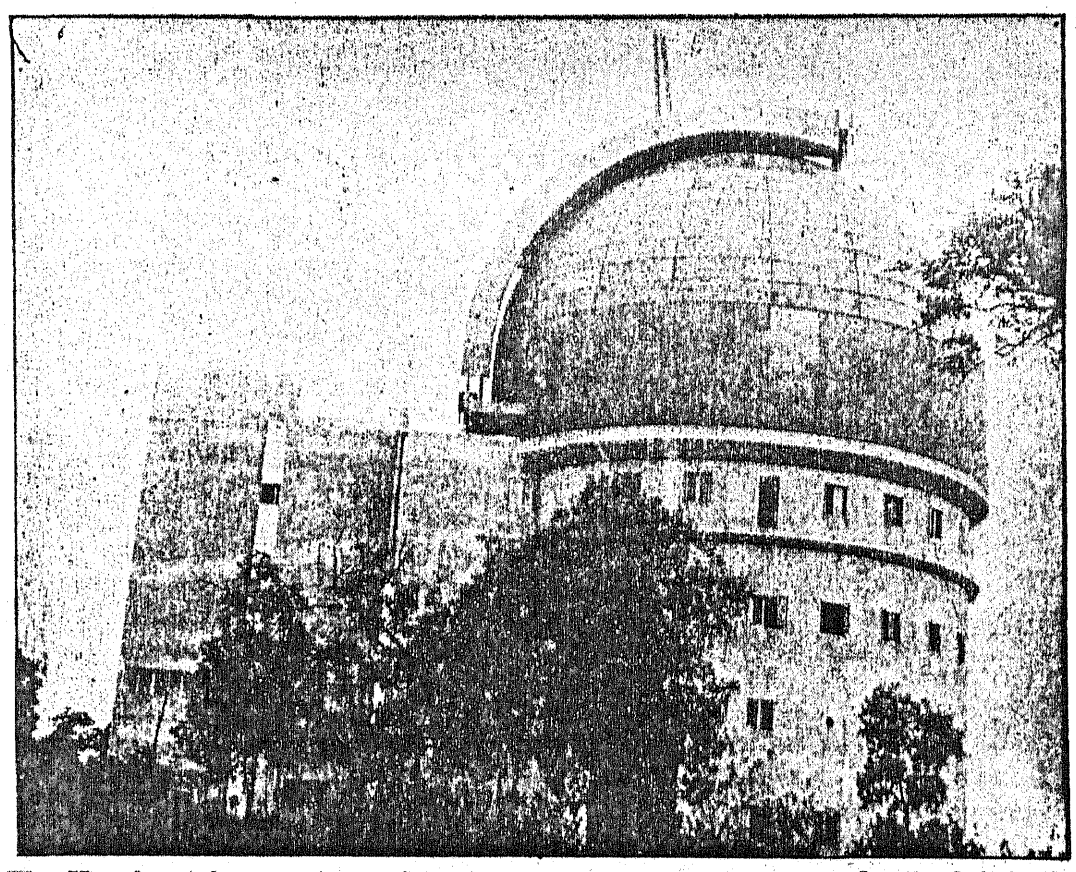
Newstime Five , Hyderabad

To see the stars better

From Sandhya Hanumappa in Bangalore



The Kavalur telescope tower housing the 2.3 metre telescope. On the left is the movable side-door to provide a view of the sky.

The largest telescope in Asia will be commissioned in June, 1985 at Kavalur (in Tamil Nadu) field station of the Indian Institute of Astrophysics. The telescope with 2.3 diametre mirror, weighs 3.7 tonnes and will be 7.5 feet in height, according to the project manager, Mr S C Tapde. It will provide a clear vision of stellar objects 175 kilometres deep in the space, he said.

The largest telescope in the world is a 6-metre telescope commissioned just four years back in Russia. In Asia, Japan had the largest telescope till now, with 175-cm mirror. The institute's 2.3 metre telescope will now be the largest in Asia.

The new telescope will help the astrophysicists to study the structure of stellar chromosomes and also the southern Milky Way. In fact, the need to study the southern Milky Way was the reason for stationing the telescope in a southern field station. In addition, the telescope will be used to measure the fundamental parameters of stars like the radius and lumino sites and study their morphological and chemical composition. Also external galaxies and stellar aggregates could be observed more closely through this telescope, Mr Tapde said.

The telescope was conceived by the Institute, whose scientists felt the acute need for a more powerful telescope to probe the sky deeper. When planned in 1976 the project was estimated at Rs 260 lakhs. However, after nine years, the entire project has cost Rs 6 crore, he said.

The telescope would be housed in a specially erected tower which has a rotating dome. The dome weighing 265 tonnes is made of welded steel sheets and rotates on 40 wheels. It has a shutter which opens five metre sideways to enable the viewer to track a star, the project manager said. The assembly of the telescope in the tower has already begun and it will be completed in another three months, he said.

Grinding

The Kavalur field station already has four other telescopes with 37 cm, 40 cm, 75 cm, and 100 cm diameter mirrors, he said. A 3.7 tonne and 40 cm thick glass was imported specially for this telescope from West Germany at the cost of Rs 8.5 lakh. About 125 kilograms of glass has been removed from this fat block of glass during grinding, to make it a perfect, well polished mirror. The value added is almost double and it costs Rs 25 lakh now, Mr Tapde said. It is still undergoing polishing at the institute's optical workshop.

Stellar astronomy is only a part of the Institute's activities. It has three field stations. Sun and sun spots are studied at Kodaikanal field station and the stellar system at Kavalur station. Both these stations are in Tamil Nadu. The third field station at Gouribidanur in Karnataka is meant for radio astronomy studies. The Gouribidanur station has facilities to study the radiation transmitted in Deca waves. The work done here is only complimentary to the work being done at Ootacamund by the Tata Institute for Fundamental Research.

The Indian Institute of Astrophysics which offers Ph.D. in astrophysics was shifted to Bangalore in 1974, two years after it was made autonomous. Known as meteorological observatory in its early days, it was shifted to Kodaikanal from Madras in 1892. Though Kodaikanal's skies were clearer than the skies of Madras, very few such clear skies were available in the hill station for the scientists. Also it was isolated. Hence it was shifted to centre – Bangalore.