

The Backstage

A project of this magnitude and sophistication calls for the use of innovative and advanced technology and considerable administrative skill. Work has started at a frenetic pace in diverse areas ranging from the process of acquisition of an appropriately designed telescope to the setting up of the necessary infrastructure for the observatory at Hanle, Leh and Hosakote. Scientists of IIA are busy working out the details of the telescope enclosure and building at Hanle, the satellite uplink facilities at Hanle and Hosakote for effective communication, the acquisition and downloading of observational data and the focal plane instrumentation. The extreme climatic conditions of the site where oxygen levels are low and temperatures may go down to -30°C , pose challenges to the mechanical design, the optics, the installation and operation of the telescope and effective strategies are being evolved to deal with these.

There is a National Advisory Committee of several eminent Indian scientists and a Project Management Board to monitor the progress of the project.

Indian Institute of Astrophysics

Indian Institute of Astrophysics is an institution devoted to research in Physics, Astronomy and Astrophysics with its headquarters in Bangalore and its field stations at Kavalur, Kodaikanal and Gauribidanur. It is proudly looking forward to the expansion of its activities further with the opening of the Science Centre at Leh, the new Observatory at Hanle and the new Centre for Research and Education in Science and Technology (CREST) in Hosakote near Bangalore.

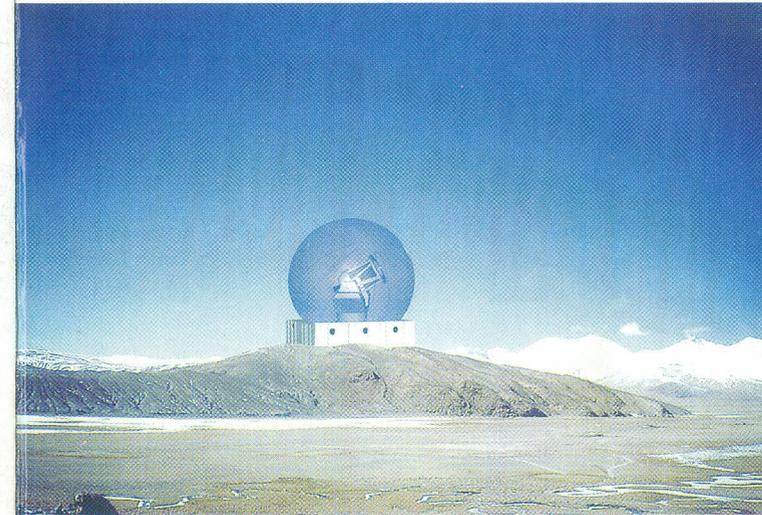
While Kodaikanal has for years been the principal centre of activity in observational solar physics, the Vainu Bappu Observatory at Kavalur has been the main stellar observatory of IIA. It has several optical telescopes in operation, the largest being the 234-cm Vainu Bappu Telescope built



indigenously and inaugurated by the late Prime Minister Shri Rajiv Gandhi in January 1986. In Bangalore the main library and the various laboratories are located. The Computer Centre is equipped with a Silicon Graphics Power Challenge machine, the 12 Gflop GRAPE-computer and several workstations. A modern physics laboratory to carry out experiments in the area of nonaccelerator particle physics is also being set up. IIA operates a decameter wave radiotelescope at Gauribidanur jointly with Raman Research Institute of Bangalore. Also in Gauribidanur is located a very special laboratory on experimental gravitation. Now, with the setting up of the IAO at Hanle, IIA will emerge into the 21st century as a national institution with international visibility.

Indian Astronomical Observatory

**Mt. Saraswati
Digpa Ratsa Ri, Hanle
Ladakh**

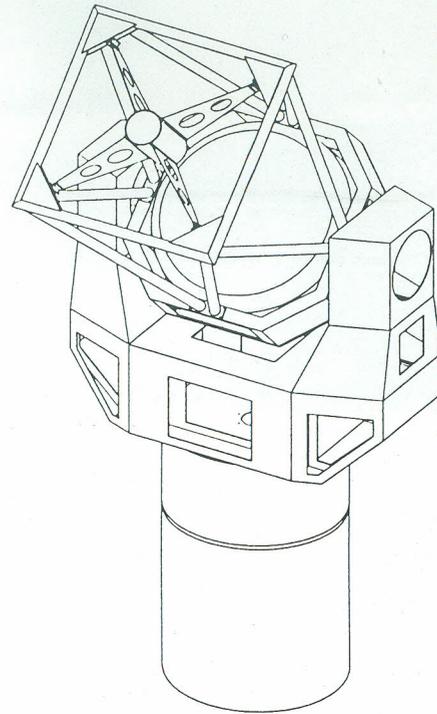


**A Project of the
Indian Institute of Astrophysics
Department of Science & Technology
(Government of India)**

Indian Astronomical Observatory

The world's highest observatory will become operational in the wilds of Ladakh by the turn of this century. Indian Institute of Astrophysics, the premier research institution in the country, devoted to the study of celestial objects and phenomena, is in the process of setting up this observatory at Hanle in south-eastern Ladakh. The observatory will be built on Digpa Ratsa Ri, the Scorpion Hill, located in the middle of the elliptically shaped 'Nilamkhul Plain' in Hanle. An all-weather road maintained by the Border Roads Organisation connects Hanle to Leh.

A reflecting telescope with a mirror of 2-metre diameter will be installed at the hilltop. Compact in design and equipped with state-of-the-art modern instruments, the telescope will be capable of imaging the Universe in both the visible and infrared wavelengths thereby considerably expanding the horizon of astronomical activities of IIA. This is the largest project undertaken by IIA during the Ninth Plan period. The telescope will also have the facility of being remotely controlled via a satellite link from Bangalore. When it becomes operational, it will be the highest groundbased telescope in the world, being located at an altitude of 4517 metres above the mean sea level and the first of its kind in the trans-Himalayan region. Largely untouched by the monsoon showers, which render astronomical observations anywhere south of the Himalayas more or less impossible during a large fraction of the year, the Hanle region with its sparse human habitation has always held the possibility of providing the astronomer with dark and cloudless skies. The dry desert conditions have further enhanced its suitability as the home of an observatory where astronomical studies in the infrared region of the spectrum may be pursued. IIA chose Hanle as the location of its new observatory keeping all these advantages in mind. IIA astronomers have had a continuous presence close to the chosen location of the observatory since 1994 November. A small observing facility and an automated weather station have been functional near the site for quite some time. The excellent conditions comprising more than 250 observing



nights per year on an average, has led them to undertake the difficult task of setting up an observatory in this remote region of the country.

The telescope is expected to be installed in 1999 and is likely to see the first light on October 2, 1999. The observatory will also have other facilities for studying the Sun.

With the commissioning of the Indian Astronomical Observatory in Hanle, Indian astronomers hope to march into the twentyfirst century with a first-rate observing facility at their command. It is also hoped that the astronomical activities at Hanle will grow further in the early decades of the next century with the installation of bigger optical telescopes and telescopes operating at other regions of the electromagnetic spectrum. The possibilities seem almost limitless.

The Hanle Advantage

Hanle (latitude $32^{\circ} 47' N$, longitude $78^{\circ} 57' E$) is a very dry area and is in essence a high-altitude desert. The precipitable water vapour is less than 2 mm during the better part of the year. The skies are exceptionally dark and the atmospheric extinction rather low. Besides being an excellent site for observations in the optical and infrared regions of the electromagnetic spectrum, Hanle may prove to be a very good site for sub-millimeter and millimeter wave astronomy as well. It is already attracting international attention for these very special qualities. Experts have expressed the view that it is perhaps the finest site in south-east and south Asia. An observatory in Hanle will also fulfil the long felt need for an astronomical station in the wide longitude interval of $157^{\circ} E$ and $20^{\circ} W$, between Eastern Australia and the Canary Islands respectively. Every effort is being made to preserve the marvellous qualities of this site and to ensure that the ecology and environment of the region is not degraded by any other activity.

