Pune,
Monday, May 11, 2009

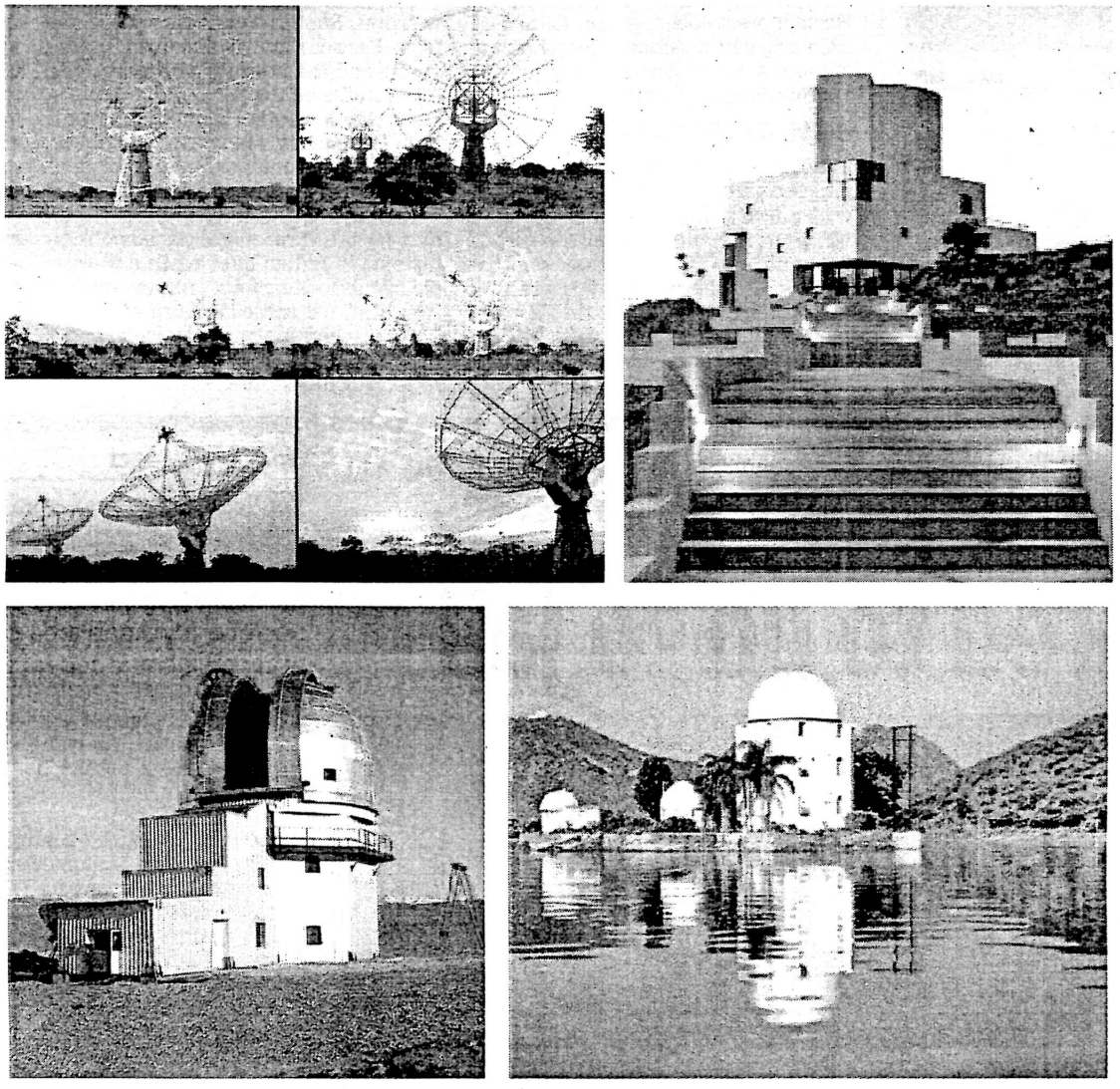
Various observatories in India

**Jayant Narlikar &
Thanu Padmanabhan**

The first major optical observatory in independent India became operational at the Manora Peak, Nainital in 1953 thanks to the dedicated efforts of Vainu Bappu, one of the greatest astronomers of modern India. This observatory, now called Aryabhatta Research Institute of Observational Sciences, hosts a 104 cm telescope and is planning to acquire a 3 m class telescope. Vainu Bappu later founded the Indian Institute of Astrophysics, Bangalore which now operates an observatory at Hanle, Ladakh. Located at a height of 4500 metres, this is the world's highest observatory and has the 2 m class Chandra telescope. In addition, Bappu was the spirit behind developing a small village in Tamil Nadu, Kavalur, into the Vainu Bappu observatory - so named in his honour - which houses an indigenously made 2.3 m telescope. Other telescopes include the 1 m telescope run by Osmania University at the Japal-Rangapur site near Hyderabad and a 1.2 m telescope at Mount Abu operated by Physical Research Laboratory based in Ahmedabad.

part-19
THE UNIVERSE YOURS TO DISCOVER
INTERNATIONAL YEAR OF ASTRONOMY 2009
DNA special

The latest optical telescope to join the fray is the 2 m class Girawali telescope operated by Inter-University Centre for Astronomy and Astrophysics. This became operational nearly three years ago on May 13, 2006 and is located at the village of Girawali, 80 km north of Pune at an altitude of about 1000 metres.



From clockwise: A view of the GMRT located at Khodad near Pune; the optical telescope located at Girawali near Pune; Chandra telescope located at Hanle, Ladakh and the Udaipur Solar Observatory.

India also has facilities at wave bands other than optical. The most important amongst them is the Giant Metrewave Radio Telescope (GMRT) located at Khodad near Pune and operated by the National Centre for Radio Astrophysics. This giant facility, which became operational in 1995, is currently the world's largest aperture synthesis radio telescope operating at metre wavelengths. The effort in constructing it was led by Govind Swarup of the Tata Institute of Fundamental Research (TIFR) who had earlier set up India's first major radio telescope - the Ooty Radio Telescope - at Udhagamandalam in 1970. In addition, radio astronomy facilities exist at Bangalore and Gauribidanur.

In the field of high energy astronomy, the Indian efforts were originally initiated by Homi Bhabha. The high altitude research laboratory at Gulmarg operated by the Bhabha Atomic Research Centre (BARC) and the high energy gamma ray observatory at Pachmarhi run by TIFR are two facilities for gamma ray astronomy in India which came up because of his vision. Next year, India proposes to launch the dedicated astronomy satellite 'Astrosat' which will act as an observatory in space and gather data from celestial bodies in the x-ray and UV band. This project is a joint venture of several research institutions in the country.

India also has a solar observatory at Udaipur which concentrates on the study of the Sun. It has three telescopes which are used to study helioseismology and the observations of the chromosphere of the Sun. This observatory also participated in international programmes devoted to the study of the Sun by linking with other solar observatories elsewhere in the world. This is operated by the PRL.

(Next week: A law that isn't)

Astrophysicist Jayant Narlikar and theoretical physicist Thanu Padmanabhan will contribute to DNA's special series through 2009, designated the International Year of Astronomy.