

City scientists spot new asteroids

By A Staff Reporter

BANGALORE, August 13:

INDIAN astronomers have spotted four new objects in our solar system. They are asteroids (or planetoids) that revolve round the sun, their orbits lying between those of Mars and Jupiter. The last time that asteroids were discovered from India was more than a century ago. N.R. Pogson, based in Madras, had found five new asteroids between 1861 and 1891. Peering through the newly-installed Schmidt telescope at Kavalur, a team from the Indian Institute of Astrophysics (IIA), Bangalore, detected several asteroids in observations made during March and April this year. Four of these are now believed to be new: that is, they are not among the 3400-odd known asteroids that have so far been catalogued.

This is the first major success of a project launched by the IIA this year to detect new asteroids, comets and variable stars. The ultimate

goal of the project is to detect the elusive tenth planet believed to exist beyond Pluto.

The project leader, Dr R. Rajamohan, told *The Times of India* that the International Astronomical Union had assigned temporary designations (FY1, FZ1, HQ2, and HR2) to the unlisted asteroids seen from Kavalur.

The chapter is not closed, however, because their orbits have to be confirmed before they can enter the list of asteroids with permanent numbers and Indian names.

Naming the asteroid is the discoverer's prerogative. So far Indians have not figured in the hall of fame of asteroid discoverers, although an asteroid is named after the illustrious Vainu Bappu, who was the IIA director for 22 years. There is another one named Mirinalini Sarabhai by an astronomer who appreciates Indian dance, but these were not Indian discoveries. Vainu Bappu is the only Indian to be

associated with the discovery of a comet (named Bappu-Bok-Newkirk), but that discovery was made from Harvard, not on Indian soil.

It may seem strange that asteroids are still being discovered in an age when spacecraft have gone past Pluto. That is because asteroids are of various sizes, some tinier and fainter than others. Many are believed to be beyond the telescopic limit even now.

Ceres is the largest of them with a diameter of only 800 km. That was the first asteroid to be discovered in 1801 by Piazzi, who was in fact looking for a planet between Mars and Jupiter.

A remarkable, empirically discovered relationship between the distances of the planets from the sun, known as Bode's law, had predicted that a planet existed 2.8 astronomical units from the sun (an astronomical unit is the earth's distance from the sun). Piazzi searched

for it and found Ceres instead. The thousands of asteroids discovered subsequently have an average distance from the sun of 2.7 astronomical units (but Bode's law fails for the farthest planets, Neptune and Pluto.)

Most asteroids have a diameter of well under 100 km which makes them very difficult to spot even though they are in our solar system. But more powerful telescopes and better techniques of observation are making things a little easier.

These days they don't have to be actually seen through the telescope: they are identified by their paths on exposed photographic plates.

The team led by Dr Rajamohan comprises K. Kuppaswamy, Y. Moorthy and A. Paranjpye.

The aim of discovering new asteroids is to know our solar system better both for fundamental studies as well as space missions.