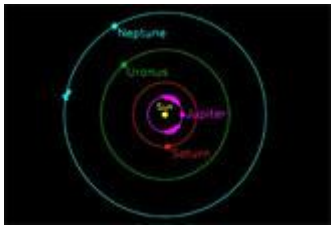

Neptune Linked to Potential Swarm of Asteroids

By **Ker Than**
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Astronomers have detected three new rocky bodies which share the same orbit as Neptune as it travels around the Sun.

The finding, detailed in the June 16 issue of the journal *Science*, brings the total number of the gas giant's asteroid companions, or “Trojans,” up to four.

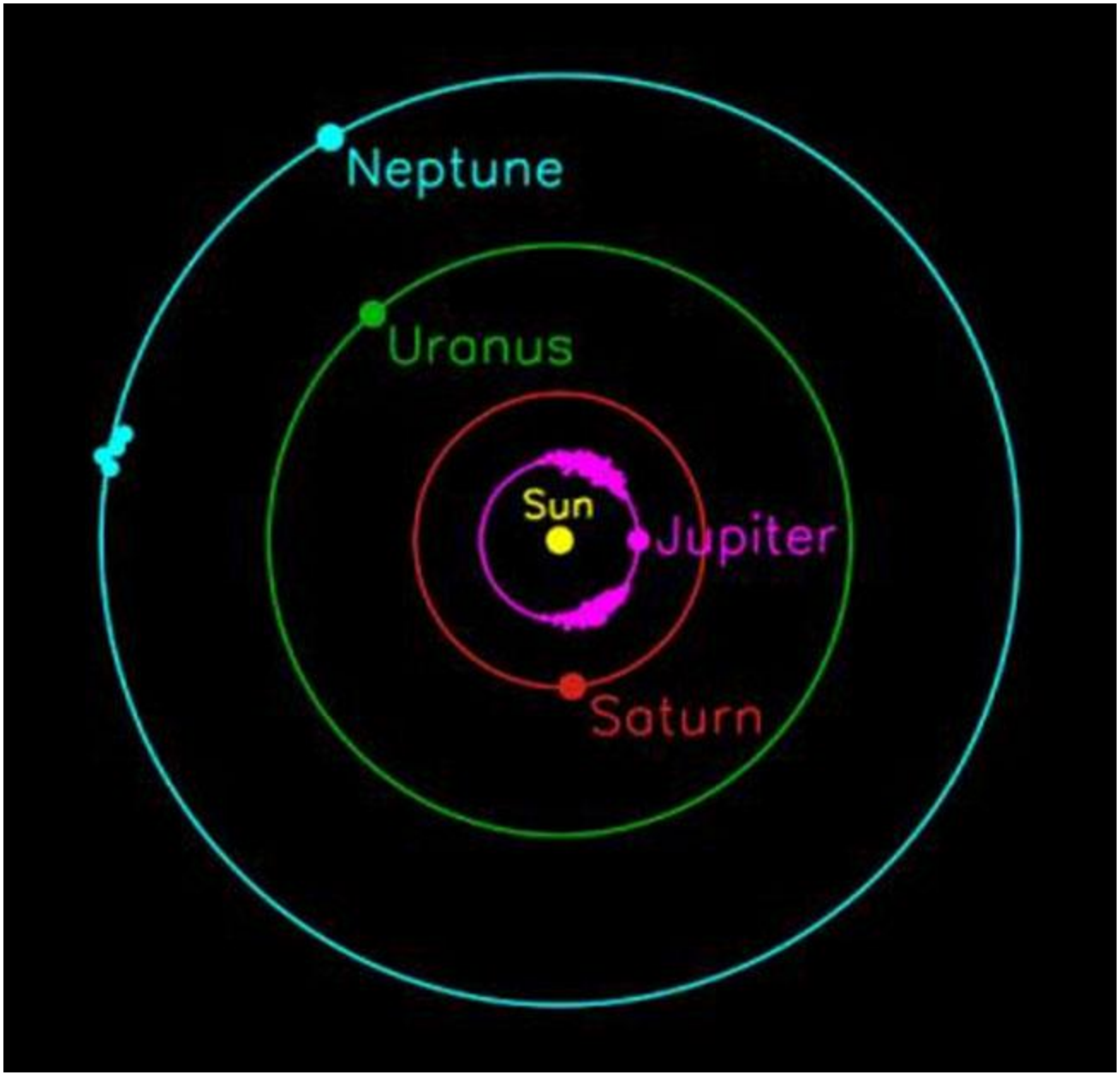
The highly inclined orbit of one of them supports the hypothesis that the Neptune Trojans were captured from a much larger asteroid "cloud" that surrounds the planet, and that they are not the broken remains of some larger object as some scientists have speculated.

The Trojans gather around one of Neptune's two so-called "Lagrangian" points. In these regions—located 60 degrees in front of and behind the planet in its orbit—the Sun and Neptune's gravity combine to ensnare passing objects.

The orbit of one of the new Trojans is tilted about 25 degrees relative to the plane that Neptune orbits the Sun, compared to only about 5 degrees for the other three Trojans.

The way the survey was set up, it was very unlikely that such a highly inclined object would be detected. The fact that it was indicates that there are at least as many—and possibly more—highly inclined Trojans existing far from the solar system plane compared to low inclination ones, said study team member Chadwick Trujillo of the Gemini Observatory Hawaii.

"The Neptune Trojans are a thick 'swarm,' not a thin population confined to the plane," Trujillo told *SPACE.com*.



A schematic of the outer solar system in which the "Trojan" asteroids can be seen sharing the orbits of Jupiter

and Neptune. At either of two points 60 degrees away from each planet, the gravitational forces of the planet and the Sun combine to lock the asteroids into a stable, synchronized orbit. Credit: Scott Sheppard