

# Turning our backs on space

BY MICHAEL J. NEUFELD

Thanks to the New Horizons probe, which began its exploration of Pluto last month, scientists and the public can anticipate ever more exciting pictures and data about the dwarf planet. It will be the first encounter with a member of the Kuiper Belt of icy objects beyond Neptune. Yet the scheduled July 14 flyby will be of not one object but at least six: Pluto, Charon (a satellite half the size of Pluto) and four small moons — and who knows what else in orbit around their common center. Many wonders and insights about the origins and evolution of the solar system await.

But this encounter may also mark the beginning of the end of a golden period of U.S. planetary exploration, particularly of our solar system's outer reaches. If marvelous things are found at Pluto, when would the next mission follow up?

We can hope that New Horizons' flight past a small Kuiper Belt object in 2019 will be funded, but beyond that there is nothing. No spacecraft are planned to investigate Uranus or Neptune, which were visited only once each, by Voyager 2 in the 1980s. When the magnificent Cassini orbiter around Saturn runs out of propellant and crashes into that planet in 2017, that will be the end of data from the ringed planet and its astounding moons.

Only mighty Jupiter will be favored, with

the Juno spacecraft set to go into orbit in 2016. Following that, the next Jupiter missions are a European one not scheduled to reach it until 2030, and NASA's Europa Clipper, which will take about that long, assuming that it is funded. It was a hopeful sign that in the fiscal 2015 omnibus bill, Congress increased the study money for the Clipper — which will focus on Europa, Jupiter's icy moon with a possible life-bearing, subsurface ocean — from \$15 million to \$100 million. That makes the project a real possibility for the 2020s, but the Obama administration still needs to give it formal approval.

Once before, in the late 1970s and the first half of the 1980s, the United States faltered in its commitment to exploring the solar system, one of the greatest scientific and technological achievements. The result was a long gap in missions, disguised only by the two Voyagers' magnificent encounters with the outer planets, and those probes launched in 1977. If we are to continue exploring our home system, Congress and the president need to commit to new funding. While the human spaceflight program falters from uncertainty and lack of convincing purpose, we know that planetary exploration provides enormous returns for the dollars invested.

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