Brian Marsden

(1937–2010)

The walking encyclopedia of comets.

Brian Geoffrey Marsden was the 'go-to man' for comets — icy bodies that release gas or dust as they travel around the Sun — as well as for the thousands of named asteroids or 'flying rocks'.

For more than three decades, Marsden, who died aged 73 on 18 November, headed an effort to locate objects that had once been observed and named, but that could no longer be tracked because the original observations had been insufficiently precise. His favourite recovery was the comet Swift–Tuttle, first sighted in 1862 but lost a couple of years later. Conventional wisdom held that it would return around 1981, but Marsden suspected that the 1862 comet had the same properties as one seen in 1737, and this allowed him to predict, correctly, that Swift–Tuttle would not return until late in 1992.

Born in Cambridge, UK, Marsden was developing primitive ways to calculate the positions of planets by the age of 11. As a teenager, he began to compute the locations of comets using logarithm tables. By the time he received his undergraduate degree from New College, Oxford, UK, he was widely known for being able to calculate comet orbits accurately.

Marsden enrolled as a graduate at Yale University in New Haven, Connecticut, in 1959, and soon programmed the university's IBM 650 computer to calculate comet orbits. In 1965, Fred Whipple invited him to join his staff at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts. Whipple, then the director of the observatory, had recently proposed the 'dirty snowball' model — the idea that comets consist mostly of ice mixed with dust. The computer programs that Marsden developed to model the orbiting paths predicted by Whipple's theory are still widely used by astronomers.

TAKING THE REINS

As the director of the Central Bureau for Astronomical Telegrams (CBAT), I had transferred it from Copenhagen to Cambridge, Massachusetts, shortly before Marsden arrived at the Smithsonian. The CBAT has, since 1920, been responsible for informing the world's astronomers — on the behalf of the International Astronomical Union (IAU) — about comets and other objects of astronomical interest that change rapidly. It is also in charge of naming comets.

On the day before Marsden was officially to take up his staff position at the observatory,

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we had a press conference to inform the public that the remarkable comet Ikeya–Seki would become bright enough to be seen near the Sun in broad daylight. Fortunately, Marsden joined us, because there were questions about historical comets that only he could answer. In the days that followed, it quickly became clear that he would prove an indispensable member of the CBAT team, and by the next IAU Congress, in 1968, I was more than happy to hand over the reins to him.

Marsden was director for 32 years. This was an onerous assignment, because he had to be on duty 24 hours a day, 7 days a week, in case a brilliant supernova burst into view. Most astronomers little appreciated the service that Marsden rendered during those decades, although in 1989 he did win the American Astronomical Society's George Van Biesbroeck Prize 'for service to astronomy', and later he won a similar prize from the UK Royal Astronomical Society.

Besides directing the CBAT, Marsden took over another IAU bureau, the Minor Planet Center, in 1978. Under his leadership, all the asteroids that had been lost were located again. There are now about half a million asteroids with known orbits, more than 16,000 of which have official names. In his role in various IAU committees, Marsden became, in effect, the chief namer of asteroids, although the full committee had to ratify his suggestions.

Because the procedures used to measure the positions of Pluto were the same as those used for minor planets, Marsden proposed, in 1999, to give it the minor planet number 10,000. He considered Pluto to be the first of the trans-Neptunian objects — icy objects that orbit the Sun but that are farther from it than Neptune.

His proposal stirred up an inordinate controversy among the public, and the IAU executive committee forbade such a move. In 1993, after three more trans-Neptunian objects were found, Marsden had been the first to suggest that they were all like Pluto in orbiting the Sun twice in the time it takes Neptune to orbit it three times.

Marsden's wish to 'demote' Pluto was granted only after trans-Neptunian objects more comparable to Pluto in size were discovered in 2005. At its triennial meeting in 2006, the IAU voted to designate these objects members of a new class of 'dwarf planet' — which, paradoxically, are not considered simply another kind of planet. At this same IAU meeting, Marsden stepped down as director of the Minor Planet Center. He was "quite entertained by the thought that both he and Pluto had been retired on the same day".

Brian rarely took breaks from calculating the orbits of astronomical objects, and would typically be at his desk on a Saturday afternoon. A few months ago he was diagnosed with leukaemia. In spite of his illness, he continued to come to the observatory. I saw him frequently, his office being directly across the hall from my own.

I've recently been working on Galileo's discovery of the satellites of Jupiter (whose orbits had been the topic of Brian's doctoral thesis). I told him that I needed a diagram showing what the satellite orbits would have looked like in January of 1610. He paused for a few minutes: "Try the 1941 Nautical Almanac," he suggested. The match is amazing. Three weeks later, pneumonia took its toll on a weakened immune system. The magic will be missed. ■

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