

Reviews

The Comet Is Coming!

by NIGEL CALDER
Viking, \$12.95

Astronomer Brian Marsden once noted that to the man in the street, "the solar system consists of Mars, the rings of Saturn, and Halley's comet." Man has dispatched the Viking landers and Voyager probes to the first two; five years from now, the third will visit man. On its own 76-year tour of the solar system, the most famous of comets will once again soar by the inner planets at about 30 miles per second, spew out a tail of dust and gas that stretches for millions of miles, and swing around the sun.

Never mind that in the Northern Hemisphere it will take a good pair of binoculars to see the show. To earthlings there, Halley's comet will appear in the night sky no brighter than a faint star and usually close to the horizon. Australians or Argentinians will get a better view. Still, "Halley is Halley," says British author Nigel Calder. "The fever is upon us."

Calder's skill as a popularizer of science (*Einstein's Universe*, *The Restless Earth*, *The Key to the Universe*) should ensure that the fever will be catching. "The comet is coming!" he cries, and sets out like a 20th century Paul Revere to warn the citizenry about the superstitions surrounding the cosmic visitor. His chronicle of cometary history, legend, and scientific fact, Calder says, "may help to inoculate the more reasonable sections of the public

Artist's view of the comet in 1910



against the predictable nonsense of Halley's return." That nonsense was evident during Halley's 1910 visit, when quacks in America and Britain hawked pills to ward off cometary poisons. In the 1980s, no doubt, it will be a rash of Halley posters, a "comet cocktail," and frantic warnings of imminent collision.

As Calder recounts, comets have had a bad press for thousands of years. When one appeared in the sky over Rome in A.D. 60, some prominent citizens concluded that Emperor Nero's days were numbered. In response, Nero numbered their days: he had their throats cut. "Eminent folk had indeed perished on account of the comet," writes Calder. When a comet failed to appear in A.D. 814 to herald the death of Charlemagne, chroniclers knew what to do; they dutifully recorded that it had shown up. Calder points out in his entertaining fashion that those who saw comets as "telegrams from the gods" were merely fulfilling their own prophecies.

In the late 17th century, the English astronomer Edmund Halley decided to stop such nonsense and put comets in their rightful place. His scientific credentials were impeccable; he had drawn the first accurate charts of the southern sky, invented a diving bell, and plotted the global variations in the earth's magnetic field. He was, says Calder, "a run-of-the-mill genius and personable fellow." Halley's cure for comet fever: to show from historical records that comets can reappear at predictable in-

tervals. Driven by his cometmania, Halley persuaded his friend Isaac Newton to write up his theories on gravity, which described the motions of all objects in the solar system. Urged on by Halley, Newton—who had been keeping the findings to himself for years—finally published his *Principia* in 1687. Among other things, his theories demonstrated that comets were merely planetoids in constant, if eccentric, orbit around the sun.

But it was Halley's name, not Newton's, that became synonymous with comets. In 1705, Halley confidently wrote that a comet he had seen in 1682 would reappear in 1758. And when, on Christmas Day of the appointed year, a German farmer spotted the distant streak, Europe went wild. "At a stroke," says Calder, "Halley undid the benign effect of Newton's mathematics, which should have reduced comets to their proper status as lowly curiosities." Writes Calder, "Nothing was more surely calculated to stir everything up again than a plausible forecast of the return of a bright comet within the lifetimes of Halley's younger readers." Halley, alas, was not among those present to witness the return; he died in 1742, after taking a last swig of his beloved brandy.

On the heels of these historic anecdotes follow the details of all the modern theories concerning the composition, structure, and origin of comets. Halley's namesake, the reader discovers, is a dirty snowball of ice, frozen gases, and rocky debris that weighs at least 6.5 billion tons and is more than three miles in diameter (a mere pebble compared to the earth's diameter at the equator of 7,927 miles). Calder also assures the reader that in its next pass the comet will miss the earth by 40 million miles, and that the only communicable disease it will bring from deep space is excitement.

Does Calder really expect to eradicate comet fever with reasoned facts and impressive arguments? Not at all. His shaky faith in human nature is apparent in an anecdote reserved for the closing chapter: "I eavesdropped once on two small boys who had cycled out to the local airport to watch the big jets crashing. As each aircraft took off or touched down they reported to each other, with just a hint of disappointment: 'That one didn't crash.' I imagine them both in 1986, older but no wiser, saying to their wives as they watch Halley's comet fading into the outer darkness: 'That one didn't crash.'"

—Marcia Bartusiak