

No Planet Found at Barnard's Star

ONE FAMOUS "DISCOVERY" OF THE FIRST planet beyond the solar system dates from 1963, when astronomer Peter van de Kamp announced that a planet orbits Barnard's Star every 24 years. (A dim red dwarf in Ophiuchus, Barnard's Star is just 6 light-years away — the closest star after the Alpha Centauri system.) Van de Kamp found a barely detectable, unexplained wobble in the star's position as measured on photographic plates made from 1916 to 1962 with 24-inch refractor at Sproul Observatory in Swarthmore, Pennsylvania. He originally announced that the planet had about 1.6 times Jupiter's mass, then later reinterpreted the data as showing two smaller planets with somewhat faster orbits.

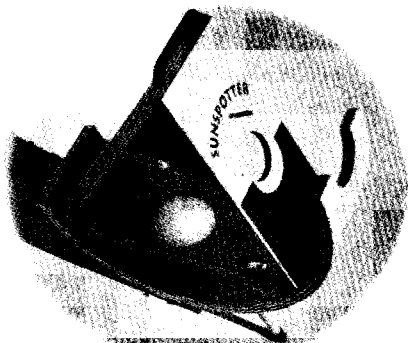
Several subsequent studies failed to confirm van de Kamp's results. But he stuck to his claims; his last analysis, in 1982, had planets of 0.7 and 0.5 Jupiter mass in 12- and 20-year orbits, respectively. By then, however, other experts were skeptical, blaming the wobbles on tiny changes in the Sproul telescope or the photographic emulsion types used.

Could van de Kamp's planet (or planets) be real after all? Today's radial-velocity planet searches, as successful as they are, can't give an answer yet because they have not continued for a long enough fraction of the putative orbital periods. The Hipparcos astrometric satellite didn't operate for long enough either. A Hubble Space Telescope program of tracking the star lasted only three years. But Philip Ianna and Jennifer Bartlett (University of Virginia) recently analyzed a long series of astrometric plates of Barnard's Star taken at the university's Leander McCormick Observatory. They measured 924 images made from 1969 to 1998 — and found no sign of van de Kamp's stellar wobble. While a Jupiter-mass planet cannot be completely ruled out, they say, their study further reduces the chance that one exists.

A definitive answer may not be long in coming. "We continue to monitor Barnard's Star at both Lick and Keck [Observatories]," says R. Paul Butler, a member of the leading planet-search team using the radial-velocity method. "We hope to be in a position to make a comment on this star in the next year or two."

— A. M.

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