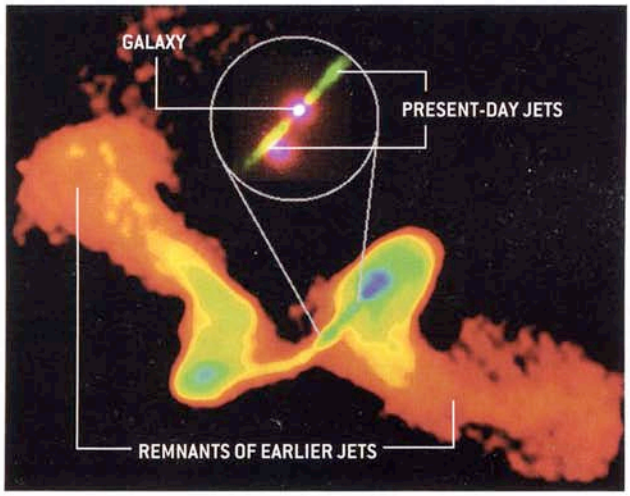
ASTRONOMY

"X" Marks the Spot

SHIFTING RADIO JETS MAY SIGNAL THE COALESCENCE OF BLACK HOLES **BY JR MINKEL**



MERGER OF BLACK HOLES may have shifted the jets from radio galaxy NGC 326. The jets initially pointed to the 10 o'clock and 4 o'clock positions; they now point to 8 o'clock and 2 o'clock.

Researchers have assumed that supermassive black holes in the cores of galaxies come together when two galaxies collide, but they didn't have any evidence of the process. Now two astrophysicists, David R. Merritt of Rutgers University and Ronald D. Ekers of the Australia Telescope National Facility of CSIRO, argue that there are signs of such collisions—in the form of oddly shaped outflow jets from active galaxies. They propose that the direction of the jets, which are strong radio sources, shifts when a larger black hole absorbs a smaller one.

These jets, which result when matter spirals into black holes, are thought to align with a hole's spin axis. The researchers deduce that even a small black hole could cause its bigger partner to rotate when the two merge, thereby changing the outflows from an "I" to a distorted "X" shape. Given the number of galaxies displaying this characteristic and the 100-million-year lifetime of jets, they estimate that one merger occurs per year—useful information for those proposing gravitational-wave detectors. *Science* published the result online August 1.

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