floating planet formed by agglomeration would not have a disk, Lada explains, so these dwarfs must have formed the way stars do. The disks could even spawn small inhospitable planets, Lada says.

"This is compelling evidence," says Geoff Marcy, an astronomer at the University of California, Berkeley. Although he is confident that the disks are real, Marcy points out that astronomers' models of brown dwarfs are still in their infancy, so it's hard to predict exactly how much infrared radiation dwarfs should produce. Better models should soon reduce that uncertainty, he says.

–MARK SINCELL

Mark Sincell is a science writer in Houston.

ASTROPHYSICS

Quasars or Blazars? It's All in the Angle

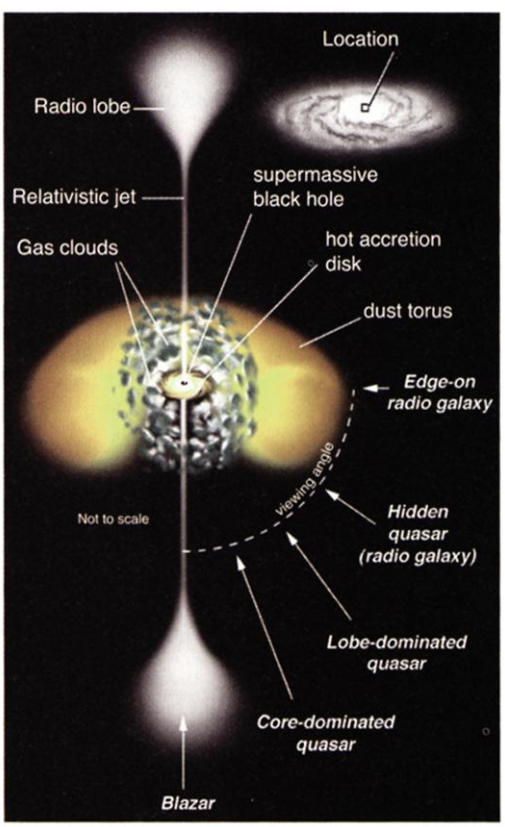
If you had never seen a peacock and then suddenly stumbled across a pair of them—one strutting past in profile, the other facing you in full display—you might think you were looking at two different animals. Astronomers suspect they've been making a similar mistake. New observations strongly suggest that a wide variety of extragalactic objects are actually the same cosmic animal seen from different angles.

The objects in question are blazars, quasars, and radio galaxies. Astronomers think that all are variations on a theme: distant galaxies, each revolving around a nucleus in which a supermassive black hole slowly consumes a hot accretion disk of swirling gas and spews some of it out in powerful jets. Blazars are extremely luminous, highly variable sources of radiation. Quasars are less energetic and steadier, and the ones that emit radio waves come in two varieties. In one case, most of the radio waves come from the quasar's bright core; in the other, most are emitted by two lobes on opposite sides of the galaxy. Finally, the objects known as radio galaxies sport two radio lobes but show no core activity at all.

Over the past 15 years or so, astronomers have suggested different models to describe this bewildering variety of active galaxies. The most radical proposal came from Peter Barthel of the University of Groningen in the Netherlands, who suggested that every radio galaxy is really a quasar seen edge on, its bright core hidden by a torus of dust.

Klaus Meisenheimer of the Max Planck Institute for Astronomy in Heidelberg, Germany, disliked that idea. "I couldn't believe that a quasar could be hidden from view so completely," he says. Using the European Infrared Space Observatory (ISO) satellite, Meisenheimer set out to disprove it. If a dust torus were absorbing radiation from the central quasar, he reasoned, it would reemit the energy as infrared light. So if Barthel were right, radio galaxies and quasars should look the same to ISO. In a paper accepted for publication in *Astronomy & Astrophysics*, Meisenheimer and his colleagues report that that is exactly what they found. "I was really astonished," he says. "I'm [now] convinced that the unification scheme is in principle correct."

Meanwhile, Feng Ma and Beverley Wills of the University of Texas, Austin, were working on what Ma calls "the other end of the unification scheme": the idea that a blazar is just a radio-emitting quasar with one of its jets pointing straight at Earth. On page 2050, Ma and Wills describe how they used a sensitive spectrograph at the 2.7-meter Harlan J. Smith Telescope at McDonald Observatory in Texas to study light emitted by ionized carbon and hydrogen atoms in gas clouds close to the cores of 62 quasars. The emissions are powered by radiation from the quasars.



Slanted story. Seemingly diverse astronomical objects may be different views of galactic cores.

ILLUSTRATION: C. SLAYDEN

Comparing their measurements with readings taken over the past 20 years, Ma and Wills found that in many cases the relative strength of the carbon and hydrogen emissions shows large variations, indicating that the central source varies as much as a blazar does. Their conclusion: There's really no difference between radio-emitting quasars and blazars. Blazars look more volatile and variable only because astronomers are viewing their jets head on. "There's a blazar hidden in every radio-loud quasar," says Ma.

Barthel says he is delighted with the new results, particularly those of Ma and Wills. The ISO data are less convincing, he says, because in many cases Meisenheimer's group could not detect any infrared radiation from the sources they studied. Working with his graduate student Ilse van Bemmel, Barthel has made more-sensitive observations indicating that quasars seem to be on average a little bit brighter in the infrared than radio galaxies. "But this can easily be explained by assuming certain properties for the obscuring dust torus," he says.

Meisenheimer acknowledges that his results are tentative. "But this is so different from what I had expected that I'm convinced," he says. And with new evidence for the unification scheme arriving almost weekly, there seems little doubt that all radio-emitting active galaxies are equal—although some of the cosmic peacocks hide their dazzling tails. –GOVERT SCHILLING

Govert Schilling is an astronomy writer in Utrecht, the Netherlands.

ANIMAL MODELS

EC Boosts Funds for Mutant Mice

The European Commission (EC) has awarded a $3.8 million grant to a "virtual archive" of mutant mice used in research on cancer and a variety of other human diseases. Announced at an 11 June press conference in Rome, the award will go to the European Mouse Mutant Archive (EMMA), a consortium of European institutes that create and store mutant mice and their frozen embryos. The money comes from a special $21 million fund created last year by EC research commissioner Philippe Busquin to support bioinformatics and animal model research. Just over half of these earmarked funds were awarded last month to the European Bioinformatics Institute near Cambridge, U.K. (*Science*, 18 May, p. 1275). "The idea is to take programs that are working well and ensure that they are operating at the maximum possible level," Busquin told *Science*.

The new funds will help EMMA—which is headquartered at Monterotondo, outside Rome, and coordinates the activities of institutes from seven European countries—to keep up with the ever-increasing demands for mutant mice, whose altered genomes can