

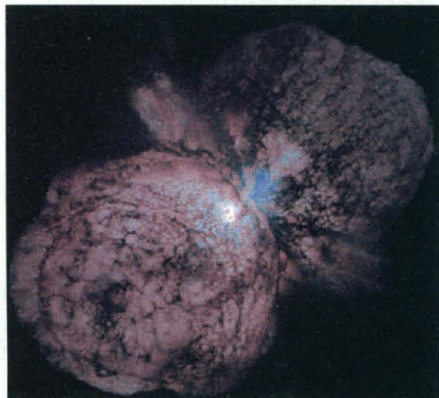
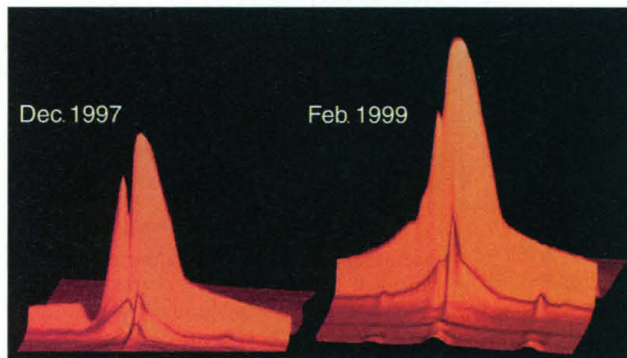
ertheless, organizers do have a bird in hand: \$150,000 this year (and perhaps future years) from the Smoky Mountains Natural History Association, as well as some matching funds. How many birds are in the bush is anyone's guess. Organizers plan to submit proposals to the National Science Foundation and other agencies and nonprofit foundations starting later this year, after they can make a more persuasive case based on data from this summer's fieldwork. "I'd say there's a huge number of taxonomists out there" who are interested, Pickering says. "We've got to convince them we've got the organization and the money."

—JOCELYN KAISER

## ASTRONOMY

### An Oversized Star Acts Up

**CHICAGO**—Is it a distress signal or just a boisterous how-do-you-do? A star called Eta Carinae is flashing a mysterious message,



**Bright spot.** Plots of brightness (top) show the change in the central star, which is shrouded in a nebula (above).

and theorists are struggling to make sense of it. Visible to the naked eye in the southern sky, Eta Carinae is one of the biggest stars known to astronomers; shrouded in gas and dust, it is perhaps 100 times the mass of the sun, and so bright that if it gets any brighter it should blow itself apart. But observations announced at a meeting of the American Astro-

nomical Society here last week show that over the last 2 years, it has indeed brightened—by a factor of more than two—while remaining intact. And whereas such a star would be expected to expand and cool when it brightens, Eta Carinae has heated up.

"Here's a very massive star doing some weird stuff," says Craig Wheeler, an astrophysicist at the University of Texas, Austin. So erratic is the behavior that some astronomers are speculating that, rather than being on the verge of blowing up because of its own brilliance, the mammoth star may be about to collapse, triggering an even bigger explosion called a supernova.

Astronomers at the University of Minnesota and the NASA Goddard Space Flight Center in Greenbelt, Maryland, picked up the brightening in four measurements made by the orbiting Hubble Space Telescope's Imaging Spectrograph (STIS) between December of 1997 and February of 1999. The star, which Kris Davidson of Minnesota says "reminds us a little of a geyser," has acted up before. A tremendous eruption in the 1840s belched up several solar masses of material that formed a dumbbell-shaped cloud around the star, which astronomers call the Homunculus. That event, during which the entire structure was about 10 times as bright as it is now, was followed by a smaller burp in the 1890s and a gradual brightening in this century, probably because the central star is shining through more and more clearly as the Homunculus expands and its veil of gas and dust thins.

But this time around the star itself has brightened. When the brightening turned up in the STIS spectra, "we started questioning, 'Is this real or is it an instrumental effect?'" says Goddard collaborator Theodore Gull. The team was reassured when they checked lower resolution images by other telescopes and discovered that ground-based astronomers had missed a smaller, but rapid, overall brightening, says Roberta Humphreys of the University of Minnesota.

The brightening remains mysterious, however, because the star is thought to be very close to its "Eddington limit," where light exerts so much outward pressure that gravity is just barely able to hold the star together. So any further brightening should produce an outrush of material. But an expanding burst of gas—although still too small to be seen directly—would cool like gas rushing out of a spray can. The cooling would strengthen the star's infrared signal and turn down the ultraviolet. But the full STIS spectra showed just

the opposite pattern.

"One explanation is that the star got hotter" without changing size, says Humphreys—although theorists don't know how a star could do that. Whatever the cause, astronomers are wondering what comes next. Perhaps Eta Carinae is about to pop off as it did in the 1840s, or perhaps it is about to collapse and blow up as a supernova. Stars of that mass are also the conjectured progenitors of hypernovae—even larger explosions that might produce the cosmic blasts called gamma ray bursts. "It really is a Rosetta stone of some kind," says Wheeler. "We just don't know of what."

—JAMES GLANZ

## SCIENCE AND SOCIETY

### Germany Waves a Flag for Science

German scientists aren't known for blowing their own horns. Compared to their U.S. colleagues, they tend to be a bit shy about publicizing and explaining their research. Now, in response to an apparent deterioration in the German public's regard for science, resulting from conflicts on issues such as genetic engineering, animal rights, and nuclear power, Germany's science establishment is getting behind a major new effort to improve the public's understanding of—and, in theory, its appreciation for—scientific research. The initiative, called "Public Understanding of the Sciences and Humanities" (PUSH), is being financed by an initial \$280,000 grant from the Association for the Promotion of German Science, an industry-funded organization based in Essen that is spearheading the program and offering grants for scientists.

This month, the leaders of Germany's major scientific organizations—including the Max Planck Society, the DFG granting agency, the University Rectors' Conference, the Helmholtz Association of National Research Centers, the Fraunhofer Society applied-research organization, and the Science Council—signed a memorandum supporting the PUSH initiative and took part in a forum in Bonn to publicize the concept. Detlev Ganten, chair of the Helmholtz association and head of Berlin's Max Delbrück Center for Molecular Medicine, says today's German scientists should follow the examples of Albert Einstein, Alexander von Humboldt, and other renowned researchers who helped explain science to the masses. At best, he says, only about 6% of the public now understands what physicists and chemists do. The PUSH program should try to "deepen the understanding of how much science affects all areas of society—and will have even more impact in the future," he says.

The German science organizations have

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