

A 2000-year-old bog man may soon have a lifelike face and a cause of death, thanks to new efforts by computer and imaging scientists in Bonn, Germany.

Researchers at the Center of Advanced European Studies and Research (CAESAR) are co-operating with the State Natural History Museum in Oldenburg to take a new look at a body uncovered in 1936 by peat harvesters in northwest Germany. The body is of a man who probably died around age 20 sometime between 20 B.C. and A.D. 310. Earlier studies revealed fish bones and millet grains in his stomach.

## A Face for German Bog Man

The first clue to what might have killed him came this month from a CT scan showing severe damage to the back of the man's skull, says imaging expert Carsten Tille of CAESAR. Tille and his colleagues use so-called "rapid prototyping" techniques to help surgeons plan complex surgeries, including facial reconstructions. They will use similar techniques to transform the CT scan data into a 3D plastic duplicate of the bog man's skull, which will be combined with data from a hologram of the body to reconstruct



The face of a 2000-year-old man with his hair bleached from acid in the bog.

the face. A closer study of the prototype may allow researchers to tell whether the skull damage really did contribute to the man's death.

## Demographic Divide

The demographic gulf between rich and poor nations continues to widen, according to the nonprofit Population Reference Bureau's (PRB's) annual update presented in Washington, D.C., last week.

Europe is seriously worrying about its below-replacement birth rates. In Italy, reported PRB's Carl Haub, the under-15 population—tomorrow's parents—is half the size of the reproductive-age population, and 62% of Italian men between the ages of 25 to 30 are still living with their parents. In Sweden, lifting the stigma from illegitimacy—55% of babies are now born out of wedlock—has not lifted fertility rates, which hover at 1.5 per women.

In the developing world, meanwhile, India's birth rate is no longer falling, setting the country, which reached 1 billion in 2000, on a path to add 55% more people by 2050. And in Africa, even horrendous HIV infection rates are failing to curb explosive growth. In Uganda, for example, the fertility rate is 6.9 per woman, promising a 240% increase in population by 2050.



Gemini South in Chile is now linked to northern twin in Hawaii.

dark skies in Hawaii and northern Chile. "Light pollution is a great theme" that covers fields from optics to civics, says Malcolm Smith, who runs the Inter-American Observatory in Cerro Tololo, Chile.

## Twin Scopes Linked

The "world's first cyber observatory" was officially launched last week as officials announced the linkage of the two new 8-meter Gemini telescopes in Hawaii and Chile. Officials at the National Science Foundation, the largest funder of the seven-country Gemini project, say that scientists around the world will now be able to do real-time observations from the telescopes over their desktops by using the high-speed Internet2 network. The telescopes, which saw first light in 2000 and 2001, feature the latest optical and infrared technologies.

Officials are supplementing the two-hemisphere hookup with a new "star teachers" exchange program between Hawaii and Chile. One topic will be the need to protect the

A couple of weeks before closing the book on their 2-month life-span, nearly all Mediterranean fruit flies begin rehearsing their deaths by curling up and lying on their backs, a new study reveals. This hitherto unknown death-predicting behavior could lead to new models for diseases of human aging, say experts.

Biodemographer James Carey of the University of California, Davis, and colleagues discovered this supine behavior by chance while studying the mating habits of a distant cousin of *Drosophila* known as *Ceratitis capitata*. More than 97% of 203 males studied began lying on their backs, occasionally pumping their proboscises, for increasing periods of time—up to an hour or so each day—an average of 16 days before dying,

## Fruit Flies Recumbent

the team reports in the 22 August *Proceedings of the Royal Society*. Carey calls the behavior "post-Darwinian"—that is, it occurs after the reproductive period and is thus not influenced by natural selection.

"You have new kinds of biology emerging" in this phase of the life-span about which very little is known in most animals, he says. This behavior can only be seen in the lab, he adds, because in the wild a lolling fruit fly would soon become a meal.

Some scientists suggest that the behavior could be a form of neurodegeneration related to narcolepsy or an insect form of Parkinson's. In any case, it's "completely un-

expected," says demographer James Vaupel of the Max Planck Institute for Demographic Research in Rostock, Germany, and because it foreshadows death, it opens the door to "profound new insights into the nature of the aging process." If the neural or chemical mechanisms behind the phenomenon are linked

to other post-Darwinian behaviors, those same mechanisms might play similar roles in vertebrates, he says.

Evolutionary geneticist Marc Tatar of Brown University says that if this behavior also occurs in *Drosophila*, whose genetic makeup has been studied extensively, fruit flies might become a new animal model for age-related neuromuscular disabilities.



Fruit fly in death pose.