RANDOM SAMPLES

edited by CONSTANCE HOLDEN

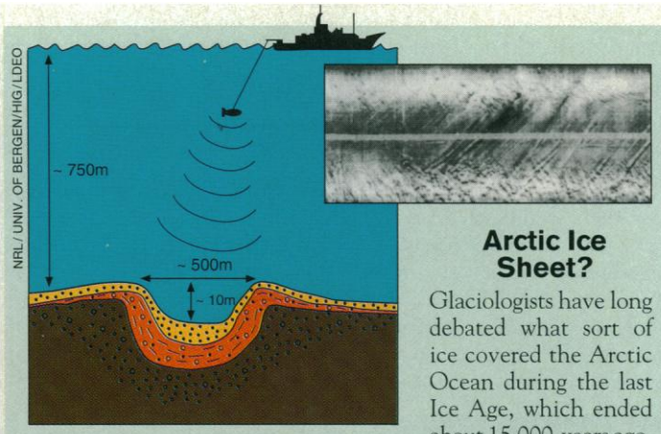
Old Human Bones Found in Spain

Two months ago, British researchers announced the discovery of a 500,000-year-old human shinbone at Boxgrove in southern England (*Science*, 27 May, p. 1248) which, they said, could represent the oldest human material discovered in Europe. But Boxgrove Man may now have been unseated by a Spanish contender. At Atapuerca, a site in northeast Spain that has already yielded human bones dated at more than 300,000 years old, excavators last month discovered teeth and jaw fragments from at least two individuals that are thought to be more than 500,000 years old, according to the newspaper *El Pais*. The bones are from a cave called Gran Dolina that 2 years ago yielded a 700,000-year-old piece of quartzite that some researchers argue is a human-made tool.

The Spanish team's leader, Juan-Luis Arsuaga of Madrid's Complutense University, says "We need more research to know if [the bones] are older than Boxgrove." Dating of the new finds will involve analysis of the remains of small mammals as well as of uranium and its decay products in the surrounding sediments.

Andy Currant of London's Natural History Museum warns that it will be difficult to pin down a date. Uranium dating becomes unreliable beyond 350,000 years; and while in northern Europe, the presence of an early form of water vole indicates that a site is more than 500,000 years old, it's possible that the vole lived more recently further south.

Nevertheless, experts are itching to learn more about the new finds. Having access to more bones from the earliest Europeans would help, in particular, in resolving the question of whether modern Europeans are the descendants of several ancient European lineages or whether they arose from one group of Africans who invaded Europe more than 100,000 years ago.



Ice prints. Scrape marks *(inset)* shown in sonar images from the seafloor in strait between Greenland and Norway.

Arctic Ice Sheet?

Glaciologists have long debated what sort of ice covered the Arctic Ocean during the last Ice Age, which ended about 15,000 years ago. Most have agreed it was thin sea ice and scattered icebergs, just as it is today. But a few have argued for a thick, continuous ice sheet, fed by surrounding glaciers, like the Ross ice shelf in Antarctica. Now researchers have found signs that huge icebergs with record-deep keels once drifted out of the Arctic—signs that there may have been an Arctic ice sheet after all.

Marine geophysicist Peter Vogt of the Naval Research Laboratory and colleagues found this evidence in sonar images of the sea floor taken in 1989 and 1990 in the Fram Strait, the bottleneck between Greenland and Spitsbergen, Norway, that links the Arctic and Atlantic oceans. The images, Vogt's team reported in the May issue of *Geology*, revealed deep grooves in sea mud apparently carved by the keels of huge icebergs—300 to 700 meters deep and 100 to 300 meters high—during the late Pleistocene. The largest modern icebergs, found in Antarctica, are only half that thick. Vogt suggests the mega-bergs may either have broken off from a continuous floating ice sheet in the Arctic Ocean, or from glaciers rimming the Arctic basin. The notion of a single sheet rather than separate bergs is supported by another finding—a submerged ridge next to the scrape marks appears to have been beveled smooth.

If the theory of a floating ice sheet were proven, it could mean that Eurasian and Canadian ice sheets were once physically linked—which could challenge how glaciologists have modeled glacier movement. And it could have ripple effects on oceanographers and climatologists. Says glaciologist Doug MacAyeal of the University of Chicago: "This isn't something that solves a problem, but rather inspires problems."

Discrimination Case Settled at Caltech

Stormy weather has been marring the normally sunny skies over the California Institute of Technology's Big Bear Solar Observatory. Accused of "discrimination and harassment based on gender," prominent solar astronomer Harold Zirin, director since Big Bear opened in 1969, has stepped down from his position for 3 months.

Zirin's absence, which started on 30 June, came as part of a settlement negotiated between Caltech and the Department of Education's Office of Civil Rights (OCR). Last January, three women filed a complaint against Zirin with OCR. They are staff scientist Sara Martin, who reportedly won a cash settlement in a 1992 case claiming Zirin was trying to force her out; Leila Belkora, a University of Colorado Ph.D. candidate who was doing thesis research at Caltech; and Terri Griffin, a Big Bear photo-lab technician who was laid off a year ago. Among the complaints were that Martin was not being allowed adequate telescope viewing time and that Zirin had deliberately deleted parts of a computer file containing Belkora's research material. Griffin claimed she was laid off in retaliation for testifying at Martin's 1992 grievance hearing.

Caltech officials won't comment on the matter and have advised Zirin to stay silent. But he has denied the charges, telling *Science*, "I feel I acted properly in the entire matter." In the settlement, Martin got nothing, but Caltech agreed to offer Griffin a job at its Jet Propulsion Laboratory and to give Belkora $4000 to help her complete her degree. The school also agreed to revise its grievance policies.

Weighing HIV Vaccine Trials

Next month the World Health Organization (WHO) will hold a meeting to debate the merits of holding large-scale tests of HIV vaccines that many researchers believe have only a slight chance of being shown effective. The WHO meeting comes on the heels of a decision made in June by the National Institute of Allergy and Infectious Diseases (NIAID) to put off plans for large-scale U.S. trials of two HIV vaccines in high-risk populations. WHO officials reason that a more empirical, trial-and-error approach is warranted in parts of the world that are harder hit by HIV than the United States.

Even NIAID director Anthony Fauci, who made the decision to delay large-scale U.S. tests, says he might have ruled differently under other circumstances. "If we had the dynamics of the epidemic seen in Thailand," says Fauci, "that would tip the balance in favor of going forward." Indeed, Genentech Inc. and Biocine Inc., the makers of the two vaccines that had been in line for the U.S. tests, are now exploring the idea of holding efficacy trials in Thailand.