like atrocities, and a ban on gene transfer experiments in early embryos.

Despite a few objections, momentum was clearly building behind his idea. It was so strong, in fact, that NIH director James B. Wyngaarden and Victor McKusick, president of HUGO, who were charged with leading the final session, came back with a draft resolution echoing Dausset's ideas and, often, his exact words.

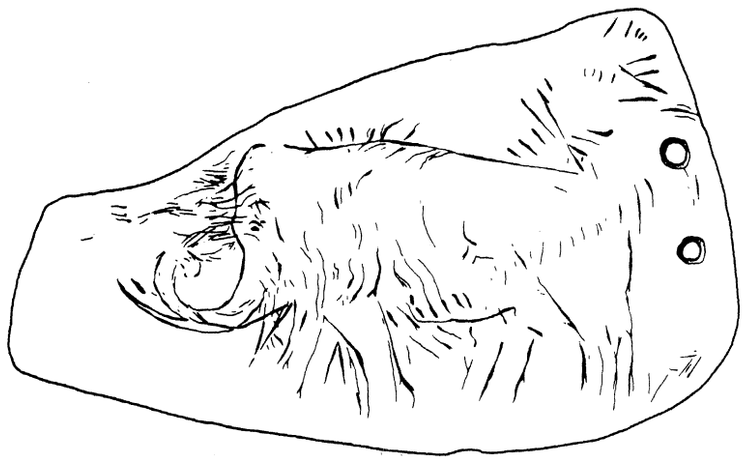
It was Norton Zinder of Rockefeller University who wisely steered the group away from banning anything, reminding them that, no matter what they thought, Valencia was no Asilomar—the groundbreaking 1975 meeting where molecular biologists drafted guidelines to govern recombinant DNA research.

The big difference, he said, is that the earlier group was a deliberative body of the National Academy of Sciences. "We did not present an ad hoc or ad hominen resolution." Zinder added, "I don't think this group is a deliberative body. The last thing in the world I would like to see is this meeting do something it has no authority to do and that would cause a negative reaction among the world's scientists."

Nonetheless, Dausset and meeting organizer Santiago Grisolia of the Valencia Foundation for Advanced Research pushed forward with the idea of drafting some type of resolution. The final version is bland by comparison with the first draft, for which the group may later be thankful. It is slightly more than a motherhood statement, saying that the participating scientists recognize their responsibility to ensure that genetic information is used only to enhance human dignity. It also calls for debate on the ethical, social, and legal implications of the use of genetic information.

The declaration endorses the concept of international cooperation and urges wide participation in some as yet undefined way. From there, it shifts into an outline of how the genome project should be done: with parallel studies in other genomes, continued efforts to develop compatible databases, and all information in the public domain. Finally, it endorses HUGO, rather than another group, such as Unesco, as the lead body to promote these goals.

But on whose authority the resolution was presumably drafted, and to what ultimate effect, remain unclear and, to some participants, somewhat troubling. Meeting organizer Grisolia seems quite pleased with the document and plans to present it to the King of Spain. Others, who were less enthralled with the whole endeavor, say that the best that can be hoped for is that the hastily worded resolution won't backfire in some way. ■ **LESLIE ROBERTS**



W. C. Sturtevant and G. R. Lewis

Mammoth Fraud Exposed

The uncertainty that has long surrounded one of the most infamous specimens in American archeology—the Holly Oak pendant—appears at last to have been dispelled. First reported to a skeptical archeological community in 1889 as putative evidence of ancient human occupation in the Americas, the whelk shell bearing a crude sketch of a mammoth or mastodon has recently been shown by accelerator mass spectrometry (AMS) to be only a little over 1000 years old. "The engraving on the shell is modern, made long after woolly mammoths and mastodons had become extinct in North America," note David Meltzer, of Southern Methodist University, and three colleagues from the University of Michigan and the National Museum of Natural History, Washington, D.C.

When Hilborne T. Cresson, an archeological assistant at the Peabody Museum of Harvard University, made the pendant public in 1889 the contemporaneity of humans and ice age animals in the New World had not yet been settled. Debate over the issue was intense, and, note Meltzer and his colleagues, there were "many hoaxes and forgeries which purported to demonstrate the antiquity of human remains." Cresson said that he had found the pendant in northern Delaware in 1864, the year that Eduard Lartet discovered a fragment of a mammoth ivory, bearing an engraved mammoth image, at the site of La Madeleine in southwestern France. Lartet's discovery was important in establishing human antiquity in Europe, and Cresson hoped the Holly Oak pendant might do the same for the Americas. Cresson never explained why he waited 25 years between discovery and announcement.

Cresson's standing in the archeological community was not high, and in 1891 he was fired from a Peabody Museum excavation site for stealing artifacts. Later he committed suicide, his mental state clearly disturbed. Meanwhile, scholars of the time rarely mentioned the pendant in connection with human antiquity in the Americas. It was not until the 1970s that the pendant gained prominence, after it was "reexcavated" from a Smithsonian Museum collection and cited as probable evidence of the coexistence of mastodon and Paleo-Indians, an issue that was no longer in dispute. Although John C. Kraft and Jay F. Custer admitted in a major article in *Science* in 1976 that fraud was a possibility, they vigorously defended the pendant's authenticity in a subsequent exchange of correspondence with Meltzer and William C. Sturtevant.

Meltzer told *Science* that during the past decade only one request was made to the Smithsonian Institution for permission to date the pendant, and that was using amino acid racemization, a notoriously unreliable technique. AMS dating became available in the early 1980s, and Meltzer and his colleagues are the first to apply it to the Holly Oak pendant. ■ **ROGER LEWIN**

ADDITIONAL READING

James B. Griffin *et al.*, "A mammoth fraud in science," *American Antiquity* **53**, 578 (1988).