

Stones Crush Standard Ice History

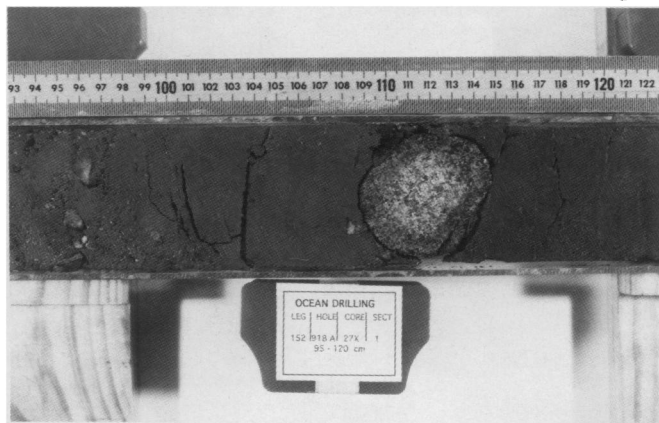
Fighting off icebergs and paint-stripping gales, an international drilling expedition off the southeast coast of Greenland has pulled up layers of ocean sediments that rewrite the glacial history of the Arctic region.

Large stones found amid the fine-grained, muddy sediment indicate that ice covered sections of Greenland much earlier than scientists had previously suspected.

Climate experts know that the Earth has faded in and out of an extended ice age for the last 2.6 million years. Some times, such as the present, have had relatively warm climates, with giant glaciers surviving only on Greenland and Antarctica. Yet during most of this glacial span, ice sheets have extended across Scandinavia, Canada, and parts of the United States as well.

The new evidence suggests that some of the northern hemisphere's ice sheets began growing as far back as 7 million years, according to Hans Christian Larsen of the Geological Survey of Greenland in Copenhagen, Denmark.

Larsen served as one of the chief scientists during the six-week-long drilling effort near Greenland, part of the ongoing, multinational Ocean Drilling Program. Last month, ODP announced the results obtained from the



Fist-size stone found in sediment core must have been dropped by a passing iceberg.

voyage.

The large stones discovered in the drill cores provide the clue that Greenland had at least a partial ice cover, Larsen says.

The rocks indicate that icebergs must have plied this part of the North Atlantic, because such large stones could not have reached a deep ocean site except by hitching a ride within a floating berg. The ice would have broken off glaciers on Greenland and drifted out to sea, dropping large stones along the way as it melted.

The crew encountered harsh conditions while drilling in October and November. As if to underscore the glacial evidence found in the sediments, icebergs assaulted the ship several times, forcing the team to abandon its drilling and move the vessel. Winds of up to 80 knots and subfreezing air temperatures combined to strip paint off the boat, says Larsen.

The new findings surprised Larsen and his colleagues because earth scientists have long thought that the Arctic was relatively warm up until 3 million years ago.

While the Arctic Ocean today is largely covered by sea ice, evidence suggests that the ocean remained open for at least part of the year prior to 3 million years ago. Scientists have also found evidence of forests existing during this time in Iceland.

Kenneth G. Miller of Rutgers University in Piscataway, N.J., says the new results provide hard evidence that ice sheets started growing in the northern hemisphere much earlier than most scientists had thought. He and Larsen agree, however, that the main buildup of ice on North America did not occur until around 2.6 million years ago — a time when the climate took a decidedly frosty turn.

— R. Monastersky

Human, monkey shyness varies by gender

Researchers have known that about 10 percent of both human and nonhuman primates are quite inhibited. New studies now reveal that shyness changes course in a similar pattern at puberty in both monkeys and humans.

Very shy monkeys and humans show similar gender differences as they mature: Males become less inhibited than females, the studies find. Researchers studying humans say society discourages shyness in boys but not in girls. But primate researchers point out that the gender difference — in shy monkeys at least — has a biological basis.

A team of researchers from Cornell University and the University of Stockholm in Sweden studied shyness in 215 Swedish children born between 1955 and 1958. Boys who were very inhibited when first assessed at 21 months tended to lose their extreme shyness as they matured, beginning around age 7. Girls who were very inhibited when young had become only slightly less shy at age 16, when they were last assessed. Cornell's Margaret Kerr and her colleagues will describe their finding in the February CHILD DEVELOPMENT.

At age 16, a similar proportion of boys and girls were shy, as some uninhibited children became inhibited over the years, probably due to experiences they had, Kerr says. However, at age 16, more of the shy girls than the shy boys had been shy consistently for the previous five years, the team writes. Also, more of the uninhibited boys than the uninhibited girls had been uninhibited consistently for the past five years.

This study "supports the assertion that, in general, the personality characteristics that are approved by society, especially those that are considered gender appropriate, are most stable over time," the team writes.

For children up to age 6, psychologists and the children's mothers assessed the youngsters' shyness; from age 6 to 16, only mothers judged shyness.

Harvard University psychologist Jerome Kagan and his co-workers studied shyness in 100 white children from age 2 through 12. They found that girls extremely inhibited at age 2 continued to act inhibited, as well as subdued and fearful, at 13. In contrast, by age 13, inhibited boys did not act inhibited but were emotionally subdued, unspontaneous, and had more fears. Social pressures make boys hide their shyness, Kagan suspects. His group relied on psychologists' evaluations of shyness. They have not yet published their data.

Rhesus monkeys show patterns of shyness similar to those in humans, says Stephen J. Suomi at the National Institute of Child Health and Human Development in Bethesda, Md. About 10 percent of monkeys that he evaluated were born quite inhibited, yet at around puberty the males became less shy whereas the females did not, he says. At puberty, the males' hormonal response to stress becomes less strong than it was before puberty and less strong than the females' response, he says. He published preliminary data from this study in 1991 and plans to publish the rest later this year.

— T. Adler