UO researchers involved in Clovis-age impact theory

by Jim Barlow & Douglas Kennett

Did a comet hit the Great Lakes region and fragment humanpopulations 12,900 years ago?

EUGENE, Oregon - Two University of Oregon researchers are on a multi-institutional 26-member team proposing a startling new theory: that an extraterrestrial impact, possibly a comet, set off a 1,000-year-long cold spell and wiped out or fragmented the prehistoric Clovis culture and a variety of animals across North America almost 13,000 years ago.Driving the theory is a carbon-rich layer of soil that has been found, but not definitively explained, at some 50 Clovis-age sites in North America, which date to the onset of a cooling period known as the Younger Dryas Event. The sites include several on the Channel Islands off California where UO archaeologists Douglas J. Kennett and Jon M. Erlandson have conducted research.The theory is being discussed publicly, for the first time, Wednesday, May 23, (10 a.m. CDT) at the 2007 Joint Assembly of the American Geophysical Union. Kennett is among the attendees who will be available to discuss the theory with their peers. The British journal Nature first addressed the theory in a news-section story in its May 18 issue.The Clovis culture of hunters and gatherers was named after hunting tools referred to as Clovis points, first discovered in a mammoth's skeleton in 1926 near Clovis, N.M. Clovis sites later were identified across the United States, in Mexico and in Central America. Clovis people possibly entered North America across a land bridge from Siberia. The peak of the Clovis era is generally considered to have run from 10,900 years to 12,500 years ago.Before today, members of the research team - including Kennett's father, James P. Kennett of the University of California, Santa Barbara, and Richard B. Firestone of Lawrence Berkeley National Laboratory - had been quietly introducing the impact theory to their professional colleagues.Douglas Kennett, with Erlandson watching, detailed the theory May 19 to a fully packed UO classroom, where students and faculty members from archaeology, art history, anthropology, biology, geology, geography, political science and psychology, pelted Kennett with questions.The researchers propose that a known reversal in the world's ocean currents and associated rapid global cooling, which some scientists blame for the extinction of multiple species of animals and the end of the Clovis Period, was itself the result of a bigger event. While generally accepted theory says glacial melting from the North American interior caused the shift in currents, the new proposal points to a large extraterrestrial object exploding above or even into the Laurentide ice sheet north of the Great Lakes. At one time this ice sheet covered North America east of the Rocky Mountains, from the Arctic Ocean to a line passing through a region that now encompasses the Dakotas and the cities of New York, Cincinnati, St. Louis and Kansas City. By 13,000 years ago, the ice sheet's southern reach had retreated to what is now Canada."Highest concentrations of extraterrestrial impact materials occur in the Great Lakes area and spread out from there," Kennett said. "It would have had major effects on humans. Immediate effects would have been to the north and east (of the impact site), producing shockwaves, heat, flooding, wildfires, and a reduction and fragmentation of the human population."The carbon-rich layer contains metallic microspherules, iridium, carbon spherules, fullerenes, charcoal and soot. Some of these ingredients were found worldwide in soils dating to the K-T Boundary, a clearly visible demarcation in soil dating to 65.5 million years ago. This K-T layer, noted for its iridium content, marks the end of the Cretaceous Period and the beginning of the Tertiary Period, when numerous species were driven into extinction after a massive asteroid struck Mexico's Yucatan Peninsula and the Gulf of Mexico.Missing in the new theory is a crater marking an impact, but researchers argue that a strike above or into the Laurentide ice sheet could have absorbed it since it was less intense than the K-T event.Kennett said that 35 animal genera, which are groups of similar or closely related species, went extinct at the end of the Pleistocene Epoch, which ran from 1.8 million to 10,000 years ago; at least, 15 of these extinctions occurred at about 12,900 years ago.The Clovis impact, he said, would have caused major ecological shifts, driving human survivors into isolated groups in search of food and

warmth. There is evidence, he said, that pockets of Clovis people survived in refugia, localized areas that had survived environmental changes, especially in the western United States."This was a massive continental scale, if not global, event," Kennett said.He and Erlandson are currently evaluating the existing Paleo-Indian archaeological datasets, which Kennett describes as "suggestive of significant population reduction and fragmentation, but additional work is necessary to test this hypothesis further." Earlier research efforts need to be re-evaluated using new technologies that can narrow radiocarbon date range. As funding becomes available, new sites can be located and studied, Erlandson said."As we have grown more confident in the theory," Erlandson said, "we've been letting some of it out in informal talks to gauge the response to see where we are headed and what the initial objections are, which will help us to maintain our own objectivity."The interest in pursuing both old and new leads could ignite a major surge of interdisciplinary questioning and attract a new wave of interested students, Kennett and Erlandson said.

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