Early man in America takes a step backward

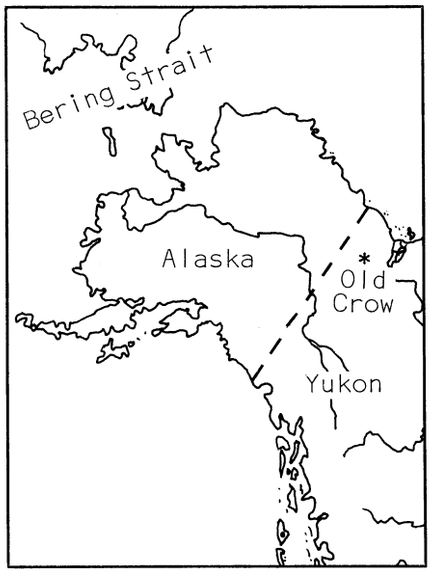
In 1926, near Folsom, N.M., scientists from the Denver Museum of Natural History uncovered a milestone in the history of early man in America. Manmade stone projectiles were found with the skeletons of 10,000-year-old bison. Prior to this find the evidence of man in the New World did not extend beyond the obvious presence of the prehistoric Mound Builders, Pueblos, Aztecs or Incas of no more than 4,000 years ago. Since the Folsom find, more than 100 sites have documented that early Americans lived among and hunted mammoth, camel, extinct horse and bison as far back as 15,000 years.

Now there is mounting evidence for a second breakthrough that will push the history of man in America back to 30,000 years—and possibly further. Perhaps the oldest and most controversial date—50,000 to 100,000 years—has come from the Calico Mountain site excavated by Ruth Dee Simpson and Louis S. B. Leakey (SN: 2/6/71, p. 99). A less extreme but more defensible date has come from a site on the Old Crow River in the Yukon.

From 1966 through 1970 the Old Crow site yielded 390 fossil vertebrate specimens, including a bone implement and a number of bone artifacts broken or otherwise modified by man. Radiocarbon dating of the artifacts has been completed and W. N. Irving of the University of Toronto and C. R. Harington of the National Museums of Canada in Ottawa report the results in the Jan. 26 SCIENCE. The three specimens of particular interest are dated between 25,000 and 32,000 years old.

The most impressive piece is a caribou tibia that has been fashioned into a fleshing tool for cleaning animal skins. One end of the bone has been chopped or broken and whittled to a spatulate form. A regular series of notches has been carved into this edge to give it a row of teeth. Broad, clearly visible whittling marks show that the tool was shaped by carving with a very sharp instrument that had a strong, nearly straight working edge (similar to the manmade stone tools found at 10,000-year-old sites). The other fossils considered to be artifacts are two mammoth bones. Each shows evidence of having been fractured by heavy blows when fresh. These specimens are not identified as tools but, in the judgment of the authors, they were broken by man for some purpose.

Previous explanations of man's existence in North America coincided with the last time a land bridge existed across the Bering Strait, about 12,000 years ago. But prior to that time the



Davida Daemon

Bering land bridge had opened and closed as the formation of glaciers lowered sea level. So it is possible that Siberian hunter-nomads followed their food source into North America during one of these earlier openings. This could explain the findings of Irving and Harington and possibly those of Simpson and Leakey. □

Jet stream knocks on the earth's crust

The seemingly tenuous shroud of gases that make up the earth's atmosphere is far from powerless. Its vagaries wear down or destroy the most impressive structures erected by man and nature. Now a geophysicist with the National Oceanic and Atmospheric Administration has found evidence that the atmosphere can even push around the earth's crust.

Using NOAA's new long-period seismographs at the agency's Albuquerque Seismological Center, Alvaro F. Espinosa obtained recordings of very low magnitude, long, swell-like waves in the earth's crust. He believes these waves were caused by disturbances in the jet stream six to nine miles up in the atmosphere. He hypothesizes that the jet stream disturbances created pressure waves that propagated through the lower atmosphere to the surface of the earth. The phenomenon occurred in December 1971. After a year's analysis to eliminate other explanations and refine his theory, Espinosa has released his conclusions.

Barometer records confirm that atmospheric pressure variations of the same order of magnitude occurred at the same time as the earth waves. Espinosa says theoretical models of earth-atmosphere relations predict that atmospheric pressure variations such as those recorded could cause the observed earth waves. "My theoretical modeling . . . indicates that the jet stream can generate atmospheric waves of about four to eleven miles in length which can be coupled to the ground to cause seismic waves much like those recorded."

Other researchers have observed the opposite effect—earthquake activity causing disturbances in the ionosphere (SN: 7/25/70, p. 67). But Espinosa says the phenomenon he observed could not be a case of earth affecting atmosphere. For one, the earth waves had periods of from six to ten minutes—much too long for an earthquake. Second, on the day Espinosa recorded the earth waves the jet stream was moving in a southwest-to-northeast direction. The earth waves detected at Albuquerque were moving in the same direction. Finally, the seismographs at Albuquerque are completely insulated in a controlled environment where they could not have been directly affected by atmospheric pressure changes.

Though the Albuquerque waves were longer than any before recorded, interactions between earth and atmosphere have been noted before. For example, there have been recordings of earth deformations caused by tornadoes, and last summer Espinosa and some colleagues recorded seismic waves at the Flat River Observatory in Missouri that were clearly caused by a frontal system.

Espinosa says there is also some evidence that the same jet stream perturbations that caused the earth tides also created disturbances above, in the ionosphere. So when the jet stream gets upset, the effects may reach in all directions. □

Edwards tops in health

Charles C. Edwards, commissioner of the Food and Drug Administration, has been appointed assistant secretary for health of the Department of Health, Education and Welfare. HEW Secretary-designate Caspar W. Weinberger (SN: 1/13/73, p. 21) and other top appointees in HEW have little experience in the health field, so Edwards will, at least tacitly, serve as the nation's top health official.

Since Edwards was appointed FDA commissioner in December 1969, he has gained the approval not just of the Administration, but of the Pharmaceutical Manufacturers Association, which represents prescription drug companies, and of the public in general. He managed to alchemize the FDA from a drug company cop into a consumer protection agency of more sweeping and positive proportions (SN: 1/22/72, p. 60). □