

Hubbs to speak at National Academy of Sciences' Meeting on the San Diego campus, October 29th

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Radiocarbon datings are helping draw a surprising new picture of a verdant southern California that was watered by running streams and vast lakes until only about three centuries ago, says Carl L. Hubbs, Professor of Biology at the University of California's Scripps Institution of Oceanography.

Speaking at a meeting of the National Academy of Sciences on the San Diego campus on Sunday, October 29, Hubbs, who is a member of the Academy, said that several lines of evidence point to thriving human populations in now essentially waterless localities to the east and south of San Diego. Many Indians lived on the Californian and Mexican coasts, others along the shores of the 105-mile-long prehistoric Lake LeConte, a fraction of whose basin is now occupied by the Salton Sea.

Hubbs' evidence comes from a variety of sources: from charcoal and fishbones found in ancient refuse heaps, from studies of the geology of the area. Confirmation comes even from Indian legend.

Describing the work of Scripps' Radiocarbon Laboratory, directed by Hans E. Suess. Hubbs said that it has made more than 200 such measurements since its establishment in 1955. Radiocarbon dating, a method which earned the Nobel prize for Willard F. Libby, now of the University of California, Los Angeles, allows scientists to place accurate dates on certain types of material by measuring the proportions of the amount of two types of carbon found in them. In Hubbs' work it is often used in conjunction with oxygen 18 studies, a method of determining the average temperatures of the seas in which the shells of sea creatures were formed. The two methods together give both the dates of samples and the climate prevailing at that time.

Temperature studies indicate that after the end of the Ice Age, the California climate warmed up rapidly several thousand years ago reaching levels as high as those of today. Then about 300 A.D., there was a sharp change to a cooler climate. Shellfish now found only off northern California formed a staple of the diet of the Indians of Baja California. This cool period continued until about 1300 A.D., when the local climate began to warm up to its present level, Hubbs says.

Heavier rainfall than at present seems to have prevailed throughout the area from the end of the Ice Age until 300 years ago, Hubbs says. He has found a dramatic example of the difference in times in the arid mountains east of San Diego. There in a campsite in the hills he found charcoal, which dated the site at about 900 A.D., associated with the bones of young fish, the adults of which were plentiful in old Lake LeConte. Hubbs reasons that the adults swam upstream to spawn in what is now a waterless gully and that the Indians caught the young fish months later at that site.

The Laboratory is offering new evidence as to how long man has lived in southern California, Hubbs said, Shellfish gatherers were common on the coast of southern California and both coasts of Baja California between 7,500 and 4,500 years ago. Between 8,000 and 7,000 years ago, if not somewhat earlier, "man here at La Jolla and elsewhere along the coasts of southern California and of Baja California came to subsist largely on shellfish, fish, small game, and wild plants. They apparently lived an easy life," he points out. They "failed to develop, or, more likely, lost, the ability to fabricate refined stonework, and in other respects remained, or became, relatively

low in culture. The La Jolla culture typified this primitiveness, or degeneration. Let this be a warning to those of us who now enjoy life in this area!"

Some datings indicate the La Jolla culture persisted along the shore until only a few centuries ago, he says, when it seems to have been replaced by the more highly developed cultures of the people of Lake LeConte, moving toward the coast as a result of the drying up of the lake and the increasing aridity of the desert.