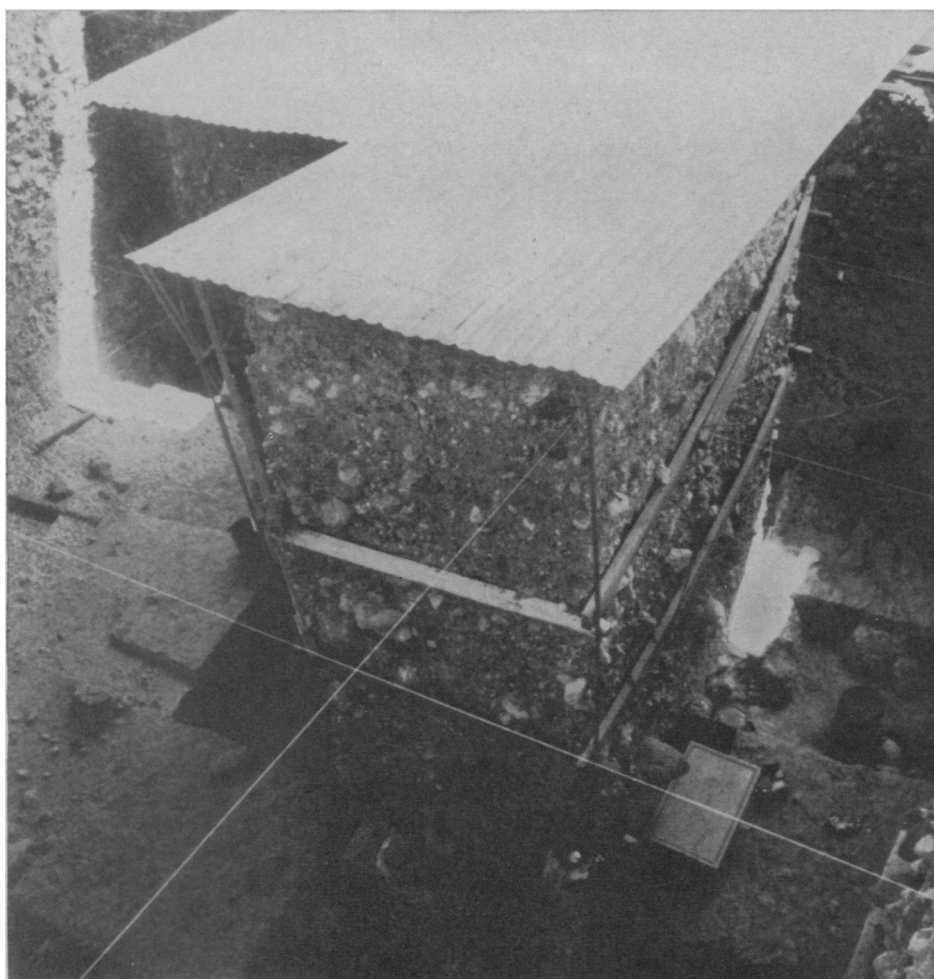


# The search for New World man

**A controversial California dig is part of a dramatic shift in estimates of when man first came to America**

by Carl Behrens



*Alluvial fan from the Calico Mountains is site of careful excavation under direction of archaeologists Leakey and Simpson.*

Photos: R. D. Simpson





*Chipped  
stones from  
Calico show  
variety of  
style.*

They were called thunderstones or thunderheads and for centuries no one suspected that the strange chips of flint could be anything but the chance product of nature. Even after their human origin was demonstrated in the early 18th century, it was a 150 years before the vast history of a Stone Age man, stretching back many times the 4,000 years of the metal-working present, began to be realized.

Thus the science of Stone Age archaeology was born in controversy, and it continues to be a field in which few of its practitioners ever agree completely. The difficulty of dating stone materials, the fragmentary nature of archaeological evidence and the emotional content of attempts to piece together the ancient heritage of man all combine to create factions, enthusiasts and scoffers, along with not a little abrasive commentary.

**In the past** the major points of disagreement have centered around finds in Europe and later in Africa, where Dr. Louis S. B. Leakey's discoveries in Olduvai Gorge, long discounted by conservative skeptics who never visited the site, pushed the history of man on earth back close to two million years. But now the scene is shifting to the New World, where what one participant calls the biggest archaeological controversy in two decades is building up.

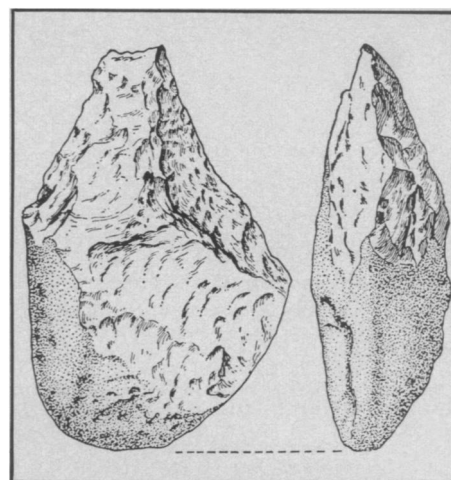
The focus of attention is a dry and

weathered site in the Mojave Desert in California, in the foothills of the Calico Mountains. There for several years an enthusiastic team of diggers under the direction of archaeologist Ruth Dee Simpson, with the advice and counsel of Dr. Leakey, has been meticulously unearthing a collection of flint stones and chips that are being claimed as evidence of man's presence on the continent many thousands of years earlier than previous finds have established (SN: 11/7/70, p. 364).

**The controversy** centers around two questions, neither of which is likely to be cleared up in the near future. One concerns the true age of the material from which the samples are being extracted; the other, the possibility that the claimed artifacts might have been produced by natural chipping and crushing in the process of reaching their present location.

Dating the site has been particularly difficult, primarily because there are no radiometric dating tools for the span of time involved, and because there are no deposits that are datable by carbon 14 or potassium-argon. The alluvial fan of rock, a mixture of igneous, granite-type rock and one to ten percent chert or flint, moved out of the Calico Mountains as a fluidized mixture of mud and rock typical of similar formations in the Southwest.

Based on the history of the mountains and the condition of the deposit,



*Leakey/Praeger*

*Olduvai artifact: Context is important.*

the project geologist, Dr. Thomas Clements, put the age of the deposit at somewhere around 60,000 to 100,000 years old, according to Miss Simpson. But that estimate is sharply contradicted by other geologists, including Dr. Vance Haynes of Southern Methodist University in Dallas, who says the deposit is at least 500,000 years old, and possibly two or three times that age. Such great age would make man's presence unlikely, according to most archaeologists.

Dr. Haynes is supported by Dr. George I. Smith of the U.S. Geological Survey at Menlo Park, Calif. Dr. Smith has been working on rocks at the dry Searles Lake, 60 miles northwest of the Calico site, and he estimates by comparison between soils at Searles Lake and at Calico that the chipped rocks are coming from deposits at least half a million years old. At Calico, he says, some of the soils that must have been laid down much later than the digging site material are similar to two types of soils at Searles Lake, one 70,000 years old and another 140,000. Further evidence of extreme age, he says, is the fact that some of the gravel beds at Calico show dips of as much as 15 or 17 degrees, many of them back toward the source, whereas rocks that he has dated at 50,000 to 100,000 years old show no tilting.

**Another** who holds to the half-million-year figure, although he sets that as more or less the upper limit, is Dr. George Carter of Texas A&M University. The soils, he says, have the color and degree of cementation and weathering typical of middle Pleistocene in that part of the country. But Dr. Carter, more forcefully than others, expresses the geologist's uneasiness when pinned down to numbers.

"Anything in terms of years today is just sort of a guess," he says. "I can remember when I was taught that the Pleistocene was only 200,000 to 300,000 years old. Now we're talking about



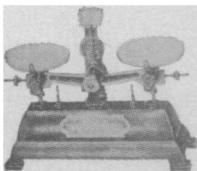
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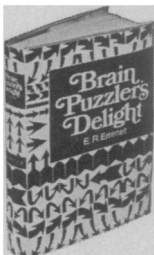
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## ... New World man

a two- or three-million-year Pleistocene.

"We're working with a rubber band for a yardstick when it comes to time," he says.

Dr. Carter also has some reservation on his own conclusion that the deposits are middle Pleistocene. The rocks come, he says, out of relatively young volcanics, and it is possible that the weathering and cementation that impressed him go faster in young volcanic rocks. The right age may be 100,000 years, as Dr. Clements estimates, he says.

If the age of the deposits is uncertain, the authenticity of the artifacts is even more indeterminate. The difficulty is that the rocks that are claimed to be artifacts are naturally present in the deposit. Critics can claim that in the process of tumbling down from the original mountains the easily fractured rocks could have been chipped in a manner resembling purposeful toolmaking. And in fact, says Dr. T. Dale Stewart of the Smithsonian Institution, the chips and rocks that are put forward as artifacts are only a small sample of the rocks that are found in the dig—the project leaders display only those that could remotely be called man-made and ignore the rest.

Another difficulty is that the samples represent very primitive toolmaking techniques, if indeed they are authentic. One of the criteria on which to judge samples, says Donald Crabtree of Idaho State University, is that they show a pattern or style, with similar characteristics of platforms, margins, angles—there are some 87 different attributes of a flake or blade that can be measured. This kind of pattern does not show up, apparently, in the Calico samples.

Some of the samples, if found in different circumstances, might easily be judged man-made, says Crabtree. Those from Olduvai, for instance, are hardly less primitive than the Calico tools. But at Olduvai there was a long series of archaeological deposits that grew progressively more sophisticated, and they were found in association with other evidence of man's presence. Furthermore, the Olduvai samples were found in a sediment bed where there was not a large amount of naturally occurring tool material. All of these characteristics are lacking at Calico.

A decade ago claims of such uncertain authenticity would probably have been rejected out of hand by most New World archaeologists. It was firmly believed that man came to America from Asia no later than 10,000 or 12,000 years ago, since no firm finds had located him in the continent before then.

But a dramatic shift in thinking has recently taken place, largely because of solidly dated archaeological finds in South America. One such was recently reported in the highlands of Peru, where Drs. Kenneth A. R. Kennedy and Thomas F. Lynch of Cornell University found a skeleton in Guitarrero Cave in a stratum dated by a charcoal sample at 10,610 B.C. Another archaeological deposit at the very tip of the South American continent, on Tierra del Fuego, was dated by radiocarbon at 8,900 years ago.

These firm dates so far from the entry point to the New World at the Bering Strait, says Dr. Kennedy, put the time of man's arrival in the New World back to about 40,000 years ago.

Dr. H. Marie Wormington of Denver makes the same kind of argument, although she doesn't think it is possible to pinpoint the time to 40,000 years. In order to get to South America the first inhabitants had to pass through the north, she says, "and I just don't think they were going down there with a sort of Patagonia-or-bust attitude."

Thus the probability of earlier finds has become much greater, and although some archaeologists still argue for the very late arrival of man to the New World, most are willing to consider more ancient dates.

As for Calico, Dr. Wormington, who has seen the samples and visited the site, believes them to be natural rather than man-made. Dr. Kennedy says he can see no reason why man couldn't be on the continent 500,000 years ago, but he says it is mysterious that no earlier sites have been found so far, or that there has been no human skeletal material found that is anything other than *Homo sapiens*. "If it were that old," he says, "you would expect a different kind of hominid."

Even that argument, that if the Calico deposit is half a million years old the artifacts couldn't be authentic because the *sapiens* line didn't go back that far, is challenged by Dr. Carter.

"That is absolutely untrue," he says. Finds in England and in China show that "not only is man, *sapiens* line man, extremely ancient, but by middle Pleistocene these creatures were already starting racial divergence.

"I know that Dee Simpson is almost allergic to an idea of high antiquity," he says, "because she feels, and quite properly, that it would be used to beat her over the head, as evidence that it cannot be man. But I don't see any reason why you shouldn't have evidence for man there and it be the middle Pleistocene too.

"But," he says, "I suppose I'm one of the 10 people in America that even dares think that." □