

**IN SEARCH OF EARLY MAN:
THE FIRST SIX YEARS OF THE
CALICO HILLS ARCHAEOLOGICAL PROJECT**

by

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SECTION	PAGE NUMBER
INTRODUCTION	1
I. THE LAKE MANIX SURVEY	3
II. EUROPEAN JOURNEY	5
III. PREPARATION	7
IV. THE FIRST SEASON (1964 - 1965)	9
V. THE SECOND SEASON (1965 - 1966)	13
VI. THE THIRD SEASON (1966-1967)	16
VII. THE FOURTH SEASON (1957-1968)	19
VIII. THE GUNN CONTROVERSY	23
IX. THE FIFTH AND SIXTH SEASONS (1968- 1970)	26
X. THE CALICO CONFERENCE	29
XI. CONFERENCE AFTERMATH	34
REFERENCE.....	38

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INTRODUCTION

The archaeological work at the Calico Early Man Site in California's Mojave Desert has been in progress for 50 years. This site, still a matter of controversy, is but one more facet in the study of early humans in America.

For the first half of the 20th century it was standard archaeological doctrine that humans were relatively newcomers to this continent. Prior to 1927 and the discovery at Folsom, New Mexico, of a sophisticated spear point within the rib cage of an extinct form of bison, it was generally accepted that human entrance into the New World occurred only 3,000-5,000 years ago. With a later discovery at Clovis, New Mexico, and with the development of radiocarbon dating, the horizon was pushed back to 10,000-12,000 years (Haynes 1980).

How did early humans enter America? The prevailing thought has long been that he came across the Bering Land Bridge in the late Pleistocene, and then came down an interior route across Canada into the high plains of the United States and then spread throughout the rest of the Americas. A later theory suggests that after crossing the land bridge, humans came directly down the west coast on the continental shelf, then exposed by the lowered sea level. In either case early humans dispersed throughout all of the Americas from the far north to the southern tip of South America. The result was a host of different languages and dialects and the development of at least three major native civilizations (Bryan 1978).

Although some scientists suggest that such dispersal and development could not take place in as little as 10,000 years, the majority of American archaeologists accepted the Folsom/Clovis horizon as the limit of human occupation of the New World. To suggest a greater age than this for human occupation was archaeological heresy.

But there were a few heretics! In the mid-1930s, Dr. E. B. Renaud of the University of Denver, a pupil of Abbe Breuil, the foremost authority of European paleolithic industry, discovered and recorded Pleistocene-age workshop sites on the high terraces above the Blacks Fork branch of the Green River in southwestern Wyoming (Renaud 1938). His work was generally ignored by the American archaeological establishment.

Dr. Mark Harrington of the Southwest Museum in Los Angeles reworked the Tule Springs Site in Nevada, first discovered by Fenley Hunter of the American Museum of Natural History. The site yielded abundant camel and horse bones, as well as those of mammoth and bison. One obsidian flake was found in association with a large bison skull. This nearest deposit of obsidian was more than 30 miles downstream. Radiocarbon dates from this site ranged from 23,000 to 28,000 years before the present (Harrington and Simpson 1961).

Phil Orr of the Santa Barbara Museum excavated sites on Santa Rosa Island off the Southern California Coast. The sites contained the burned bones of dwarf mammoth, burned abalone shells, and other evidence indicating that humans had been on the island. The radiocarbon dates indicated an age of 29,750 years (Orr 1956, 1960).

Dr. George Carter of the Johns Hopkins University discovered what were hearths under 50 feet of alluvial overburden in a bank exposure at Texas Street in San Diego's Mission Valley. The fire areas contained percussion-broken quartzite lithics which he identified as cores, choppers, and other workshop pieces (Carter 1957).

Lewisville in central Texas provided the oldest radiocarbon-dated site in the United States at the time of Calico excavations. Nineteen hearths were exposed at considerable depth when an irrigation reservoir was being built. They were dated as being in excess of 37,000 years before present (Crook and Harris 1957, 1962).

In the middle of the 1950s, the Canadian archaeologist, Tom Lee, excavated a site at Sheguiandah on Manitoulin Island in Lake Huron where struck blades and cores of quartzite

were recovered at levels below glacial deposits, indicated that they had been had been pre-glacial in origin (Lee 1954, 1955).

All this evidence, from Tule Springs and Santa Rosa Island to Texas Street and Lewisville, most of which was gathered in the 1950s, suggested the existence of a cultural horizon which pre-dated the projectile point and grinding stone cultures. Although these discoveries were largely ignored by the American archaeological establishment, no longer could the generally accepted opinion that the Clovis hunters of 12,000 years ago were the first Americans go unchallenged.

I. THE LAKE MANIX SURVEY

In February, 1940, Ritner Sayles, a Bloomington, California, rancher and avocational archaeologist, discovered what appeared to be an early man workshop in the Calico Hills, a few miles east of the old Calico silver mines in the central Mojave Desert. He visited the area again in 1942 and 1944 and collected several well-worked chert pieces. They were different from any he had ever found before and he felt that they were tools. In 1942 he took Dr. Gerald A. Smith of the San Bernardino County Historical Society and Ruth D. Simpson of the Southwest Museum, Los Angeles, to the site. Both were likewise impressed by the extent and character of some of the surface material which had apparently been modified by humans.

Ten years later, in 1954, the Archaeological Survey Association (ASA) of Southern California, an organization of amateur and professional archaeologists based at the Southwest Museum, began a series of desert dry lake archaeological surveys. Among those areas scheduled for survey were Coyote and Troy Dry Lakes in the central Mojave Desert, both remnants of Pleistocene Lake Manix.

Lake Manix consisted of three lobes or embayments: one extending south to include Troy Dry Lake; another lying eastward into the Afton Canyon area; and the third reaching northward toward the Calico Hills and including Coyote Dry Lake (Figure 1). Lake Manix was fed by the Mojave River at a time of greater precipitation in the San Bernardino and San Gabriel Mountains and the Mojave Desert. When the basin was full, the water drained eastward through the Cave Mountains carving Afton Canyon, and emptying into Lake Mojave whose modern remnants are Soda and Silver Lakes. Radiocarbon dates, obtained by Dr. Carl Hubbs of the Scripps Institute in La Jolla from tufa deposited along the high Lake Manix shoreline, indicated a date of about 19,000 years before the present (BP) (Hubbs et. al. 1962).

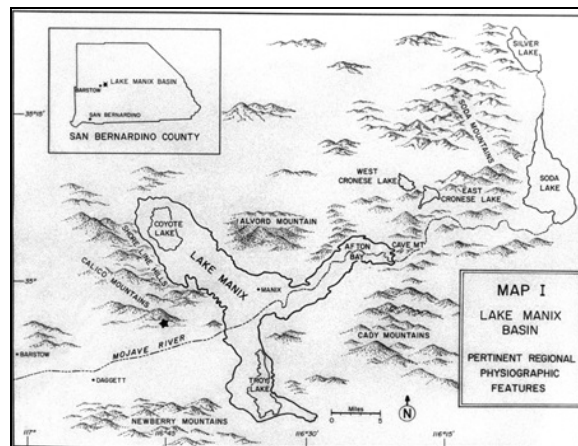


Figure 1. Map of Lake Manix

The Coyote Lake/Calico Hills segment of the archaeological survey was under the direction and supervision of Ruth (Dee) Simpson who well remembered the evidence of primitive artifacts she had seen ten years earlier.

From 1954 to 1956, the Simpson team of the ASA concentrated first on the shorelines of the present playas and then gradually worked upward past recessive shorelines until they were above a high shoreline of Pleistocene Lake Manix at 1,780 feet elevation. Among those members of the survey team who first assisted Miss Simpson were Dr. Allan Bassett, Stuart Peck, Mr. and Mrs. David Rice, Mr. & Mrs. B. E. McCown, Bill Williams, Fred Gross, Alice Landell, and Mrs. Wilfred Simpson (Simpson 1958).

About one hundred sites were recorded around the lake bottom and around the recessive shorelines of the Pleistocene lake (Figure 2). Sites close to the playas and the river were identified as those of the Desert Vanyume, cousins of the Serrano or Mountain People. Evidence of their occupation included arrow points, small pressure-flaked scrapers and cutting tools, manos, potsherds, bits of burned animal bone and shell, and numerous clusters of fire-broken rock. At higher



Figure 2. Bifaces from Lake Manix

shorelines were sites yielding occasional Pinto Basin atlatl points and Silver Lake and Lake Mojave spear points (Simpson 1958).

Above the shorelines of the lake, the types and quantities of material were strikingly different from that recorded at the lower elevations. The sites were mostly workshops with artifacts primarily from local siliceous materials. The workshops were profusely and widely scattered over the alluvial fans, and vast quantities of associated workshop material were observed. Hammer stones, cores, "quarry blanks", rejects, some broken and some complete, tools were recorded in addition to innumerable flakes of various sizes. Many of the best tools recorded were seen as isolated finds away from the workshops (Simpson 1958).

The majority of the tools were large and reflected hard-hammer percussion. There was also a significant increment of small tools, some of which demonstrated markedly sophisticated knapping. Ovate biface foliates, generalized bifaces and scrapers, appeared to be the dominant tool types. No pottery or projectile points were recorded. In typology and technique, many of the specimens recovered appeared almost identical with the artifacts of the European Lower Paleolithic. They were definitely handmade and apparently older than any material accepted by the American archaeological establishment at that time (Simpson 1958). The richest artifact area was on the surface of a dissected alluvial fan in the Calico Hills extending eastward from Mule Canyon into the Manix Basin - the same area Ritner Sayles had discovered over a decade earlier.

II. EUROPEAN JOURNEY

During the Desert Dry Lakes Survey in the 1950s, representative surface material from the high shoreline sites of Lake Manix had been collected by Simpson and brought to the Southwest Museum. Those to whom she first showed the specimens expressed their belief that they were primitive artifacts fashioned by man. She was encouraged in her Lake Manix work by Dr. Mark Harrington, Curator of Archaeology, and Frederick Webb Hodge, Director of the Southwest Museum. Dr. Carl Hubbs of the Scripps Institute and Dr. Elias Sellards of the University of Texas Museum were also very supportive.

In 1956, Simpson took some of the specimens to an International Archaeological Conference in Philadelphia. There she met Father Worms, an Australian priest familiar with the stone tool technology of the Australian aborigines. He, too, was impressed with the Lake Manix material. He introduced Simpson with her specimens to a number of visiting European archaeologists.

Later that year at an archaeological meeting in Colorado at the Denver Museum of Natural History, she showed the Lake Manix specimens to those in attendance. There she met Dr. Kenneth Oakley of the British Museum of Natural History, and both he and Dr. Marie Wormington of the Denver Museum insisted that a study of European prehistory was essential to her work. The result was a journey to Europe in the spring of 1958.

The journey was a continuous study to gain firsthand knowledge of European Paleolithic: visits to museums, traveling to archaeological sites, and consulting with many of Europe's leading scientists and showing them samples of the Lake Manix material (Figure 3). In Great Britain, she was based at British Museum of Natural History where Dr. Oakley showed her artifacts of Britain's Lower Paleolithic. He also made arrangements for her to visit other museums and archaeological sites. In addition to three other museums in London, she studied specimens at the Ashmolean and Pitt Rivers Museums at Oxford and the University Museum at Cambridge. She was shown the Swanscombe Site where the second oldest human fossil remains in Europe were recovered. She also visited sites at Keswick and Hoxne, both yielding artifacts of a Lower Paleolithic Acheulean culture.

Just before Simpson was about to leave Britain, she got a call from Kenneth Oakley asking her to come back to the British Museum of Natural History for one more day. He was expecting Dr. Louis S. B. Leakey, the famous African archaeologist whose work at Olduvai Gorge in Tanzania was already well known, and he had set up an appointment for the following day. Simpson tells the story in her own words:

My appointment at the Museum was for 9:00 a.m., but I arrived at 8:00. Dr. Leakey didn't arrive until 1:00 p.m., and at first the secretary said that he wouldn't have time to see me. At 1:30 she came in and told me that he could give me five minutes. The five minutes lengthened to 5:30 p.m. when the janitor notified us that he would have to close the museum. Dr. Leakey came to the hotel that evening and we talked until 2:00 a.m. We had a valuable discussion of his most recent excavations in Africa and my work in the American deserts. I shall long remember the perplexed facial expressions of our English waiters as they served



Figure 3. Dee and her mother on the ship to Europe

dinner that evening and saw us tearing bread and rolls to resemble artifacts and using the silverware to demonstrate flaking techniques.

Then on to Paris and the Musee de Homme where the chief of research, M Harper Kelly, assumed the role of teacher and coordinator of her study on the continent. Originally expecting to spend only a couple days at the museum, Simpson ended up spending two and a half weeks there. Kelley arranged much of the rest of her European itinerary, including visits to more museums and a meeting with Abbe Henri Breuil, a pioneer in the study of European prehistory. Upon seeing the Lake Manix material, Breuil announced that "These are not recent".

A number of French archaeologist sites were visited, including the classic gravel pit sites near Amiens where the story of the French Lower Paleolithic was first uncovered. She witnessed a cave excavation in progress at Les Eyzies and the Haute Garonne River site near Toulouse, the latter visit arranged by Abbe Breuil.

A side trip to the Danish National Museum in Copenhagen was followed by an extended stay in Spain where Simpson studied at museums in Madrid, where the deeply deposited assemblages of Abbevillian and Acheulean implements were recovered. These in turn were overlying Pebble Industry tools of an earlier age in the lower strata.

The Lake Manix artifacts were well received by the European scientists wherever they were shown. Even though the specimens closely resembled that of the Abbevillian or Acheulean material of Europe, the general recommendation was that America should establish its own classification system and terminology to distinguish its Paleolithic industries as separate from that of Europe. This already had been done by Simpson when in her reports she referred to these artifacts as products of the Lake Manix Industry. Upon her return to the United States, Simpson had a knowledge and understanding of Lower Paleolithic industries possessed by few, if any, other American archaeologists.

III. PREPARATION

Dr. Leakey had been impressed by the Lake Manix lithics which he had seen in 1958 but he advised Simpson that it would be much more significant if such specimens could be found in subsurface deposits rather than on the surface. In fact he suggested that if some could be found in subsurface deposits, he might be able to get funding for a major excavation.

In the following years, Simpson again returned to the Calico Hills area in search of specimens in subsurface deposits. She found some in a bentonite quarry under eight feet of gravels on top of Miocene lake beds. The mining claims where these were found were leased to Glen S. Gunn and were located in Section 22, Township 10 North, Range 2 East, SBBM, as shown on the USGS Yermo Quadrangle. Gunn expressed an interest in the project and gave Simpson permission to look for specimens. He and his partner sometimes came out to watch her work.

In the meantime, Simpson left her position at the Southwest Museum to become the Curator of Archaeology at SBCM in Bloomington. She would also serve as the San Bernardino County archaeologist.

In the spring of 1963 Dr. Leakey came to the University of California at Riverside (UCR) for a series of lectures. This provided an opportunity for Simpson to take him to the site where she had recovered specimens in subsurface deposits. Leakey, however, did not like the site because it was a secondary deposit. For two days, he studied the drainage patterns and soils of adjacent portions of the alluvial fan, searching for the area from which the material had eroded out to create the secondary deposit. He found it in a cut bank along a bulldozed jeep trail where the primary strata were exposed (Figure 4). In the face of this cut bank he saw pieces of siliceous material (chalcedony and jasper) from which artifacts could be made. The primary fan was thick enough to have geological significance.

Leakey was convinced that this was a good area to explore further in order to recover siliceous material and to determine whether any of it had been modified by humans. He climbed above the bank and placed four rock cairns at the corners of a square approximately 25 x 25 feet in area, and suggested that an excavation should be made there. Because the site was on a slope there would be less overburden to remove before reaching the primary deposit. He also suggested that several 5 x 5 foot test pits be dug on the higher ridges. Simpson agreed to dig in the area selected. The site was designated a SBCM-1500 by the San Bernardino County Museum (SBCM).

Prior to his return to Nairobi, Leakey stopped at the National Geographic Society in Washington, D.C., and suggested that it finance an exploratory excavations at Calico during the following year. In July 1963, Melvin Payne, Secretary for the Society's Committee for Research and Exploration, in a letter to Dr. Gerald A. Smith, Director of the SBCM, asked for more information.

I really do not have enough solid information to present the project to our Committee for Research and Exploration. I am writing, therefore, to ask if you



Figure 4. Location where Dr. Leakey found his first tool, 1963

would be kind enough to send me a detailed statement describing the program, those who will participate, objectives of the study, etc. (Payne 1963).

In his reply, Smith described the nature of the specimens already recovered and suggested that this might be the most significant site in North America. He described the qualifications and experience of Simpson as Field Director and mentioned others who would be consultants: Dr. Alex Krieger of the University of Washington for archaeology; Dr. Thomas Clements, retired from the University of Southern California for geology; and Dr. Richard Tedford of UCR for paleontology. He listed objectives of the project: 1) to determine the depth of the deposit; 2) to establish the age of human occupancy of the ridges above Pleistocene Lake Manix; 3) to define the lithic industries of these people; and 4) to ascertain if there is any association with faunal remains of the Pleistocene Period. He also suggested a grant of \$5,000 from the Society and indicated that the resources of staff of the SBCM would also be assigned to the project.

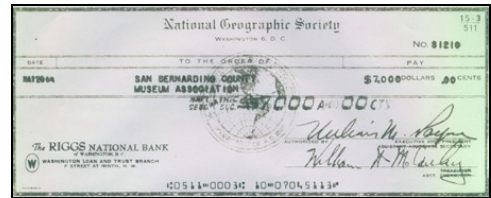


Figure 5. First check from the National Geographic Society

In April 1964 the Society's Committee for Research and Exploration recommended a grant of \$7,000 for an excavation in the Calico Hills. They also indicated that the project would be directed in the field by Ruth D. Simpson, with the advice of Dr. Vance Haynes of the University of Arizona. Dr. Leakey would be the overall supervisor. The \$7,000 check to the SBCM Association was received May 29, 1964 (Figure 5)

One of the conditions of the grant was that the National Geographic Society would control all information to the public concerning significant finds or discoveries and caution was made to the expedition and project leaders to make sure that information, especially unverified information, does not leak out in dribbles to the general public.

The SBCM applied for and received a permit for an archaeological excavation from the owner of the property, the Bureau of Land Management (BLM), US Department of the Interior (Figure 6). Permission also granted to the Museum to excavate on the property of the mining claim holder, Glen S. Gunn. One of the provisions of the latter agreement was the lease of buildings on the property at the rate of \$1.00 per day for the duration of the excavation.

The management was organized with Dr. Smith of SBCM as Project Administrator, Dr. Leakey of Project Director, Dr. Clements as Project Geologist, and Miss Simpson as Field Director. Most of the crew were to be drawn from the members of the ASA of Southern California who had assisted in the Lake Manix survey in the previous years. By November 1964, excavation work at SBCM-1500 was ready to begin.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary

PERMIT TO CONDUCT WORK UPON LANDS OF THE UNITED STATES UNDER THE ACT FOR THE PRESERVATION OF AMERICAN ANTIQUITIES APPROVED JUNE 8, 1906 (34 STAT. 225, 16 U.S.C. 432, 433) AND THE REGULATIONS THEREUNDER. NOV - 6 1964

Date: _____

1. Permit issued to: San Bernardino County Museum
2. Name, address, and official status of person:
 - 1 - In general charge Dr. Louis S. B. Leakey & Dr. Gerald A. Smith, Director
San Bernardino County Museum, Bloomington, Calif.
 - 2 - In actual direct charge Ruth D. Simpson, Curator of Archaeology, San Bernardino County Museum, Bloomington, Calif.
3. Under application dated: August 31, 1964
4. Authorizes: Archeological exploration and excavation
5. On lands described as follows: Department of the Interior lands in Sec. 22, T. 10 N., R. 2 E., Daggett Quadrangle, San Bernardino County, Calif.
6. For the period: November 1, 1964 - December 31, 1965
7. This permit is subject to the provisions of the Act for the Preservation of American Antiquities approved June 8, 1906 and the interdepartmental regulations promulgated thereunder (copies attached) as well as the following special conditions:

See Attached
8. Within approximately 6 weeks of the conclusion of field work, a preliminary report of work performed under this permit, illustrated with representative photographs, and listing new and significant collected materials, should be furnished the Secretary, Smithsonian Institution, and one copy copies thereof should be forwarded to this Department.

(Sgd.) R. O. Wood, Jr.
Assistant Secretary
Director of Management, Operations

Copies to: _____

Figure 6. Permit to excavate from the BLM

IV. THE FIRST SEASON 1964-1965

During the fall of 1964 the Calico field crew were gradually assembled. Although none of them except Simpson were professionally trained archaeologists, all had experience doing archaeological work, and most were well know to Simpson. John Kettl, President of the ASA of Southern California, was placed in charge of logistics. Leona Barnes, a trained laboratory technician, supervised the field laboratory. Ritner Sayles, who first reported surface material at the site 24 years earlier, was not only a member but doubled as camp cook. Cliff Clouse served as Pit Foreman. Others of the original full time crew included Margaret Anthony, Norman Weller, Rollin Enfeild, Grace Enfeild, Sally Clouse, Jack Maddock, and Wade Sellards. Others who were active during the first season, coming later or on weekends, vacations, or whenever time allowed, were Harold Barnes, Austin Dennison, Dorothy Dennison, Grace Kingman, Betty Moore, Lester Anthony, Thelma Crane, Winifred Stewart, Art Robbins and Carl Cambridge. The field camp, a mixture of trailers, tents and buildings on the mining claim, was established about a quarter mile from the excavation site.

On November 1, 1964, the crew gathered at the site where Dr. Leakey had placed the four stone cairns in May 1963. They outlined an area 25 x 25 feet from which all rocks had been removed and surface raked, hand scraped and swept. Marginal areas had also been scraped clean (Figure 7).

The 25 foot square area was subdivided into 5 foot squares. Each worker was responsible for one square. Anticipating that at some future date the pit might be enlarged, the squares were numbered in such a way that would permit growth with uniform nomenclature in any direction, e. g., the northwest corner square was numbered P-19 rather than A-1, with squares along the west margin being numbered north to south, P-19 to P-23. Those along the north wall were numbered west to east, P-19 to T-19.

John Kettl had designed and constructed a structure over the 25 foot square area consisting of a horizontal aluminum bridge mounted on wheels, equipped with calibrated chains, and set on tracks so that the bridge could be moved to any point above the pit for accurate vertical measurements. A photographer could also ride the bridge for vertical coverage of the work in progress.

At Leakey's direction, preliminary excavation was restricted to trenches five feet wide along the north and west walls. This would provide data on the deposit, digging conditions, and soil profiles which would guide the work in the inner squares. Leakey had insisted that all digging must be done with small hand tools: dental picks, linoleum knives, shoemakers' awls, hammers, chisels, nut picks, brushes, etc. By digging in this manner, slowly, alertly and with patience, it was possible to observe pieces of flaked material in place. It was a matter of great pride with the crew that very few flakes were recovered from the screens. Such excavation seldom permitted an advance of more than 3 inches within a 5 foot square each day. Frequently progress was even less, perhaps 3 inches with one-quarter of a square.

Initial excavation exposed an A, B, C soil profile approximately 12 to 36 inches thick in the north and west walls of the pit. The soil profile continued with the slope. By Thanksgiving the excavation of the perimeter trench had reached 48 inches in depth. Now the picture changed



Figure 7. Crew laying out test pits which would become Master Pit 1

rapidly. Tough lime-cemented grit and sand replaced the softer upper soils. Chalcedony cobbles increased in number. The need became apparent for durable tools that could rip loose small segments of the deposit or to be hammered in to jar loose the cemented grit. Volunteer Art Robbins fashioned the needed tools from compression engine valve stems, and they became known as the “Robbins hooks.” Veteran workers returning to camp, brought strange new tools: mounted phonograph needles, tools with replaceable heads, harrow teeth, and wood chisels. Digging tools became dull within three days and sharpening became an evening chore at least twice a week.

Archaeological evidence was virtually non-existent in the upper soils. Once in the cemented grits, however, there were occasional flakes, then a specimen which Simpson and Clements gave indication of human manufacture. Before Christmas there was another good tool. These two specimens were not the only ones recovered but they were the best. Both were suggestive of scrapers in that they were unifacially flaked. The material being removed from the cemented grits was not comparable to the tool assemblage found on the surface, but was suggestive of a more ancient and primitive culture.

These discoveries boosted the crews' morale, and no longer was there need to stress requirements for alert, controlled digging. Crew members now devised new and rigid controls. By the end of year, excavation was progressing smoothly at 3 inches or less a day in each 5 foot square. Possible tools and good flakes were being plotted and triangulated and depth measurements recorded.

One of the persistent questions for which an answer was sought was whether the flaked material had been carried into the area by water and mud flow as the fan was building, or whether the flaked material was left there by humans and subsequently buried. Numerous factors such as orientation of specimens, small flakes adjacent to larger stones from which they were struck, absence of water wear, occasional evidence of sand blasting, patination, and sharp edges appeared to rule out any natural transport.



Figure 8. Dr. Thomas Clements, 1964

By year's end the profile of the fan indicated to geologists that it had been deposited in very early Wisconsin times (Fourth Glacial) or during the Third Interglacial Period. As the depth of the excavation increased so did the toughness of the deposits, the evidence of weathering of the deposits, and the number of decomposed volcanic cobble encountered. These internal factors and the advanced erosion of the fan itself indicated to Clements that the entire Wisconsin may have been necessary to bring the fan into its present state (Figure 8).

About six weeks into the first season the visitations began by geologists, anthropologists, and even politicians. On December 11, the San Bernardino County Board of Supervisors and all of the best specimens so far recovered were displayed for them. Five days later, the excavation was visited by geologist Dr. Richard Hay of the University of California, Berkeley (UCB). He agreed with Clements' findings and analysis as to the age of the fan. He also suggested that one corner square of the excavation (T-19) be designated as a “Speed Pit” and dug rapidly with pick and mattock to determine the depth of the fan deposit overlying the Miocene Barstow Formation. This suggestion was approved by Leakey and was carried out.

It became apparent that the excavation would take far longer and be much deeper and larger than originally planned. As the project extended into the new year the funds from the National Geographic Society which had been budgeted on the basis of a two or three months excavation were depleted. However, a majority

of the workers remained on a volunteer basis. Excavation was no longer confined to the north and west perimeter trenches. Some interior squares were now being taken down. The assemblage of artifacts and flakes grew larger as the size of the excavations increased.



Figure 9. Dr. Desmond Clark in Master Pit 1, 1966

Dr. Desmond Clark from the University of California, Berkeley (UCB), was one of the first of the visiting anthropologists to come to the site. Arriving at Calico on January 9, 1965, at a time when relatively few “good” specimens had yet been recovered, he categorically denied that any of the specimens showed evidence of human workmanship (Figure 9). His attitude came as no surprise to Erna Schuiling, who had the task of entertaining Mrs. Clark while her husband visited the excavation and examined the specimens recovered. As the two ladies wandered over the hills on their way back to the site, Mrs. Clark

remarked that she hoped “you people will not be disappointed in what Desmond will tell you.” Unfortunately Dr. Clark came just a few days too early, as mid-January produced a basic change in specimen yield. The number of acceptable tools increased, as did the number of good flakes.

Three weeks later, on January 30, 1965, Dr. Alex Krieger of the University of Washington was on the scene. The specimens shown him dramatically demonstrated the improvement in the quality of the assemblage since Dr. Clark's visit. Dr. Krieger accepted 20 specimens as unquestionably man-made tools. He advised Simpson that she only describe the specimens and not attempt to define them as a specific type of tool.

In mid-February Mr. and Mrs. Donald Crabtree came to the site. Crabtree was one of America's best known flaking specialists and a serious student of flaking techniques. He was as concerned with the simple workshop material as with the finished tools, and he selected some specimens which he felt could not have been shaped by nature (Figure 10).

At about the same time, mid-February, Dr. Robert Sharp, a geologist from the California Institute of Technology, paid a visit. He also agreed with Dr. Clements that the excavation was in an ancient alluvial fan and felt that a suggested age for the fan and the artifactual material of 10,000 years was being far too conservative. He suggested that the fan was probably of Early Wisconsin age.

Dr. Vance Haynes of the University of Arizona came on February 20 and expressed the opinion that geological factors pointed to a pre-Wisconsin age for the fan. Dr. Haynes who had originally questioned the geological value of the Calico excavation now urged its continuation.

All these visits were but as prelude to the visit of Dr. Leakey and Dr. Matt Stirling of the Smithsonian Institution on March 10 and 11. After a thorough examination of the Master Pit, the strata trenches and the test pits, they examined and removed those specimens left in place for them. They then examined a sample of the specimens assembled in the laboratory. Both Leakey and Stirling were favorably impressed by the specimens, one of which was the first to be designated by Leakey as a primitive hand axe. Altogether Leakey classified seven specimens as prime “artifacts” and 20 more as only slightly less significant. Stirling, only a little less

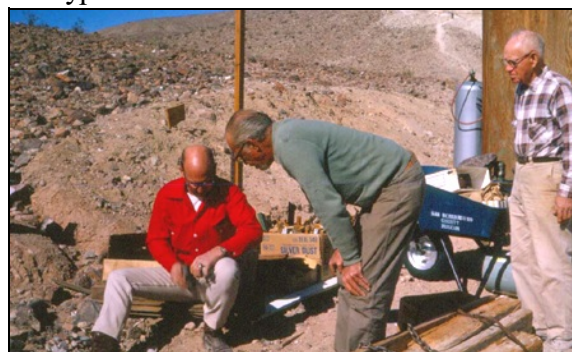


Figure 10. Don Crabtree knapping a biface while Denny Dennison and Ritner Sayles watch

enthusiastic, stated that he was “85% convinced.” They were briefed on the local and regional geology by Clements and were taken on a jeep tour of the fan.

The need for continuing the excavation was apparent to all concerned. The importance of the work in the Master Pit led Leakey to decide that only the most experienced crew members and trained archaeologists should dig there, while volunteers could acquire experience by working in the outlying test pits and trenches. This lessened the number of workers slowed the excavation, but it raised the caliber of the work and increased the uniformity of excavation, observations, and recording.

In late March, Simpson took a number of the most significant specimens to Washington, D.C., to be shown to the Committee for Research and Exploration of the National Geographical Society and the archaeological staff of the National Museum. As a result of this visit and the strong recommendations of Leakey and Stirling, the Society's Committee on Research and Exploration granted an additional \$12,000 to the SBCM Association to continue the work at Calico during the 1965-1966 season.

Work continued with a smaller crew through April and early May thanks to an interim grant from the Wenner-Gren Foundation. The first field season ended May 19, 1965, with a second season now assured by the second grant from the National Geographic Society. During the summer the camp area and the site were protected by a resident guard. Maintenance work in anticipation of the second field season began in the early fall, before the return of the digging crew.

Simpson spent much of the summer of 1965 at her home in Pasadena working on notes and reports of the first field season. She was not there voluntarily, however. On May 15 she received a communication from the San Bernardino County Health Department ordering her to cease work and place herself under medical care. Physical tests taken earlier as a requirement for employment indicated that she had active tuberculosis. Eventually the diagnosis of tuberculosis proved to be false, and it was determined that she had instead the symptoms of Valley Fever, sometimes referred to as the “archaeologists disease,” acquired by many California archaeologists as a result of working in dry dusty soils. Fortunately Simpson was back at work at Calico again when the second season began.

V. THE SECOND SEASON 1965-1966

The \$12,000 grant from the National Geographic Society for the 1965-1966 season became effective during the summer and permitted the employment of George Winklepleck as resident guard and summer maintenance man. During the summer, crew member Art Robbins supplied an additional small building to serve as a field laboratory, affording greater security for the material recovered and lessening congestion in the larger commissary building. By October 28, 1965, the camp facilities were ready for the digging crew.

Work began in the pits again on November 1. Throughout the second season, work in the Master Pit was restricted to crew members who had been there the year before, or who had acquired extensive training in the outlying trenches or test pits. Although the number of workers in the Master Pit was less, there was a gratifying increase in uniformity of technique and recording.

Three adjacent 5-foot square sections near the center of the Master Pit (R-22, S-21, S-22) were not excavated but remained intact as “witness columns” to serve as a guide to soil structure near the middle of the pit and to preserve a complete column of specimen-bearing deposits for future study if desirable.

Soon after the digging began, Lester Anthony and Wade Sellards, working in the “Speed Pit” (T-19), reached their goal: the contact between the Yermo Formation (the specimen-bearing deposit) and the Miocene Barstow Formation. There was no need to dig deeper. But whereas mattocks and sledge hammers had been used in the Speed Pit, work in the rest of the Master Pit continued on its slow methodical way; 3 inches at a time using small hand tools.

Leakey visited the site on November 12. Material had been retained in place for his examination. He approved of one specimen that was perhaps the best one found up to the time. Additionally, a superb “anvil stone” was left in place to be viewed by other visiting scientists later in the season. Anvil stones with battered crest and incipient cones of percussion suggested that anvil-percussion techniques was a supplement to hammer percussion. Small flakes that were removed from nearby indicated that there was little or no transport of the material.

The project suffered a setback in January when a propane fire destroyed the office trailer. Numerous specimens, mostly of B-grade quality, were destroyed and some field notes and distribution charts were lost. It had taken a month of evening work to develop the charts, but it took about two months to rebuild them. Many specimens were recovered in the ashes, but location identification was lost for most of them.



Figure 11. Austin (Denny) Dennison making a cast of one of Calico tools

Jonathon Blair, a photographer for the National Geographic Society, arrived after the first of the year to record the work at the excavations. Living in a rented trailer like many of the crew, he remained until after the Society’s symposium in mid-March. Unlike crew members, however, the refrigerator in his trailer was filled with photographic film rather than food to eat. Specialist among the crew included Austin Dennison, a professional artist from Rhode Island, and H. Franklin Jerauld, a civil engineer. Dennison began making casts of some of the better specimens for distribution to other interested scientists or institutions (Figure 11).

Early in February, 1966, the funds from the National Geographic Society grant were almost exhausted and word was received that further funds for continuing the work would not be available until after the planned inspection and symposium in

mid-March. Some younger crew members on the payroll were forced to leave the project, but most of the older members stayed on as volunteers. The crisis was resolved in a few weeks, however, when the Society approved an additional grant of \$3,000 in early March to insure adequate preparation for the coming symposium. Work continued with a reduced crew throughout the remainder of the field season, thanks to an additional maintenance grant of \$5,500 from the Society.

Early in March, Dr. George F. Carter of Johns Hopkins University came and made a thorough examination of the soils, the alluvial fan, the site, and the specimens (Figure 12). He left convinced that humans had been present during the building of the fan. His acceptance of the specimens as man-made was based not only on the “tool”, but also upon the flaking techniques reflected in the small flakes. During the same period of time, Dr. Paul Ezell, anthropologist from San Diego State College, added his opinion supporting the man-made nature of many of the specimens.

The National Geographic Society's inspection and symposium was held March 18 and 19. In addition to the project's leaders (Dr. Leakey, Gerald Smith, Dr. Clements and Miss Simpson), eight visiting scientists were in attendance: Alex Krieger (University of Washington), Marie Wormington (Denver Museum of Natural History), Matthew Stirling and T. Dale Stewart (Smithsonian Institution), Emil Haury and Vance Haynes (University of Arizona), and Richard Hay and Desmond Clark (UCB) (Figure 13).



Figure 12. Dr. George Carter, 1965



Figure 13. Out lunch for symposium, (left to right) Sayles, Smith, unknown, Haury, Wormington, Haynes, Clark, Stewart, Stirling and Leakey, 1966

The group spent two days examining, analyzing, questioning and discussing. Opinions ranged from Dr. Clark's restatement his negative position to Dr. Krieger's restatement of his positive position. Most of the visiting scientists were reluctant to accept unequivocally the man-made origin of the specimens. Stirling was strongly in favor, but Wormington, Stewart and Haury expressed varying degrees of conviction. The geologists, Hay and Haynes, were in general agreement with Clements, but they were inclined to assign a greater age to the alluvial fan than Clements believed feasible.

On two subjects there was a consensus. All had high praise for the excavation procedures, and all agreed that further excavation was called for. There was general agreement that there should be a third season of work, and that one or more control pits should be dug some distance away and up-fan from the Master Pit. If these control pits should yield specimens similar to those recovered in the Master Pit, it would be an indication that nature rather than

humans had produced the specimens. If, on the other hand, no such specimens would be recovered, it would indicate a unique condition in the Master Pit suggestive of human involvement in the modification of the siliceous material. This recommendation would be carried back to the National Geographic Society along with a request for funding for the project during the 1966-1967 season.

In early April, Simpson flew back to Washington to again meet with Leakey and give him an assortment of “tools” to take back with him to Europe and Africa.

Late in the season, Clements began a seismic survey of the fan which yielded valuable data regarding the depths at which soil changes occurred, thus guiding the placement of future test pits in areas of minimal overburden.

In mid-May, the site was visited by Dr. Mark Harrington, Curator Emeritus at the Southwest Museum, one of America’s senior archaeologists. When examining the specimens recovered, he declared that many were definitely the work of man.

Late in May, the specimens that had been recovered during the second season were packed and shipped to the SBCM in Bloomington. There the first two seasons specimens would be available for Leakey’s examination when he returned in August to select the location of Control Pit I.

The second season ended on Memorial Day, 1966. Resident guard George Winklepleck was again on duty during the hot summer months. Although there was no excavation during the summer, considerable maintenance was accomplished, including the construction of a protective metal roof over the 10-foot square section of the witness column in the Master Pit.

VI. THE THIRD SEASON 1966-1967

Another season of work was assured when the Board of Trustees of the National Geographic Society authorized a grant to “subsidize work at Calico Hills up to \$42,890” (Carmichael 1966a). The season began “unofficially” on August 11 when Leakey came to the site to select the location of the first Control Pit requested by participants of the National Geographic Society's symposium the previous March. The site he selected met with the approval of Smith and Simpson, but the Society also required the approval of Dr. Vance Haynes who was out of the country at the time and Leakey and Smith as to the Society's insistence that Haynes must take part in the selection of the Control Pit site, Dr. Leonard Carmichael, Chairman of the Committee for Research and Exploration, responded that it “was specifically the request of the Committee, because a number of members of the Committee felt that his special area of knowledge in geology involves just the period of the Calico Hill site” (Carmichael 1966b).



Figure 14. Dr. Leakey and Dee Simpson in lab at the San Bernardino County Museum

While in the area in August, Leakey was able to spend some time at the SBCM examining all the artifactual material recovered during the first two seasons of excavation (Figure 14). From this assemblage of modified chalcedony and jasper, he selected about 400 specimens that he interpreted as the work of humans.

Approximately half of these he regarded as tools and half as flakes displaying significant traits. In examining the material, Leakey made no effort to classify

every artifact, but rather he sought evidence of artifacts and flakes falling within specific categories. Subsequent to this examination, a

preliminary manuscript had been prepared jointly by Leakey, Clements and Simpson. It was hoped that this announcement would be published promptly to acquaint anthropologists in America and abroad with general aspects and hypotheses pertaining to the project. The National Geographic Society, however, thought that such an announcement was premature, and the publication was delayed for nearly two years.

The maintenance grant from the National Geographic Society approved the previous April enabled the SBCM to carry out extensive repairs at the camp during the summer. The commissary area was improved, a food storage area was built, blacksmith facilities for reconditioning of tools was established, and new electrical wiring was installed. Camp Leakey, as the camp was known to the crew, was ready to receive a larger component of workers in the fall.

As it had in the two previous seasons, excavation work began on November 1. Work on the Control Pit was delayed two weeks while waiting for Haynes to approve the site selected by Leakey. He approved the location and throughout the first half of the season, the major emphasis was placed on Control Pit I. Only a skeleton staff remained to work in the Master Pit. Six workers were assigned to dig in the 10 x 15-foot Control Pit I, and eight others were assigned to screen and count the products on the excavation: both “country rock” and siliceous material. Speed was important and the workers were permitted to use heavier digging tools or small mattocks. Material was recovered on the screens rather than *in situ*.

A few problems developed in the first weeks of the Control Pit excavations. Three of the new crew members quit because they could not stand the strenuous work. Another who had been hired never showed up. One of the best workers left to go to Southern Nevada University

for a better paying and permanent job. Hence for Control Pit I to be fully staffed, it had to draw on the crew in the Master Pit where excavation virtually ceased during the first three months of the field season.

Morale of the crew remained high, however, not only because of their confidence in the significance of the project, but because of the enthusiasm and interest expressed by Newman Bumstead and Andy Brown of the National Geographic Society staff who visited the site during the early weeks of the season. Their visit seemed to set the tone for the season's work.

The work in Control Pit I progressed at a surprising rate under the leadership of crew member Rollin Enfield (Figure 15). The tight controls enforced the Master Pit were not in effect. With special teams working on the screens and counting the material, the diggers seldom left the pit. By February 1, 1967, Control Pit I had reached a depth of 28 feet. Clements asked that the work be stopped because of the hazardous conditions of the pit walls. Haynes visited the site and also asked that no further work be done since the excavation was well beyond the minimum depth of 20 feet set by the National Geographic Society. At the request of Haynes and Leakey, the Society made a small additional grant to cover the cost of shoring and fencing Control Pit I so that it could remain open for study by geology students. Control Pit I, in addition to the Master Pit and outlying trenches and test pits, provided a superb cross-section of the building history of a major Pleistocene alluvial fan.



Figure 15. Grace and Rollin Enfield screening matrix, 1967

An analysis of the rock material from Control Pit I was now made, and it was determined that of the 11,961 pieces of siliceous material recovered, only three was identified by Leakey as having some man-made characteristics. Subsequently Dr. Wormington, who also saw the material found only one that might be so considered.

Work now began on Control Pit II located further to the west. Control Pit II was carried to the prescribed depth of 12 feet in two and a half months. Although a team of eight workers was originally called for, much of the excavation and related screening and counting were done by a smaller number of workers because of the shortage of crew members. No probable tools were recovered below the 18 inch level.

Excavation of Control Pits I and II rather conclusively demonstrated that although the pits dug in the fan in which boulders, cobbles, and siliceous material were found, there were no acceptable artifacts. At the beginning of the season, the theory was expressed by National Geographic personnel that such results would make the Calico Project "successful." Apparently, however, the magnitude of the implication of this result was too great for the Society to declare the project successful.

As work was beginning in Control Pit II, early in February, 1967, a unique discovery was made in the Master Pit. A fragment of an elephant tusk (mammoth or mastodon) was uncovered at a depth of 151 inches in Unit Q-19. Subsequently other small fragments were recovered at the same level throughout other units of the Master Pit. This was the only organic material recovered during the first seasons of excavation.

The best tools recovered in the Master Pit were found in December. These included a large biface, two plano-convex scrapers, and a small pointed tool fashioned on a flake. Some later finds were made prior to the visit in April of the National Geographic Society's Committee

form Research and Exploration, and provided the visitors the opportunity of examining them and seeing one fine tool and an anvil removed.

Early in March Dr. and Mrs. Leakey visited the site and examined the specimens. At that time, Leakey informed the crew that members of the Committee for Research and Exploration would visit the site in April. In examining the specimens recovered during the third season up to that time, Leakey approved thirty-two as being modified by humans, including five “mint” (exceptionally fine tools).

It was apparent that Mary Leakey did not share her husband's judgment and enthusiasm. Although she did not openly voice her reservation to the crew, and complimented them on the “meticulous excavations,” she was less reluctant to criticize her husband to some of her colleagues (Figure 16). In fact she greatly resented Louis' involvement at Calico and feared that his reputation as a scholar would be ruined. Unbeknown to him or the Calico group, she actually tried to put an end to the project by getting the National Geographic Society to withdraw its support. She was not successful in her effort at this time, and the Society's support would continue for another year.

The Society's Committee for Research and Exploration was scheduled to visit the site on April 12. Dr. Thomas McKnew, Chairman of the Society's Board of Trustees and a member of the Research Committee, was unable to make the trip with the rest of the group and came a week early, visiting the site on April 6. The remainder of the group came into Los Angeles on two separate flights the evening of April 11 and were met at the airport by Simpson and Dorothy Dennison, who then accompanied them by chartered bus to the Holiday Inn at Barstow. The group toured the site the following day. No special discussions took place or decisions made at this time. Of the members of the group, only Drs. Stirling and Stewart had visited the site previously. Included with the group were Dr. Melville Grosvenor, President of the National Geographic Society, and Dr. Leonard Carmichael, Chairman of the Committee for Research and Exploration, and immediate past Secretary of Smithsonian Institution. Their departures were a nightmare of logistics since they did not all return to the same place, nor did they depart at the same time.

During the last weeks of the third season much time and effort were spent in shoring Control Pit I and fencing all the major excavations. By May 10 most of the crew had left for the summer. Most of the shoring was accomplished by four crew members led by Barbara Kniffen. The fencing was completed during the first week in June.

Early in June the camp was closed for the summer; all specimens were shipped to the SBCM; and once more George Winklepleck assumed his duties as full-time resident guard. The previous winter had been unusually dry and as a result the desert greenery was sparse. As the crew moved out of Camp Leakey, jack rabbits moved in, feeding on the green plants that had grown in the shade of trailers and campers. Mojave ground squirrels and chukars shared the water pan that George Winklepleck placed in the shade of the commissary.

The crew could look back on the 1966-1967 season with a sense of satisfaction and accomplishment. Geologically, the validity of the seismic survey had been confirmed; the history of the building of a large Pleistocene alluvial fan now lay exposed. Archaeologically, the total artifact assemblage was increased significantly in spite of reduced work in the Master Pit, and it now had been established that the “artifactual material” was concentrated in one area of the fan. For the first time fragmentary paleontological data had been added to the story of the project.



Figure 16. Mary and Dr. Leakey coming down the steps from MP II

VII. THE FOURTH SEASON 1967-1968

The National Geographic Society provided a grant of \$2,500 for the 1967 summer maintenance program. Leakey convinced the Society that at least one more season of excavation was necessary to complete the archaeological and geological study. He asked that a second major excavation be made in the general vicinity of the Master Pit.

A budget of \$52,575 was prepared and submitted to the National Geographic Society in early September 1967. The Society responded by approving a grant of only \$26,000 and indicated in a letter from Dr. Carmichael to Simpson that this would be the last grant awarded to the Calico project by the Society:

It was the feeling of the Research Committee that possibly the scope of the operation could be curtailed, or if you do not find that this is possible, it may be that you could obtain additional funds from other sources. In any event, the Committee would definitely like to see the field work rounded out and hopefully concluded during the next season (Carmichael 1967).



Figure 17. National Geographic Society flag at Calico made by a volunteer; 1967

With the reduction of funds from the National Geographic Society, the plans for the fourth season were sharply curtailed. All work in the outlying pits and trenches by paid crew was abandoned, about half of the paid crew was dismissed, and the geological program was reduced (Figure 17).

Work in the pits began on October 15. The major project of the season was the digging of a second pit at the location designated by Leakey about 40 feet northwest of the original Master Pit. This new pit, designated as Master Pit II, was a 15x15-foot excavation consisting of nine 5x5-foot squares with a central section remaining undisturbed as a witness column. Work on Master Pit II progressed rapidly at first as five to eight feet of overburden was removed. A level of boulders was reached just above the cemented artifact-bearing deposits.

Removal of these boulders, some weighting 500-600 pounds, was a long and difficult operation.

When reaching the artifact-bearing layer, work proceeded slowly and carefully. As had been done in Master Pit I the previous three seasons, small tools and brushes were used, excavating three inches at a time. Six to eight workers concentrated their efforts in Master Pit II, each responsible for one 5x5-foot square.

The specimens recovered in Master Pit II were generally comparable to those that had been recovered in Master Pit I. Complete tools were not found as often as in Master Pit I, but “technically significant” flakes, those showing characteristics which reflected human workmanship rather than natural fracture, were markedly more numerous.

Only one to three workers were assigned to continue excavating in Master Pit I. They concentrated their efforts in bringing their sections down closer to the Yermo-Barstow contact zone, and to work those sections which had provided the most significant yields during the previous seasons.

The interpretive program was also sharply curtailed by the shortage of funds, but John Kettl, Austin Dennison, and Jerry Jerauld continued to develop an extensive series of charts, maps, and graphs reflecting the distribution of artifacts and siliceous material, and providing

other statistical information. Audiotapes were prepared, casts were made, and some displays were set up for the benefit of visitors to the site.

A very severe mid-winter cold spell almost brought the work to a standstill for several days. Another source of unhappiness for the paid crew was the inefficiency of the county in meeting the payroll. Checks for work done in November were not received until January. On a number of occasions Simpson had to loan money to crew members to pay rent on their trailers and to buy Christmas presents.

Although the National Geographic Society had imposed restrictions on the Museum and the staff as to publication, photography, newspaper interviews and other publicity relative to Calico, a project of that magnitude could not be kept under wraps for long. Members of the Eastern California Museum Association scheduled a field trip to Calico during the winter, as did the Archaeological Survey Association of Southern California. A number of members of the latter group had participated in the Manix Lake survey; the project which eventually led to the Calico Dig. An anthropology class from San Bernardino Valley College came to the site, as did groups from the Los Angeles Museum of Natural History and the "UCLA Friends of Archaeology." Over six hundred visitors came to the site during the first six weeks of the season.

The fourth season again also brought a number of visiting scientists to Calico. Just as the season was beginning, Dr. Francois Bordes, famous French prehistorian and lithic specialist, visited the site and spent considerable time at the SBCM examining the specimens collected the previous three years. He found the flakes of special interest and most certain evidence of human workmanship. He identified several classes of flakes not previously segregated in the assemblage. Dr. Tinsdale, an Australian expert on the Pleistocene, came to the site in December, and Dr. Paul Martin, geochronologist from the University of Arizona, collected soil samples to test for pollen.

In the spring of 1968 the site was visited by Drs. Karl Butzer and F. Clark Howell, both of the University of Chicago (Figure 18). Butzer, a geomorphologist, agreed that the deposits were old and suggested further geological projects which might assist in determining more specifically the age of the alluvial fan. In a written summary statement, he suggested the minimum and maximum limits of its age.

In the absence of radiocarbon dates from the local alluvia and in view of the limited opportunities for observation, it is difficult to suggest even a stratigraphic age for the site. However, the above lines of reasoning lead us to suspect that further, detailed studies will indicate that the site is older than "classical" Wisconsin, i.e., the main body of the Yermo Fan will prove to be greater than 30,000 years. It is more difficult to predict a maximum possible age, but in view of the absence of more intensive weathering and the degree of preservation of an unconsolidated body of alluvium, it seems improbable that the Yermo Fan is older than late Middle Pleistocene (perhaps 120,000 years) (Butzer and Hansen 1968:2).

Both Butzer and Howell then went to the SBCM in Bloomington to examine the specimens recovered during the previous three years. They requested that they study the specimens alone out of the presence of any other people. The following year, Bordes gave his stamp of approval to the Calico flakes. In a statement he verified the flakes but failed to find any evidence of tools (Bordes 1970).



Figure 18. Dr. Clements (left) and Dee Simpson (right) with Drs. Howell and Butzer in Master Pit I, 1968

Upon emerging from their isolated study, Howell asked Leakey, who was present during the visit, what he was expected to say. "Are they man made?" Leakey asked, and Howell replied that certainly some of them were. In a written summary, Howell, a paleoanthropologist with European and African experience, explained his thoughts.

There is a substantial number of flakes and other specimens in the lithic sample which in any other situation would be accepted by most experienced workers as products of human lithic technology. The nature of striking platforms, bulbar scars, presence of erailleurs, and the regular pattern of primary trimming scars on such pieces all lead inevitably to this conclusion. Patterns of retouch are also apparent on some pieces. Many of these flakes are what would customarily be accepted as preparation and trimming debris (debitage) or waste products, present in most human lithic assemblages, but especially predominant in workshop situations, and frequently raw material sources. There are also some unquestionable shaped tools, including scraper-edged, denticulated, and alternate-burinate specimens. These would not be out of place in a variety of Upper Pleistocene lithic assemblages in the Eastern Hemisphere (reference not located).

During my brief time at the Museum I did not attempt to make either a detailed or complete analysis of these specimens. I was only concerned to satisfy myself as to whether these were the consequences of natural agencies, or whether they represented, in some appropriate quantity, the products of human technology. A number of specimens, particularly when recovered in this context, cannot be attributed with absolute certainty to the latter origin. I have no doubt whatsoever that a goodly number of others can only represent the products of human technology (reference not located).

In referring to the flakes, Howell used the analogy of shavings in a wood shop. One does not have to see the finished to know that some human manufacture had taken place.

The last of the funds from the National Geographic Society were expended shortly after the beginning of the new year. Supplemental funds, which allowed the work to continue until June 1, were supplied by a \$3,000 grant from the Isotope Foundation in February and a \$5,000 grant from the Wilke Brothers Foundation in March.

With continuing funding of the project now questionable, both the SBCM and the BLM, Department of Interior, upon whose land the site was located, became increasingly concerned about the preservation of the site. Not only was it desirable to preserve the site for continuing field work, but as a demonstration "dig" for the professional and students of archaeology and geology. The preserved site would not only be of scientific value, but would provide favorable publicity and prestige value to both the county and the BLM. The need for a permanent resident caretaker was recognized, as well as the need for a visitor center. Some of the last work accomplished during roofing the two Master Pits to protect them from major erosional damage. The roof of Master Pit II was built at ground level, but the roof over Master Pit I required greater engineering skill, with a sheet metal and timber roof supported by 45-foot power poles.

The secrecy that had been requested by the National Geographic Society proved very frustrating to the SBCM and the field crew. Simpson complained that it was "breeding suspicion in the profession and resulting in inaccurate and unauthorized newspaper stories." In a letter to Andy Brown, Assistant Editor of the National Geographic Magazine, on April 30, 1968, she gave vent to her frustration.

I need to know what can be done after Dr. Leakey's first publication appears. I need to know if the National Geographic still thinks in terms of an article. I need to know when I can appear at scientific meetings and talk about our work and our findings. I need to know for how long and to what extent the National Geographic Society plans to hold rights to information (Simpson 1968).

It was originally hoped that a preliminary announcement of the work at Calico would appear in the magazine *Nature* in 1967, but the National Geographic Society refused permission for a statement at the time. However, when the Society no longer supported the project it could not object to the issuance of a statement in the spring of 1968. Accordingly, an announcement of the work appeared in the May 31, 1968, issue of *Science*, the weekly publication of the American Association for the advancement of science. The article, written by Leakey and signed by him and Clements and Simpson, briefly described the work of the previous four years and stated that more than 170 specimens were "unquestionably the result of human activity." The article further stated:

Our view that the site has yielded very early humanly made artifacts is shared by a number of our colleagues who have visited the site and examined the material upon which we base our conclusions. Others, however, have found themselves unable to accept these specimens as being the result of human activity and regard them instead as having been produced naturally. In view of the great significance of the discovery, if our claims are valid, we cordially invite geologists and archaeologists who are interested to visit the site and also to make arrangements to view the assemblage of artifacts (Leakey et al. 1968).

So ended the fourth season. The National Geographic Society was no longer involved. Future excavation would depend upon financial support from other sources and from the work of volunteers. The Museum was no longer working under the restrictions imposed by the National Geographic Society. The work at Calico and its implications was now public knowledge.

VIII. THE GUNN CONTROVERSY

In the spring of 1968, when it became evident that the Calico Site was of great archaeological significance, plans began to be made to insure its preservation. The BLM, on whose land the dig was located, recognized the importance of the site and was anxious to cooperate with the SBCM. It was also necessary to make some permanent accommodation with Glen G. Gunn, the holder of mining claims which included the area of the archaeological excavations.

Mr. Gunn had readily agreed to the initial excavations in 1964 and willingly rented his buildings on the property to the Museum Association for \$1.00 a day. No mining had taken place on the property since the archaeological excavations began, nor did it appear that there would be any mining activity in the future; therefore, it seemed the final step in the preservation of the site would be to acquire the mining rights from Gunn.

The Nature Conservancy indicated a willingness to acquire the mining rights so that the site might be preserved. Terry Blunt, Western Field Representative for the Conservancy, visited the site on March 22, 1968, and was prepared to offer Mr. Gunn \$20,000 for those mining claims on which the excavations were taking place. At a meeting with Gunn that day, also attended by Clements, Smith and Simpson, Gunn stated that it would be necessary to buy all of the 31 claims he owned, and that the purchase price was \$25,000,000.

Apparently Gunn did not immediately recognize the absurdity of his request when he realized that he was not being taken seriously, he ordered the site to be vacated by the Museum within 30 days, later extended to May 1st.

That evening, March 22, Smith met with Tom Loomis, the Area Manager of the BLM. Loomis promised that the Bureau would move at once to try to invalidate Gunn's mining claims and to take over the site which then could be deeded to the County Museum. He indicated that the Bureau would need all the public support it could get and urged that letters from interested persons and organizations be solicited.

This support was not long in coming. A letter from Loomis to Smith less than a month later disclosed that by April 19, the Bureau had received 21 letters and 6 telegrams from professional archaeologists, 11 letters from organizations and societies, 142 letters and 11 postcards and 1 telegram from the general public, and 8 petitions with a total of 166 signatures affixed. Horace Albright, former Director of the National Park Service, contacted Stewart Udall, Secretary of the Interior, to urge federal action to preserve the Site.

The fact that the National Geographic Society had not permitted any official news releases to be made up to this time made negotiations with Gunn's attorney extremely difficult. The attorney, George W. Nilsson, had no idea of the nature or significance of the Calico Dig. In a letter to Jack Wilson, Manager of the BLM's Riverside office, he disclosed his lack of understanding:

You say in your letter "the site may have considerable archaeological value requiring preservation under the American Antiquities Act". Since the museum has not been able to develop any antiquities during the past four years, there certainly is no reason why they should be permitted to continue to occupy the property (Wilsson 1968).

The BLM was now taking steps to invalidate the non-patented mining claims. A mining engineer, Michael E. Ryman, was engaged to study the claims and to make a determination as to their validity. Mr. Gunn claimed that the area contained gold and silver in addition to the bentonite deposits. Ryman examined the area and took samples for assay. The assay disclosed

negligible values. Ryman found no evidence of mineralization on the claims and concluded that “a prudent person would not be justified in spending further time and money on the claim” (reference not located). With this information the BLM decided to contest the claims. A notice to this effect proposed a new classification of the property was published in the Federal Register on June 29, 1968. On July 3rd, Gunn received a communication from the BLM by certified mail containing the following information and admonition:

Your mining claims, which are in conflict with the archaeological excavations and access thereto, have been examined by mining engineers of this office who have reported that the claims are invalid for lack of discovery thereon of a valuable mineral deposit, within meaning of the mining laws. A contest, proceeding, therefore, has been initiated to determine the validity of these claims. The Complaint in these proceedings has been served on you.

Accordingly, you are hereby notified that it is the position of the United States that you have acquired no rights whatsoever to the lands in question by your mining locations and that any attempt by you, your employees or agents, to go on the land to remove anything therefrom or to interfere in anyway with activities on the lands by persons holding permits from this Department will be treated as trespasses against the United States for which you will be held fully accountable (Wilson 1968).

This had little effect on Mr. Gunn. A week after receiving the message from the BLM he was at the site directing a tractor to dig a trench on some of the protected area. This work destroyed the trail from the camp to the archaeological excavations and made necessary the construction of a new route to the Master Pits.

Work was still going on at the site in May at the time when Gunn's eviction notice was to become effective. Gunn made no immediate effort to force an eviction, but the BLM was prepared in case he would demand abandonment of the site. Thomas Coleman, an Assistant United States Attorney in Los Angeles, was prepared to seek an injunction which would permit the archaeological work to continue on the basis of a valid permit issued to the SBCM under the Federal Antiquities Act.

Meanwhile, others concerned about the future of the dig were trying to reason with Gunn. Both Clements and Arnold Travis, the latter affiliated with the newly organized Leakey Foundation, hoped that a mutually satisfactory accommodation might be reached. In the light of these negotiations, Gunn did not press the Museum to vacate the site. By the fall of 1968, a lease satisfactory to Gunn had been prepared by Clements which would permit the Museum to continue excavation upon the payment of \$1,000 rent to December 31, 1968, in addition to a monthly payment of \$35 for the excavation site and the use of the road, beginning January 1, 1969. Another \$50 a month would be paid to Gunn for the use of the campsite.

Although the lease was acceptable to Gunn, it was not acceptable to Smith, Director of the SBCM. In a letter written to Clements on November 4, 1968, Smith stated that

There does not appear to be any valid reason for signing a second lease with Mr. Gunn. In my judgment we already have a signed an agreement with him, dated October 14, 1964, in which he grants permission to the SBCM to excavate in Section 22 and to lease his building at a rate of \$1.00 per day for the duration of the excavation” (Smith, Gerald 1968).

Smith knew that he was dealing from a position of strength since it appeared likely that Gunn's claims would be invalidated by the government.

The government hearing on the validity of the claims was held in Los Angeles on January 21, 1969, before the Hearing Examiner, Graydon E. Holt. The BLM was represented by George H. Wheatley, Office the Regional Solicitor. Glen and Julia Gunn were represented by their attorney, George W. Nilsson. The witnesses were Mr. Gunn, G. Austin Schroter, consulting mining engineer and geologist, and Michael Ryman, a mining engineer employed by the BLM.

Mr. Holt's decision was handed down on May 28, 1969. Two of the mining claims (Valley 1 and Valley 2) were declared null and void for the lack of a timely discovery of any valuable mineral deposit. Parts of six other claims were declared abandoned, and the complaint against the remaining claims or parts thereof was dismissed.

As far as the Museum and the Calico crew were concerned, this ended the Gunn controversy, although an appeal of the decision of the Hearing Examiner was filed with the Director of the BLM. The wheels of the federal bureaucracy grind exceedingly slowly, however, and it was not until August 2, 1982, that the final act of declaring all of Mr. Gunn's mining claims null and void was made.

The last word to Gunn was contained in a certified letter from Alden Sievers, BLM Manager of the Barstow Resource Area, dated March 14, 1983:

Since the claims are officially null and void and the lands no longer subject to location, there will be no reason for you to continue yearly assessment work. Any unauthorized disturbance to the site by yourself or others will be considered a trespass and subject to penalties under the Antiquities Act (Public Law 59-209) and Archaeological Resources Protection Act of 1979 (P.L. 96-95) (Sievers 1983).

IX. THE FIFTH AND SIXTH SEASONS 1968-1970

Financing the work at Calico became a major problem after the National Geographic Society withdrew its financial support in 1968. Funds had to be sought elsewhere. The Wilke Brothers Foundation was the first to come to the rescue of the fifth season with a grant of \$5,000 in August 1968. This limited amount required a reduction in the number of paid crew. An increasing amount of work now depended on dedicated volunteers. In December the paid crew members received a letter from Smith with their paycheck indicating the “lack of funds makes this your final check.” Later the month, however, the Wilke Brothers Foundation granted an additional \$5,000 to continue the work of excavations. Also in December, the Museum received a grant from the newly organized Louis S. B. Leakey Foundation.

The Leakey Foundation had been organized the previous March to help Leakey raise money for his many projects, of which Calico was only one. The principal mover behind the organization was Allen O'Brien, an entrepreneur and adventurer from Newport Beach, California. It drew its support largely from affluent Southern Californians. The Foundation's first grant for \$3,000 was the one made to Calico.

Additional help came in the spring of 1969 from the Isotope Foundation (\$3,000) and the University of Pennsylvania Museum (\$10,000) which permitted the work to continue to the end of the fifth season, to provide summer maintenance, and to begin the sixth season (1969-1970). Donations of smaller amounts from several interested individuals supplemented the Museum's Calico account.

Work during the fifth season continued to be concentrated in Master Pit II. It had been hoped that greater emphasis could be placed on geomorphological studies so that a more definite concept of the age of the deposits could be determined; however, the scarcity of money meant that such studies would be postponed for another year (Figure 19).

Master Pit II continued to yield more specimens which were identified as tools, as well as large amounts of flaked material. In

December one of the regular crew members, Rosemary Ritter exposed a circular arrangement of stones which looked suspiciously like a hearth; however, there was no evidence of charcoal, and the discovery was not publicized at the time. The “feature” was only referred to by Leakey and the crew as “Twiggy” until such time as a more definite analysis could be done.

Bad weather in February and March caused some minor problems, but the roofing protected the Master Pits sufficiently so that it was possible for work to continue without prolonged interruption.

A high point of the fifth season was the work of Judy Goodall, sister of Jane Goodall of chimpanzee fame. Formerly with the British Museum of Natural History, Judy was a skilled technician in making casts of artifacts that were exact replicas of the original as to shape, size, color and weight. Leakey requested that casts be made of the best specimens to be distributed to other scientists for study. Thirty-seven of the casts were sent to the Smithsonian Institution.

The casts sent to the Smithsonian Institution were enthusiastically received. In a letter to Simpson from Clifford Evans, Curator of Anthropology at the Smithsonian, he expressed the feeling of those who examined the casts.



Figure 19. Dr. Leakey, Dee Simpson, Leona Barnes, unknown visitor, and Barbara Kniffen at base camp, 1968

We are delighted to see the specimens for they look so much like the kind of chipped artifacts that come from sites in southern Brazil, northern Argentina, Uruguay and other parts of South America. Anyone who doubts these are artifacts is making a grave error. We believe that the whole criticism of the Calico Hills is not so much whether these are artifacts, but rather how can you positively date the talus wash. Everyone who has seen the objects in our office says there is no doubt about the material (reference not found).

When Leakey made public mention of the reaction of the Smithsonian scientists, their enthusiasm waned. In a second letter to Simpson, Evans complained that he had written the first letter in confidence, although nothing in that letter had so indicated. Evidently the Smithsonian was willing to accept the artifactual nature of the specimens as long as no one else knew about it.

No longer under the publicity constraints imposed by the National Geographic Society, it was now possible for the discoveries at Calico to be publicized through lectures and articles. In November 1968, Clements presented a paper on the geology of the site at a meeting of the Geological Society of America in Mexico City. The following January, Simpson referred to the work at Calico in a paper, "Early Man in the American Southwest," which was read at an Inter-American Symposium held at San Bernardino Valley College. In May she presented a paper on the work at Calico at a meeting of the Society for American Archaeology in Milwaukee. About two hundred delegates, many of them students, attended her lecture and several examined the specimens she had brought with her. No major critics of the Calico findings attended this session to assess the specimens and to hear the comments.

Newspapers and magazines were now carrying articles telling of the work and discoveries at Calico. An article in *Science Digest* headlined "Dispute Oldest Man in America" told of the controversy touched off by the announcement of the Calico discoveries, questioning both the artifactual nature of the specimens and the age of the deposits (reference not found). An important article for popular consumption appeared in the 1970 *Encyclopedia Britannica Yearbook of Science and the Future*. Prepared in 1969 by Leakey, Simpson, and Clements, it was entitled "Man in America: The Calico Mountains Excavations" (Leakey et al. 1969). It also included a sidebar article by C. Vance Haynes (1970), then at Southern Methodist University, in disagreement with their analysis of the specimens. A reply and rebuttal was presented by Leakey (1970d).

Such publicity relating to the Calico Dig attracted the attention of both scientists and the general public. Dr. Junius Bird, Curator of Archaeology at the American Museum of Natural History, was at the site in August, 1968, and after examining the artifacts expressed the opinion that "a creditable number of specimens do indicate human workmanship." April 2, 1969 was declared an "open house" day at the site and about four hundred people came to see the excavations. The following month, forty people associated with the Leakey Foundation came on an air-conditioned bus from Los Angeles.

The fifth season's work ended on June 1, 1969. Excavations during the spring had been slow, but site safety and security were improved by roofing the entrance trench to Master Pit II and by fencing the entrance area.

In the summer of 1969, Dr. John Witthoft, lithic specialist from the University of Pennsylvania, spent several days examining the specimens recovered during the previous seasons' excavations. In a letter to Dr. Froelich, Director of the University of Pennsylvania Museum, he reported on his study.

I went through thousands {of specimens} with a strong lens, and have found incontrovertible proof of human origin for eight specimens, regardless of

typology. Seven are flakes and tools with distinct unmistakable wear facets at the edge, some of them with striae and other use marks that show the direction and angle of the cutting stroke. Such wear is never found in nature. The eighth {specimen} is a classical spherical hammerstone of andesite, scarred all over from thousands of blows, blows which shaped it. Natural duplication of such a standard basic tool shaped by pecking scars is impossible. There can be no question that man was living here when of these flints were buried in the mud flow that forms the lower part of the fan, and all the rest of the chipped flint cannot be condemned and must be studied and taken seriously. When it comes to flint technology some of my colleagues should, like the shoemaker, stick to their lasts (reference not found).

Witthoft's report was no doubt responsible for the continued financial support given by University of Pennsylvania Museum for the sixth season (1969-1970) and the International Conference in 1970.

In preparation for the sixth season, a grant proposal for \$59,000 was prepared and submitted to the National Science Foundation. Emphasis was to be placed on the geological studies but archaeological work would also continue. In preparing the request for this grant the acceptance of many of the recovered specimens as artifacts by several eminent scientists was noted. Those who were listed as accepting the specimens as artifacts, in addition to Leakey and Clements, were Dr. Francois Bordes (University of Bordeaux), Dr. Alex Krieger (University of Washington), Dr. Mark Harrington (Southwest Museum), Dr. Robert Stevenson (University of South Carolina), Dr. Junius Bird (American Museum of Natural History), Drs. Clark Howell and Karl Butzer (University of Chicago), and Dr. George Carter (Texas A & M University). Dr. Marie Wormington (Denver Museum of National History) and Dr. Emil Haury (University of Arizona) were listed as "not convinced." Dr. Desmond Clark (UCB) was named as the lone dissenter.

The request for the grant was denied. Continuing support from the Leakey Foundation (\$6,000) and the University of Pennsylvania Museum (\$10,000) permitted the work at Calico to continue, but not at the level of the first four seasons. Field work during the sixth season was essentially a continuation of the excavation of Master Pit II. Emphasis on the geological studies as requested by Leakey was necessarily curtailed because of the shortage of funds.

Fortunately the University of Pennsylvania Museum continued its interest in the Calico Project. In the fall of 1969 Warren Olney, a Museum trustee, visited Calico, and the following March, Froelich Rainey, the Museum's director, came to the site. Leakey, convinced of the artifactual nature of many of the specimens recovered and of the importance of the discoveries, had long been anxious to show the material to other archaeologists and lithic specialists. In 1968 he began planning for a symposium or conference to which eminent archaeologists and prehistorians would be invited. Dates in December 1968 and February or March 1969 were suggested. Although the University of California at Riverside was briefly considered as a symposium site, Clements urged that such a meeting should be held in San Bernardino County for "obvious political reason." He suggested that facilities at San Bernardino Valley College might be used for the presentation of papers. Because of the lack of funds, however, the Calico International Conference did not become a reality until October 1970.

X. THE CALICO CONFERENCE

The International Conference on the Calico Mountains excavation was finally held on October 22-25, 1970. Planning for the four day event had been underway for the previous months by representatives from the SBCM Association, the Leakey Foundation, San Bernardino Valley College, and those directly involved in the archaeological and geological work at the site. The conference was sponsored and financed by the University of Pennsylvania Museum, the Leakey Foundation and the SBCM.

Over one hundred scientists from institutions in the United States and abroad were invited to the conference, and most of those who were invited did attend. Foreign scientists came from France, Great Britain, Venezuela, Mexico, Canada, Australia and Kenya. A number of those invited from abroad had their major travel and housing expenses paid by the conference sponsors. Representatives from the National Park Service, the BLM, the U.S. Geological Survey, and the California Department of Parks and Recreation were also present. The Calico Conference still has the distinction of bringing together the largest number of scientists (archaeologists, anthropologists, geologists, and prehistorians) to see, hear, and evaluate the evidence from a single archaeological site.

The absence of two individuals was especially noted. Mary Leakey was not invited, and she had previously announced that she would not attend if she were invited. Another absentee was Dr. Robert Heizer of the Anthropology Department at the University of California at Berkeley, who was firmly committed to the recent entry of humans into the Western Hemisphere and was not about to change his mind. He had earlier refused an invitation to visit the Calico Site. He had refused to see Dr. Leakey when an interview was requested and an appointment was made. He refused to look at some Calico specimens when they were brought to him, and now he refused to dignify the Calico Conference by his presence. Although Heizer did not come to the conference, several of his colleagues from the University at Berkeley were invited and did attend.

Prior to the Conference a major housekeeping project in the vicinity of the site was deemed necessary. The off-highway road to the site passed by a county dump site. The desert winds had blown paper downwind from the dump over the surrounding area, ensnaring paper on almost every bit of desert vegetation. The Calico crew referred to the area as the "paper desert." It was hoped that the area could be cleaned up before the site would be visited by those attending the Conference.

The cleanup would require outside help, and fortunately an organization existed which could do the job. The TRW/SEA Countryside Cleanup, a volunteer organization based in the Los Angeles area, offered to clean up the area on the weekend prior to the Conference. In a report to the chairman of the group, the leader of the volunteers described the massive operation.

A crew of 150 people worked along the roads leading to the archaeological dig. Not only was rubbish strewn on both sides of the road but for miles every bush was papered by refuse blown from the dump site. All available people from the Museum joined in. Several groups not originally associated with the cleanup went to work. Before the day was out, I would estimate that 370 individuals had joined the effort and had put in a total of 1,772 man-hours in this one area. Two hundred and fifty cubic yards of litter were collected in plastic bags, most of it in the form of paper (reference not found).

The site and the surrounding area were now ready for inspection by those attending the Conference.

Headquarters for the Conference was San Bernardino's Holiday Inn, then located near the present I215/I10 freeway interchange. It was there that the first event of the Conference was held Thursday evening, October 22, with a social hour and a dinner meeting. Dr. Gerald A. Smith, Director of the SBCM, presided at this first General Session. He welcomed the participants and introduced a number of the distinguished guests. Then Dr. Leakey briefed the gathering on the purpose of the conference.

In his introductory remarks Leakey outlined the considerable circumstantial evidence which existed indicating an early presence of humans in the New World. He mentioned the movement of animals back and forth across the Bering land bridge during the Pleistocene, the great diversity of languages among American populations at the time of European discovery, and the occupation by native peoples throughout the whole of North and South America, from Alaska to Cape Horn. He suggested that early humans could have migrated down the Pacific coastline on the then exposed continental shelf, thus bypassing the continental ice sheets in the interior. And now he said archaeological evidence had been found at Calico which he believed would prove that humans were in America thousands of years earlier than the generally accepted 10-12,000 years. Leakey closed his comments with the following words:

And so I personally tell you that I believe that this weekend is as important for the Americas as the days in 1834 when a committee went out in Great Britain to see what Boucher de Perthes had found in his gravel pits on the Somme, where he had claimed of ancient stone tools associated with extinct mammals, and had been ridiculed and laughed at. And the scientists came back and said they were satisfied. And from that day on, the prehistory of Europe went forwards. I believe that from this weekend on, a new chapter is being written in the prehistory of America (Leakey 1970:7).

Early on the following day, October 23, the Conference participants were taken by buses on an all-day field trip to the archaeological site. The group was divided into two sections, and each was given a geological and archaeological tour of the fan and the excavations. The groups alternated in having a lunch break at Olie's Restaurant, then located at the Minneola Road off ramp of Interstate Highway I-15. The group returned to San Bernardino in the late afternoon.

The 2nd General Session of the Conference was held Saturday morning at San Bernardino Valley College, with Dr. Walter C. Schuiling, President of the SBCM Association, presiding (Figure 20). Dr. William Moore, Dean of Instruction at Valley College, in welcoming the Conference participants alluded to a remark made by John F. Kennedy when he welcomed a number of Nobel Laureates to a White House dinner. President Kennedy said that occasion probably provided the greatest concentration of intelligence and ability at any dinner except when Thomas Jefferson dined alone. The same thought could be applied to this gathering.

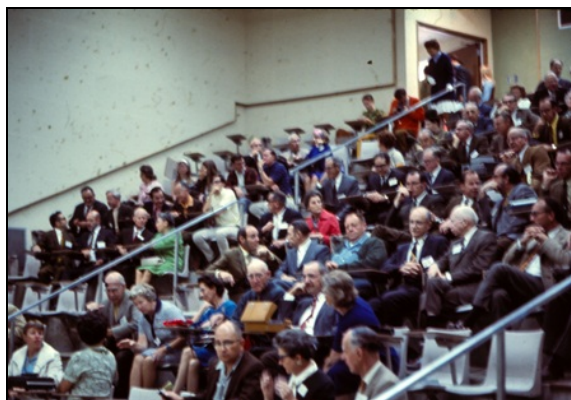


Figure 20. Calico Conference, 1970

The first presentation was made by Leakey. He expressed the reasons why he was convinced that Calico was an archaeological site. The fact that the specimens showing flaking were found in concentration in a limited area, that the specimens were made of good lithic material, and that similar specimens were not found at other locations on the fan, was proof in

his judgment that the specimens were artifacts, not the random work of nature. In closing remarks at this time he succinctly presented the problem:

There are two questions on Calico, and the two, if they are both true, must fit each other, because truth cannot conflict with truth. Y The first truth is that you have a fan which is according to the geologist of a very considerable age.

The age is one question. The other is: *are these specimens truly man made?* What this means in terms of the age of man in the Americas we've got to resolve. But there cannot be a conflict between geological truth and archaeological truth, and consequently we've got to find how to accommodate the two (Leakey 1970b:10-11).

The second paper was given by Miss Ruth Simpson, the Project Field Director, outlining the history of the project and detailing the archaeological work done to date, including the excavations of Master Pits I and II and the digging of the control pits. She also made a brief commentary on the analysis of the specimens recovered (Simpson 1970a:12-32).

The next presentation was made by Dr. Thomas Clements, the Project Geologist. He first outlined the basic chronology of the Wisconsin Glacial Period (70,000-110,000 BP), relating its three major advances to pluvial periods in California which resulted in dissection and erosion of desert fans and the filling of lake basins. He indicated his belief that the Yermo Fan, including the upper section where the suspected artifacts were found, dates to the Pre-Wisconsin Sangamon Interglacial Period and must, therefore, be more than 70,000 years old (Clements 1970a:46).

Dr. Rainer Berger of the University of California at Los Angeles made the fourth presentation. He became involved with the Calico project when attempting to date the artifact-bearing deposits of the Yermo Fan. His paper dealt with an examination of a rock from the hearth-like feature, which had been uncovered in Master Pit II, to determine if it had experienced unusual heating. In collaboration with Dr. Vaslav Bucha of the Geophysical Institute Czechoslovakian Academy of Science in Prague, using a highly sensitive spinner magnetometer, it was determined that the end of the rock toward the center of the "feature" had evidently been heated to a temperature of about 400 degrees Celsius, whereas the other end had experienced little heating. Berger ended his remarks with the statement that "in the final analysis, it would appear that in that circular arrangement of stones there must have burned a fire" (Berger 1970a:53)

Saturday afternoon was spent at the SBCM in Bloomington where the Conference participants had an opportunity to examine the specimens; to study the statistical data; to look over charts, aerial photos and geological maps; and to discuss issues with their colleagues (Figure 21).

At that time a paper prepared by Dr. John Witthoft of the University of Pennsylvania was also distributed. Witthoft, a specialist in lithic technology, had spent more time studying the Calico material than any other consultant up to that time. His paper, entitled "The Technology of the Calico Site,"



Figure 21. Dr. Marie Wormington examining a specimen from Calico

analyzed many of the specimens, and he expressed no doubt that several of the specimens had been modified by humans. He also noted that a few specimens were “exotic” in that they were not made of local native material (Witthoft 1972).

The 3rd and last General Session of the Conference was again held at San Bernardino Valley College. The session was chaired by Dr. Clark Howell of the UCB, and was devoted to comments and questions concerning the age of the deposits and the nature of the specimens recovered. Several of the participants strongly suggested that the fan was considerably older than Clements’ estimate. Dr. George Smith of the U.S. Geological Survey, with many years of field experience in the Searles Lake area of the Mojave Desert, suggested that “the archaeological site is in gravels that are a minimum of about 500,000 years old and possibly two or three times that age” (Smith, George 1970a:11). Dr. Basil Cooke, from Dalhousie University of Nova Scotia, suggested that “the evidence is consistent rather with an age measured in at least hundreds of thousands of years, rather than an age measured in tens of thousands of years” (Cooke 1970a: 17).

Dr. Clements, of course, disagreed with these suggestions, saying that

I simply, so far at least, have not been able to see the necessity for a tremendous length of time for this to take place. Because I have seen recently recent gravels that have been well cemented and I’ve seen older of these gravels – older gravels – that are absolutely un-cemented (Clements 1970b: 18).

There was less controversy concerning the authenticity of the artifacts. Dr. Glynn Issac of the UCB, summed up the feeling of many:

We saw yesterday afternoon a very impressive array of artifact-like objects. No archaeologist with experience of fractured stones could be anything but impressed with this array. It really is a singular collection. A great many of the objects that were present on the table, it seems to me, would arouse no comment if they were found in normal archaeological situations. Which is not to say, of course, that makes them, ipso facto, artifacts (Issac 1970a:38).

Dr. Leakey responded by saying:

And when I say that some of the things that are on the table here are not, and could not be, the work of nature, I’m doing so on the basis of a) *that* experience. And b) that I did as Hazeldine Warren asked me to do in 1923. From that point on I have been experimenting

In other cases you said this would be material which in an archaeological context would be acceptable. As I said earlier, this site qualifies as much as an archaeological site as 999 out of every 1,000 sites in Europe of the Middle or Early Pleistocene (Leakey 1970c:45).

Dr. Leakey also had the last word at the Conference. At a brief summation at the end of the 3rd Conference Session, he stated that “we believe, certainly, that we have established the presence of man-making artifacts in a deposit older, much older, than anything previously found and established in the New World” (Leakey 1970c:62).

It was clear, however, from the varying opinions expressed during and after the Conference that the issues raised were far from being resolved. Some participants were

convinced that artifacts had been discovered at Calico, and that human's period of occupancy of the New World had been pushed back substantially. A few rejected the specimens as reflecting human workmanship. Many were skeptical, taking the position that the case was not yet fully proven. Many were completely noncommittal. It was obvious that the extreme age of the deposits suggested by some of the geologists had frightened many of the archaeologists into saying nothing.

The reaction of many of the Conference participants was obviously a disappointment to Leakey. In private he expressed disappointment that the geological work had not produced evidence of a more definite age for the fan deposits. At a press conference Sunday afternoon, however, following the last Conference Session, he was definitely upbeat, announcing to the world that Calico did provide the evidence of human early occupation of America.

XI. CONFERENCE AFTERMATH

The third and final general session of the Calico Conference was a great disappointment to the conference organizers. Most of the invited participants figuratively “sat on their hands” and did not participate in the discussion. The archaeologists present were apparently intimidated by the geologists who were suggesting an age of the deposits from which the specimens were recovered far in excess of what most of them were willing to accept for human presence in the western hemisphere.

In order to gain a greater sampling of opinion, Dr. Smith, Director of the San Bernardino County Museum, in December, 1970, wrote to the conference participants, making the following request.

It was disappointing to those who organized and financed the conference that more persons did not participate during the open discussion period set aside for that purpose on the final day. We would value your written comments and hope that you will find it possible to send them to us soon so they might be incorporated in a final conference report (Smith, Gerald 1970a).

The majority of those who attended the conference did respond. Most were generous in their praise of the organization of the conference. One such respondent was Wesley R. Hunt, Director of the Museum at the University of Indiana.

Without doubt, this was one of the best organized conferences I ever attended from every aspect, not only in the courtesies extended to the guests, in the transportation and housing arrangements, and in the clarity of information presented by the organizers. In addition, the excavations of the Calico Hills Site, in the methods, techniques, and care have never been equaled in the New World, and undoubtedly will serve as a model for years to come (Hunt 1970a).

Many comments concentrated on the quality of the archaeological field work. Matthew Sterling of the Smithsonian Institution who had visited the Calico site on previous occasions expressed his feelings.

The excavations at Calico from the beginning have been a model of archaeological procedure, scarcely equaled by any dig that I have seen. Dee Simpson is to be congratulated for, not only her meticulous techniques, but the manner in which she maintained continuous enthusiasm among her diggers and collaborators, and continued on in spite of many extraordinary difficulties. I have never seen higher morale on an expedition. No one could have the slightest doubt as to the accuracy of the recordings, or the scientific honesty with which they were carried out. This opinion has been echoed by everyone who has had any contact with the work (Sterling 1970a).

H. Basil Cooke of Dalhousie University, Halifax, Nova Scotia, was non-committal as to the authenticity of the artifacts even though he had previously suggested a very early age to the site.

My own impression is that the best summary would be to use the Scottish judicial verdict of “not proven”. By this, I mean that the case *requiring* human

manufacture of the flake pieces recovered is not proven, but neither is the case for *excluding* this possibility. I did find some of the pieces quite impressive. In my opinion, if they were dropped in the upper terraces of the Somme or the Thames they would be collected without question as part of the artifactual material.

If the age of the deposit were to turn out to be several hundred thousand years instead of 50,000 years, this would by no means eliminate the possibility of human artifacts. It would, however, suggest a more primitive human stock, and this might, indeed, be more in keeping with the aspect of the flaked pieces (Cooke 1970b).

Kenneth Oakley of the British Museum was quite negative as the authenticity of the artifacts.

My conclusion was that all of the Calico flakings, apart from a few intrusive pieces in superficial layers of the delta fan, had been produced by natural agencies. I would be wrong to imply that none of the flakes or flaked pieces from Calico would be acceptable as being of human origin if they were seen as part of a known industry. In any assemblage of natural flaking one finds a high percentage of pieces which are obviously natural; a smaller percentage of pieces which might be natural or might be artifacts, and a very small proportion of specimens which appear *indistinguishable* from human work. Some of last category undoubtedly occur in the Calico collection, but to admit this is far from believing that the whole assemblage is other than entirely natural in origin (Oakley 1970a).

Dr. Marie Wormington of the Denver Museum of Natural History, no antagonist to the concept of earlier man in America and a personal friend of Dee Simpson, reluctantly expressed her doubts.

I tried to evaluate the evidence with a completely open mind, disregarding all other considerations, and with a strong conviction that man has been here for longer than the period for which we have firm evidence. Unfortunately there was nothing that I could accept as absolute proof of the presence of man (Wormington 1970a).

Richard Hay, a geologist at the UCB, was very positive (although later proven wrong) in his assessment of the age of the deposits.

The alluvial deposits with the so-called artifacts are almost certainly at least one million years old (Hay 1970a).

Tom Lee, a Canadian archaeologist who had been ostracized by his colleagues for his discovery and interpretation of an apparent pre-glacial site on Manitoulin Island in Lake Huron, was sympathetic.

I'm not really surprised at what happened, for the profession had given me the "treatment" 15 years earlier. But I was misled by the statements made to me and overheard around me into believing that very strong and determined support

would be expressed for you. Some of those men were honestly convinced B the day before. What frightened them off? The 500,000 year opinion, perhaps (Lee 1970a).

Several others suggested that the excessive estimates of age by the geologists influenced the majority of the archaeologists to say nothing. Sherwood Gagliano of Louisiana State University was one who came to this conclusion.

But the greatest difficulty of all was the suggested age of 500,000 to 1,000,000 years. There are few New World archaeologists who can overcome this bias. The age factor presents a very difficult psychological barrier. I heard the statement many times that if the site were only 50,000 years old it would be more plausible, but 500,000 years? (Gagliano 1970a).

George Carter of Texas A & M University expressed a similar viewpoint.

The viewpoint was heavily prejudiced by the clearly emerging vast antiquity of the site. You could almost feel the archaeologists begin to run for cover as the soils men, geologists, etc. began to harden on a "middle Pleistocene" date (Carter 1970a)

Froelich Rainey, Director of the University of Pennsylvania Museum, representing on the principal sponsors of the conference, suggested that personality problems may have had some influence on the reaction of some participants.

Frankly, I don't know what to make of your Calico Hills conference. During that last day I decided you probably would have done better without Leakey since it struck me that in a way, he puts the wind up most American archaeologists. In any case, it seems to be up in the air with many geologists suspecting your deposit may be up to 5,000,000 years old rather than the 50,000 year old date, and very few American archaeologists are willing to stick their necks out on those flint objects. At best it seems to be another jolt to loosen up the idea of American diggers about the age of American settlement (Rainey 1970a).

Robert Stephenson of the University of South Carolina was one of the few who were willing to go on record as accepting many of the specimens as artifacts.

I am firmly convinced that several hundred of the recovered specimens are chipped stone tools of extremely primitive characteristics, chipped by man at what one might call a quarry site (Stephenson 1970a:2).

During the conference I argued that if these Calico specimens had been found in a known Archaic workshop site ... they would arouse but slight comment. The individuals to whom I put this argument agreed that under those circumstances they, too, would have no hesitation in calling these specimens crudely made artifacts "but they are in too old a context to be artifacts." Are we to assume that what a thing is depends upon where it is found? I think not. If a specimen is an artifact in one set of circumstances, it is an artifact in any set of circumstances. If we were to find a coke bottle under a foot of Crater Lake pumice, there could be

no argument that it would still be a coke bottle. The problem would be not that it is in to old a context to be a coke bottle, but to determine how it was introduced into that context (Stephenson 1970a:5).

The conference was over. Calico had been introduced to the archaeological world. It was obvious that there was no uniformity of opinion for acceptance or rejection of Calico as an archaeological site. It was apparent to Dr. Leakey, Miss Simpson, and the Calico workers that their job was not finished.

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