

ABOUT THE CALICO SITE

Friends of Calico Early Man Site, Inc. (FOC) was incorporated on January 8, 1981 in the State of California as a nonprofit public benefit corporation to “. . . bring together people with special talents and interests from all walks of life in an effort to maintain and continue scientific research/educational efforts at the Yermo, California Early Man Site.” The Bureau of Land Management (BLM) supports and welcomes our endeavors and the FOC greatly appreciates their endorsement.

The research at the Calico Mountains Archaeology Site (formerly call the Early Man Site) and the surrounding area has been in progress for over 50 years. For more information, the reader is referred to the following: An Introduction to the Calico Early Man Lithic Assemblage, by Ruth DeEtte Simpson, *San Bernardino County Museum Association Quarterly* 46 (4) (reprinted in 1999); The Manix Lake Industry, by Ruth DeEtte Simpson, *San Bernardino County Museum Association Quarterly* 45 (3&4) (reprinted in 1998); and *Pleistocene Man at Calico*, edited by Walter C. Schuiling (1972; reprinted 1979).

The primary objectives for the FOC are to provide visitors with an educational and enjoyable visit and to continue the scientific research and the educational efforts of the site. The site is open for viewing every Saturday from 9:00 AM to 4:30 PM. A School House complete with mock pits for children has been erected. Educational, Boy and Girl Scout Troops, and other groups are invited to make special arrangements. Contact the Project Director at 951-505-9217 (deeschroth@aol.com) or go to **education tab** to make a request for special groups.

The first weekend of the month between October and May are excavations days, where visitors can register as a volunteer and join in the excavations. You can become a **member** on our web site or in person at the site. Gates on dig weekends are open to the public and members on Fridays at 12:00 PM for early registrations and camp set up. As well as our web site (calicoarchaeology.com), FOC is also found on Facebook, Meetup, and other social media.

COMPLETED PROJECTS

- ! This is the only New World site where Dr. Louis Leakey managed and supervised the excavations. The three Master Pits containing the original excavations are monuments to Dr. Louis Leakey, Ruth DeEtte Simpson, and those FOC that patiently and unselfishly gave their time and energy to excavate the three pits to such depths. To value and protect the history of site is one of our goals. The Master Pits have been fenced off for the safety of the public but can still be viewed through the fence.
- ! The steps leading to the Master Pits have been installed and the trail leading from the camp to the Master Pits has been improved. Hand rails have been installed throughout the trail. A self-guided tour hand-out is available for those who want to follow in Dr. Leakey's foot prints.
- ! FOC hosted a celebration marking the bi-centennial of the site, the only site in North America that has been continually excavated over 50 years.
- ! Excavation in the Rock Wren units has been terminated because the units have been bottomed out.
- ! The Boy Scout units have been closed. No significant deposits were found on the surface or in the sub-surface excavations.
- ! The field notes for the Master Pits and Rock Wren have been organized and photocopied onto acid-free paper and the cataloguing of artifacts and ecofacts has been completed.

- ! We have completed the analyses of the tools and debitage in samples from Master Pit I and Master Pit II. Fifteen artifacts have been sent to the TL testing laboratory to obtain dates on actual artifacts.
- ! A cultural resources survey of approximately 906.25 acres has been conducted within the Calico ACEC. The survey identified eight (8) prehistoric sites, one (1) combination prehistoric and historic site and three (3) historic sites.
- ! A Visitor Center was constructed by the Bureau of Land Management (BLM) as part of its ongoing support of the interpretive program at the Calico Site. It houses numerous interpretive displays, created by the FOC.
- ! Signage has been erected and/or replaced clearly marking exits, entrances, and other information. Name tags are generated at registration for ease in identification and to make volunteers feel welcome.
- ! The CORE, FOC's newsletter, is sent to over 600 members twice a year.
- ! A rack-card has been distributed to various visitor centers and museums.
- ! FOC has set up a web site that contains information about the site, the site history, and various photographs (Calicoarchaeology.com). All dig season schedules and organization information as well as necessary forms for membership, visitors and group visits can be found on line. The web site also shows photographs of our past and current excavations.
- ! FOC has hosted various Boy Scout troops, clubs, and school groups. We have initialized a Boy Scout program wherein the Archaeology Badge can be earned.
- ! The FOC was instrumental in changing the name of the site from "Calico Early Man Site" to "Calico Mountains Archaeology Site," the original designation as given by the BLM and Dr. Louis Leakey.
- ! A trench has been excavated behind the schoolhouse and canteen to protect structures from future flooding. No significant deposits were found in the subsurface test excavations. Two flakes were the total of the artifacts found. Trenches were used for training.
- ! The Commissary is as old as the site and is used primarily as the site office and a field kitchen (including propane stove and refrigerator). This facility has been refurbished with new windows and painted inside and out.
- ! The School House was erected and serves as a classroom, a lecture hall, and a laboratory. It has been and will continue to be used as a lecture space for meetings of the FOC and the general public.
- ! Storage facilities have been erected to house excavation equipment and site maintenance equipment.
- ! A unisex toilet in the main camp is the type used by land management agencies in remote locations and requires pumping only one to two times per year. It was built by the BLM.
- ! A primitive camp for use by volunteer workers, student groups, and Boy Scout troops is located at the site. Facilities are primitive and include picnic tables, fire circles, and trash cans.
- ! The catalogues of the Master Pits, Rock Wren pit, and Boy Scouts units have been completed and analysis of the artifacts and ecofacts has been initiated. Artifact analysis has been completed for a sample of the debitage and tools from Master Pit I (P-21, Q-21, and Q-19) and Master Pit II (Q-13 and Q-11).

ONGOING AND FUTURE PROJECTS AND GOALS

VISITOR PARTICIPATION AND PUBLICITY: *(Volunteers needed for these tasks.)*

- Continue public, boy scout, and student participation.
- Continue publicity.
 - Scan reports, field notes, etc. into .PDF files and make some of them available to the public via the web site, realizing that some of them may be copyright protected.
 - Finish the spread sheets of data for the photos/slides and make the historic slides/photos available to the public via the web site.
- Continue outreach programs as outlined on the web site.

RESEARCH:

- Continue testing the four pads and trenches for the ethnobotany garden. *(Volunteers needed for this task.)*
- Complete the test excavation of the outlying sites in the ACEC. *(Volunteers needed for this task.)*
- Continue the tool/debitage analysis for Master Pit III, Rock Wren pit, and outlying sites in the ACEC.
- Write progress reports for the BLM on the excavations in the Rock Wren pit, in the Boy Scout Units and for each of the outlying sites in the ACEC.
- Write an article on the TL dating of the heat-treated artifacts for the BLM and to publish in a refereed journal.
- Write an article on the debitage/tool analysis of the Master Pits, Rock Wren, the outlying sites and the Boy Scout units for publication in a refereed journal and the BLM.

SITE MAINTENANCE: *(Volunteers needed for these tasks.)*

- Repair the Doris Bowers Nature Trail and re-write booklet to reflect changes.
 - Encourage the BLM to change the signage along Interstate 15 and to the site to reflect the name change from “Calico Early Man Site” to “Calico Mountains Archaeology Site”.
 - Maintain erosional control for all buildings, pathways, and archaeology sites.
 - Help with preserving the integrity of all buildings and archaeology site structures, i.e., painting inside and/or out, roofing, netting over picnic areas, etc.
 - Help with the maintaining and developing the tent campsite for a more enjoyable experience.
 - Help in developing a RV campsite. This is one of our more recent projects and is still in the planning/development stage.

SEEK FUNDING/GRANTS FOR: *(Volunteers needed for these tasks.)*

- **Staff:** As of now, FOC can only pay for staffing at the site one day a week (Saturday). It should be open to the public at least 5 days a week. Previously, a secretary was available two days a week for the office maintained in the San Bernardino County Museum. The FOC can no longer pay for that staff position and volunteers (when they are available) are acting in this capacity. These staff losses impact the educational and public participation of the site. This is a priority goal and grant monies are needed to re-establish these positions.

- **Volunteer expenses:** As the price of gas, meals at diners, and motels continue to rise, volunteers who supervise Boy Scout troops, school groups, etc., are finding it to be a financial hardship to volunteer their time. Some of these expenses could be met with grant monies.
- **Protecting the Master Pits:** The Master Pits need decorative fencing, new roofs, and stabilizing of the side walls in a manner that allows the public to view the side-walls to learn about fan formation, etc. The BLM insists that this work be done by a licensed contractor. A major grant is needed for implementing this goal.
- **Ethnobotany Garden:** The Boy Scouts units did not produce any significant subsurface deposits and if the rest of the units in the gully do not have any significant subsurface deposits, then the ethnobotany garden can be implemented. Funding is needed for design, plants and an irrigation system.
- **Dating of Deposits:** Grants are needed to fund TL dates and radiocarbon dates. The heat-treated artifacts from Master Pit II, Master Pit III, and Rock Wren pits need to be dated for comparison to the TL dates from Master Pit I. Also, if carbon-based artifacts or ecofacts or heat-treated artifacts are found in the outlying sites, radiocarbon analysis or TL dating could be used to date the deposit. The finding of obsidian is highly unlikely but if it should be found in a subsurface deposit, trace analysis would indicate the direction of one of the trade networks and hydration analysis would help date the assemblage.

WHAT WE KNOW ABOUT THE SITE

Numerous studies and papers have been completed on the geology, dating and the artifacts from this site. For more information, go to history tab and bring up the printable PDF file under [bibliography](#). There are two related issues surrounding the Calico Site and the excavated material therein. These consist of: (1) are the excavated materials artifacts or geofacts? and (2) if the material is culturally derived, what is the date of the occupation of the Calico Site?

THE ARTIFACTUAL COMPONENT

Much of the skepticism regarding the Calico Site derives from an assumption that natural processes frequently break rock by percussion and pressure and that given sufficient time, specimens resembling artifacts will be produced. Proponents of this argument include Haynes (1973), Payen (1982a, 1982b), Taylor and Payen (1979), Benvenuti (1984), Duvall and Venner (1979), and Binning (1991).

In opposition are the studies of other notable researchers, such as Simpson (1978, 1980, 1982), Simpson, Patterson, and Singer (1986), Singer (1979), Bischoff et al. (1981) and Hoffman et al. (1987), who advocate the cultural nature of the artifacts. They claim that tools were fashioned on cobbles, slabs, flakes, and blades and that they were fashioned by simple hard hammer percussion flaking. Anvils were sometimes used and the bipolar and biface core techniques were also employed. Some exhibit shaping by pressure flaking for tool and/or edge formation.

The solution to this problem will take place in the laboratory. The collection has been re-evaluated and organized making it ready for analysis. Unused flakes, flake fragments, shatter, and other items of lithic debitage constitute the bulk of the Calico assemblage. The basic goals

of the Calico debitage analyses are to characterize reduction strategies and raw material procurement. The purpose of the debitage analysis is to determine the technology used to arrive at the tools found at the Calico Site. If the Calico “artifacts” were purposefully knapped by a known technique, such as biface manufacture and reduction or bipolar reduction, then those strategies can be identified. Natural breakage rarely is patterned; natural breakage is random. Only humans have patterned behavior, and that patterned behavior can be deciphered by a debitage analysis.

DATING THE SITE

Most of the dates for the Calico Site have been completed on soils surrounding the artifacts, relative dating from other geological features surrounding the Manix Basin, or laminar calcium carbonate rinds adhering to the object, thus dating the ground water, not the rock or artifact. The question of whether or not the dates apply to the cultural items has been raised. The subsurface artifacts themselves have never been dated.

At the Rock Wren locale, a large well-formed biface was recovered from an alluvial deposit which was dated by TL on sediments to 14,400±2,200 years BP. The chalcedony biface was recovered from 50 cm below the surface in the side of a drainage channel (Budinger 2000). The drainage channel is located approximately 100 m ENE of Master Pit I.

Three dates came from Master Pit I. A TL date on sediments came from a depth of 167.32" in P-19 and yielded an age of 135,000 years with a standard deviation of +infinity and -30,000 (Budinger 2000:10). Another date was derived using uranium-thorium on (U-Th) the calcium carbonate rind off of an “artifact/rock” from R-19, with a depth of 187". Again, dating the ground water, not the object. (This object is not available in the collection for analysis so it might just be a rock, and not an artifact). The calcium carbonate rind yielded an age of 204,827±2,854/-2781 years (Budinger 2007). The last date for Master Pit I was taken of limestone clasts at the lowest level; no pit number or actual level was given (Bischoff et al. 1981). Using the U-TL method, it yielded an age of greater than 350,000 years.

Eight dates were obtained from the “hearth feature” in Master Pit II (which was later determined not to be a hearth feature). The “feature” was in H-11 and went from 233 to 279 inches below datum. Two laboratories were used for the TL dates on the soils surrounding the “feature”: the Conservation Center at Los Angeles County Museum of Art (LACMA) and the Center for Archaeology, Washington University (WU) in St. Louis. At LACMA, the specimens yielded dates of 57,200, 65,200 and 80,000 years BP. No standard deviations were given (Ericson 1977). At WU, the samples yielded dates of 12,000 ±5,900, 24,300±3,400, 27,400±1,480, 64,700±22,500, and 79,500±13,400 years BP (Zimmerman 1977).

Two soil samples were taken from Ritner’s Ridge, approximately about 1 meter apart and 50 cm above the basal contact of the Barstow Formation. Using the U-Th methods, one sample was found to be 193,000+80,000/-40,000 years old and 260,000+80,000/-50,000 years old. The second sample yielded an age of 203,000+27,000/-20,000 years old (Bischoff et al. 1981:581). Ritner’s Ridge is on a high ridge east of the Master Pits.

A few dates were obtained on artifacts from the surface. Dates were obtained on surface artifacts using cation-ratio (CR) of rock varnish. Using CR, five artifacts from the surface yielded dates with an average of 2,100 ±1,500 years BP (Dorn et al. 1886). Surface dates on sediments and boulders from the Calico fan were obtained using TCN. The 10 samples range from 26,600+/-2,400 to 197,700+/-20,500 years before present (Owen et al. 2011).

The subsurface artifacts themselves have never been directly dated. Many of the chert/chalcedony flakes, cores and biface fragments appeared to have been heat-treated, a known

method for improving the flakeability of lithic material. Heat-treatment was practiced throughout the prehistory of the western United States. Objects that are purposely heat-treated are assumed to be artifactual - the product of human behavior, especially when they occur in significant numbers. Heat-treated artifacts appear to be present in the assemblage, therefore their age can be assessed using TL dating methods. If the archaeological samples prove to be heat-treated, then there is no question about their classification as artifactual. Thus, the question about the status of the material will be resolved, at least for the heat-treated items.

Identification of prehistoric heat-treated materials was one of the goals during the debitage analysis. Using the criteria of differential luster, 15 artifacts from Master Pit I that appear to have been heat-treated have been submitted to the University of Washington for TL dating. Five came from unit P-19; five from unit Q-21; and four from unit Q-19. These are the same units that were selected for the debitage and tool analysis. One each from unit R-23 and S-20 were submitted as random samples. Each artifact was photographed and drawn to scale and analyzed prior to being submitted. This strategy should give dates to the age of the heat treatment, and therefore, would date some of the occupations of the Calico Site.

SUMMARY

We are geared toward obtaining data that can be used to further our understanding of the cultural components that took place at the Calico Site and the Calico ACEC. Because the project began over 50 years ago before the present-day rules and regulations, a considerable amount of work has been necessary to bring the collection up to today's standards. By doing so, the assemblage assumes a greater role in realizing the questions that have been raised concerning the cultural configuration of the site. As a volunteer at the site and in the laboratory at San Bernardino County Museum, you can be part of that discovery.

REFERENCES CITED

- Benvenuti, Noella
1984 *Lithic Flake Attribute Analysis*. Master's Thesis, Anthropology Department, California State University, Fullerton.
- Binning, Jeanne Day
1991 *Microscarring on Flaked-stone Objects*. Ph.D. Dissertation, University of California, Riverside, CA
1994 Debitagé Sausage. Paper presented at the Great Basin Anthropological Association Annual Meetings. Elko, Nevada.
- Bischoff, James L., Roy J. Shlemon, T. L. Ku, Ruth D. Simpson, Robert J. Rosenbauer, and Fred E. Budinger, Jr.
1981 Uranium-series and Soil-geomorphic Dating of the Calico Archaeological Site, California. *Geology* 9:576-582.
- Budinger, Fred E., Jr.
2000 Thermoluminescence Sediment Dating of Two Nested, Inset Alluvial Units at the Calico Site, San Bernardino County, California. Paper presented at the 34th Annual Meeting of the Society for California Archaeology, Riverside, California. *Occasional Paper No. 17*, FOC. On files at FOC Office, SBCM, Redlands, CA.
- Dorn, R.J, D.B. Bamforth, T.A.Cahill, J.C.Dohrenwend, B.D. Turrin, D.J. Donahue, A.J.T. Jull, A. Long, M.E.Macko, E. B. Weil, D.S. Whittley, T. H. Zabel
1986 Cation-Ratio and Accelerator Radiocarbon Dating of Rock Varnish on Mojave Artifacts and Landforms. *Science* 231:830-833.
- Duvall, J. G., and W. T. Venner
1979 A Statistical Analysis of the Lithic Artifacts from the Calico Site (SBCM 1500A), California. *Journal of Field Archeology* 6(4):455-462.
- Ericson, Jonathon
1977 Letter report to Ruth Dee Simpson, dated Dec. 7, 1977. Conservation Center, Los Angeles County Museum of Art. On file at the Calico Office, SBCM, Redlands, CA.
- Fagan, John L.
2000 Letter report to Fred E. Budinger, Jr. dated January 28 from the Archaeological Investigation Northwest, Inc. Portland, Oregon. On file at the Calico Office, SBCM, Redlands.
- Haynes, C. Vance
1973 The Calico Site: Artifacts or Geofacts? *Science* 181:305-310.
- Hoffman, L. V., R. D. Simpson, R. M. S. Higginbotham, and L. W. Patterson
1987 Lithic Flake Attributes: Calico Lithic Specimens and Experimental Knapping - A Comparison. *Current Research in the Pleistocene* 4:56-57.
- Owens, Lewis A, Teresa Davis, Marc W. Caffee, Fred Budinger, and David Nash
2011 Surface Ages and Rates of Erosion at the Calico Archaeology Site in the Mojave Desert, Southern California. *Geomorphology* 125:40-50.
- Payen, Louis A.
1982a Artifacts or Geofacts at Calico: Application of the Barnes Test. In *Peopling of the New World*, edited by J. E. Ericson, R. Berger, and R.E. Taylor, pp 193-201. Ballina Press, Los Altos, California.
1982b *The Pre-Clovis of North America: Temporal and Artifactual Evidence*. Unpublished Ph.D. dissertation, University of California, Riverside.
- Shuiling, Walter, Ed.
1979 *Pleistocene Man at Calico*, San Bernardino County Museum Association Quarterly 26(4). (reprinted from 1972 edition).
- Simpson, Ruth DeEtte
1978 The Calico Mountains Archaeological Site. In *Early Man in America from a*

- Circum-Pacific Perspective*, edited by A.L. Bryan, pp. 218-220. Department of Anthropology, University of Alberta, Occasional Papers, No. 1.
- 1980 The Calico Mountains Site: Pleistocene Archaeology in the Mojave Desert. In *Early Native Americans: Prehistoric Demography, Economy, and Technology*, edited by D.L. Browman, pp. 7-20. Mouton, The Hague.
- 1982 The Calico Mountains Archaeological Project: A Progress Report. In *Peopling of the New World*, edited by J. Ericson, R. Berger, and I. Taylor, pp. 181-192. Ballena Press, Palo Alto, California.
- 1999 An Introduction to the Calico Early Man Lithic Assemblage. *San Bernardino County Museum Association Quarterly* 46 (4). (reprinted).
- Simpson, Ruth DeEtte, Lee W. Patterson, and Clay A. Singer
 1986 Lithic Technology of the Calico Mountains Site, Southern California. In *New Evidence for the Pleistocene Peopling of the Americas*, edited by A.L. Bryan, pp. 89-105. Center for the Study of Early Man, University of Maine, Orono.
- Singer, Clay A.
 1979 A Preliminary Report on the Analysis of Calico Lithics. In *Pleistocene Man at Calico*, edited by W.C. Schuiling, pp. 55-66. San Bernardino County Museum Association Quarterly 26(4).
- Taylor, R.E. and Louis A. Payen
 1979 The Role of Archaeometry in American Archaeology: Approaches to the Evaluation of the Antiquity of Homo sapiens in California. In *Advances in Archaeological Method and Theory*, vol. 2, edited by M.B. Schiffer, pp. 239-283. Academic Press, New York.
- Zimmerman, David W.
 1977 Letter report to Jonathon E. Ericson, dated Nov. 18, 1977, from Washington University, St. Louis to Conservation Center, Los Angeles County Museum of Art. On file at the Calico Office, SBCM, Redlands, CA.