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METHODS FOR ARCHAEOLOGICAL SITE SURVEY

IN CALIFORNIA

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# METHODS FOR ARCHAEOLOGICAL SITE SURVEY IN CALIFORNIA

## INTRODUCTION

Since its founding in 1948 the University of California Archaeological Survey has benefited from the voluntary cooperation of students and other private individuals who have reported the location of archaeological sites known to them. These notes are designed as a guide to survey methods and have been manifolded so that they can be distributed to all individuals who may be interested in cooperating with the Survey. The Survey invites interested persons to collaborate with it in securing as much information as possible about archaeological sites in California, and toward this end offers to supply maps and site survey record sheets to anyone who will deposit with the Survey a duplicate copy for file.

This account follows the outline presented in a previous manual (Heizer, ed., 1949) but has been modified and expanded in some measure.

### THE PURPOSE OF AN ARCHAEOLOGICAL SITE SURVEY

An archaeological site survey is designed to provide information on the number, the location, and the nature of the archaeological remains in a given region. It is the logical first step in the archaeological exploration of a particular area, a necessary preamble to the planning of an excavation project. In specific terms, the assembling of a systematic site survey is useful in the following ways:

1. As a training project for students and informed amateurs, the prosecution of a site survey affords experience in archaeological method and does not result in the destruction of potential information which invariably accompanies any kind of excavation.
2. The site survey provides the information the archaeologist needs in order to choose a particular site for excavation. By use of these data he can tell which sites are in greatest danger of destruction, which sites have been least disturbed, at which sites the owner is receptive to excavation work, and in many instances the survey will offer clues to the culture represented in the site.
3. A site survey may, in itself, provide answers to special problems in such fields as ethnogeography and demography. For example, a special study might be made of the relationship between village site locations and any one of such economically or physiographically important features of the natural environment as streams, oak groves, mussel rocks, slope and exposure, and so forth. Such a study could not be made before there was abundant and exact information on site location. Several examples of what can be accomplished by surface site survey without excavation have been published for California, notably: Campbell (1931), Hewes (1941), Nelson, (1909), Rogers (1939) and Treganza (1942). One of these projects was carried out by a private individual, two by students (who are now professional archaeologists) and two by professional museum men.

4. Site surveys will provide the worker with information on the relative amount of destruction of sites in various parts of the state, hence they will indicate the areas in which excavation projects are most necessary.

Not a single county in California has been thoroughly and adequately explored for archaeological sites and only a minor number of smaller areas have been intensively examined for prehistoric remains. Until such exploration has been completed, we shall not be in a position to evaluate the archaeological resources of the state. An estimate based on those smaller areas in which detailed survey has been accomplished, indicates that site density approximates one site per two to four square miles. In other words, there may ultimately be found between 40,000 and 75,000 archaeological sites in California.

Methods and problems of archaeological site survey have been discussed by a number of writers. Amongst the longer comments are works by Atkinson (1946), Brainerd (1948), Campbell (1940), Cole and Deuel (1936), Colton (1932), Fenenga in Heizer et al (1949), Fisher (1930), Guthe (1928, 1931), Parker (1929), and O. C. Stewart (1947a, 1947b).

#### METHODS OF ARCHAEOLOGICAL SITE SURVEY

In preparation for a site survey of a given region, the worker should familiarize himself first with all previous archaeological and ethnographic work in the area. Almost every group of Indians in California has been subjected to detailed study and the sections on ethnogeography in these reports locate and identify the Indian villages which were occupied within historic times; many of these villages are now archaeological sites. Local and county histories often provide information on site locations. At Berkeley, there is an extensive file of ethnographic village names in California with a set of accompanying maps showing site locations. From such sources as these, some indication of the numbers, types, and location of sites may be secured before actually conducting the field survey.

Nearly every community contains its local amateur historians and archaeologists and these individuals are the second major source of preparatory information. When their services can be enlisted, they are of invaluable help, not only for what they can tell, but for other local contacts which they can establish. An integral part of the archaeological survey is the description and illustration of local collections of archaeological materials. All specimens for which the owner can ascribe site locations should be noted. Illustrations can be either scale or outline drawings or photographs. Very often this can best be done if the archaeologist offers to make a catalogue of the collection, one copy of the catalogue to be turned over to the collector.

The third source of information for the archaeological site survey is the actual physical inspection of the terrain by the field worker. Methods will vary with the availability of roads, the density of the population, and other factors, but every circumstance requires the archaeologist to explore every bit of the area which he has selected for survey on foot. Obviously such field work is time consuming and the time allotted for survey must bear a realistic relationship to the extent of the area chosen for exploration. Under ideal circumstances, two men should be able to explore and make a record of about five sections of land (5 sq. miles) per day of field work.

Field work can best be done by teams of two men each. Larger numbers are not only unnecessary but may actually be disadvantageous because of interference with stock and crops. It is just as important to secure permission from property owners for the necessary entry connected with site survey as it is when excavation is undertaken. There does not seem to be any proper method of avoiding this obligation; careful attention to the closing of gates and to avoiding property destruction attendant upon climbing fences, tramping through planted crops, and similar urban disregard for rural rights will enable the field worker to avoid a prejudicial local reputation.

The recommended portable equipment for field survey consists of the following:

List of equipment carried by a two-man survey crew

Musette bag or knapsack with shoulder straps for carrying equipment.

Paper sacks for collecting specimens.

100-foot wire-reinforced cloth tape, or steel tape.

Small entrenching shovel for emergency excavation and clearing features.

Camera, exposure meter, and extra films.

Paint brush or light whisk broom for clearing features..

4-inch pointing trowel for exposing features.

Pencils for writing notes and marking sacks.

Hand level for rough contour work.

U. S. Geological Survey quadrangle sheets for locating sites.

Ruler for making sketch maps and calculating map distances.

Protractor for making sketch maps.

Compass for determining directions and map making.

Notebook containing Site Record, Feature Record, Petroglyph Record,

Continuation Sheet forms, Artifact Inventory Record forms, graph paper for mapping and ruled paper for notes.

Various additions or substitutions might be made to cover local circumstances or to suit personal preferences. Such a pack can be carried easily by one worker for a day. The second worker can be responsible for carrying a lunch and surface specimens found in the course of the survey.

The ability to find archaeological sites in the course of field work depends first upon knowing what sites look like in the area being surveyed. (A section of this Report contains a description of the general types known to occur in California.) The second requisite for finding sites is the development by the individual of an eye for those features of the terrain which may be expected to be related to site locations. These include availability of fresh water, exposure to sunlight, shelter from winds, and security from floods. Finally, occupation produces modifications of the terrain, especially in changes in soil color and chemistry (the latter often recognizable in differences in vegetational cover) and in incongruent contours produced by mound development or housepit depressions.

When a site is found, it should be accurately and completely described, photographed, located on a map, and the surface should be searched for special site features and for artifacts. The method of recording site data is described in a further section.

## ARCHAEOLOGICAL SITE SURVEY RECORD

1. Site.....
2. Map.....
3. County.....
4. Twp..... Range.....;  $\frac{1}{4}$  of.....  $\frac{1}{4}$  of Sec.....
5. Location.....  
.....
6. On contour elevation.....
7. Previous designations for site.....
8. Owner.....
9. Address.....
10. Previous owners, dates.....
11. Present tenant.....
12. Attitude toward excavation.....
13. Description of site.....  
.....
14. Area.....
15. Depth.....
16. Height.....
17. Vegetation.....
18. Nearest water.....
19. Soil of site.....
20. Surrounding soil type.....
21. Previous excavation.....
22. Cultivation.....
23. Erosion.....
24. Buildings, roads, etc.....
25. Possibility of destruction.....
26. House pits.....
27. Other features.....
28. Burials.....
29. Artifacts.....  
.....  
.....
30. Remarks.....
31. Published references.....
32. UCMA Accession No.....
33. Sketch map.....
34. Date.....
35. Recorded by.....
36. Photos.....

The camera recommended is chosen for light weight and simplicity of operation; workers at Berkeley prefer a twin lens reflex, 2 1/4 x 2 1/4 roll film camera. More elaborate cameras recommended for other archaeological purposes are disadvantageous because of weight and bulk and especially because of the difficulty of obtaining any but the conventional sizes of roll film in small towns. The non-professional worker engaged in site survey will find that an ordinary inexpensive folding or box camera serves adequately for photographing a site, or a site feature such as bedrock mortars.

Ordinarily, excavation is not a part of survey, but on occasion burials or other features may be partially exposed by erosion or plowing. The tools necessary for emergency excavation are included in the pack. Heavier tools and boxes may be carried in the car where they will be available if needed.

#### THE USE OF A MINIMUM SITE DATA RECORD FORM

The accompanying form for the recording of the survey data represents one method of securing and preserving data on site locations and site description.<sup>1</sup> The form is a bare minimum. It should be augmented by photographs, descriptions of special features (petroglyphs, bedrock mortars, house pits, architectural remains, etc.), and by description of surface collections. Every entry should be filled in as fully and as legibly as possible.

The site survey form is so organized that blocks of related inquiries occur together. Thus, entries 1-7 are designed to provide accurate and adequate information on the location of the site, entries 8 through 12 supply information on the ownership and tenancy of the site, entries 13 through 20 provide for a description of the physiographic situation of the site, entries 21 through 25 call for a definition of conditions which have modified or may modify the site, items 26 through 29 describe the aboriginal cultural features observed, and items 31 through 36 provide a history of the record. Every entry should be filled in as fully as possible and any information which exceeds the space allotted on the form should be recorded on an Archaeological Continuation Sheet.

The specific entries call for information which can be secured readily in the field during the course of survey work.

Entries on the Site Survey Record are explained below:

#### 1. Site

Any convenient designation for the site may be used in initial field work. Most field workers simply number the sites serially in the order in which they are found. Systematic site designations employed jointly by the University of California Archaeological Survey and the Smithsonian Institution River Basin Surveys consist of a hyphenated three-unit symbol, viz: first,

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<sup>1</sup>Similar site survey data forms have been printed by virtually every organization carrying on archaeological research. The minor differences which they display reflect areal specializations and personal interests.

a numeral representing the state (California is, alphabetically, the fourth state in the union and is represented by "4"); secondly, a three-letter abbreviation representing the county (see list of county abbreviations) and, thirdly, a number representing the order of designation of sites within a county. Thus the thirty-fourth site located in Santa Cruz County, California, would be represented by the symbol 4-SCR-34. In situations where there is no possible doubt as to the state involved the first symbol may be omitted. This official system of site designation should be used only after consultation with the master UCAS site file records in Berkeley.

## 2. Map

This entry calls for the name and publisher of the map on which the site location is marked. The state is not entirely covered by maps of a scale and detail suitable for site survey records. The closest approximation to a complete coverage is in the series of quadrangle maps published by the U. S. Geological Survey (scales vary from 1/24,000 to 1/125,000). The most useful guides to maps are the Index of Topographic Mapping in California (published by the State Division of Water Resources, 1948) and the map guides published by the State Reconstruction and Reemployment Commission (1945). U. S. Geological Survey sheets are available for about two-thirds of the area of California. Very similar maps have been prepared by the War Department and the U. S. Forest Service for about one-half of the area not covered by the U. S. G. S. sheets. The areas which have not been mapped are, for the most part, the areas of least dense population and of least economic importance, and, consequently, surveys of these areas can be postponed most easily. Special maps are always prepared in advance of engineering activity by the Corps of Engineers and the Bureau of Reclamation. Street maps are available for all urban regions. They have been published by various commercial concerns and can be purchased at stationery stores and at the larger newsstands. County maps are published commercially and may also be secured from the County Tax Assessor's or Engineer's office. Stocks of topographic maps are carried by many stationery stores, bookstores, and scientific supply firms. If local distributors cannot supply maps, they can be secured from the original mapping and publishing agencies as follows:

1. Office of Map Information, U. S. Geological Survey, Washington 25, D.C.
2. Commanding Officer, Army Map Service, 6500 Brooks Lane, Washington 16, D.C.
3. Regional Forester, U. S. Forest Service, 630 Sansome Street, San Francisco 11, California.

## 3. County

The full name of the county in which the site is located should be recorded.

## 4. Location in terms of the Public Land Surveys

The township and section within which a site is located can be read from any recent, large-scale U. S. G. S. map. In maps of one inch to the mile and smaller scales, section numbers are not given. The sketch in figure 1 illustrates the standard method of section designation. It is desirable to locate sites more specifically than to section. This can be achieved by quarter section and quarter-quarter section designation as illustrated in figure 1. Quarter-quarter section designation defines an area which is 440 yards square.

5. Location

When section designations cannot be secured, this entry should be filled in so as to give an equally specific site location. Thus, in the published maps of the army engineers, this line would be used for a grid coordinate location; for maps of Spanish Land Grant portions of the state, location should be by azimuth readings to prominent landmarks.

The grid coordinate location is derived from the network of lines showing distances, in 1,000 yard or 1,000 meter intervals, (5,000 yard intervals in small scale maps), and appear as a black line overprint on some topographic maps. It is written as a hyphenated figure, the first element representing the distance east of an arbitrary point of origin, the second element representing the distance north of this point (see figure 2). Grid coordinate designation permits the location of a point with a margin of error of not more than 100 yards (or 100 meters). When using grid coordinate locations, it is important that the name of the grid system employed by the mapping agency be given.

Location by intersection of azimuth readings is done in the field with a compass and on a map with a protractor. Several variations are possible, but essentially, azimuth location requires the determination of the directions (by compass) from the site to two landmarks which are marked on the map (stream junctions, road crossings, bridge abutments, permanent buildings, etc.). If the distances between the site and the landmarks are measured, it will be an aid to relocating the site. The method of azimuth location is shown diagrammatically in figure 3.

6. Contour elevation

Information as to site elevation above sea level can be read directly from any topographic map. It provides additional information for relocation of the site.

7. Previous designations for the site

It is important that any known site name or number in previous use be recorded in order that museum specimens collected by previous investigators may be correctly allocated to the particular site.

8. Owner and 9. Address

This information is necessary for correspondence with the owner for the purpose of securing excavation permits. This information often is a direct aid in the location of the site by subsequent investigators.

10. Previous owners

Previous owners may have information about the history of the site, its modifications, or collections of specimens.

11. Present tenant

It is important to know the name of the individual on the land for public relations purposes, and because excavation permits must clear through him.

12. Attitude toward excavation

If this information can be secured in the field, it may make extensive correspondence unnecessary. Any stipulations by the tenant as to excavation should be recorded in detail.



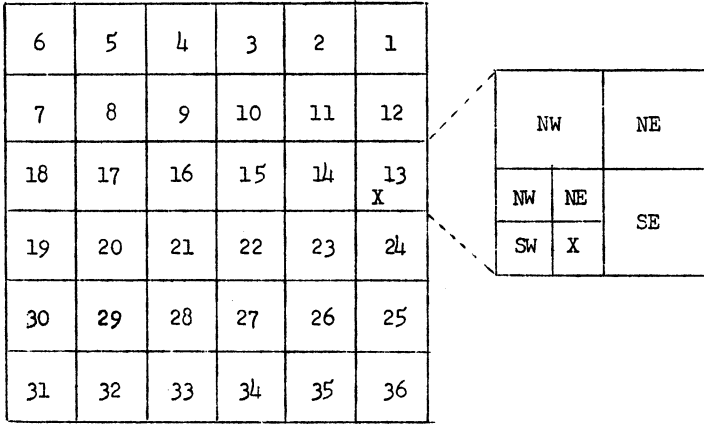


Fig. 1, Designation of sections, quarter sections, and quarter-quarter sections. Site (X) is in the SE.1/4 of the SW 1/4 of Section 13.

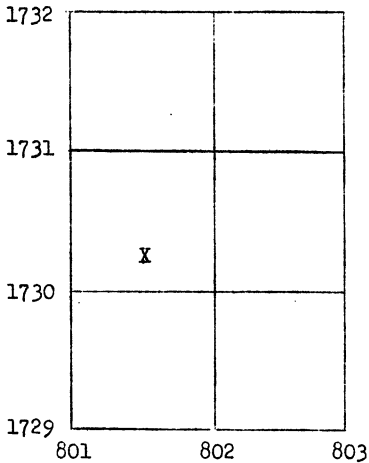


Fig. 2, Grid coordinate designation. Site (X) is at GC 8017/17302

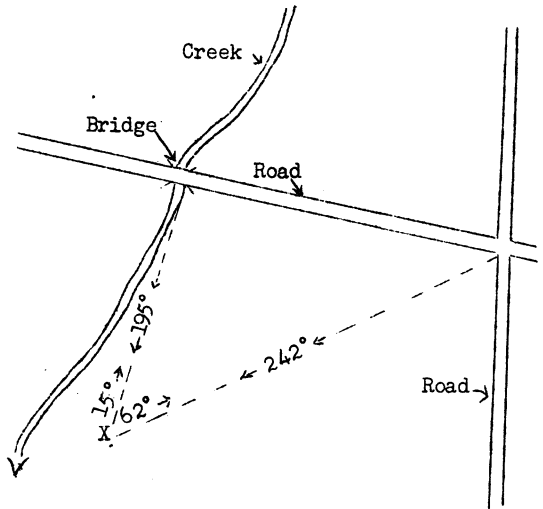


Fig. 3, Intersection designation. Site (X) is at an azimuth of 195° from bridge (name) and 242° from crossroad (name)

13. Description of site

This entry should describe the type of site and its general physiographic location. A representative entry might read: "shell midden on rocky point about 40 feet above valley floor."

14. Area

This should be accurately approximated by pacing or measuring with a tape. If the site covers an irregular area, give several linear measurements recording these by compass direction (e.g. north-south, east-west).

15. Depth

Thickness of deposit mass can be recorded only when the site is cut by a stream, a road cut, or when survey plans call for test excavations.

16. Height

This measurement should be recorded whenever the deposit has a distinct mound form.

17. Vegetation

This entry calls for a record of native plants which grow on the site. A number of plants, notably tobacco, pigweed, Jimson weed, horehound, nettles, thistles, and buckeye have been noted as being peculiarly associated with archaeological sites.

18. Nearest (fresh) water

Direction and distance to the nearest aboriginal supply should be recorded.

19. Soil of site

The nature of the site deposit should be described in as great detail as possible. The word "midden," for example, should be modified by such words as "loose" or "compact," "ashy," "shell-bearing," etc.

20. Surrounding soil types

These should be described, whenever possible, by reference to a California Soil Survey Report published by the U. S. Department of Agriculture. Soil Survey Reports contain excellent large scale maps, and are, if in print, available from your local University of California Agricultural Extension agent.

21. Previous excavation

Any evidence of previous archaeological excavation at the site should be recorded. Obvious pits, local tradition, or printed accounts may provide this information.

22. Cultivation

The number of years of cultivation and mention of the specific crop are useful in estimating the amount of modification of the surface and the time of the year at which excavation is most feasible.

23. Erosion

Sites on the banks of degrading streams or on sea cliffs are exposed to erosion that will ultimately result in their destruction. Even gully wash can rapidly decrease the extent of a site. In arid areas, wind erosion is sometimes a consequential factor in site destruction. The nature and extent of any such erosion should be noted.

24. Buildings, roads, etc.

Any modern cultural features which may have modified the site or which may limit the area available for excavation should be described. Such features will appear on the sketch map on the reverse side of the site record sheet.

25. Possibility of destruction

This entry should describe any circumstances, either physiographic or cultural, which threaten the site. Selection of a site for excavation depends in large part upon the imminence of its destruction.

26. House pits

These are the most common surface feature of sites in California. House pits should be counted, measured, and plotted on the site diagram on the reverse of the sheet. In a full site description, each separate house pit should be fully described on a Feature Record form, and a reference to this record entered on the Survey sheet. The number and size of the house pits at an undisturbed site can offer a clue to the approximate terminal population of the site.

27. Other features

Any surface features of aboriginal origin should be described. Those most frequently found in California include: petroglyphs, bedrock mortars, bedrock metates, quarries, rock shelters, and, in very recent sites, wood structures such as house remains and grave markers. Feature Record forms should be used to describe any of these and a cross reference to such a record should be made in this space.

28. Burials

Any evidence of the use of the site for interment or cremation should be recorded. Such evidence might consist of surface finds of human bones, local traditions of burials having been found, or the presence of grave markers.

29. Artifacts

This entry should describe and record the location of any artifacts recovered from the site. Surface collections made on the site survey, local private collections, and specimens in museums should all be noted. When collections from the site are extensive, many additional pages may be necessary. When it is possible to make extensive surface collections, trait lists and even frequency tables can be worked out and these may make possible the determination of culture type and culture period represented at the site.

30. Remarks

This column may be used for any pertinent additional data not called for on the form. It is often used for recommendations for additional work.

31. Published references

Bibliographic reference should be made to any published account of the site whether in the ethnographic, historical, or archaeological literature.

32. UCMA Accession No.

Specimens received by the University of California Museum of Anthropology are given an accession number. This number is a cross file reference to all correspondence, technical reports, and publications describing the collection.

33. Sketch map

A sketch map showing the route of access (roads, trails), the relationship of the site to its physiographic environs (contours, trees, streams, etc.), and major site features (outline, housepits, etc.) should be drawn on the back of the Site Record form. Be sure to indicate cardinal directions and scale. Item 33 should record the name of the individual who drew the sketch map.

34. Date

Enter here the date of filling out the Site Record.

35. Recorded by

Use full name of person recording the data.

36. Photos

Refer by field catalogue number or by roll and film number to the photographs taken on the site. The final record should contain the museum catalogue numbers of these negatives. The most important photographs to be taken in the course of the survey are general views taken from a vantage point which will show the relationship of the site to its environment. Ideally, such photographs would be aerial views taken from 1,000 to 2,500 feet elevation, but this ideal can often be approximated by climbing an adjacent hill.

#### TYPES OF SITES OF ARCHAEOLOGICAL INTEREST IN CALIFORNIA

A knowledge of what to look for is a prerequisite to successful site survey. Of course, no two sites are exactly alike, but the following descriptions define general types of remains which are of frequent occurrence in California.

1. Permanent village sites are represented by accumulations of midden material which may be as small as 50 feet or as large as a quarter of a mile in diameter. When located on a flat surface, they often have the form of a low, dome-shaped mound, which may be only a few inches in height or as much as 20 feet in elevation. The soil of such midden accumulations is usually markedly darker in color than the surrounding soil. It almost always contains fragmented shell, sometimes in enormous quantities. Most but not all sites are calcareous (lime containing) and when a drop of 10 percent hydrochloric acid is dropped on the soil a bubbling and fizzing chemical reaction occurs. A small plastic screw-topped bottle of acid is a useful adjunct in site survey work. Cracked stones, fragments of animal bone, and chips of flint and obsidian can usually also be seen. House pits (saucer-shaped depressions in the site surface), petroglyphs, bed-rock mortars, and various other features may be associated as surface features with permanent village sites. However, all except house pits may occur separately and, by themselves, may constitute sites.

2. Camp sites and temporary village sites resemble permanent village sites in every way except that the accumulation of midden has no depth. Artifacts and other evidences of occupation occur on the surface, sometimes in considerable quantities, but the temporary nature of the utilization of the spot has not resulted in the development of a deep accumulation-refuse earth deposit.

3. Caves or rock shelters formed by a natural cavity in a rock exposure or an overhanging cliff may have attracted aboriginal occupation through the protection from heat or cold, enemies, or rain. Small shelters were often used for storing or caching objects (cf. Campbell, 1931). The rocks are often blackened from smoke, and the walls may bear petroglyph designs. Such sites may occur anywhere in California except in level alluvial regions, and may yield important cultural remains which have been preserved through dryness of the deposit mass. Exfoliation of stone from the roof or walls of such shelters may bury the evidence of occupation so that excavation is necessary to determine whether the site was used.

4. Mines and quarries are most easily recognized by the quantity of discarded tools and the rejected spalls or unused masses of the quarried material. For a description of numerous California remains of this type see Heizer and Treganza (1944).

5. Bedrock mortars are found every place in California where exposed rock surfaces occur, excepting in the northwestern corner of the state. They are represented by conical pits in horizontal rock surfaces. In size they vary from 3 inches in diameter by 1 inch deep to 10 inches in diameter by 14 inches deep. The number at a single site may vary from one to several hundred. Pestles may still be present in the pits or may lie near the milling place. Bedrock metates are also known to occur. Both frequently are associated with habitation sites.

6. Petroglyphs are rocks which bear painted, pecked, or incised designs. They may occur either as isolated sites or as features of habitation sites. For a description of many such sites see Steward (1929) and for special methods of recording petroglyph data see Fenenga (1949).

7. Isolated finds of artifacts or skeletons should be recorded as to exact locations, but such materials will rarely prove to be of as much importance as similar objects which occur in fuller cultural context.

8. Special cemeteries are not characteristic in California archaeology but they do occur in the San Joaquin Valley, in Southern California, and parts of Northwestern California. Under the influence of Western customs, in recent sites elsewhere in the state separate graveyards occur. Excepting where grave markers occur, special cemeteries can be located only by accidental uncovering, or by extensive test pitting. Cemetery sites have been described by Wedel (1941) and by Walker (1947).

9. Mourning ceremony areas (called locally "burning grounds") are found in the central Sierra Nevadas. They are recognized by quantities of charcoal, calcined bone and melted glass beads on the surface. Aboriginal artifacts may also occur.

10. Buried sites may be found in the vicinity of aggrading streams. They may be sites of any of the previously described types. They are of especial importance because their age may sometimes be approximated by geological dating of the overburden of alluvium.

11. Gravel figures are found in the southeastern portion of California. They consist of geometric or zoomorphic figures made by raking or piling the desert pavement gravel into windrows outlining the designs. Rogers (1939) describes and illustrates a number of gravel figures.

#### THE SELECTION OF A SITE FOR EXCAVATION

Before beginning a job of archaeological excavation, the investigator must be able to assure himself that he is professionally qualified and technically equipped to undertake the particular job he has outlined. Such qualification includes not only a knowledge of archaeological objectives and archaeological field methods, but also a thorough knowledge of all the previous anthropological work in the specific area with which he is concerned. Over and above these requisites, the archaeologist must have the necessary administrative ability to direct the men who are working with him and to ensure smooth public relations with local residents. Finally, the institution which supports excavation must be able to provide permanent adequate care for the resultant collection and funds or means for the publication of the results.

The excavator who cannot fully assure himself that all these prerequisite conditions will be met, no matter what his intentions may be, is committing an act of vandalism against a natural resource of ultimate public interest. Professional and amateur archaeologists are aligned together in condemning any excavating activity which does not ultimately result in the full publication of the results of a careful, correct excavation.

The reasons for carrying on archaeological excavation at any particular place and time include the following:

1. Conservation of information. When archaeological sites are threatened with destruction by such natural agencies as erosion or by such cultural agencies as road building, dam building, agricultural land leveling, irrigation, canal or ditch digging, excavations at industrial or dwelling site locations, etc.

2. Solution of a defined problem. So little archaeological work has been done in California that the definition of a problem is often as simple as, for example, "to determine the nature of the archaeological remains in the Southern Sierra Nevada foothills."

3. Training of students. A large proportion of all archaeological excavation is carried on by colleges and universities committed to the professional training of students who will ultimately themselves direct such work.

The selection of a site for excavation depends in some measure upon which of these three general reasons is the paramount objective of the archaeologist. Where conservation is the primary interest, the site selected will be the one threatened with earliest destruction. When several sites will be destroyed simultaneously (as in a dam basin), the site which promises to offer the most information should be the one selected. Generally speaking, the less a site has been disturbed (by recent occupation, by cultivation, by previous digging, etc.) the more information it will yield. Usually the larger and deeper the site is, the greater the chance for sequential occupation, hence the greater the chance for cultural stratification.

When an archaeologist decides to excavate a site in order to solve a previously defined problem, he will select his site upon the basis of information obtained from a survey of the region in which he is interested. This survey might include test pit excavation in each of a number of sites designed to determine the depth of the deposit and the nature of the cultural material. For example, if he wished to test the archaeological relationships between the Coast Miwok of Marin County, the Miwok of Lake County, and the Miwok of Tuolumne County, he might begin by excavating a site in each area which had yielded glass beads of the early 19th century. These 3 sites might be already known and located in a survey file.

When training students is the primary objective of excavation, the archaeologist will usually choose one closely resembling a site which has already been excavated in order that he may be well prepared for the type of material which the site will yield and can therefore devote a large proportion of the time to training activities. Such a choice will also permit the archaeologist to guess in advance what types of archaeological experience will be offered the students by knowing whether or not natural or cultural stratification, burials, structural remains, or other material will probably be found.

The number of man days of labor available for excavation will indicate how large a job can be undertaken. Method of disposal of back dirt, frequency of artifacts, burials and other features, and hardness of the soil are variable elements which limit the amount of excavation accomplished per day. The archaeologist can seldom count on removing more than about 125 cubic feet of soil per man day and his selection of a site should consider labor limitations.

COUNTY ABBREVIATIONS EMPLOYED IN SITE DESIGNATIONS

California -- 156,297 Square Miles -- State Symbol - 4

Symbol	County	Square Miles	Symbol	County	Square Miles
Ala	Alameda	732	Ora	Orange	795
Alp	Alpine	776	Pla	Placer	1411
Ama	Amador	601	Plu	Plumas	2593
But	Butte	1698	Riv	Riverside	7223
Cal	Calaveras	1027	Sac	Sacramento	983
Col	Colusa	1140	SBn	San Benito	1392
CCo	Contra Costa	714	SBr	San Bernardino	20175
DNo	Del Norte	1024	SDi	San Diego	4221
Eld	Eldorado	1737	SFr	San Francisco	42
Fre	Fresno	5950	SJo	San Joaquin	1448
Gle	Glenn	1337	SLO	San Luis Obispo	3334
Hum	Humboldt	3575	SMa	San Mateo	447
Imp	Imperial	4089	SBa	Santa Barbara	2740
Iny	Inyo	9991	SCl	Santa Clara	1328
Ker	Kern	8003	SCr	Santa Cruz	435
Kin	Kings	1159	Sha	Shasta	3858
Lak	Lake	1238	Sie	Sierra	923
Las	Lassen	4531	Sis	Siskiyou	6256
LAn	Los Angeles	4115	Sol	Solano	822
Mad	Madera	2112	Son	Sonoma	1582
Mrn	Marin	529	Sta	Stanislaus	1450
Mrp	Mariposa	1463	Sut	Sutter	608
Men	Mendocino	3539	Teh	Tehama	2925
Mer	Merced	1995	Tri	Trinity	3096
Mod	Modoc	3623	Tul	Tulare	4856
Mno	Mono	3030	Tuo	Tuolumne	2190
Mnt	Monterey	3330	Ven	Ventura	1858
Nap	Napa	783	Yol	Yolo	1014
Nev	Nevada	974	Yub	Yuba	632



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