

# Ahead of his time: M. J. Rogers's 1938 excavation techniques at the C. W. Harris site

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## **Abstract**

Excavation techniques developed by Malcolm J. Rogers at the C. W. Harris site in 1938 were more sophisticated than those of contemporary archaeologists. Rogers's system made it possible to expose and record detailed information on spatial relationships of artifacts and their stratigraphic contexts. Excavation was conducted in trenches divided into 5-x-5-ft. excavation units, with vertical control by stratigraphic units and arbitrary level. The now-standard three measurements for recording spatial location of each artifact were also taken. As part of the catalog, each artifact was given a field number that was a code for its precise location. This made it possible for a laboratory analyst to instantly identify the excavation unit and precise stratigraphic unit from which the artifact was recovered.

## **Introduction**

The excavation techniques used by M. J. Rogers at the C. W. Harris site (CA-SDI-149) were remarkably sophisticated for 1938, but went unnoticed for half a century because their description was found only in bits and pieces scattered through field notes and unpublished papers. I did not recognize the significance of his excavation techniques when I edited Rogers's Harris site report (Warren 1966), and Rogers seems not to have realized their importance either. Only after I had researched the history of archaeological field techniques in England and then returned to Rogers's papers in 2003 did I experience the "Aha!" revelation of how innovative Rogers's 1938 excavations were. I present a description of those excavation techniques here.

## **The Harris site (CA-SDI-149)**

The Harris site is located 7 mi. from the southern California coast on the San Dieguito River, just west of the coast range. In the second terrace of the southeast bank, the San Dieguito component underlies Late Prehistoric and La Jollan occupations and a stratum of sterile sediments. Locus I is located on the southeast bank, between a granitic dike that causes the river to narrow and the first wash upstream from the dike. The thickest and deepest artifact-bearing strata are at the downstream end of the site.

Excavations were made at five locations on the Harris site, but time and space allows discussion of only the stratigraphically complex Trench 1 in Locus I. All other stratigraphic sections of the site were compared to this stratigraphic section, thus determining their place in the chronological sequence. Excavation of Trench 1 required the full range of excavation

techniques used by Rogers at the Harris site.

Rogers identified five major strata, designated by the letters A through E. Trench 1 reached a depth greater than 14 ft., with Stratum E, a 7-ft.-thick basal stratum composed of stream-deposited sands, gravels and boulders, enclosing the San Dieguito components. Moving upward through the deposits, Stratum D, composed of sand and pebbles with some clay, lies unconformably on Stratum E. Stratum D lacks visible stratification and is sterile. Stratum C contains cobbles, pebble gravel and sand, and occasional felsite flakes that were redeposited with the gravel during a flood stage. Stratum B is similar to D, but coarse slope-wash sand is intermixed with the stream-deposited sands. La Jollan and Late period occupations of the terrace occurred during the deposition of the upper 4 ft. of Stratum B. Stratum A, a sandy deposit laid down by historic flood(s), is culturally sterile.

### **Excavation techniques**

The nature of the material being excavated determined whether trowels, shovels or picks were employed to excavate. Virtually all the dirt removed from cultural components was passed through a 1/4-in. screen. Sometimes it was shoveled directly into the screen; other times it was carried to the edge of the channel and water-screened.

The San Dieguito components of Stratum E were the most important to Rogers's research, and stringent controls were applied to the excavation of Stratum E. Strata B through D were approached less rigorously, but only Stratum B contains later cultural components. Rogers's primary concern was to demonstrate the association of artifacts with stratigraphic units. The chronological sequence of the strata formed the basis for establishing relative ages of cultural components. Past environmental conditions were reflected in the stratigraphic record; with adequate control, it would be possible to demonstrate that the cultural remains were associated with particular environmental conditions.

A three-dimensional system is required for the proper recording of the artifacts and their spatial relationships to stratigraphic units and to one another. Rogers achieved vertical control by excavating stratigraphic units, subdivided vertically into arbitrary levels when the stratum was thick and homogenous, and by substrata when the major stratigraphic unit was thick and exhibited complex substrata. More precise vertical measurements were obtained by using a transit to record elevations relative to sea level.

Rogers maintained horizontal control by dividing trenches into 5-x-5-ft. excavation units and measuring distances to the artifact from two adjacent walls of the excavation unit. The bulk of the information in the remainder of this section is derived from Rogers's (1938-1939) and Hayden's (1977) field notes and catalogs. Observations from Rogers's and Hayden's field notes are found in every paragraph. To cite the sources in each paragraph would be so repetitive and disruptive to the presentation as to detract from the intended message. Unless otherwise noted, all data are derived from these field notes and catalogs.

### **Excavation of Strata A, B, C and D in Locus I, Trench 1**

At Trench 1, Rogers first removed the culturally sterile Stratum A from an area ca. 50 ft. long and 16 ft. wide, exposing the surface of Stratum B. A trench 48 ft. long and 5 ft. wide was then established at right angles to the terrace edge. The trench was divided into 5-x-5-ft. excavation units numbered in sequence from the southeast end. The excavation of the trench

began with removal of an arbitrary level, with a depth of 12 in. below the datum plane established as ground level at Stake 3. Rogers's technique was to "peel off ... strips [arbitrary levels] 12 inches thick, and to pass all the ground through [1/4-in.] screens," and where the stratum was more than one level thick, the level was recorded "thusly 1B, 1B', 1B'", for superimposed strips [arbitrary levels] within one stratum" (Rogers 1938-1938:July 25). Stratum B in Trench 1 was 48 ft. long and 6 ft. deep. Six arbitrary levels controlled the vertical dimension, and nine 5-x-5-ft. excavation units controlled the horizontal dimension. Each artifact was given a field number that described its location in the site. For example, the field number 1B' indicated that the artifact came from excavation Unit 1, Stratum B, arbitrary Level 2, one prime sign being added for each level below the first level.

In the rocky Stratum C, Rogers recognized three substrata, and each was excavated as a unit. Upper Substratum C was the upper 4 in. and consisted of scattered gravel resting on the rock mass proper. Middle Substratum C', 8 to 12 in. thick, was the rock mass proper. Lower Substratum C'', 3 to 6 in. thick, was composed of small gravel and sand which graded almost imperceptibly into Stratum D.

Stratum C was divided into nine 5-x-5-ft. units for horizontal control. In contrast, Stratum D, a yellow sand with water-worn pebbles and no internal stratification, was subdivided only into excavation units. Artifacts were limited to the upper few inches and a few flakes resting on the contact between Strata D and E.

For Strata B, C and D in Trench 1, primary controls were the natural strata and excavation units, but Stratum B was subdivided into arbitrary levels, and Stratum C into substrata. No horizontal location measurements or elevations were taken on artifacts in these strata.

### **Excavation of Stratum E in Locus I, Trench 1**

Stratum E is very thick, with a complex series of substrata composed of varying combinations of water-deposited gravels and sands, each representing a somewhat different stream environment. In the field, these substrata were recorded as E, E' through E'''''''. These designations were later changed to E1 through E7 to simplify the system. In Stratum E, vertical control was maintained by excavating each natural substratum as a unit and recording the elevations of artifacts, features and strata relative to the datum plane. Horizontal control was maintained by 5-x-5-ft. excavation units within the trench, forming an incipient grid. Precise horizontal locations of the artifacts were determined by measurements from the artifact to two adjacent walls of the excavation unit. Each substratum was completely removed and processed as a unit before excavation of the next substratum began. In this manner, all cultural remains could be re-located in their original position relative to the stratigraphic units. In the final analysis Substratum E3, a stream channel cut into Substratum E4, consists of four thin layers, all of which fit chronologically and stratigraphically between Substrata E2 and E4. Substratum E3 is the only instance where two or more substrata are grouped as a single stratigraphic unit.

Substratum E3 led Rogers to adopt extreme excavation techniques. After the excavation of Trench 1 was "completed," Rogers had the deeper, north end of the trench backfilled to the level of the channel of Substratum E3. He then excavated undercuts in the side walls of Trench 1 to remove more of Substratum E3. These began about 24 in. above the surface of E3 and sloped back into the sidewalls of the trench to meet the surface of Substratum E3. In the east face of Trench 1, the undercut penetrated 22 in. into the sidewall, in the west face the undercut extended

40 in. into the sidewall. The undercut excavations were identified as West Lateral and East Lateral of excavation units 5E3, 6E3 and 7E3. Precise locations of artifacts were recorded in the field notes by measurement from sidewall of the trench into the undercut, and from the north or south end of the excavation units.

Undercutting is a technique not often used, for the obvious reasons. Hayden wrote that by August 24 they had excavated an undercut to the depth of 40 in. into the west wall of the trench in excavation units 6 and 7 and were beginning the undercut in unit 5 when the side wall collapsed, splintering the timbers placed earlier. Fortunately, they lost neither archaeologists nor tools. Nevertheless, they continued undercutting the next day!

### **Artifact catalog and data recorded**

The catalog for Rogers's (1938-1939) excavation is incomplete. The artifacts from Strata B and C are listed by classes, excavation unit and level in Rogers's notes. The small number of artifacts in Stratum D is recorded by unit only. There is no indication that any of these artifacts were formally catalogued.

The catalog prepared by Rogers includes the artifacts from Stratum E in Trench 1. Each artifact is identified by a catalog number with a CI- prefix (for Carnegie Institute) followed by items' numbers in chronological order, beginning with 1. Following the catalog number is the critical information regarding the artifact: class of artifact, material, dimensions of the artifact, number of pieces if not a single artifact, elevation and lastly the field number. The field number is a code for the location of the artifact within the excavations. An example from the catalog (Rogers 1938-1939:CI-101) illustrates how this information was recorded: "CI-101 -- End scraper. Dark felsite, unoxidized. 21x39x73mm. Elevation 92.8. Field Number 5E'f."

The field number 5E'f indicates that artifact CI-101 was recovered from excavation unit 5, substratum E' (E2), and "f" indicates it was the sixth artifact recovered from Stratum E2 in excavation unit 5. Artifacts recovered from the undercuts in Trench 1 were given additional designations for either West Lateral [wall] or East Lateral [wall].

Although not recorded in the field number, the precise horizontal position of each artifact was recorded by measurements from two adjacent walls of the excavation unit. These measurements are found in Hayden's field notes but not included in the catalog. This information, recorded in the catalog and Hayden's notes, makes it possible to identify the precise stratigraphic, vertical and horizontal location of nearly every artifact from Stratum E in Trench 1, including the undercuts. For example, the location of a sharp felsite scraper with field number 7E''m, W Lat. is from the west lateral of excavation unit 7, Stratum E4, and the 13th artifact recovered from this stratum in excavation unit 7. In addition Hayden (1977:August 25, 1938) recorded this item, 7E4m, W. Lat., as being "...34 [in.] W[est] of W[est] face of trench 1, in sandy gravel, 2 inches above stratum bottom, 8 inches S[outh] of [North] line [of excavation unit 7]."

### **Concluding comments**

Rogers did not apply his most stringent excavation controls consistently, but he did apply them to the excavation of Stratum E in Trench 1, where stratum, excavation unit and elevation were consistently recorded. In Stratum E, the precise location of the artifacts was recorded by measurements from two adjacent walls of the excavation unit. While this precision was not

maintained in Stratum B, vertical controls within Stratum B were maintained by 12-in.-thick arbitrary levels measured from the datum plane. Rogers, though interested in the archeological material from Stratum B and other areas, was primarily concerned with the earlier materials of Stratum E.

Every minor variation in Stratum E took on importance to Rogers, and he recorded them in detail. Finding evidence for the age of the archaeological assemblage was a major goal, and Rogers recognized that artifacts originally deposited upstream might have been washed down and redeposited in the broad river channel just upstream from the geological dike. He recorded stratigraphy and the location and orientation of the artifacts in Stratum E to address this question. Excavation of the east and west laterals of Stratum E3 clearly illustrates Rogers's insight into the meaning of artifact placement in the stream channel. In his notes for August 25, 1938, Rogers (1938-1939) wrote that "in a channel approximately parallel to the present main channel, it was noticed that the long axis of each artifact, especially blades, was in orientation with the strip of the channel and that the light ends were downstream." This observation clearly indicated to Rogers that the artifacts within Stratum E3 had been moved by water.

Rogers's desire to control information that provided evidence for the age and environment of the San Dieguito complex required that he develop methods and techniques to record detailed data from each stratum. Rogers devised a three-dimensional approach, thus inventing essentially modern excavation methods 20 years before they were in general use in North America. Although he did not utilize a grid system, Rogers's controls were three-dimensional and his excavations produced remarkably detailed and accurate data on spatial relationships of artifacts and their stratigraphic contexts.

## **Acknowledgments**

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