The Archeology

of the

WESTERN PACIFIC RAILROAD RELOCATION

Oroville Project

Butte County, California

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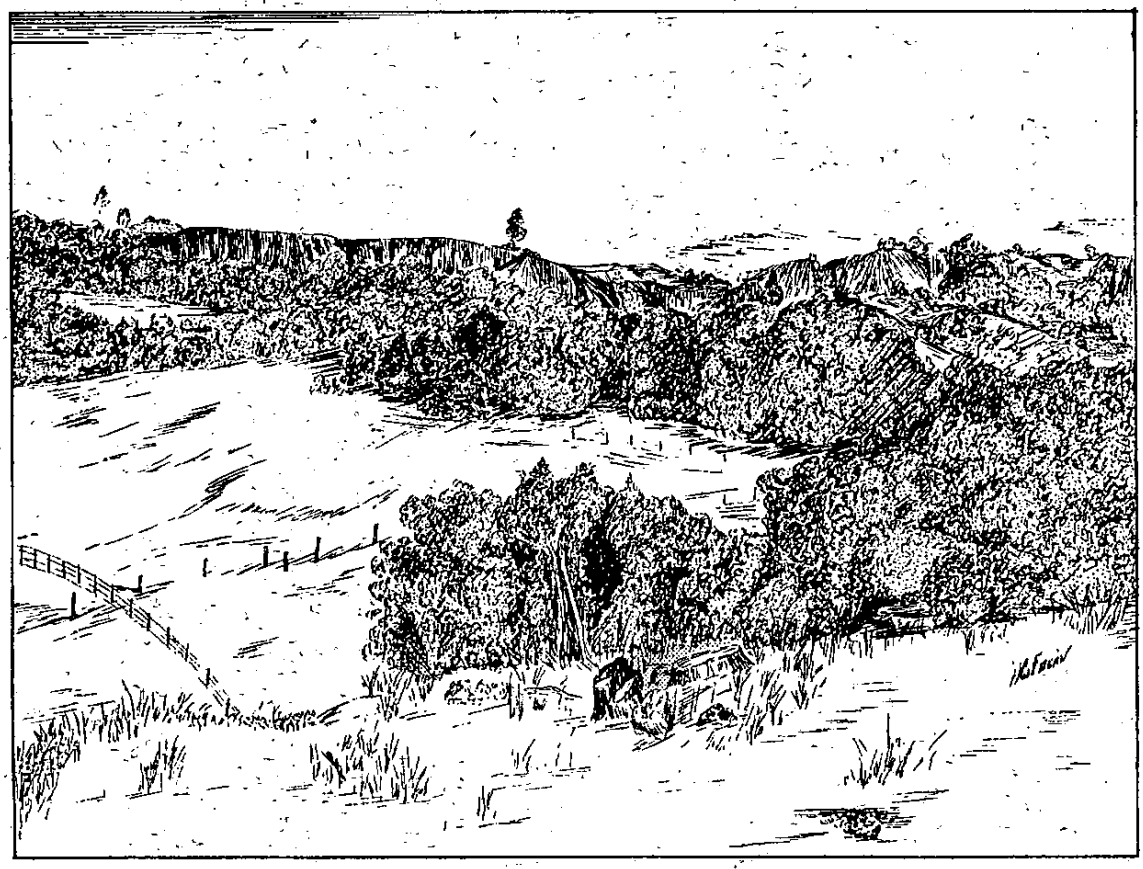

State of California The Resources Agency
Department of Parks and Recreation
Division of Beaches and Parks
Interpretive Services Section

THE ARCHEOLOGY OF THE WESTERN PACIFIC RAILROAD RELOCATION

OROVILLE PROJECT, BUTTE COUNTY
CALIFORNIA

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William H. Olsen and Francis A. Riddell

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STATE OF CALIFORNIA
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Division of Design and Construction

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This report was prepared for the Department of Water Resources by the Department of Parks and Recreation, Division of Beaches and Parks, through an interagency agreement by which the latter agency undertakes archeological investigations for the former.

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THE ARCHEOLOGY OF THE WESTERN PACIFIC RAILROAD RELOCATION, OROVILLE PROJECT, BUTTE COUNTY, CALIFORNIA

INTRODUCTION

With the beginning of construction of the Oroville Dam it was necessary to relocate the Western Pacific Railroad which otherwise would be inundated by the impounded waters of the Feather River. In the process of making an archeological site survey of the relocation right-of-way a series of archeological sites was recorded (see Map 1). Of the 12 sites located, four were deemed of sufficient significance to bear test excavation. Accordingly a contract was awarded the Central California Archeological Foundation by the State Division of Beaches and Parks to carry out investigations at archeological sites But-98, But-103, But-105, and But-131. The division administers to the archeological needs of the State Department of Water Resources through an interagency agreement. The Department is the State agency concerned with the development and use of water within the State.

A number of individuals participated in the excavation project, or in the supporting phases of the actual field work. Thanks is hereby given to the Department of Water Resources Oroville Project personnel, and particularly to Mr. Charles Heikka, the project engineer whose interest and cooperation greatly facilitated the archeological program; to Mr. and Mrs. Ray Famas of Oroville who turned over a portion of their home to the archeological crew during a week of rainy weather; to John Duncan, Jerry Green and Jim Landuyt for spending their Easter vacation excavating; and to Ellin Abrahamson, Pam Weaver, Dave Boloyan, Dave Darling, Frieda Fruge, Carolyn Kuchulis, Lee Miller, Cliff Olsen, Roy Schleiman, Kay Uribe, Grover Allred and Milt Stoll for what time they could find to aid in the excavations. We are, in addition, indebted to Dr. Martin A. Baumhoff, Department of

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GEOGRAPHICAL SETTING

But-98, But-103 and But-131 are situated on, or near the 700 to 750 foot elevation in gently rolling hill country overlooking Messilla Valley which lies to the northwest of the sites. Above and east of these three closely grouped sites is Table Mountain, a remnant lava flow of ancient origin. But-105 is located slightly to the south of these sites (Map 1) at an elevation of 650 feet on a bench along the left side of Coal Canyon near its mouth. All four sites are in an area of open grasslands interspersed with groves of oaks and Digger pine (Plate 1a, b and c). The growth becomes heavier with a gain in elevation or along stream courses. Much of the area is devoted to grazing but the lower, less rolling areas now support groves of olives, figs and citrus fruits. Deer, quail, wild pigeons, mourning doves, turkey vultures, foxes, and pond turtles are some of the wild animals observed during the period of investigation of the sites. Apparently the faunal assemblage is essentially the same as it was in native times.

ETHNOGRAPHIC SKETCH

Although local Indians were contacted during the excavation of these sites they could provide no specific information concerning them. According to Kroeber (1925: Pl. 37) the region is fully within the area designated as that of the Northwestern Maidu. These people had a typical central California mode of life based on a hunting and gathering economy with the usual emphasis placed on the use of the acorn as a staple. Dwellings were

conical, bark-covered affairs about 12 feet in diameter and dug into the ground a foot or so (cf., Jewell 1961). The community house was also dug in the ground and the pole and brush roof covered with earth to produce a very serviceable building.

The Maidu recognized political division in which one's village combined with several neighboring villages to constitute a political unit or tribelet. Such units would, in turn, form a single larger named unit. These larger units form the ultimate division, the Maidu nation. These larger units are based on linguistic variation and socio-economical appearances, such as those noted by Dixon (1905). The Northwest Maidu, for example, segregate the foothill and valley groups as well as higher mountain groups.

Due to the fact that much of the Maidu homeland was situated within the area of great mining activity, as a consequence of 1849 gold discovery, the Indians suffered excessively from the great influx of Europeans. For this reason the Argonauts found a cooperative group of Indian who endured many aggravations and injustices before striking back. It is fortunate that among the gold seekers there were some men of quality who made an effort to see that the Maidu were treated with fairness.

It is evident that between 1850 and 1890 the impact of European culture created changes in the native culture patterns and population. At least one native reaction to this influence, the Ghost Dance, is evident archeologically (Treganza 1960). Enough of the native culture patterns remained, however, to provide an excellent body of data. Among the more valuable works may be listed Dixon's study (1905), Kroeber (1925) and Voegelin (1942). Of these Dixon's is the most useful since his informants had more intimate knowledge of pre-white Maidu culture patterns.

METHOD OF EXCAVATION

As all of the sites presented to the excavators the same problem (i.e., to obtain the greatest recovery for the least expenditure of effort), and due to time limitations, all were tested with but from three to six 5 by 5 foot test units. These units were excavated in six inch levels at first, but later in one foot levels due to the low artifact yield. Five 5 by 5 foot units and one 3 by 3 foot unit were excavated at But-98. One of these units (20E/100N) was excavated to a depth of only 12 inches while the others ranged in depth from 39 to 65 inches, depending upon the depth of the deposit in the unit. A total of 529 cubic feet of midden was excavated. The average depth of the deposit was from 50 to 55 inches. Map 2 shows the extent of the midden and Datum B which is 60 feet east and 80 feet north of Datum A.

Three five foot square units were excavated (totalling 197 cubic feet) ranging in depth from 24 to 41 inches to sterile soil at But-103. The deepest unit was excavated to remove a feature intrusive into the sterile base. The depth of deposit probably would average about 30 to 34 inches. Map 4 shows the apparent limits of the site, although the grass cover on the site presented some difficulty in making a precise determination.

But-131 (Map 5) was rather hastily tested in the last few days of the time available.* Three 5 by 5 foot units were excavated, two of these to base (48 inches) while the third, not completely excavated was 36 inches deep. A total of 275 cubic feet of earth was excavated. The site area is noted as about 150 feet in diameter, and scraping activities have removed some of the deposit along the southwestern edge of the site.

*As will be noted by the map a larger volume was excavated than noted infra. This work was done subsequent to the preparation of this report.

While the efficiency of screening versus nonscreening of midden deposits in central California sites has been commented on by Meighan (1950) there is little doubt that sites of low yield, such as those reported here, must be screened to gain an adequate sample. Due to the small amount of midden tested at any one site it was felt that this was the only method which would produce the greatest sample for the least amount of labor.

PROJECTILE POINT CLASSIFICATION

The projectile point typology utilized in this report is based on the criteria of form and weight. It has long been recognized that projectile points from the older sites in central California, and the western United States, in general tend to be larger and heavier than points from the late sites. This suggested to Fenenga that on the basis of weight it might be possible to correlate the heavier points (i.e., over 4.5 grams)"with a large point tradition" (Fenenga 1953: 317-19). In the central California sequence, at least in the lower Sacramento Valley proper, this distinction has temporal significance. The Early and Middle Horizon projectile points almost without exception weigh over 5 grams (Lillard, Heizer and Fenenga 1939: 74, 77). The Early Horizon points, classed as dart tips by Heizer (1949: 22, Table 9), average 8.3 grams. The Middle Horizon projectile point data presented by Fenenga (1953: 314, Fig. 1) indicate the average weight to be over 10 grams. Great Basin projectile point series tend to weigh considerably less, even when temporally comparable to central California. Points from the Karlo site in northeastern California cluster between 1.5 and 6 grams (Riddell 1960: Fig. 2) and average considerably lighter than the Central Valley Early and Middle Horizon points in spite of their definite relationships (Riddell 1960: 8-13). Such evidence for a light weight tradition is also commented on by Fenenga (1954: 319-21).

Small projectile points, equated with the bow and arrow, are confined to the Late Horizon in the Sacramento Valley (Lillard, Heizer and Fenenga 1939: 79-80). They tend to cluster in the 1 to 2 gram range, although slightly heavier points do occur (Fenenga 1953: 314, 317, Fig. 1). The high Sierran Kings Beach Complex, various later complexes in the north coast ranges of California and the later northern Sacramento Valley complexes all are characterized by projectile points weighing in the 0.5 to 3 gram range, with an average of about 1 gram (Baumhoff 1957: 28-31; Heizer and Elsasser 1953: 20; Meighan 1955: 29-33; Treganza 1954: 5; Treganza 1960; Fig. 1; Smith and Weymouth 1952: 10). Among the small, light points several forms are useful as time markers in the Sacramento Valley. The "Gunther Barbed" type and its several variants are typical of the north valley (Treganza 1958: 13-15). A variety of small serrated forms occur in Late Horizon sites in the Sacramento Delta region and somewhat to the north (Lillard, Heizer and Fenenga 1939: 80). A third form, the "Desert Sidenotched", occurs frequently throughout the Sacramento Valley and is always found in a late context (Baumhoff and Byrne 1959).

The projectile point series from the sites reported herein have been lumped for typological purposes; however, the points from each site are discussed in the section on the individual site. No one site contained specimens of each type.

Six major styles, on the basis of form, occurred in the three sites which produced projectile points. These have been subdivided into twenty substyles on the basis of shoulder and stem form. The point series has additionally been classified by weight. Class 1 points weigh from 0.4 to 2 grams; Class 2 from 2.1 to 4.5 grams; and Class 3 points weigh 4.6 grams and up. The combination of form and weight gives a total of thirty projectile point types. The twenty substyles or forms are described below

and the reader is referred to Table 1 for the weight distribution of the various forms. In the discussion of the projectile points from each site, the types will be referred to by weight (Class 1, 2 or 3) as well as form. Thus, for example, the points weighing below 2 grams with a bipointed leaf shape would be Type 1Aa.

Form Aa: Bipointed leaf shape with symetrical outline.

Ab: Leaf shaped point with straight sides and triangular base,; maximum width near base.

Ac: Leaf shaped point with convex base; widest point tends to be near base but may be near midpoint.

Ad: Triangular point with slightly convex base.

Ba: Leaf shaped point with convex base and broad U-shaped side-notch near base.

Bb: Leaf shaped point with straight base and broad U-shaped side-notch near base.

Bc: Triangular point with straight sides; narrow side-notches just above an expanded flat base.

Bd: Triangular point with comma-shaped side-notch and a flat, squared base.

Be: Triangular point with shallow side-notch and expanded concave base.

Ca: Triangular point with sloping, well-defined shoulder and tapered pointed stem.

Cb: Slightly convex sided point with sloping shoulder and straight sided flat base.

Cc: Slightly convex sided point with sloping shoulder and expanded convex base.

Da: Straight sided point with straight shoulder and wide square base.

Db: Straight sided point with straight shoulder and expanded convex stem.

Dc: Straight sided point with lateral side-notch and straight shoulder with expanding flat base (corner notched).

Dd: Leaf shaped point with lateral notches and convex base (corner notched).

Ea: Triangular point with barbs and tapering stem (Gunther Barbed variant).

Eb: Triangular point with barbs and straight square stem (Gunther Barbed variant).

Ec: Triangular point with lateral notches, and flat base. Creates a barbed, expanding stem effect.

F: Straight sided triangular blade with rounded expanding shoulder and tapering concave base. Creates the effect of a concave sided point.

Three points are only partially classifiable due to broken stems. They have been included in the weight classification and are put with the main form in which they fit. Fragments have been classed by material in Table 1 and they are included in the tabulations by site. The measurements and weight for the fragments are for the specimens in their present state.

ARCHEOLOGICAL SITE But-105

Introduction

Site But-105 (Map 3) was originally one of the three sites (But-98, 103 and 105) scheduled for excavation. During the field work, however, closer inspection revealed the value of excavating site But-131, hence But-105 was not included in the sites test excavated along the right-of-way.

The small collection reported here was recovered during the course of the preliminary survey and during a later survey when the site was checked to determine more fully its value in terms of excavation. As the site had been plowed and otherwise disturbed some idea could be gained as to the nature of the midden deposit, but, admittedly, such impressions leave much to be desired.

The midden deposit, approximately 150 feet in diameter, occupies a bench above a small creek which enters Mesilla Valley a short distance to the west. It is dark and rather loose or even "fluffy" in consistency and

contains a large proportion of stone, the majority of which seems to be made up of local basalt cobbles. Most of these cobbles were used as cooking stones judging from their size and broken condition. The depth of the deposit, though not tested, certainly would be in the range of two to three feet at the maximum.

Artifactual Remains

All of the artifacts recovered from But-105 are made of stone, and are mainly food preparation implements or reject cores from which flakes have been struck. The lack of projectile points from the site is puzzling, although excavation probably would have proven worthwhile in this respect (see Table 1 for distribution by artifact type).

Chipped Stone

Chipped Stone Blades: Only two chipped stone pieces were recovered, both crudely chipped basalt blades. They have been fashioned by percussion flaking and may represent blanks as they show no evidence of use. They could have served as scraping tools, however. They measure 51 mm. and 97 mm. long, 30 mm. and 39 mm. wide and both are 10 mm. thick.

Choppers and Cores: Seven fist-sized or slightly smaller basalt cores were recovered, all showing scars resulting from the removal of a number of randomly struck flakes. In some instances a sharp, wavy edge has been produced as a result of striking flakes from alternate sides around the edge of the core. None of the resulting edges show signs of use which suggests that these pieces are simply reject cores. They range in size from 78 mm. to 98 mm. long, 55 mm. to 92 mm. wide and 22 mm. to 49 mm. thick.

The chopping tools closely resemble the cores, but show evidence of battering along the edges. Thus, while the form suggests use as chopping implements, they well may have served as hammerstones, or as all purpose

tools. The two specimens measure 68 mm. and 87 mm. long, 60 mm. and 71 mm. wide by 47 mm. and 54 mm. thick.

Chipping Waste: A single flake of green basalt and four cracked quartz crystals were recovered. The occurrence of both materials is frequent in the area and requires no further comment at this point.

Ground Stone

The most common ground stone artifacts recovered were food grinding implements. It is of interest to note the use of granite for the manufacture of manos, as this suggests the local basalt was not preferred for this purpose. Possibly this is due to the soft nature of the local basalt cobbles so common to the area. The source of the granite is not known, but is undoubtedly not too far distant.

Pestle: The single fragmentary pestle recovered is made from a natural cobble of highly metamorphosed sediment. It shows evidence of pecking on the sides, and polish or striations near the partially complete end. The latter suggests that the specimen was used in a wooden mortar (cf., Lillard, Heizer and Fenenga 1939: 8-11). If complete, the specimen would have measured about 7.7 cm. in diameter by 15.3 cm. in length.

Hopper Mortar: This specimen, the only example recovered from any of the sites along the right-of-way, has been fashioned from a large basalt cobble (Plate 7F). The sides and base of the cobble are unmodified, but the top has been smoothed around the shallow, cup-shaped depression. The depression, evidently produced by pecking and use-grinding, measures 11.5 cm. in diameter and 2 cm. deep. Overall dimensions of the specimen are 29 cm. long, 26 cm. wide by 16 cm. thick. Due to the shallowness of the depressions it would function poorly without a basket hopper to hold in place the material being ground. Slab mortars, used without basket hoppers, are reported for

the Northwest Maidu by Voegelin (1942, Nos. 1103-1105) while Dixon (1905:135) illustrates a Northeast Maidu example.

Manos: Seven whole or fragmentary granite manos were recovered from the site. The two measurable specimens are rectangular to sub-rectangular in cross-section and oval to almost rectangular in outline. Both complete examples were used bifacially. They measure 11.6 cm. and 12.5 cm. long-8.1 cm. and 8.9 cm. wide by 5.4 cm. thick.

The fragmentary examples all show well developed grinding facets on one or both sides, and one is shaped on one end. Both the fragmentary and complete specimens have been fashioned from convenient naturally shaped stream cobbles.

Metate: The single fragmentary slab metate recovered is fashioned from a section of flat basalt. It shows evidence of pecking on both sides. The top, or most worn surface, is slightly concave and has well defined grinding facets. No artificial shaping can be noted around the edges of the specimen. It now measures 22 cm. long, 31 cm. wide and 5 cm. to 6 cm. thick. It originally must have been about 35 cm. to 40 cm. in length.

Steatite Bowl Fragment: A single, small rim fragment from a well made, highly polished steatite vessel was recovered from But-105. The material is an extremely fine grained blue-black steatite, in contrast to the majority of the fragments which tend to be grey to pinkish in color recovered from the other sites along the right-of-way.

Upon close examination of this fragment a series of incisions were noted. They consist of two parallel lines just below the rim edge of the outer (convex) surface of the fragment, in between which are a series of vertical incisions. Below this band is a second series of short vertical lines (see Plate 8G).

The only other site in the area from which incised objects (bone spatulae and tubes) have been recovered is But-90. Here they may be attributed to the Late Horizon Phase II period, although it is possible that this art form also was known during the Phase I occupation, as it was present in the Sacramento Valley during the early portion of the Late Horizon (Lillard, Heizer and Fenenga 1939). Until further evidence is forthcoming it seems most likely that But-105 must contain a Phase II component to which this specimen is to be attributed.

ARCHEOLOGICAL SITE But-103

Introduction

Due to the limited amount of work performed at this site the sample is quite small. It became clear, during excavation, that recent activities had badly disturbed the deposit, especially in one test unit where a large drain pipe extended almost through the center of the square (Map 4).

Almost all the recovered specimens are of stone, although a small number of badly fragmented mammal bones were recovered, none of which showed modification other than being broken.

Stratigraphy

The midden deposit at But-103 consisted of a dark, rock filled soil with a rather loose, dusty texture. Charcoal and ash content of the midden was not great, but flecks of charcoal were noted throughout the deposit.

The greatest depth of deposit was 41 inches in unit 95E/60N, though traces of midden were noted somewhat deeper. In the other unit excavated to base, the midden reached a depth of 32 to 36 inches. In both units rodent burrows penetrated into sterile soil producing mixed zones in localized areas.

The base soil consisted of a compacted, coarse grained sand derived from the decomposed sandstone of the Ione Formation underlying the site

area. The distinctive yellow to reddish coloration of this base soil contrasted sharply with the dark colored midden. This differential coloring helped to define pits aboriginally excavated into the base soil. This condition also was encountered at But-98 and But-131.

In common with But-131 the rock content at But-103 was extremely high. The rocks (primarily basalt cobbles) seem to be concentrated in the 12 to 24 inch level, although our limited testing of the site is certainly not conclusive in this respect. This concentration, in part, may be due to plowing of the site area and the subsequent removal of some stone from the upper 12 inches of the deposit. The origin of the cobbles found in the site is discussed at more length in the following section concerning But-131. This discussion serves equally for But-103. The location of But-103 on a high saddle above a stream suggests, however, that a greater percentage of the stone was introduced into the midden by the aboriginal inhabitants than was the case with any of the other three sites.

Features

A single feature (Feature 1) was recorded at But-103. It was located in the northwest corner of unit 95E/60N at a depth of 36 to 41 inches. It consisted of a basalt slab metate, a brick shaped slab of basalt, and an elongate stream cobble battered on both ends. In the same area were two projectile points and a complete quartz crystal. All of these objects had been placed in a shallow pit dug into the sterile base sand. The pit clearly must have originated somewhat above the base of the midden deposit.

Judging from the lack of use-wear on the metate, apparently newly sharpened (i.e., pecked), the included material must represent a cache. This suggests intermittent occupation of the site, although such a view cannot otherwise be substantiated.

Artifactual Remains

Chipped Stone

Projectile Points: Only eight of the eleven projectile points could be assigned to type, two of which were assigned to Feature 1 (see Tables 2, 3 and 4 for artifact distribution at But-103). Four are made of shale, three of basalt and two each of chert and obsidian.

All of the classifiable points weigh over 2.1 grams. The Class 2 points include Types 2Ba, 2Bc, 2Dc and 2Ea. The Class 3 points include Type 3Ac (2), Type 3Cc (1) and a fragmentary Type 3D point. The two deepest points, Types 2Bc, 2Ea, from the 36 to 48 inch level, were included with Feature 1 and may be intrusive to this level. Neither, on the basis of shape and weight, appear to be particularly early forms in the Oroville area, but both are heavier than the majority of the points associated with clam shell disc beads at the best known Late Horizon Phase II site (But-90) in the area. The remaining points shed little light on the affinities of the site, but all appear to be types in use prior to the clam shell disc bead associated points. The predominance of shale, basalt and chert add support to such a dating (see discussion of But-98 projectile points infra).

Knives and Scrapers: Five knives or scrapers were recovered (Table 5, Plate 5C2 shows one of them); four made of shale and one of chert. The shale specimens are flakes with one chipped edge, and the chert specimen is an elongate flake with one retouched edge. The largest specimen measures 75 mm. by 22 mm. by 6 mm.

Ground Edge Slate Knives: Two knives with ground or polished edges were recovered, both made of green shale. The larger measures 90 mm. long, 30 mm. wide and 2 mm. to 3 mm. thick along the flatly ground (worn?), blunt edge. These pieces evidently served as knives for cutting soft material as their brittle nature limits them for working stone, or heavy bone objects.

Basalt "Brick": This specimen, associated with Feature 1, is a natural brick-shaped block of columnar basalt which has had flakes battered from each end. Since it shows no other signs of use it must represent raw material cached for use at a later time. It measures 19 cm. by 9.5 cm. by 8 cm.

Chipping Waste: All surface chips as well as chips from the excavated midden were saved. Their material and depth distribution is shown in Table 5. The number of broken, and rarely whole, quartz crystals is notable, while the lack of obsidian, as compared to the local shale and silicates, also indicates that trade was rare or that local materials were preferred.

Ground and Pecked Stone Artifacts

Hammerstone: A single large, elongate cobble with battering on both ends evidently served as a hammerstone. It was in association with Feature 1 (see above) and may have been the implement used in sharpening this metate. It measures 22 cm. long and 7 cm. in maximum diameter. It is made of a dense microcrystalline material well adapted to heavy usage.

Food Grinding Implements: Six grinding implements were recovered from the site, including two metates, four manos and a single pestle (see Table 5). Both metates and two of the manos are made of basalt and the remaining two manos are of granite. One of the metates is a large flat cobble showing use on one side. The second, a part of Feature 1, is a natural rectangular slab, measuring 40 cm. by 33 cm. by 12 cm., which shows signs of shaping around the edges (Plate 7G). The upper surface of the second specimen has been completely pecked, probably for purposes of sharpening, or for shaping the working surface. The piece evidently had been cached before use since it had not been worn from use.

Only one of the two granite manos has been shaped to any extent. It is loaf-shaped and measures 11 cm. by 8 cm. by 5 cm. (Plate 7E). The other

specimen (Plate 7D) has been slightly shaped by pecking but appears to have been rudely fashioned from a convenient-sized cobble. The largest of the two basalt specimens measures 11 cm. by 9.5 cm. by 6.3 cm. Both of them were in association with the cached metate (in Feature 1) described above (Plate 8D,E).

The single pestle, made of schist, measures 12.5 cm. long, and 4.5 cm. in diameter. Both ends of the specimen are badly battered suggesting that it last functioned as a hammerstone. It is also possible that such wear could result from use in a slab or hopper mortar, however.

Steatite bowl fragments: Five small grey to pinkish steatite vessel fragments were recovered from the site (Plate 2D5 and 6). Four are vessel wall fragments and the other is a rim section. All appear to have been fragments of round or ovoid vessels. The fragments are well polished on both the inner (concave) and outer surfaces and appear first to have been shaped by scraping or gouging and then finished by polishing.

Miscellaneous Stone

Colored Pebbles: Six small (pigeon egg size), variously colored stream pebbles were recovered from But-103 from the upper twelve inches of the midden. As the site is located on a saddle it is probable that they were brought in from the local streams. None of them have been modified and their use is unknown. Such specimens have not been recovered with burials from any of the sites in the Oroville area. Small pastel pink and white quartz pebbles, however, do occur as grave items from Late Horizon Phase II burials at Sac-56, a valley site on the Sacramento River some 20 miles south of Sacramento. A Maidu informant from the Oroville area considered such stones as being of the type used in slings in former times.

Faunal Remains

Six small unmodified fragments of mammal bone were the only faunal remains recovered from the site. All appear to be deer or other large mammal long bone sections and probably represent food remains.

ARCHEOLOGICAL SITE But-131

Introduction

This site, located on a ridge overlooking a small stream, is almost directly north of But-103. The sample obtained indicates that the site should be tested more thoroughly, especially since it produced bone artifacts and human burials.* Tables 6, 7 and 8 present pertinent data on the artifactual material from But-131.

Stratigraphy

The deposit at But-131 consists of a rather dark, loose midden which reaches a depth of 40 to 44 inches. No readily observable layering could be noted in this deposit, although the lower levels of the deposit had been mixed to some extent with the underlying sterile, reddish sand. The reason for this is not completely clear, but the condition must have resulted (at least in part) from aboriginal digging activities, burial pits, earth ovens, and the like, and also from tree root and rodent disturbance. Several oak trees were removed from the site during the right-of-way clearance and roots from them were noted during the excavations. As was noted during the excavation of all three sites, the rock content of the midden of But-131 was extremely high. The greater percentage of this stone consists of angular basalt cobbles, probably derived from the lava flows which produce the Table Mountain formation. Since these cobbles also were noted on the surface and in the road cut near the site area they must be, in part, derived from the talus slopes located above the site area.

Features

A single feature was noted at But-131. Located in Unit 3 at a depth of 26 to 40 inches it consisted of a pit dug into the sterile base sand filled with four or five large cobbles. The single fragmentary metate

* But-131 was further excavated in the summer of 1962.

recovered during the excavation was associated with the cobbles, along with a large basalt flake and several broken quartz crystals. No human bones were noted under the stones, but possibly they represent a cairn over a now disintegrated burial. There also exists the possibility that the feature represents an earth oven, but no charcoal or ash was noted.

Human Remains

Only at But-131 were any relatively complete human burials recovered. They consist of one fairly complete and one badly disturbed burial (see Table 9, Plates 2B and C). The former was tightly flexed on the right side, oriented to the west, and covered with several large stream cobbles. It was accompanied with a single obsidian blade fragment. The second burial was badly disturbed and consisted of a fragmentary femur and innominate fragments, again covered with large cobbles. Excavations at But-90 revealed cairn burials both in Late Horizon Phase I and Phase II times.

Artifactual Remains

Chipped Stone

Projectile Points: A total of 57 projectile points was recovered from But-131. Of these 42 are wholly or partially classifiable. Tables 6 and 7 present the pertinent data on the points. Basalt is the most frequent material with 25 occurrences; followed by shale, 16 occurrences; obsidian, 9 occurrences and various silicates, 5 occurrences.

Eleven Class 1 points occurred, with five of the six excavated specimens from the upper 24 inches of the midden, and the last specimen from the 36 to 48 inch level. Eight of the Class 1 points are stemmed with straight shoulders or barbs and tapering, straight or expanded stems (Types 1Dc, 1Ea and 1Eb). The three remaining Class 1 points, Types 1Bb, 1Bd and 1Be, are sidenotched with a straight or concave base. They bear a superficial resemblance to the Desert Side-notched form but seem to be of local origin

on the basis of weight and material. All weigh 1.5 gms. to 1.7 gms. and two of the three are made of basalt. Similar points have been recovered from But-90 where the Desert Side-notched form was in use. The majority of the Desert Side-notched points from But-90 are made of various silicates and exhibit fine pressure flaking in contrast to the coarse chipping on the But-131 specimens. The limited evidence suggests that the Side-notched points are coeval with the small stemmed points at But-131, with the exception of the single Type 1Be specimen from the 36 to 48 inch level.

Class 2 points, seven types with 19 specimens, make up almost half of the classifiable points from But-131. The majority of the Class 2 points, fourteen, are made of basalt. Two shale, two obsidian and a single chert specimen make up the remainder.

The upper 12 inches of the deposit produced 9 of the 13 excavated Class 2 points. Five stemmed forms including Types 2Ca, 2Cb and 2Ea, occurred while four non-stemmed forms occurred. Three of the four non-stemmed specimens are side-notched, Type 2Ba and 2Bb, and the last is a leaf shaped blade, Type 2Ac. The deeper deposits produced three stemmed forms. Two of these are broken, but one has straight shoulders, Type 2C- and the second is barbed, Type 2E-. The Type 2C- point is the deepest of the Class 2 points. A single side-notched point, Type 2Ba occurred fairly deep, 24 to 36 inch level which suggests that this form is contemporaneous with the Class 2 stemmed forms. It is significant that the medium weight points are the most frequent at the site. This indicates a relationship with But-103 where they occurred without association with Class 1 points.

The Class 3 points, twelve in number, include only two stemmed forms, as opposed to ten non-stemmed forms. Of the twelve specimens, four are made of shale, four of basalt, three of chert or chalcedony and one of obsidian.

The depth range for the large leaf shaped points, Type 3Ac, suggests that they are one of the earlier forms at the site. One was associated with Burial 1 and four of the five midden specimens with depth are below the bulk of the Class 1 and 2 points. The Class 3 Side-notched points, Type 3Ba, show the same tendency. The single Type 3F point, an aberrant form, was shallow. The two stemmed points are surface specimens. The Type 3Dc specimen, of white chalcedony, exhibits well executed pressure flaking, and in form is nearly identical to specimens from But-90. The workmanship and material suggest use as "show" pieces, though some of these large points could have served as spear points.

It is clear that the heavier points, Classes 2 and 3, tend to be stratigraphically earlier than Class 1 points (see Table 6). Class I points are most frequent in the upper 12 inches of the deposit and from the disturbed surface zone of the site. The Class 2 points are also frequent in the upper 12 inch level and from the surface, but double in frequency in the deeper midden over that of Class 1. Class 3 points are rare in the 0-12 inch level and are relatively frequent in middle levels (12 to 36 inches) as compared to Class 1 and 2 points. They are also rare from the surface of the site. Disregarding the leaf shaped points (Ac) the most frequent points below 12 inches are the Class 2 and 3 stemmed or side-notched points. The predominant materials from which they are made are basalt and shale, with the former preferred. The Class 3 points could have served as spear or dart points. Their probable association with the Class 2 points suggests that the majority served as spear points. The leaf shaped points could be either knives or projectile points. Wear in the form of blunted edges suggests that they were most likely knives or scraping tools.

The Class 2 points present a problem of interpretation. They are certainly not too heavy to have functioned as arrow points. It has been

pointed out previously, however, that the bulk of the arrow tips from the northern Sacramento Valley weigh below 2 grams. They could, then, be considered small dart points, but occurrence of intermediate weight points at But-90 with Late Horizon Phase I and II burials strongly indicates use as arrow points. These intermediate weight points could indicate a transition period during which both the bow and atlatl were in use, or simply a heavy arrow point tradition. The small light points, Class 1 in this report, appear to have replaced them gradually. It is suspected that this was due, in part, to trade since many of the small points are made of obsidian (cf., Dixon 1905: 132). Further evidence, in the form of foothill sites with datable shell beads would help to clarify this situation.

Knives: Two crude blades, and four blade fragments were recovered from But-131 (see Table 8 for depth distribution). Four are made of shale and two are of basalt. All appear to represent knives or blanks, since they are crudely chipped along the edges. The two most complete of these specimens, both made of shale, measure 67 mm. and 76 mm. long, 25 mm. and 26 mm. wide and 4 mm. thick. The smaller of the two is stemmed, presumably for hafting. The remaining specimens are too fragmentary to yield useful measurements.

Flake Scrapers: The majority of the flake scrapers appear to be reject flakes which were retouched along one or more edges. Three are made of jasper or mineralized wood (silicate), two are made of grey obsidian and one is of basalt. The basalt scraper shows one well chipped edge and could equally well have served as a knife or scraper. It measures 37 mm. by 35 mm. by 10 mm. One of the jasper examples is bifacially chipped along one edge. It is blade-shaped, and measures 29 mm. long, 12 mm. wide and 5 mm. thick. The remaining four specimens are irregular flakes with one or more slightly retouched edges. They measure 25 mm. to 38 mm. long, 16 mm. to 22 mm. wide and 6 mm. to 7 mm. thick.

End Scrapers: Two small scrapers with slightly concave edges have been classed as end scrapers. One is made of jasper, the second of obsidian. The cutting or scraping edge has been created by the removal of flakes parallel to the long axis of the flake of which the specimen is made. The obsidian example has one weathered surface, partially reworked by the removal of more recent chips along the working edge. The specimens measure 20 mm. long, 10 mm. and 18 mm. wide by 6 mm. and 8 mm. thick.

Steep Angle Scrapers: Three roughly hemispherical flakes are classed as steep angle scrapers. One is made of basalt, one of mineralized wood and one of dark grey chert. The working edge has been fashioned by removing a series of percussion flakes at about a 45^{o} angle to the horizontal plane of flake. All would serve nicely for scraping, but are ill-suited for cutting. They measure 35 mm. to 51 mm. long, 29 mm. to 47 mm. wide by 11 mm. to 13 mm. thick.

Drill or Gouge: Four specimens have been placed in this class, three made of obsidian and one of chalcedony. The largest specimen has been fashioned by the removal of percussion flakes at one end forming a crude, blunt point. The second specimen resembles the first in that it is also shaped by percussion flaking and exhibits a blunt, pointed chisel-like tip. They measure 24 mm. and 30 mm. long, 11 mm. and 18 mm. wide by 5 mm. and 9 mm. thick. The last two examples are flakes with a sharp projection at one end produced by pressure flaking. They measure 20 mm. and 24 mm. long, 19 mm. and 16 mm. wide by 4 mm. thick. The largest specimen, made of obsidian, exhibits considerable alteration through weathering of the flake scars. This suggests that it may have been picked up from an older site for re-use, or as a curiosity.

Large Flake Scrapers: Four specimens, two of basalt, one of shale, and one of chert are classed as large flake scrapers. All are large flakes,

or modified cores, with one sharpened edge. All are crudely percussion flaked which has produced a sharp, wavy, rather steep-angled cutting or scraping edge. They measure 84 mm. to 98 mm. long, 49 mm. to 69 mm. wide by 18 mm. to 33 mm. thick. They seem best suited for chopping or heavy duty scraping. All show some use wear, apparently as a result of scraping or cutting.

Cores: The fine cores resemble to some extent the large flake scrapers, but show no evidence of use and average somewhat larger in size. Four are basalt and one is of mineralized wood.

All the cores have been roughly percussion flaked, resulting in a series of broad, shallow flake scars on one or more sides. One resembles a scraper plane. The largest specimen has a slightly battered edge, while the remainder show no evidence of use as tools. They measure 56 mm. to 85 mm. long, 46 mm. to 70 mm. wide by 26 mm. to 68 mm. thick.

Chipping Waste: A large number of unmodified flakes and chips were recovered during the excavations. Their depth and material distribution is shown in Table 8. It is of interest to note that shale and basalt chipping waste makes up a smaller percentage of the total at But-131 than at But-98 (see Tables 8 and 11). This lends some support to the hypothesis that But-131 follows But-98 in time.

Ground and Pecked Stone

Food Grinding Implements: Two metates were recovered from the surface of the site. Both are fashioned from irregularly shaped natural slabs of reddish, coarse grained sandstone. The complete specimen (Plate 7H) measures 35 cm. by 34 cm. by 13 cm. The edges of the slab have not been shaped but the bottom has been slightly ground. The working surface is concave but apparently this is, in part, natural. Well defined grinding facets may be noted on this surface, however.

Seven handstones, or manos, were recovered. Two of these are made of granite, three of basalt and two of a fine grained microcrystalline stone. Four of the specimens are cobbles which, due to their natural shape, could be used as handstones. The other three have been completely shaped. Two are loaf-shaped while one is oval in outline. The complete specimen, made of basalt, measures 75 mm. long, 70 mm. wide and 33 mm. thick. One of the granite specimens, now fragmentary, measures 85 mm. long, 100 mm. wide and 34 mm. thick. It would have been about twice as large when complete.

Three pestles, one complete and two fragmentary, were recovered, but no mortars were noted. Since bedrock mortars are known from the same area (near But-98, Plate 1d), this lack is not particularly surprising.

The only complete pestle recovered is fashioned from a natural basalt cobble. It shows evidence of having been used in a wooden mortar, as the chisel pointed tip has the striated, polished wear pattern typical of pestles used in wooden mortars (Plate 8b). It measures 21.5 cm. long, 10 cm. wide and 9 cm. thick. Some pecking is evident on the sides of the specimen, but this barely alters the shape of the original cobble. The two fragmentary cobble specimens, both with polished striated ends, are made of dense microcrystalline stone. Both were used in a wooden mortar, but the sides are not shaped as with the complete specimen.

Grooved Sinkers: Two egg-shaped sinkers with longitudinal encircling grooves were recovered. The complete specimen (Plate 5a3) is made of volcanic tuff and measures 65 mm. long, 40 mm. wide and 35 mm. thick. The encircling groove, produced by pecking, measures 8 mm. to 10 mm. wide and is 2 mm. to 3 mm. deep. The second specimen, made of reddish scoria, is now fragmentary but would have been comparable in size to the complete example (Plate 5a4). The complete specimen shows over-all abrasion or

polish, while the second has been shaped by pecking into the desired form, but has not been polished.

Steatite Bowl Fragments: Seven small fragments of worked grey to pink-grey steatite were recovered from the site. Four are rounded edge rim fragments from steatite vessels. All are well polished on the inner and outer surfaces. The two largest fragments measure about 50 mm. long, 25 mm. wide and 10 mm. to 15 mm. thick (Plate 2d7). One small blue-black fragment appears to have been broken from the bowl-end of a stone pipe. It measures 3 mm. thick. The outer convex surface is well polished and the inner concave surface exhibits a series of longitudinal gouge marks. The remaining two bowl fragments are too small to yield information.

Red Pigment: A single, small rectangular piece of soft red sandstone pigment material occurred in the site. It measures 35 mm. by 22 mm. by 5 mm. and has been rubbed or ground on both sides. The edges have been squarely ground off. No hematite or cinnabar has been noted from sites in the area, and the pigment lump reported here is probably local material * (Plate 2d2).

Slate "Rod": This unique specimen measures 80 mm. long, 5 mm. to 14 mm. wide, and 5 mm. to 10 mm. thick. The broad end has been squarely cut off and polished while the pointed end is now partially broken off, probably done during the limited bulldozing of the site. While it does not exhibit use-wear, it may have been used as a pendant or possibly as a flaking tool.

Hammerstones: Three small, egg-sized hammerstones occurred at But-131. One is a quartz cobble, the second a shale core and the last a small basalt

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* Subsequent excavation on proto-historic sites But-99, 100 and 101 by Mr. D. P. Jewell, 1961, produced several examples of hematite or cinnabar used as pigment sources.

cobble. All show some battering on one or more edges or on one end. They probably represent general purpose tools since they are unmodified other than by battering.

Quartz Crystals: Some mention must be made on the occurrence of the large numbers of cracked quartz crystals in the site. Often these are merely small chips broken from complete crystals, but several whole crystals were recovered which also exhibit battered ends or edges. An explanation of the use of these chips or flakes is not possible at this time. Since they occur more rarely in the lower levels of But-98 they may serve as a local temporal marker, but further work is needed to determine their significance.

Artifacts of Bone

Bone Spatula: Three small polished fragments of spatulate bone implements were recovered from the site. The first is a small rounded-end tip fragment measuring 20 mm. by 9 mm., the second is a midsection fragment measuring 30 mm. by 10 mm. The latter specimen has been completely carbonized and may have been discarded after being broken (Plate 2d4). The third specimen is a small midsection fragment.

Mammal Bone Tube: A single end fragment from a tube of large diameter was the only specimen of this type recovered. The unbroken end of the fragment has been cut off and polished. The specimen measures 18 mm. by 16 mm.

Bone Awl: A single complete bone awl, made from a split deer metapodial, was recovered at the site (Plate 2d3). It may be classed as Type AlbII according to the typology established by Gifford (1947) and is one of the more frequent awl types in the Lower Sacramento Valley. A second, small carbonized tip fragment is too small to yield additional information.

The lack of diagnostic bone artifacts in the Oroville area (with the exception of But-90) precludes any quantitative comparisons with the sequence

in the Sacramento Valley. Other than awls and bipointed gorge hooks, the items recovered appear to be non-utilitarian in function. It is suggested that bone played a lesser role in the foothills than in the Central Valley proper, although preservation may partially account for this apparent lack in the area.

Faunal Remains

A small number of badly fragmented animal bones have been recovered from the sites being reported here. The fragments from But-131 all appear to be splinters of large mammal long bones, probably deer for the most part. The only identifiable specimens include one toe bone and two fragmentary condyles. A number of the fragments have been burnt, indicating that they are probably food remains. The rarity of large mammal remains suggests the animals were butchered some distance from the site. Ethnographical data presented by Dixon (1905) and Voegelin (1943) indicate that large mammals were butchered near the kill site. The But-131 data suggest this practice has some time depth.

ARCHEOLOGICAL SITE But-98

Introduction

But-98 was one of the first sites noted during the original survey of the railroad relocation route. Initial investigation suggested that it had little depth of deposit due to its exposed location on the slope of a knoll. Later examination of the site, after bulldozing along the right-of-way had commenced, revealed sufficient midden to warrant test excavation (see Map 2).

Stratigraphy

Excavation showed But-98 to have the greatest depth of deposit of the three sites excavated. In the central portion of the site the midden reached a depth of 46 to 50 inches (Figure 1), with a mixed zone of midden and

sterile sand some 12 inches in thickness below this. Near the western edge of the site midden depth ranged from 15 to 39 inches. The slope of the knoll suggests that this is, in part, material washed downhill from the deeper (uphill) portion of the deposit.

The midden proper (Layer 1) consists of a dark charcoal flecked sand with a high rock content. Upon drying out it changes color to a brown, granular appearing material (Plate 2a). The rock content is greatest in the upper 36 inches and declines from this depth to the base of the deposit. The mixed layer (Layer 2) at the base of the midden proper is composed of mixed midden and coarse grained, calcareous yellow sand. Upon drying, this material is light brown in color. Several artifacts were recovered from Layer 2, along with a number of shale chips and flakes. The basal deposit (Layer 3) is composed of sterile tan colored sand underlain by flat slabs of exfoliating sandstone, yellow to red in color (Figure 1, Layer 3). This is evidently the parent material of the mixed layer just above it. Since the sandstone bedrock is irregular in depth, due to exfoliation and the slope of the knoll, it sometimes was difficult to determine the point where the mixed sandy midden left off and the sterile base sand began. Apparently the midden has over the course of time become somewhat leached, at least in the lower levels (i.e., 40 to 60 inches).

Small flecks of charcoal were noted in Layer 1, and a sample was obtained from the 24 to 36 inch level for C14 dating purposes. Animal bones were almost nonexistent to suggest that they have not survived due to unfavorable soil conditions.

Features

No features were recorded at But-98, although in several instances evidence of pits dug into the mixed level from the overlying midden were noted in profile (see Figure 1 and Plate 2a). These pits indicate one of the

ways by which mixture of the deposit could take place. They do not, however, explain the occurrence of artifacts near the base of the site in almost pure sterile sand.

Artifactual Remains

While the artifact yield was not large, a useful sample was obtained. For the most part the material consists of chipped or ground stone, and only a single fragmentary bone artifact was recovered. The artifact distribution at But-98 is presented in Tables 10, 11 and 12.

Chipped Stone

Projectile Points: Sixty-four whole or fragmentary projectile points were recovered from But-98. Of these forty-one are classifiable or partially classifiable. The sample consists of thirty-six shale specimens, twelve of various silicates, nine of basalt and seven of obsidian.

Seven Class 1 projectile points were recovered. Six are made of obsidian or chalcedony and one is of basalt. The most frequent type is Type 1Eb which is barbed with a straight stem. It had one occurrence in each of the three upper levels, surface to 36 inches. The other barbed form, Type 1Ec, had a single occurrence in the 0 to 12 inch level. A single small leaf shaped example, Type 1Ac, occurred in the site. The poorly controlled flaking suggests that it may have served some purpose other than as a projectile point. It could be a slightly retouched tip broken from a larger projectile point and subsequently re-used as a scraper or drill. The small triangular point, Type 1Ad, is from the disturbed portion of the site. It could have served as a projectile point but would also be suitable as a scraper.

The Class 2 points, eight types and twelve specimens, are made of shale (6), basalt (3), chert (2), and obsidian (1). The single obsidian example, Type 2Ac, is without depth information. It is well chipped but lacks the fine pressure retouch characteristic of the Class 1 obsidian points.

The six Class 2 points with depth information are side-notched, Type 2Ba, or stemmed, Types 2Ca, 2Cc and 2Da. The side-notched specimens are from the 36 to 48 inch level, and the stemmed forms are all below the 24 inch level. The deepest point from the site is one of the three Type 2Ca points. The single Class 2 square stemmed point, Type 2Da is also deep in the site. At But-98 the Class 2 stemmed points clearly predate the small Class 1 stemmed points and supports the thesis that medium weight points were in vogue prior to the introduction of the small, light arrow points.

The predominance of stemmed versus non-stemmed points among the Class 2 specimens without depth indicates that the midden sample, admittedly small, is representative. Many of the no location points, of all classes, were recovered after the site was leveled and presumably are from all levels. A high percentage of the Class 2 and 3 points, however, were recovered under circumstances suggesting they derived from the lower portion of the deposit, i.e., below 36 inches.

The largest sample from But-98 consists of the Class 3 points. Of the 22 specimens 15 are made of shale, 4 of basalt and 3 of chert. The 10 specimens with depth information are, with one exception, from the upper three levels of the site. Six are non-stemmed blades, Types 3Aa and 3Ac. The latter type is the most frequent form in the site, both in the excavated and salvaged sample. The single side-notched specimen, Type 3Ba, occurred fairly deep, as did the side-notched forms in Class 2. The sloping shouldered, square stemmed form,Type 3Cb, had one shallow occurrence, while the square shouldered stemmed points, Type 3Da, occurred only below 12 inches with one in the 48 to 60 inch level. Significantly the single Type 2Da point also occurred in this level. All of the excavated square stemmed points are made of shale. This is also true for the majority of the Class 2 and 3 points from the site.

The large number of no location specimens in Class 3 indicate the predominance of heavy points for the site as a whole. It is possible that smaller points might go unnoticed, but such has not been the case at other sites. It is clear that heavy points are typical for But-98.

The unclassifiable projectile point fragments, for the most part, are of shale. Most of them seem to be fragments of leaf shaped, Type 3A blades. The specimens made of silicates include two from the surface of the site. Both are tip fragments of small, lightweight points. Three heavy "keeled" chert specimens appear to represent sections of large spear points. All have been fashioned by the removal of broad percussion flakes. In this respect they resemble the majority of the Class 2 and 3 points. The use of obsidian in the lower levels, to a very limited degree, is indicated by a single edge fragment from a large obsidian blade. Like many of the other obsidian specimens from the site, it has a "weathered" appearance.

The projectile point sequence for But-98 indicates at least two occupation periods. As at But-131, Class 1 points are essentially confined to the upper 12 to 24 inches of the midden. In both sites they typically are stemmed and barbed points, Types 1Ea, 1Eb and 1Ec. Below the small points in both sites are the heavier Class 2 and Class 3 points. These tend to be shouldered with tapering, square or expanding stemmed points, Types 2C and 2D, and are frequently made of shale with lesser frequencies of basalt or chert. The Class 2 side-notched forms also make up part of the lower level point series, but are less frequent than the various stemmed forms. The Class 3 points also show a high percentage of stemmed forms, most of which occur below the Class 1 points. At But-98, however, the frequency of leaf shaped, Type 3Aa and 3Ac points increases. They must also predate the small Class 1 points.

Several significant thoughts may be presented at this time pertaining to the projectile point series from But-98. The extremely high percentage of shale in the site indicates either cultural preference or the lack of trade from obsidian using areas. The reduced use of obsidian, and the weight of the points, suggests that obsidian entered the Oroville area along with, or after the bow and arrow. The weight and size of the Class 3 points from But-98 indicate either an abnormally high incidence of spear or knife blades or the use of these heavy points as atlatl dart tips. This is borne out by the recovery of an atlatl engaging spur and several atlatl weights from the site. Both were lacking at But-103 and 131. The reduced frequency of large stemmed points at But-103 and 131 indicates that these latter points are characteristic of the earlier period. Other types attributed to the early period include, shouldered, pointed, straight, and expanding stemmed points, Types 2Ca, 2Cb, 3Ca, 3Cb and 3Cc. The single Type 2Dd point, made of chert, cannot be temporally placed, due to lack of depth information. The type is unknown from any definitely late sites suggesting that it may be a rare early complex type. The bulk of the earlier points are made of shale, but chert and basalt examples are not uncommon. Obsidian is rare with but two examples, one of which is a no location specimen.

Leaf Shaped Knives: Twenty-two specimens, all made of shale, are here classed as knives. They are generally leaf shaped in form with crudely chipped edges. The majority of the specimens seem to have been shaped by percussion flaking, but the nature of the material sometimes makes it difficult to be certain of this. The more or less complete specimens measure from 25 mm. to 35 mm. wide, 47 mm. to 70 mm. long, 25 mm. and 27 mm. wide by 5 mm. thick. The broken base fragments almost invariably have been squarely snapped off, as though from a prying motion. The blunted edges indicate that they were used as knives, however.

The abundance of these crude knives, as opposed to their rarity at other sites in the same area supports the theory that a specialized knife form is represented. The scarcity of these blades at other sites in the Oroville area indicates an emphasis on cutting tools in the early period, gradually declining in later times.

Flake Knives: Four specimens have been classed as flake knives. Three are made of grey shale and the last of green shale. All are large (80 mm. to 112 mm. long, 28 mm. to 65 mm. wide, 5 mm. to 12 mm. thick) flakes apparently struck from a prepared core. The edges are not retouched but are use-chipped and blunted. There is little doubt that these pieces served as knives. The thin edges suggest that they were used on soft material. Use as fish knives would seem to be the most logical explanation of this form. Similar flake knives have been recovered from sites of all periods in the Oroville area.

Oval Flake Knives: Two oval green shale flakes exhibiting chipping around the entire edge are classed as oval flake knives. They measure 45 mm. and 55 mm. long, 39 mm. and 44 mm. wide by 5 mm. thick. The wear on these pieces is the same as that on the leaf shaped knives and they probably served the same purpose.

Irregular Flake Knives: The irregular flake knives are simple large flakes with one or more bifacially chipped edges. One is made of basalt, one of dense green chert and the remainder of green shale. They measure 30 mm. to 75 mm. long, 25 mm. to 35 mm. wide and 5 mm. to 9 mm. thick. All are large enough to function as cutting tools in their present form.

Ground Edge Knives: These are irregular or blade shaped pieces with one, or sometimes two, ground edges. All are made of green shale. Typically the ground edge is bifacial, ground from both sides, but several have been ground only on one side or flatly ground off. The grinding rarely occurs

on previously chipped edges. The specimens range in size from 36 mm. by 23 mm. by 4 mm. to 85 mm. by 31 mm. by 4 mm.

When first noted it was suspected that these ground knives were used for working steatite. The lack of steatite at But-98, where they are most frequent, indicates some other use, however. The bluntness of the edges also detracts from the original hypothesis, but suggests no reasonable alternative function. The worked edge, invariably straight, suggests use as knives or scraping-smoothing tools. They appear to decrease in number and perfection in later periods.

Flake Scrapers: Eighteen variously shaped flake scrapers occurred. Twelve are made of green shale, five of various silicates, two of slate and the last of obsidian. For the most part they are simple irregular flakes with one steeply flaked edge. Several are blade-like or even pointed, but are rather crudely chipped. They range in size from 27 mm. to 75 mm. long, 15 mm. to 32 mm. wide by 3 mm. to 15 mm. thick. Similar flakes with used, or slightly retouched edges occur in all sites in the area. They definitely decrease in numbers in the later periods, however.

Core Scrapers: Two heavy, domed cores with evidence of use as scraping tools were noted. One is made of dense green chert and the second of shale. Both have been struck from larger cores producing one flat plane. The edges are slightly retouched and blunted as a result of use as scraping implements. Tools of this sort occur infrequently in sites of all periods in the area. The But-98 examples are better defined as a type than those from other sites, however.

Cores: Large battered cobbles or flakes were frequent at But-98. Twenty of the cores are made of basalt, seventeen of shale and the last of grey slate. The basalt cores are mostly from the surface collections. Since basalt cobbles occur in abundance locally, it is possible that naturally

modified cobbles have been included in the sample, but some are, without doubt, modified. The cores range in size from about the size of a man's fist to roughly double that size. The shale cores tend to concentrate near the small end of the scale and the basalt near the large end. Some of the cores may have been used as hammerstones or chopping implements, but none are definite enough to class as such. The excavated specimens occurred at all levels, with the majority of shale. They show the removal of long flakes along their sides, probably for use in making projectile points, knives and scraping tools. Many of the shale examples appear to have been squared on the ends before the removal of flakes. Cores with natural flat surfaces were also frequently utilized.

Similar cores occur in most sites of the area and are predominantly of basalt. But-98 is the only site where shale cores occur with any frequency.

Chipping Waste: As is common in all sites in the Oroville area, numerous broken fragments of quartz crystal were recovered. It is clear that they make up a smaller percentage of the chipping waste at But-98 than at But-101 and 131. As can be seen in Table 11 the most common material from this site is shale with obsidian and silicates increasing in the upper levels. As both of these materials are relatively more frequent at But-103 and 131 it is again suggested that the bulk of the material from But-98 may be assignable to an older period of occupation than is represented by sites But-103 and 131.

Ground and Pecked Stone

Hammerstones: Six hammerstones, all end or edge battered, were recovered from the site. Five are made of basalt and one is granitic in composition. All are slightly smaller than fist-sized, oval, flattened or cylindrical stream cobbles.

Four of the six specimens occurred below 36 inches suggesting an increased frequency in the early period. Similar tools occur frequently in sites of all periods, however. They undoubtedly are the tools used for removing flakes from the numerous cores. One of the specimens is longitudinally split in half indicating considerable striking force.

Manos: Twenty-three manos were recovered from the site, only four of which are complete. The material from which they are made varies considerably. Twelve are made of granitic materials, ten of basalt or other volcanically derived material and one of quartz. The complete specimens measure 85 mm. to 115 mm. long, 70 mm. to 95 mm. wide and 42 mm. to 72 mm. thick. All but one of the fragmentary specimens would be somewhat smaller than the largest complete specimen if whole.

Of the twenty-three specimens at least seven have been definitely shaped. They have pecked, flattened ends and are symmetrical and loaf-shaped in outline. The remainder are simply cobbles of convenient size for use as manos. The nine excavated manos include three shaped and six unshaped specimens. One of the two deepest examples, from the 36 to 48 inch level, is shaped indicating both forms were in use over the duration of site occupancy.

Many of the mano fragments, especially those of granite, are badly weathered and crumbly in composition. In most instances the broken ends are as weathered as the ground surface.

Metates: Two fragmentary metates, both of granite, were recovered from But-98. The excavated specimen is a small edge fragment. It apparently has been partially shaped and must have had a fairly deep grinding basin. No size estimation of the original is feasible.

The second fragment, recovered after the site was leveled, is a thick (65 mm.) edge fragment. The top is well smoothed and the complete side is

pecked and partially smoothed. Both fragments are decidedly weathered. The specimens from But-90, a definite Late Horizon Phase I and II site, are in a far superior state of preservation.

Pestles: Of the six pestles recovered from But-98 all are of basalt. Five of them have seen use in a wooden mortar, as evidenced by the typical striated chisel-pointed wear pattern. None have acquired noticeable polish sometimes present on this pestle type, however. One of the specimens has been partly shaped by pecking along the sides while the others are unmodified cobbles displaying wear on one end. The shaped specimen measures 27 cm. long, 8 cm. wide and 6 cm. thick, and is oval in cross-section (Plate 8f). The unshaped cobble pestles measure from 14.5 cm. to 33.5 cm. long, 5 cm. to 8 cm. wide by 5 cm. to 7.5 cm. thick.

The last pestle differs from those described above in that it is completely finished. It is cylindrical in cross-section and both ends are flattened, presumably from use in a stone bowl mortar. It measures 19.4 cm. long and 6 cm. in diameter (Plate 7b). The depth of this specimen in the deposit, 12 to 24 inches, indicates that it may be later than the manometate complex at the site. Shaped pestles are extremely rare in the foothills, and further data are needed to clarify the position of shaped pestles and the bowl mortar in the proposed sequence. At all sites, irrespective of period, chisel pointed pestles, and presumably the wooden mortar, are the most frequent.

Bowl Mortar: A single fragmentary mortar was recovered from the disturbed portion of the site. It seems to have been shaped on both the inner and outer surfaces, but is too small to yield measurements as to its original size (Plate 8a). The rarity of bowl mortars may be explained in several ways: 1) the predominant use of wooden, hopper, slab, and bedrock mortars, 2) late introduction of cylindrical pestles and bowl mortars in the area,

or 3) early emphasis on their use and later replacement by other food grinding tools. The last supposition can only be tested when, and if, they are recovered in a context of demonstrable antiquity. It must be emphasized that this is the sole example of a stone bowl mortar recovered.

As can be seen in Table 12, the depth distribution and scarcity of pestles in the midden suggests that the mano and metate were the earliest food grinding implements. These were followed at But-98 by use of chisel-pointed pestles and wooden mortars, along with the portable bowl mortar and cylindrical pestle. The lack of bowl mortars and cylindrical pestles, other than at But-98 may be evidence for early use and replacement by slab hopper or wooden mortar and cobble pestles. The temporal position of the bedrock mortar is not clear, but on the basis of frequency, and the depth of holes it must be of considerable antiquity. The bedrock mortar associated with But-98 is of considerable size. Unfortunately no pestles were associated with it.

Stone Pendants: A fragmentary, roughly triangular section of grey slate-like material, measuring 47 mm. by 37 mm., may represent a pendant. One side shows a series of striations, presumably from smoothing, and one edge has been ground flat. A conically drilled perforation is evident on the broken edge. It measures 8 mm. in diameter on one side and narrows to 7 mm. on the other (Plate 4d2). The second pendant is made of a mottled white-green material, possibly serpentine or schist. It is triangular in outline with a concavo-convex cross-section. One corner, originally biconically perforated, has been ground off after breaking. Both the sides and edges are highly polished. It measures 43 mm. long, 42 mm. wide and 3 mm. thick.

Atlatl Weights: Two fragmentary specimens have tentatively been identified as boatstones, i.e., atlatl weights (Heizer and Elsasser 1953:26).

One is a small, almost triangular, tip fragment with a plano-convex cross-section (Plate 4d4). Evidence of lashing grooves are lacking on this specimen. The second specimen, broken at about the mid-point, is also plano-convex in cross-section and tapers toward the complete end (Plate 4d3). A groove has been pecked just below the break around the convex side of the specimen. This piece now measures 46 mm. long, 36 mm. wide and 20 mm. thick. It has been shaped by grinding but is not polished. Both specimens are made of basalt.

Atlatl Spur: A small cylindrical object, made of granitic stone, probably represents an atlatl engaging hook. It has been slightly grooved around the mid-point, is blunt at one end and conical at the other. It measures 34 mm. long, 14 mm. wide and 12 mm. thick (Plate 4d1), and is similar in form and size to other stone pieces assumed to have functioned as atlatl spurs (Riddell and McGeein, n.d.).

Steatite Bowl Fragments: Two small fragments of worked pinkish grey steatite recovered from the site represent sections of stone vessels. The smaller measures 30 mm. by 17 mm. by 6 mm. and is well polished on both sides. The larger fragment, a rim section, measures 12 mm. thick and is rounded off on the top edge. The depth of the single specimen recovered during the excavations combined with infrequency of vessel fragments suggests they belong in the late occupation period at But-98.

Bone Artifacts

Bone Spatula: A single, carbonized mid-section fragment from a well made, highly polished mammal bone spatula was recovered from the upper levels of the site. It closely resembles the specimens recovered from But-131, in that it has a lenticular cross-section and is narrow and thick. It now measures 19 mm. long, 13 mm. wide and 4 mm. thick.

Human Remains: Human skeletal material was virtually lacking at But-98. Two small fragments were recovered after the site had been leveled, both sections of one or more femora. As with the three fragments of mammal bone they are badly leached and fragmented, and in composition and appearance resemble a chalky material. The evidence indicates that either burials were placed off the site area, or the skeletal remains have decomposed due to the nature of the deposit.

ARCHEOLOGICAL RELATIONSHIPS

The scarcity of burials, shell ornaments and bone artifacts from the railroad relocation sites tends to limit comparisons with neighboring archeological sequences or complexes. The additional data provided by the excavation of But-90, however, allows some comparison for the late occupation period. This is further implemented by the excavation in 1961 of three sites located along the Oroville Dam Spillway (Jewell 1961).

All of the sites reported here are situated in the area historically attributed to the Northwest Maidu; more precisely, the foothill groups. The settlement pattern for the foothill area, on ridges or knolls above streams or rivers, is typical of the majority of the sites known from the area (Kroeber 1925: 395). The preference for southwestern exposure noted by Kroeber is also evident for all the sites reported here (Kroeber 1925: 395-6).

The burial pattern for the foothill area is at present poorly known. At But-90 burials with clam shell disc beads in association were invariably flexed on the side or back. The deep burials tend to be semiflexed or fully extended on the back or face. None of the deep burials were accompanied with clam shell disc beads, but several had Olivella thin rectangles with end or central perforations (Types 2a1 and 2a2) (Bennyhoff and Heizer 1958: 67).

Burial is noted as most frequent for the foothill Northwest Maidu in definite cemetery sites (Dixon 1905: 243). These seem not to have been located on the habitation sites proper but were usually only a short distance away (Dixon 1905; Voegelin 1942: No. 4128). All informants mention flexure as most frequent (Dixon 1905: 243; Voegelin 1942: Nos. 4028a, 4092) and Voegelin's informant especially denies the extended burial position (Voegelin 1942: No. 4091). Orientation for all burials at But-90 was variable; without any tendency for easterly orientation noted by (Dixon 1905: 242) and Voegelin (1942: No. 4093). The use of rock cairns also disagrees with Voegelin's data (Voegelin 1942: No. 4090). The But-90 burial pattern clearly relates to the Central Valley Late Horizon. At Col-1 (Miller site) Late Phase II burials were typically flexed on the side or back and over fifty percent were accompanied by clam shell disc beads (Lillard, Heizer and Fenenga 1939: 67). In the preceding Late Phase I period fully extended or semi-extended burials are frequent, as are Type 2a (thin rectangular) Olivella shell beads. This Phase I complex is also known from recent work along the Feather and Bear Rivers. Indications of Late Horizon Phase I and Phase II influence from the Central Valley are indicated for the Yana area where Baumhoff notes rectangular Olivella beads with one deep burial at Kingsley Cave (Baumhoff 1955: Table 3; Burial 28). Shallower burials were accompanied by clam shell disc beads (Baumhoff 1955). The precedence of rectangular Olivella beads over clam shell disc beads is also demonstrated for the northern Sacramento Valley at Sha-169 (Treganza 1960: 10-16, 24). Flexed burials covered with cobble cairns are reported for Kingsly Cave (Baumhoff 1955: 60) suggesting a definite proto and prehistoric foothill pattern. Flexed burial is predominant for the northern Sacramento Valley from all sites (Smith and Weymouth 1952: 23; Treganza 1954: 19; Treganza 1960: Table 1). Flexed, cairn covered burials also have been recovered by a private collector from

a site (But-63) located near Bangor, somewhat southeast of Oroville. The material recovered, primarily projectile points, suggests a Martis Complex affiliation.

The small projectile point series (Class 1) from But-98 and But-131 is similar to the points of the same weight range, 0.4 to 2 grams, from But-90. They tend to be stemmed with barbs or pronounced shoulders. The remaining points include three side-notched and two leaf shaped forms. The side-notched examples are similar in form to the Desert Side-notched points reported by Baumhoff and Byrne (1959) but differ in weight and material. None of the specimens reported here are classed as Desert Side-notched points, but they do occur at But-90 invariably in association with clam shell disc beads. The small points generally resemble the forms illustrated by Dixon (1905: Figure 2a) and Voegelin (1942: Nos. 984 and 987).

The variable quality of obsidian in the small point sample suggests that it was traded for as indicated by Dixon (1905: 132). The local use of basalts and "flint" or other silicates is also attested by Dixon.

Central Valley Late Horizon projectile points from eastern Colusa Province are typically stemmed. The most frequent forms are stemmed with long barbs or pronounced shoulders. A small proportion of obsidian and increasing utilization of local basalts or silicates is typical. Late Phase II sites in the Colusa area have provided Delta Type serrated obsidian points (Lillard, Heizer and Fenenga 1939: 69), while data on Colusa area Phase I projectile points are lacking. It is notable that no serrated points are known from the Oroville area.

To the north, Baumhoff's excavations in Tehema County have defined the protohistoric and historic Mill Creek Complex and the prehistoric Kingsley Complex (Baumhoff 1955; Baumhoff 1957). The Mill Creek Complex points include Desert Side-notched points and small tapering stemmed points. The

latter are generally comparable with the Type 1Ea and 1Eb points from But-98 and But-131 (Baumhoff 1957: Figure 2a-c and f-h). The stemmed barbed (or shouldered) forms from northern California, termed "Gunther Barbed" by Treganza (1958: 14), are somewhat comparable, but "classic" barbed examples are unknown from the Oroville area. Examples of classic Gunther Barbed points have been recovered in a Late Horizon Phase I context somewhat to the south in the valley proper, however. Treganza (1958: 14) and Baumhoff (1957: 31) have, for the most part, assigned these long barbed points to the proto-historic or historic period, but they consistently occur in pre-clam shell disc bead complexes in the Colusa Province.

The Class 2 points, 2.1 to 4.5 grams, tend to resemble in form the Class 1 points in that many of them are stemmed with shoulders or barbs. The stemmed and side-notched forms resemble certain Martis Complex types, especially Elsasser's Types 3a, 4a and 5a (Elsasser 1960: Plate 1a-m, t-v and Plate 1b, g-i). As noted by Baumhoff (1957: 35) certain of the points from Kingsley Complex resemble Martis forms, but are lighter and more frequently made of obsidian. Like the Class 2 points from the Oroville area, Kingsley Complex points are typically side-notched or stemmed. The frequency of basalt is somewhat higher in the Oroville area, especially at But-131, than in the Kingsley Complex, however (Baumhoff 1957: Table 7).

Few projectile points from Valley Late Horizon sites weigh more than 2 grams. Some of the smaller Early and Middle Horizon points are not unlike the stemmed points from the Oroville area (Lillard, Heizer and Fenenga: Plate 24, 1-15; Heizer 1949: Figures 12, 13 and 14). The majority of these are considerably heavier than 4.5 grams, however (Fenenga 1943: Figure 1; Heizer 1949: Table 8). An obvious preference for obsidian also is apparent in the Lower Sacramento Valley sequence which is, to some extent, lacking for the foothills (Lillard, Heizer and Fenenga 1939: 76-77).

The function of these medium weight points, as previously commented upon, is not clear. Some of them, from But-98, are probably associated with the use of the atlatl. Baumhoff specifically denies the use of this weapon for the Kingsley Complex (Baumhoff 1955: 35, 57) but the weight range of Kingsley Complex points indicates that heavier points were in use (Baumhoff 1955: 47). The overall weight range of dart points from the Early Horizon and the Martis Complex suggests that dart points from Central California were not always extremely large and heavy (Heizer 1949: 22-23, Table 9; Heizer and Elsasser 1953: 11, 19).

The Class 3 points, those over 4.5 grams in weight, occurred at But-98 and But-131, but the forms and context at But-98 indicate the existence of a heavy point complex. The But-131 examples are infrequent, considering the sample, and are associated with Class 2 points. At But-98 the Class 3 points, and also the Class 2 points, are deeper and far more frequent than Class 1 points.

The large (Class 3) leaf shaped blades are a frequent Martis Complex form (Heizer and Elsasser 1953: Plates 1A1, 2, 8-11) and also are a frequent Central Valley Early or Middle Horizon form (Lillard, Heizer and Fenenga 1939: Plates 24, 16-18, 20-22; Heizer 1949: Figures 11b-d, m-o). Many of the larger examples of this form probably functioned as knives or spearheads, as is assumed to be the case with the specimen from the Oroville area. The poor quality of flaking on some of the But-98 specimens, as well as the occurrence of crude blades, is suggestive of such use. It is significant that crude blade knives or scrapers are a frequent Martis Complex form also (Heizer and Elsasser 1953: 15-16), but are denied for the Kingsley Complex (Baumhoff 1957: 35).

Class 3 side-notched points, infrequent in the Oroville area, are noted from the Martis Complex (Heizer and Elsasser 1953: Plates 1, 15-17)

and are not uncommon from Delta Early or Middle Horizon sites (Heizer 1949: Figures 14a-n). They are infrequent at But-90 (Plate 6b) but are a common form in the Reichmann collection (Plate 6a). This collection, without site provenience, suggests more Martis influence in the Oroville area than has been noted from the excavated sites. Present evidence suggests that Martis influence penetrated to the edge of the Valley floor in some areas, especially in the areas occupied by the Maidu (Elsasser 1960: 74). At But-63, located near Bangor, California, at an elevation of 700-800 feet, the projectile point series closely resembles the Reichmann collection and the collection from Nev-15 reported by Elsasser (1960: 33-49; Plate 1).

The wide stemmed Class 3 points, Type 3Da, occurred only at But-98. They resemble certain of the larger wide stemmed points from Kingsley cave (Baumhoff 1955: Plates 2 g-i), and resemble some of the wide stemmed Martis Complex points (Heizer and Elsasser 1953: Plates 1C8, D4). Early and Middle Horizon stemmed points resemble in form those from But-98 but the frequency of obsidian is greater (Lillard, Heizer and Fenenga 1939: Plate 24; Heizer 1949: Figures 12 and 13). The Early stemmed points, Types SAa and SBa, average over 12 grams in weight and are classed by Heizer as spear points rather than dart points (Heizer 1949: Tables 8 and 9). On this basis all the Class 3 points, regardless of type, from the Oroville area would be classed as dart points.

Large blades or stemmed points have been recovered from several Late Phase I sites to the south of Oroville, as well as at But-90, but invariably are associated with smaller points. They undoubtedly reflect the use of spears noted by Dixon (1905: 132) and do not relate to the medium and heavy projectile points discussed here.

The chipping waste from the three sites reported here suggests a change from shale or basalt in the earlier periods to various silicates and obsidian

in later periods. This is reflected at But-90 where the greatest percentage of obsidian projectile points occurred, as compared to But-98 where obsidian is in the minority. Dixon (1905: 132) notes the Maidu utilized local basalts, flint and jaspers but had to import obsidian. The introduction of obsidian apparently is distinctive of the later archeological periods on the basis of present evidence. The large obsidian knives and spearheads noted by Dixon (1905: Figures 1, 2b) are infrequent, but small points are not uncommon.

Bryan Beavers, a Maidu informant from near Oroville, was shown a small contracting stem arrowhead picked up from a proto-historic site known to Mr. Beavers. His comment was interesting as he said this particular style of point went out of vogue and was replaced by the side-notched form. It is remarkable that such a change in preference of point type should be remembered up to the present.

Mr. Beavers' explanation is that handed down to him from his elders. They said that the wing-like barbs of the small side-notched points made them a superior cutting head over the contracting stem type. We have here ethnographic verification of the introduction of the Desert Side-notched point to the Oroville region and its replacement of an older point type. This has been recognized archeologically but it is good to find ethnographic substantiation.

Other chipped stone objects such as scrapers, core tools and knives occur throughout the span of occupation in the foothills. Local differences are notable, however, since scrapers are frequent in the Martis Complex (Heizer and Elsasser 1953: 19) but rare in the Kingsley Complex (Baumhoff 1957: 35). Large, well chipped ovate-shaped knives are known from But-90, but have not been recovered from any of the sites reported here. The leaf shaped blade-like knives from But-98 suggest a relationship to the crudely chipped basalt blades or knives so frequent in the Martis Complex (Heizer and Elsasser 1953: 15-16; Elsasser 1960: 40).

Manos and metates occur on the Valley floor and are recorded for both the Early and Middle Horizons in the Delta region (Lillard, Heizer and Fenenga 1939: 74-75, 78; Plates 8 and 17). They are also known for the Kingsley Complex (Baumhoff 1957: 49-50). Their recent use is also recorded for the Maidu by Dixon (1905: 138).

Use of various mortar and pestle forms is unclear at the present time. Bowl mortars and cylindrical pestles are extremely rare in the area. The few examples recovered come from But-98 suggesting they are part of the earliest period defined for the area. Bowl mortars are known throughout the Central Valley sequence, but the wooden mortar was in use during Middle Horizon and Late Phase I times (Lillard, Heizer and Fenenga 1939: 74-80). Bowl mortars are known from the Martis Complex, but are infrequent (Heizer and Elsasser 1953: 19; Elsasser 1960: 56). Use of the bowl mortar is not recorded for the Maidu, but specimens (archeological) were found in the area (Dixon 1905: 134-135). Voegelin's Northwest Maidu informant, however, specifically notes the use of the bowl mortar (1942: Nos. 1086, 1088, 1095-1096). The cylindrical shaped stone pestle noted by Dixon (1905: 135; Figure 8) is equally rare at present. The cobble pestles are abundant, however (Dixon 1905: 138).

Slab mortars, used without a basket hopper, are described by Dixon for the Northern Maidu (Dixon 1905: 135-136). Use of the hoppered mortar is noted for the Northwest Maidu by Voegelin (1942: No. 1103). The deep cobble or slab mortar shown by Dixon (1905: Figure 7) is not infrequent, but normally the depression is shallow suggesting either use as a slab or hopper mortar. The cobble mortars recovered have cavities ranging from 3 or 4 cm. to 10 cm. to 12 cm. in depth. The specimens reported by Jewell (1961) from housepit sites on the Oroville Dam spillway are flat, irregular slabs with evidence of grinding or pounding in the center. The depressions on these

are barely noticeable, suggesting use as slab or hopper mortars. The pestles associated with these houses are nothing more than elongate, battered river cobbles. They seem to bear out the use of slab mortars recorded by Dixon. Since it is difficult to differentiate between slab and hopper mortars the question of preference for one or the other must await further excavation. Hoppered mortars are recorded for the Kingsley and Mill Creek Complexes in Tehama County (Baumhoff 1957: 35) and are the only food preparation implement noted in Late sites from the Red Bluff-Redding area (Treganza 1954: 10; Smith and Weymouth 1952: 16, 38). The pestles associated with these specimens include cobble and cylindrical forms, all with flat, battered ends (Treganza 1954: 9-10; Smith and Weymouth 1952: 15-16, 38). They are comparable with the specimens from the Oroville Dam Spillway sites.

Chisel pointed cobble pestles, resulting from use in a wooden mortar, have been recovered from all sites in the Oroville area with the exception of three Late housepit sites. All are of the cobble variety and exhibit wear only on the ends. Chisel pointed pestles are unreported from the north end of the Sacramento Valley, or from the Martis Complex. They first occur in the Central Valley in Middle Horizon times and continue through the Late Horizon Phase I (Lillard, Heizer and Fenenga 1939: 78-79). The spindle shaped form (Type D2) (Lillard, Heizer and Fenenga 1949: 10-11) is lacking in the Oroville area, and is unknown from Phase I sites east of the Sacramento River, and some distance south of Oroville.

The temporal position of the bedrock mortar is vague. Dixon (1905: 135) and Voegelin (1942: No. 1085) record their use by the Maidu in recent times, and many of the known Late sites in the foothills have bedrock mortars in close proximity. They were noted near the Spillway sites, But-90 and But-98. Sites But-103, 105 and 131 seemingly lack bedrock mortars. Curiously, no pestles used in stone mortars are known from But-90. The

single, short, cylindrical example from But-98 has flattened rather than the tapered ends which would result from use in a bedrock mortar. As yet no pestles have been recovered from the known bedrock mortar sites.

The occurrence of a stone atlatl engaging spur and atlatl weights, on the basis of present evidence, suggests some time depth for the lower levels of But-98. Both spurs and weights ("boatstones") have been recovered from Central Valley Middle Horizon sites as well as from the Sierran Martis Complex and the Early or Transitional Lovelock Periods from west central Nevada. No atlatl parts have been recovered from Late complexes in any of these areas (Heizer and Elsasser 1953: 26-28; Riddell 1960: 54-57, 91). While the evidence is admittedly slight, it is suggested, on this basis, that the oldest occupation in the Oroville area is at least coeval with the Sacramento Valley Middle Horizon.

Stone pipes are rare in the Oroville area. The two specimens from But-90 include one short serpentine example with a single basal flange and a second, made of grey steatite, has two basal flanges. Two pipes from Sut-24 near Wheatland, are simple cones with a simple basal flange. A specimen similar to the Sut-24 examples was recovered from near Lake Almanor (in the collections of the State Indian Museum, Sacramento). The Sut-24 pipes are attributed to the Late Horizon Phase I and the But-90 specimens apparently are of comparable age. A fragmentary pipe recovered from But-59 differs from the pipes reported here in that it is of greater length and is made of sandstone rather than steatite or serpentine (Elsasser 1957: 14-15). Flanged base steatite pipes are frequent in Late Horizon Phase I and Phase II components in the Valley (Lillard, Heizer and Fenenga 1939: 80, Plates 30d, f, g, and n). The steatite pipes reported by Dixon (1905: 138, Figures 9a, b) are simple conical tubes, but the clown's

pipe (Dixon 1905, Figure 66) is somewhat comparable to the flanged base examples from But-90 and Sut-24. Double flanged pipes are not reported ethnologically for the Maidu.

Steatite or soapstone vessels are reported for the Maidu by Dixon (1905: 139, Figure 10), chiefly used by the Northeast Maidu. The illustrated specimen is comparable in size (15.5 cm. diameter) to the example from But-90 . Voegelin's Northwest Maidu informant specifically denies the use of stone vessels (Voegelin 1942, No. 1437) but those reported for the Nisenan apparently are comparable (Voegelin 1942, No. 1, 1443 and 1447). Steatite vessels or vessel fragments have been reported from sites in Butte and Nevada counties by Elsasser (1957: 14-16; 1960: 42). The assignment of a protohistoric date to the bowl fragments at Nev-15 is suggested. Evidence from But-90 indicates they were in use during Late Phase I times.

Grooved stone or baked clay sinkers are known from both the Middle and Late Horizon in the Central Valley (Lillard, Heizer and Fenenga 1939: 44, 52, 66). Use as bola stones for these pieces is reported by Treganza (1954: 13) in the North Sacramento Valley. This use is also supported by the recovery of numerous specimens in drained marsh areas in the Sacramento Valley between Sacramento and Chico. Certain of the specimens, however, almost certainly served as charmstones. A small number of perforated examples are similar in form, material and finish to the Early Horizon Type B.1. charm stones illustrated by Heizer (1949, Figures 7f, g).

The few bone objects reported here shed little light on type or quantity of bone artifacts in the Oroville area. While poor preservation may account for this paucity, a lack of interest in bone tools by the Indians is also indicated.

All of the bone artifact types reported here are known from the Sacramento Valley (Lillard, Heizer and Fenenga 1939). Bone awls, fashioned from

split deer metapodials, are most frequent in the Late Horizon and are also reported from the Kingsley and Mill Creek Complexes (Baumhoff 1955: 52; 1957: 16). Several examples also are known from the Martis Complex (Elsasser 1960: 59). The single complete specimen from But-131 closely resembles the awls from But-90 in that it is short with the head unworked except for the original splitting.

The mammal bone tube fragment from But-131 is comparable with specimens from But-90, although at the latter site both plain and decorated examples occur. A single mammal bone bead is reported from Kingsley Cave, although it is not temporally placed (Baumhoff 1955: 53). Short, constricted-center mammal bone tubes are noted from the Colusa area during Late Horizon Phase II times (Lillard, Heizer and Fenenga 1939: 80), but this form is unknown for the Oroville area. It is conceivable that the straight-sided tubes are comparable in function, however. Dixon (1905: 210, Plate 55) records the use of cylindrical mammal bone tubes as gaming pieces while Kroeber (1925: 419) records the use of paired "marked and unmarked bones", as part of a guessing game played by the Maidu. The archeological pieces recovered certainly reflect this practice during protohistoric times.

The narrow, spatulate bone pieces are similar in form to a number of fragments recovered from But-90. Here they seem to have been used in both Late Phase I and II periods, but due to mixing the data are poor. Similar bone spatulae are reported from Kingsley Cave, which significantly, provided a larger sample of bone objects than did Payne Cave (Mill Creek Complex) (Baumhoff 1955: 52-53; 1957: 16). Narrow spatulate bone pieces (referred to as bodkins) are unrecorded from Central Valley Late Horizon components but are not infrequent in Middle Horizon sites (Lillard, Heizer and Fenenga 1939: 79). They are reported from several Great Basin sites (Riddell 1956, Figures 5 and 6; 1960: 69-71) where they span a considerable length of time.

TENTATIVE SEQUENCE FOR THE OROVILLE AREA

In view of the data presented in this report, plus study of the material from a fifth site, But-90, three periods of occupation are defined for the Oroville area. The earliest of these, represented by the bulk of the collection from But-98, is termed the Mesilla Complex after the valley upon the margin of which the site is located. Diagnostic elements in this period include: 1) the use of the atlatl as demonstrated by the recovery of a stone spur and two fragmentary atlatl weights; 2) the use of heavy (3.5 grams and up) side-notched or stemmed projectile points predominantly of shale or poor grade chert (see Plate 3a, b and 6a) and; 3) the seemingly predominant use of the mano and metate in the preparation of ground food. The basic economic orientation during this period may have been seed gathering as suggested by the scarcity of mammal bone in the deposit. The use of steatite is not indicated for this period. The occurrence of ground edge knives may be more frequent in this period, but they may definitely continue through later periods. Present evidence suggests that relationships are with the Martis Complex to the east and with the Central Valley Middle Horizon to the west. The intermediate geographic position of this complex in the foothills, coupled with distinctive elements, clearly establishes it as a distinct complex, however.

The succeeding period (the Sweetwater Complex) is best represented by But-90 Component B (see Table 15). It is clearly related to Late Horizon Phase I times in the Sacramento Valley. It is difficult to completely segregate the Phase I elements at But-90 due to mixing of the deposit. Several traits are definitely Phase I, including extended burials (cf., Lillard, Heizer and Fenenga 1939: 65, 69; Beardsley 1954), large stemmed points, leaf shaped basalt knives, stone pipes, thin, rectangular Olivella

beads with centered or end perforations (Types 2a1 and 2a2), and the "Y"-shaped antler digging tool and narrow, blunt bone spatula.

It is probable that both But-103 and But-131 contain components of this period as the artifact inventory differs from the lower levels of But-98 and the Phase II occupation of But-90. If this is true a cross date with Baumhoff's Kingsley Complex seems reasonable on the basis of the projectile point series. During Phase I times, an increased utilization of wooden mortars and associated chisel pointed pestles is indicated along with small to medium-sized projectile points probably used with the bow and arrow (Plates 7b1 and 2).

The use of steatite for the manufacture of bowls becomes more frequent and imported projectile point material, such as obsidian, was more commonly utilized. This period also may mark the greatest abundance of broken quartz crystals, but they are frequent throughout the sequence.

The latest period (the Oroville Complex), represented by But-90A, is directly equatable with the Late Horizon Phase II occupation in the Sacramento Valley. Diagnostic trade items include clam shell disc beads and thick lipped Olivella shell beads (Type 3a1). The thin rectangular Olivella beads (Type 2a2) with terminal perforation may have been retained into Phase II times. The shell beads indicate trade relationships with the Central Valley during both late Phase I and Phase II times.

Diagnostic Phase II elements other than shell beads and ornaments include incised bird bone tubes, bone awls, bipointed gorge hooks, large and small stemmed, barbed points made of obsidian, chert, basalt, or chalcedony (see Plate 7b2). Local elements include the use of incised, split deer bone spatula, and the retention of flake shale knives from Phase I times. Small "Desert Side-notched" projectile points occur at But-90 always associated with clam shell disc beads (cf. Baumhoff and

Byrne 1959). Most are made of various colored cherts, but several basalt examples occur. The General subtype is most common, but several specimens may be classed in the Delta subtype (Baumhoff and Byrne 1959: 37-38).

Further excavation at But-131 performed some time after our limited testing is not included in the present report. The existence of a Phase II Late Horizon component is definitely indicated by the recovery of a series of Desert Side-notched projectile points. This late occupation apparently was of limited duration as the bulk of the material differs from the picture presented at But-90 where clam shell disc beads occurred. Unfortunately, no shell artifacts and few bone artifacts have been recovered from But-131.

While the above summary is based on limited data, it provides a working hypothesis for the foothills in the Oroville area. Further work will undoubtedly shed more light on the various periods and will allow a revision of the sequence in the future.

The Temporal Chart (Table 15), assembled from various published references, summarizes our present knowledge of valley, foothill and Sierran archeology. It should be noted that the tentative dating of the foothill areas, Oroville and Tehama, rests on the better known central California sequence dates. We suspect, however, that the valley and foothills did not always have parallel development; but we are limited in this respect by the lack of detailed data from the area to the south of Oroville in the foothills.

Form	Weight Class 1	2	3	Total Types	MATERIAL Shale	Basalt	Obsidian	Silicate	Totals
Aa			1	1	1				1
Ab			1	1	1				1
Ac	1	2	17	3	12	4	2	2	20
Ad	1			1				1	1
Ba		5	3	2	3	2	2	1	8
Bb	1	3		2		4			4
Bc		1		1				1	1
Bd	1			1		1			1
Be	1			1			1		1
Ca		7	1	2	1	5		2	8
Cb		5	2	2	3	3		1	7
Cc		1	3	1	2	1	1		4
C-		1		-		1			1
Da		1	5	2	5	1			6
Db			1	1				1	1
Dc	4	3	1	3	1	5	1	1	8
Dd		1		1				1	1
D-			2	-	1			1	2
Ea	3	4		2		4	2	1	7
Eb	5			1		1	4		5
Ec	1			1				1	1
E-		1		-		1			1
F			1	1		1			1
Unclass. Frags.	-	-	-	-	28	3	5	5	41
Total	18	35	38	30	58	37	18	19	132

Table 1: Classification by Form, Weight and Material for Projectile Points from But-98, 103 & 131

Artifact	Number of Specimens	Material
Chipped stone blades	2	Basalt
Choppers	2	Basalt
Cores	7	Basalt and Shale
Chipping Waste:		
Shale	4	
Quartz crystal	1	
Pestle	1	Metasediment
Hopper Mortar	1	Basalt
Manos	7	Granitic
Metate	1	Basalt
Stone bowl fragments (incised)	1	Steatite
Totals	27	

Table 2: Stone Artifacts from Site But-105

	Depth			
Class/Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.
2Ba	1			
2Bc				1
2Dc		1		
2Ea				1
3Ac		1	1	
3Cc	1			
3D-	1			
Unclass. Frags.	1		2	
Totals	4	2	3	2*

* Both associated with Feature 1.

Table 3: Depth Distribution of Projectile Points But-103

Class/ Type	Total Specimens	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (Gm.)	Material
2Ba	1	41	22	4	3.5	Shale
2Bc	1	41	16	4	2.3	Chert
2Dc	1	30+	25	6	2.4	Basalt
2Ea	1	30	19	5	2.2	Basalt
3Ac	2	45+	18-21	6	8.6-12.1+	Shale
3Cc	1	41+	17+	8	9.0*	Obsidian
3D-	1	26+	23	6	5.5*	Chert
Unclass. Frags.	3	23+-45+	16+-24+	3-8	1.8-3.1+	Shale Basalt Obsidian
Totals	11					

*Estimated weight of complete specimens

Table 4: Projectile Point Data and Material But-103

Artifact Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.	Surface
Knives and scrapers	2		2	1	
Ground edge knife		1		1	
Basalt "brick"				1*	
Chipping Waste:					
Shale	3	5	7	5	3
Obsidian	3			2	1
Silicates	6	1	2	2	1
Quartz crystal	15	9	4	3	1
Hammerstone				1*	
Pestle		1			
Mano		1		2*	1
Metate				1*	1
Steatite bowl frags.	2	1	1	1	
Colored pebbles	6				
Faunal Remains		5	1		
Modern Debris	7				
Totals	44	24	17	20	8

* Included in Feature 1.

Table 5: Depth Distribution of Stone and Bone Artifacts at Site But-103

Class/Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.	Disturbed Surface
1Bb					1
1Bd					1
1Be				1	
1Dc	3	1			
1Ea	1				2
1Eb					1
2Ac	1				
2Ba	1		1		1
2Bb	2				1
2Ca	2				2
2Cb	1				1
2C-				1	
2Dc		1			
2Ea	2				1
2E-		1			
3Ac	1	3	1	1	1
3Ba		2			
3Db					1
3Dc					1
3F	1				
Unclass. Frags.	1	2	6		6
Totals	16	10	8	3	20

Table 6: Depth Distribution of Projectile Points But-131

Class Type	Total Specimens	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (Gms.)	Material
1Bb	1	25	12	5	1.7	Basalt
1Bd	1	26+	18	4	1.5	Basalt
1Be	1	23	19	4	1.7	Obsidian
1Dc	4	23-31	11-14	3-4	6-1.2	Basalt 3 Obsidian 1
1Ea	3	20-22	12-15	4	.8-.9	Obsidian 2 Chalcedony 1
1Eb	1	19	11	3	.5	Basalt
2Ac	1	43+	15	5	3.7	Shale
2Ba	3	25-30	16-20	4-6	2.5-4.0	Obsidian 2 Basalt
2Bb	3	29-35	16-17	4-7	3.0-3.2	Basalt
2Ca	4	33-43	16-20	3-6	2.2-3.7	Basalt 3 Chert 1
2Cb	2	30-32	15-18	4-5	2.1-3.0	Basalt
2C-	1	26+	18	5	2.3	Basalt
2Dc	1	40	17	4	2.2	Shale
2Ea	3	31-35	20-25	4-6	2.1-4.0	Basalt
2E-	1	32+	18	6	3.6	Basalt
3Ac	7	40-71	17-22	4-8	5.0-9.9	Shale 3 Basalt 2 Obsidian 1 Chert 1
3Ba	2	44-65	19-20	6-9	6.1-6.6	Shale Basalt
3Db	1	50	26	9	10.5	Chert
3Dc	1	45	25	5	5.0	Chalcedony
3F	1	44	24	9	6.1	Basalt
Unclass. Frags.	15	-	9-22	3-7	1.4-6.9	Shale 12 Basalt 1 Obsidian 2
Totals	57					

Table 7: Projectile Point Data and Material But-131

Artifact Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.	Disturbed Surf.
Flake knives	1	1			4
Flake scrapers	4				2
End scrapers		1			1
Steep angle scrapers	1				2
Drill or gouge	2	1			1
Large flake scrapers					4
Coils		3	1		1
Chipping waste:					
Shale	12	8	11	2	17
Basalt	2		1		1
Obsidian	16	12	15	1	6
Silicates	31	6	8	1	41
Quartz crystal	42	24	20		42
Hammerstone	1	1	1		
Pestle	3				
Mano	3	1	1		2
Metate			1		1
Grooved sinker		1	1		
Steatite bowl frags.	2	1	2		2
Red pigment		1			
Slate "rod"					1
Bone spatula		1	2		
Mammal bone tube				1	
Bone awl	1	1			
Faunal remains	9	18	9	1	
Totals	130	81	73	6	128

Table 8: Depth Distribution of Stone and Bone Artifacts But-131

Burial Number	Age	Position	Orientation	Location	Depth	Grave goods	Comments
1	Adult	Flexed R. side	West	Test Pit #1	38"	Projectile point Frags.	Cobble Cairn
2	Adult	?	?	Test Pit #4	32"	None	Cobble Cairn

Table 9: Burial Data But-131

Class/ Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.	48-60 in.	60-66 in.	No. Loc.
1Ac					1		
1Ad							1
1Eb	1	1	1				1
1Ec	1						
2Ac							1
2Ba				1			
2Ca			2			1	
2Cb							3
2Cc				1			
2Da					1		
2Dc							1
2Dd							1
3Aa		1					
3Ab							1
3Ac	1	1	2				4
3Ba			1				
3Ca							1
3Cb	1						1
3Cc							2
3Da		1	1		1		2
3D-Unclass. Frags.	5	1	1	4		1	1 11
Totals	9	5	8	6	3	2	31

Table 10: Depth Distribution of Projectile Points But-98

Class/ Type	Total Specimens	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (Gms.)	Material
1Ac	1	29	13	3	1.5	Basalt
1Ad	1	18	13	2	.4	Chalcedony
1Eb	4	21-30	13-15	3-6	.7-2.0	Obsidian
1Ec	1	18	14	2	.9	Chalcedony
2Ac	1	42	16	5	2.7	Obsidian
2Ba	1	45	17	3	2.2	Shale
2Ca	3	38-47	16-18	4-8	3.4-3.8	Shale Basalt Chert
2Cb	3	32-51	17-20	4-6	3.3-4.0	Shale 2 Basalt 1
2Cc	1	33	20	5	3.8	Shale
2Da	1	29	26	3	2.3	Shale
2Dc	1	39	22	5	4.3	Basalt
2Dd	1	34-?	20	6	3.5(?)	Chert
3Aa	1	54	25	4	8.0	Shale
3Ab	1	60	17	5	6.2	Shale
3Ac	8	37-65	16-21	4-8	4.6-7.0	Shale 6 Basalt 1 Chert 1
3Ba	1	55	15	6	6.3	Chert
3Ca	1	35	25	6	5.0	Basalt
3Cb	2	52-55	16-19	7	7.0	Shale Chert
3Cc	2	53-62	23-27	4-8	6.0-8.5	Shale Basalt
3Da	5	54-65	23-29	4-7	5.5-9.1	Shale 4 Basalt 1
3D-	1	49	27	6	8.0	Shale
Unclass. Frags.	23	-	10-24	3-11	.3-10.7	Shale 15 Silicate 5 Obsidian 2
Totals	64					Basalt 1

Table 11: Projectile Point Data and Material But-98

Artifact Type	0-12 in.	12-24 in.	24-36 in.	36-48 in.	48-66 in.	Surface or no Location	Totals
Leaf shape knife	4		1	1	1	15	22
Flake knife			1			3	4
Oval flake knife	1			1			2
Irregular flake knife				1		5	6
Ground edge knife	2		2	1		2	7
Flake scraper	1	3	1	3	1	11	20
Core scraper			1			1	2
Cores	8	1	2	5	3	19	38
Chips and flakes:							
Shale	23	10	23	44	18	73	191
Basalt	2		1		1	3	7
Obsidian	2	3	1	1	1	3	11
Silicates	24	17	8	7	2	73	131
Quartz crystal	10	5	4	3	2	64	88
Hammerstone	1			3	1	1	6
Pestle		2				4	6
Mortar						1	1
Mano	1	2	4	2		14	23
Metate		1				1	2
Grooved sinker	1		2				3
Atlatl spur		1					1
Atlatl weights						2	2
Stone pendants	1					1	2
Steatite bowl frags.	1					1	2
Colored pebbles	3	6		2	1		12
Bone spatula	1						1
Faunal remains	1	1			1		3
Human bone frags.						2	2
Totals	87	52	51	74	32	294	595

Table 12: Depth Distribution of Stone and Bone Artifacts But-98

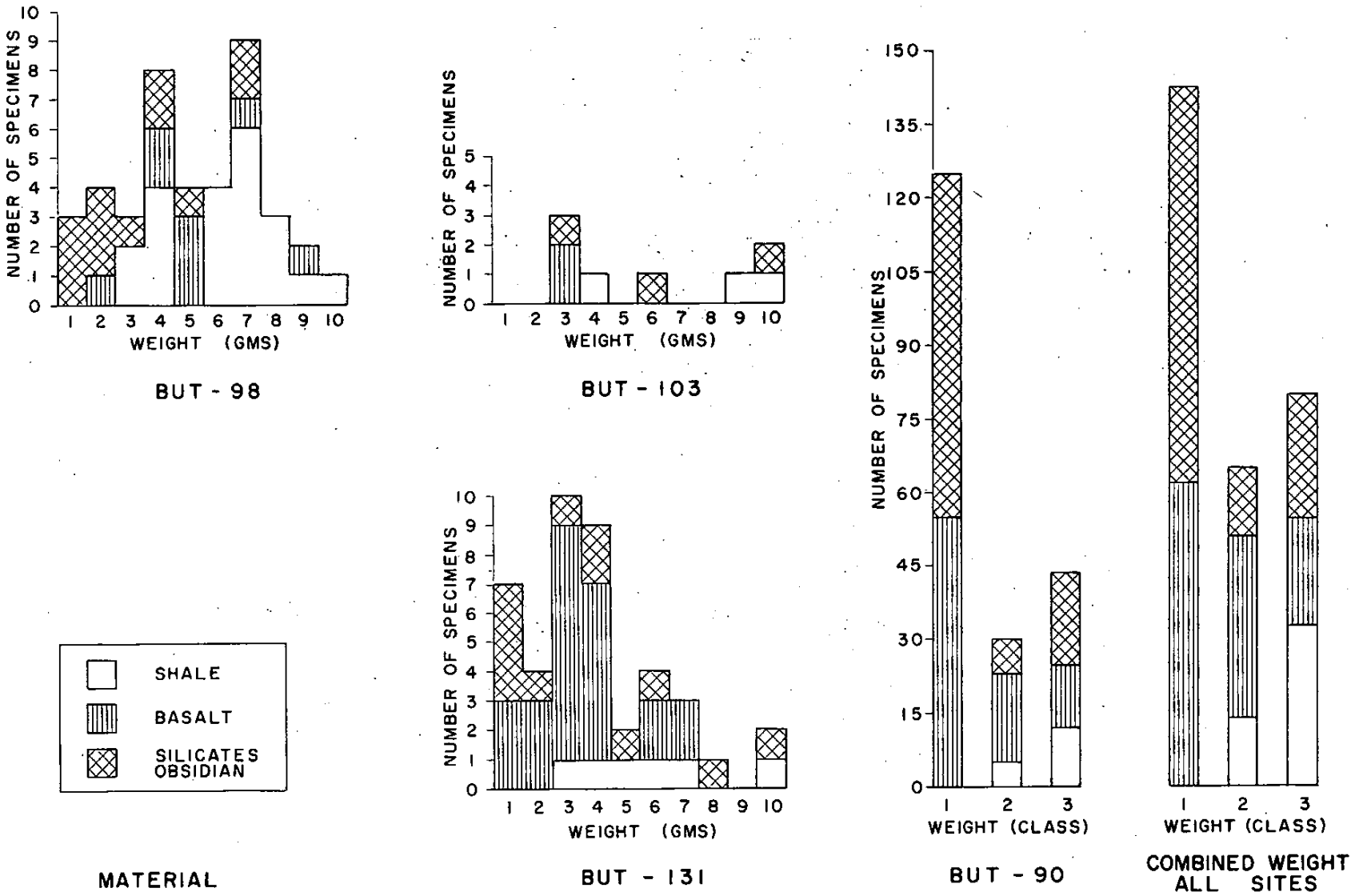


TABLE 13

WEIGHT AND MATERIAL DISTRIBUTION OF PROJECTILE POINTS

TABLE 14

But-90 Trait List

Late Horizon Phase I traits:

Burial Position:
Loosely flexed, semi extended or fully extended on face or back.

Burial Orientation:
Variable with tendency toward the northeast.

Burial Practices:
Cairn over bones made up of large cobbles or flat slabs.

Decorative Elements:
Shell beads made from Olivella shell, typical forms include thin rectangles (Type 2a1 and 2a2), and medium sized spire ground beads.

Shell ornaments made from Haliotis sp., identifiable specimens are all H. rufescens. Simple circular and rectangular forms predominate, but "banjo" forms occur.

Bone and antler artifacts are rare, but a "Y"-shaped antler digging tool is known; and a narrow, thin bone spatula occurs.

Stone use includes the probable utilization of red pigment; stone pipes have a single or double flange near base (one was made of grey steatite, the other of greenish serpentine).

Chipped Stone:
Projectile points include both large and small forms. Types include stemmed with straight shoulder and stemmed with barbs. Stem form ranges from contracting to expanding. Projectile point material includes obsidian (imported?), local cherts and agates, basalt and shale.

Other chipped stone includes large oval knives, probably choppers and very few scrapers.

Food Preparation:
Chisel pointed cobble pestles, usually shaped by pecking. Probably the mano and metate were used for both food and pigment grinding. Probable use of mussel shell spoons.

Late Horizon Phase II traits:

Burial Position:
Flexed tightly on side, face or back.

Burial Orientation:
Variable

Burial Practices:

Cairn over bones made up of stream cobbles, slabs or rarely inverted metates.

Decorative Elements:

Shell beads include clam shell disc beads, saucer (Type 3a1) and medium sized spire ground Olivella sp. beads.

Shell ornaments are typically rectangular, circular or triangular and poorly made.

Bone objects include incised bird bone tubes, incised bird bone beads, incised bone spatulas, and mammal bone tubes, both plain and incised.

Chipped Stone:

Large and small projectile points. Large points typically made of chalcedony or brightly colored cherts or jaspers. Small points, typically stemmed, made of obsidian, chert, jasper and basalt. Desert Side-Notched points occur in this period. Split river cobble choppers and core tools are common.

Some of the scrapers have ground edges, and are identical with the reported specimens infra.

Food Preparation:

Mortar and pestle may have been used, but stone mortar is rare. Hopper mortar seems to have been the common implement along with the metate and bedrock mortar.

Bone awls, typically quarter sections of deer metapodial are common. Bipointed gorge hooks, bone or antler flaking tools and possibly bone pins were used.

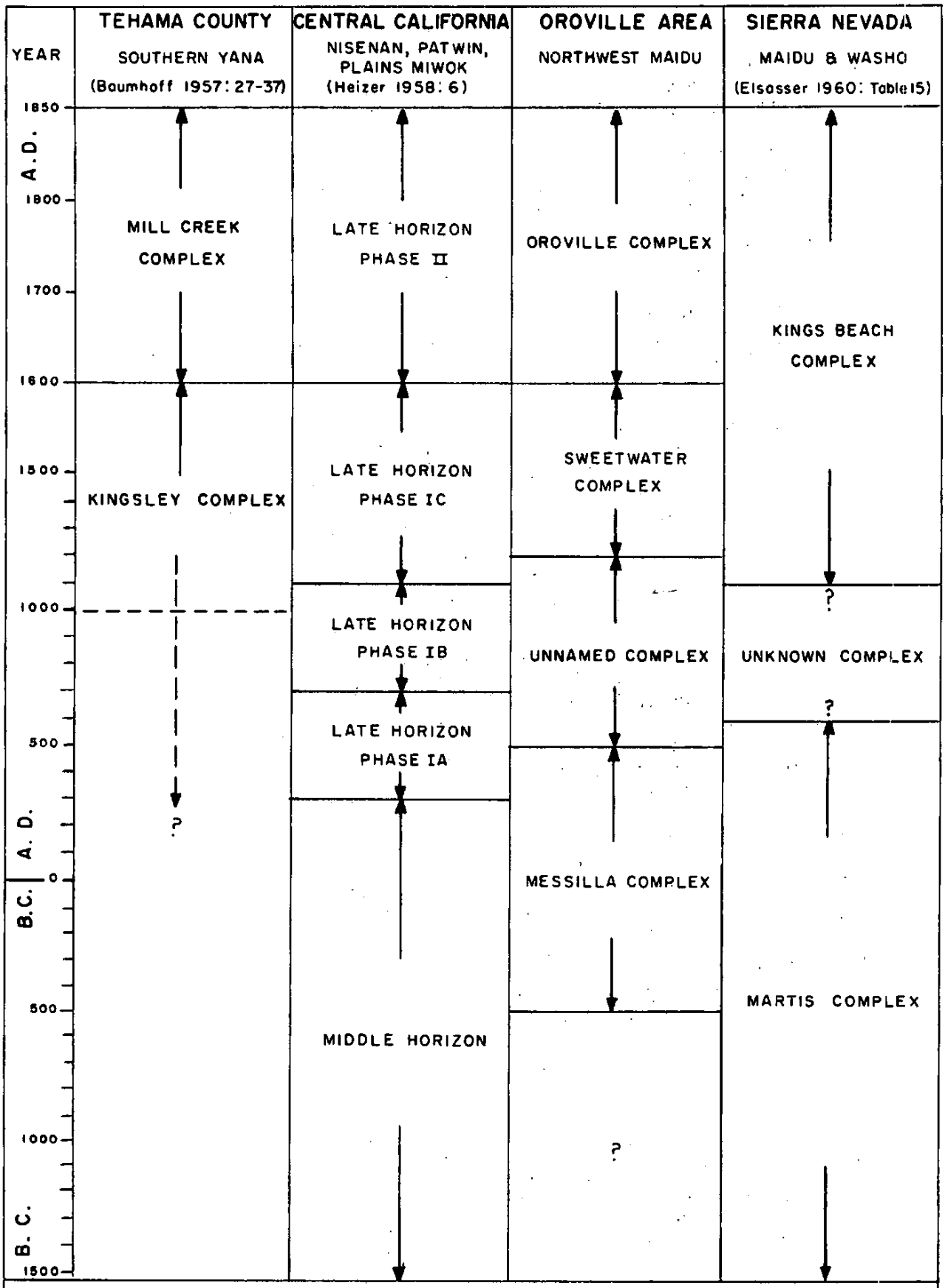
Temporally unplaced items:

Tabular, polished slate sections, possibly "tule cutters", may be Phase II. Cracked quartz crystals apparently occur in both periods. Medium sized sandstone abrading slabs and grooved net sinkers are unplaced.

Unplaced shell beads include "Saddle" Olivella beads (Type 3b) and a single rough disc shaped Haliotis bead. A variety of chopping tools occurred which seem to have been used during both periods at the site.

Comments:

A clear continuum may be indicated from terminal Phase I times into Phase II times. The basic tools changed little but elaboration, possibly due to intrusive elements from the Central Valley is indicated in the later periods. Influence from the east, or northeast is apparent in some of the projectile point forms as well as in the use of non-local obsidian.



TENTATIVE ARCHEOLOGICAL CHRONOLOGY

TABLE 15

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EXPLANATION OF PLATES

Plate 1. A. View from But-98 looking toward But-131 and But-103.
B. View of But-131 in center of photo.
C. Excavation in progress at But-98.
D. Bedrock mortars at But-98.

Plate 2. A. Square 55E/100N at But-98 excavated to base.
B. Rock cairn over remnants of Burial 2 in Square 3 of But-131. Note light-colored base material. Trowel points west.
C. Burial 1 in Square 1 of But-131.
D. Specimens.

1. Slate rod (234/725) from But-131 with no location.
2. Lump of red pigment (234/882) from But-131 at 12"-24" level.
3. Bone and fragment (234/849) from But-131 at 0-12" level.
4. Bone spatula fragment (234/787) from But-131 at 24"-36" level.
5. Steatite bowl fragment (234/699) from But-103 at 24"-36" level.
6. Steatite bowl fragment (234/651) from But-103 at 12"-24" level.
7. Steatite bowl fragment (234/936) from But-131 with no location.

Plate 3. A. Projectile points from But-98.

1. Type 2Ba (234/468) from 36"-48" level.
2. Type 3Ba (234/428) from 24"-36" level.
3. Type 2Bb (234/636) from 36"-48" level.
4. Type 2Dd (234/314) with no location
5. Type 3Aa (234/394) from 12"-24" level.
6. Type 3Ac (234/307) with no location.
7. Type 3Ac (234/117) with no location.
8. Type 3Ab (234/111) with no location.

B. Projectile points from But-98.

1. Type 2Cb (234/116) with no location.
2. Type 2Da (234/491) from 48"-60" level.
3. Type 3Cb (234/114) with no location.
4. Type 2Ca (234/603) from 24"-36" level.
5. Type 2Ca (234/429) from 24"-36" level.
6. Type 3Da (234/306) with no location.
7. Type 3Da (234/305) with no location.
8. Type 3Da (234/436) from 48"-60" level.
9. Type 3Da (234/551) from 12"-24" level.

C. Projectile points and drill from But-131.

1. Type 3Db (234/879) with no location.
2. Type 2Ea (234/851) from 0-12" level.
3. Type 2Dc (234/798) from 12"-24" level.
4. Drill or graver (234/880) with no location.
5. Type 2Ca (234/794) with no location.
6. Type 2Ca (234/904) from 0-12" level.
7. Type 2Ca (234/901) with no location.
8. Type 2Ca (234/917) from 0-6" level.

D. Projectile points from But-131.

1. Type 1Bb (234/937) with no location.
2. Type 2Bb (234/740) from 0-12" level.
3. Type 2Bb (234/914) from 0-12" level.
4. Type 3Ba (234/855) from 12"-24" level.
5. Type 3Ba (234/874) from 12"-24" level.
6. Type 3Ac (234/769) from 12"-24" level.
7. Type 3Ac (234/893) from 24"-36" level.
8. Type 3Ac (234/821) associated with Burial 1 (24"-36").
9. Type 2Ac (234/754) from 0-12" level.

Plate 4. A. Projectile points from But-131.

1. Type 1Dc (234/741) from 0-12" level.
2. Type 1Dc (234/852) from 0-12" level.
3. Type 1Dc (234/781) from 12"-24" level.
4. Type 1Dc (234/918) from 0-12" level.
5. Type 3F (234/838) from 0-12" level.
6. Type 2Ba (234/891) from 24"-36" level.
7. Type 1Be (234/750) from 36"-48" level.

B. Projectile points from But-103.

1. Type 3D (234/664) from 0-12" level.
2. Type 2Ea (234/710) from 36"-48" level in association with Feature 1.
3. Type 3Ca (234/667) from 0-12" level.
4. Type 2Bc (234/709) from 36"-48" level in association with Feature 1.
5. Type 2Dc (234/687) from 12"-24" level.

C. Specimens from But-98.

1. Projectile point Type 1Eb (234/592) from 24"-36" level.
2. Projectile point Type 1Eb (234/419) from 0-12" level.
3. Projectile point Type 1Eb (234/531) from 12"-24" level.
4. Ground knife (234/474) from 36"-48" level.
5. Ground knife (234/455) from 24"-36" level.
6. Ground knife (234/412) from 0-12" level.

D. Stone artifacts from But-98.

1. Atlatl engaging spur (234/402) from 12"-24" level.
2. Steatite pendant fragment (234/724) from 0-12" level.
3. Atlatl weight fragment (234/130), depth of recovery unknown.
4. Atlatl weight fragment (234/88), depth of recovery unknown.
5. Net sinker (?) (234/604) from 24"-36" level.

Plate 5. A. Grooved stone artifacts.

1. Sinker (?) fragment (234/605) from the 24"-36" level of But-98.

2. Sinker (?) fragment (234/416) from the 0-12" level of But-98.
3. Sinker (?) (234/872) from the 24"-36" level of But-131.
4. Sinker (?) (234/871) from the 12"-24" level of But-131.
5. Sinker (?) fragment (234/301) without provenience from But-98.

B. Chipped stone artifacts.

1. Knife and/or scraper (234/458) from the 36"-48" level of But-98.
2. Oval flake knife (234/505) from the 0-12" level of But-98.
3. Oval flake knife (234/459) from the 36"-48" level of But-98.
4. Scraper of chert (234/726) with no provenience from But-131.
5. Scraper of basalt (234/909) from the 0-12" level of But-131.

C. Chipped stone blades.

1. Blade (234/834) from 12"-24" level of But-131.
2. Blade (234/693) from 24"-36" level of But-103.
3. Blade (234/382) from 0-12" level of But-98.
4. Blade (234/411) from 0-12" level of But-98.
5. Blade (234/722) from 0-12" level of But-98.
6. Blade (234/540) from 12"-24" level of But-98.
7. Blade (234/107) with no provenience from But-98.
8. Blade (234/108) with no provenience from But-98.

Plate 6.
A. Chipped stone projectile points from the general Oroville region.
B. Chipped stone projectile points from But-90. Same scale as 6c. (SIM Accession No. 244).
C. Chipped stone projectile points from But-90 (SIM Accession No. 244).

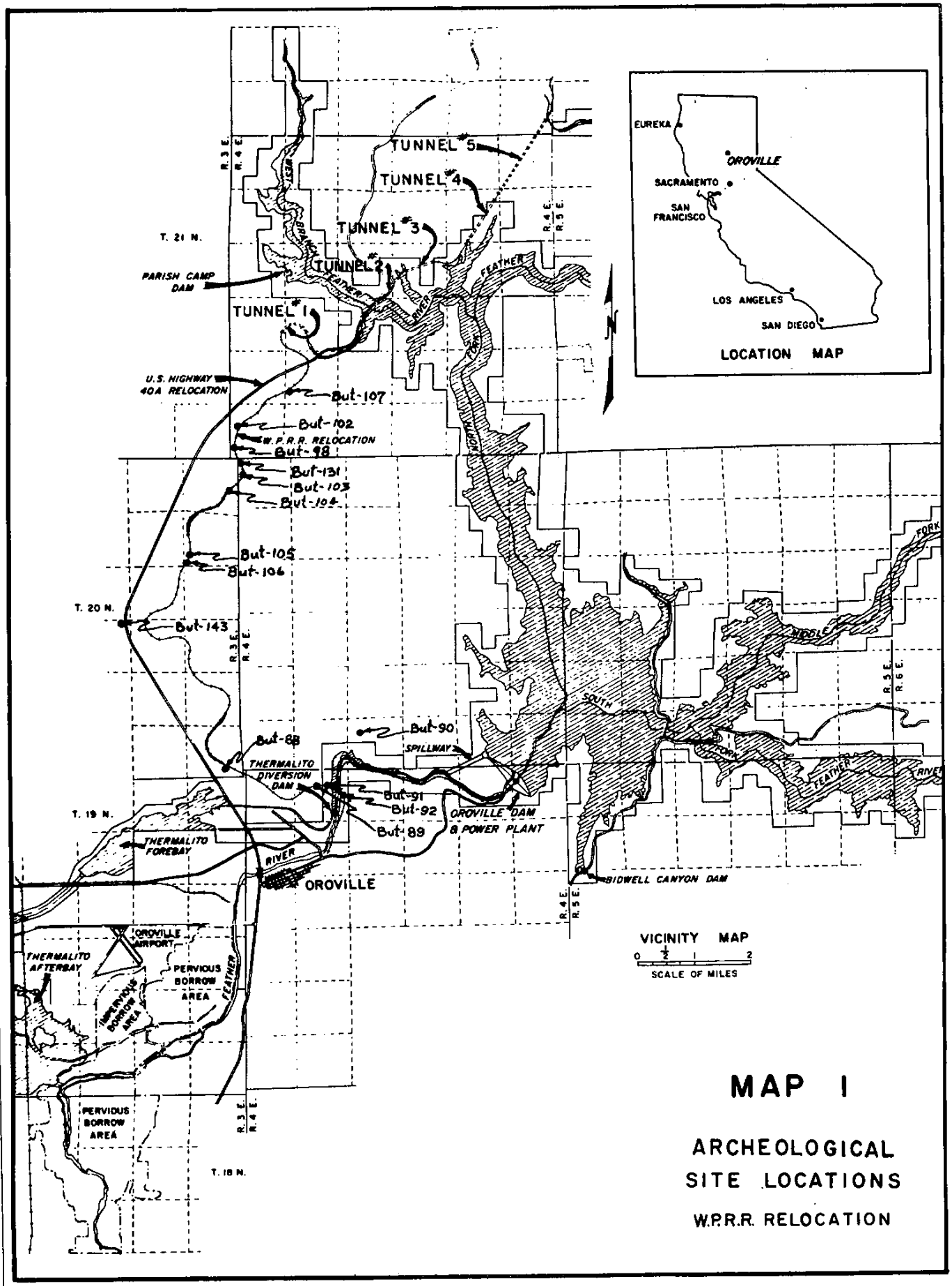
Plate 7.
A. Pestle (234/650) from the 12"-24" level of But-103.
B. Pestle (234/553) from the 12"-24" level of But-98.
C. Abrading stone (mano?) (234/870) of basalt from the 34" level of But-131.
D. Mano (234/684) from the 12"-24" level of But-103.
E. Mano (234/155) with no provenience from But-103.
F. Hoppered (?) mortar (234/297) from But-105, a surface find.
G. Metate (234/716) from Feature 1 of But-103.
H. Metate (234/862) with no provenience from But-131.

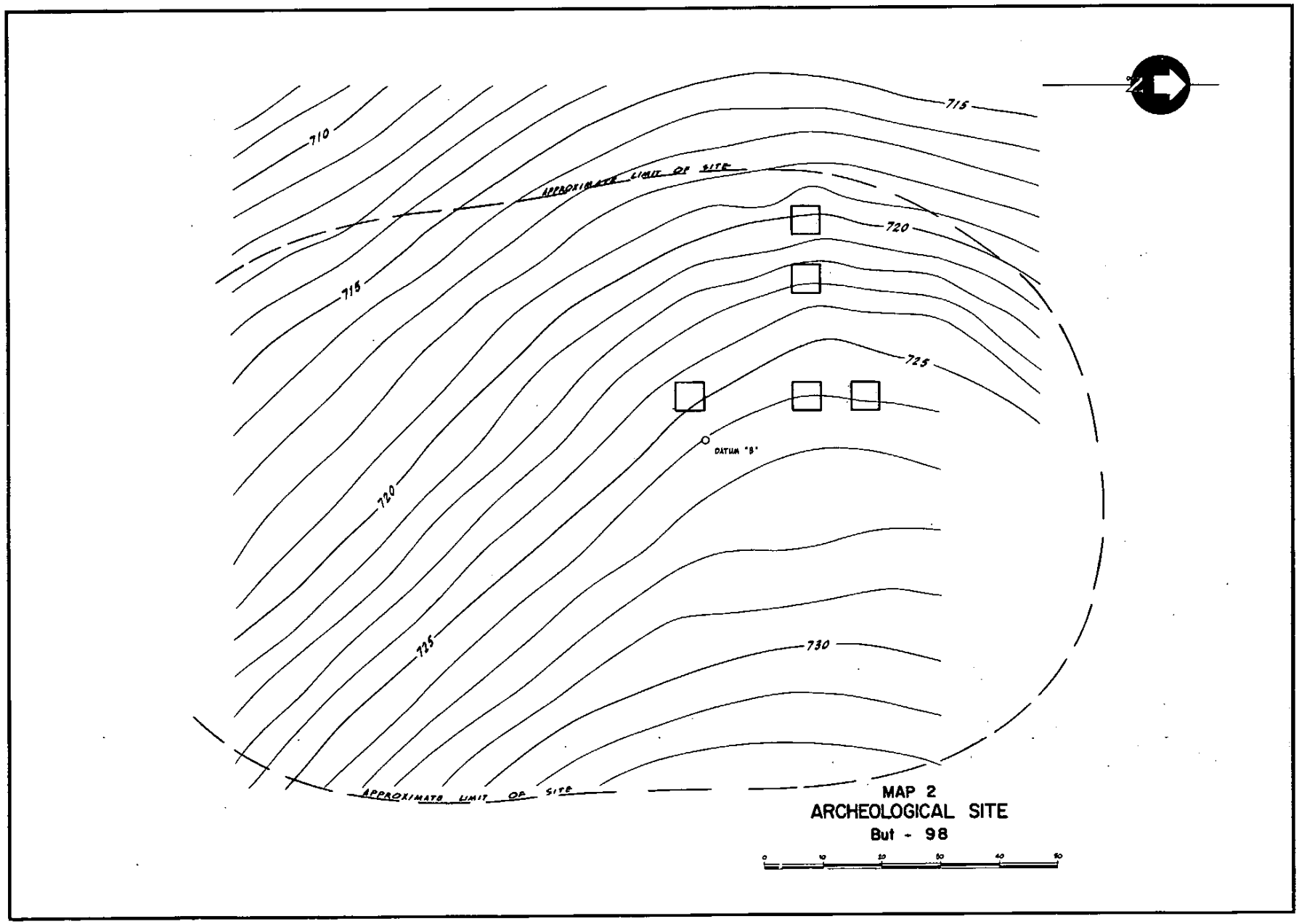
Plate 8.
A. Bowl mortar fragment (234/298) from the surface of But-98.
B. Pestle (234/845) from the 0-12" level of But-131.
C. Mano (234/74) from the surface of But-98.
D. Mano (234/713) from Feature 1 of But-103.
E. Mano (234/712) from Feature 1 of But-103.
F. Pestle (234/913) from the surface of But-98.
G. Incised steatite bowl rim fragment (234/296) with no provenience from But-105.

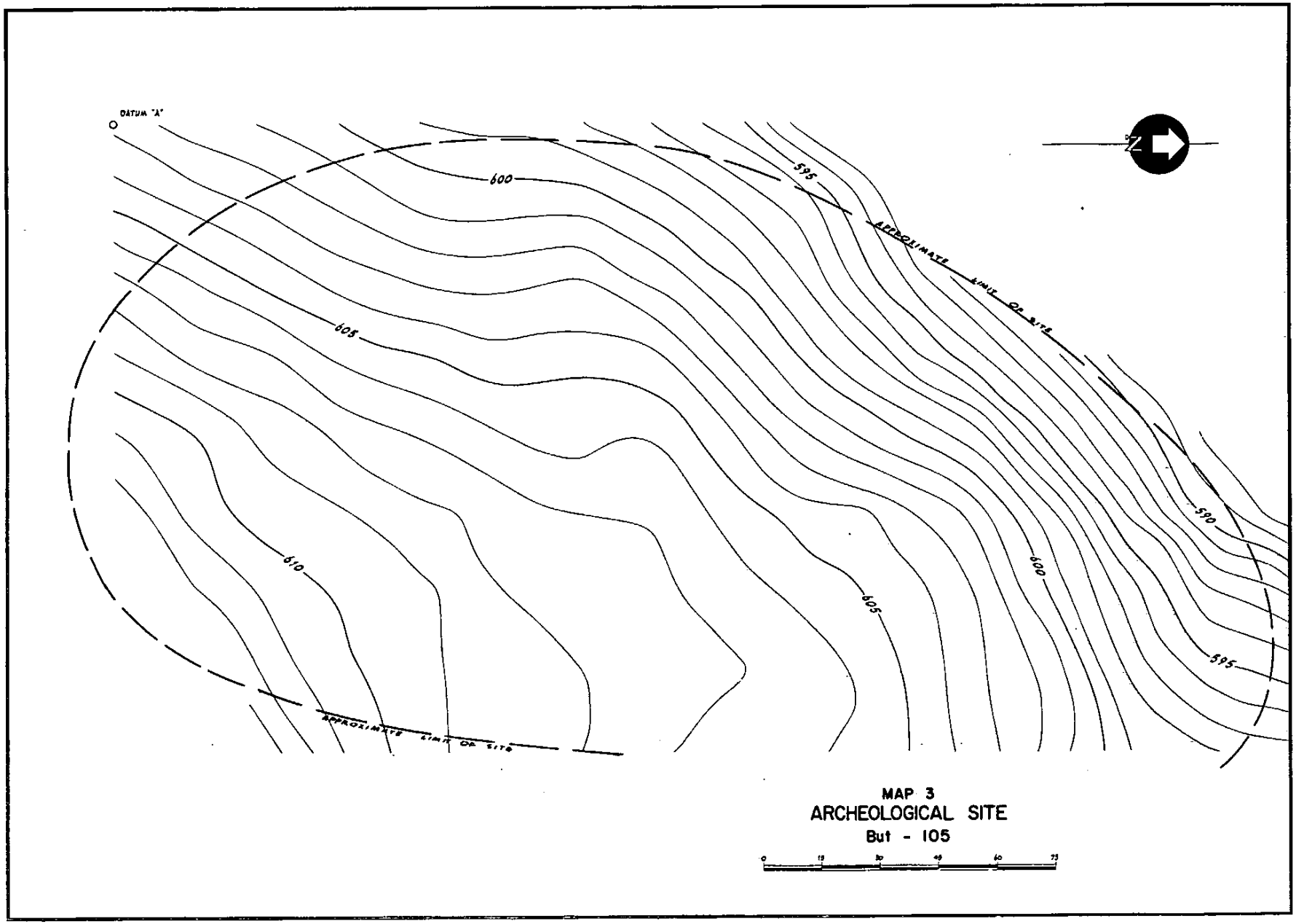
EXPLANATION OF TABLES

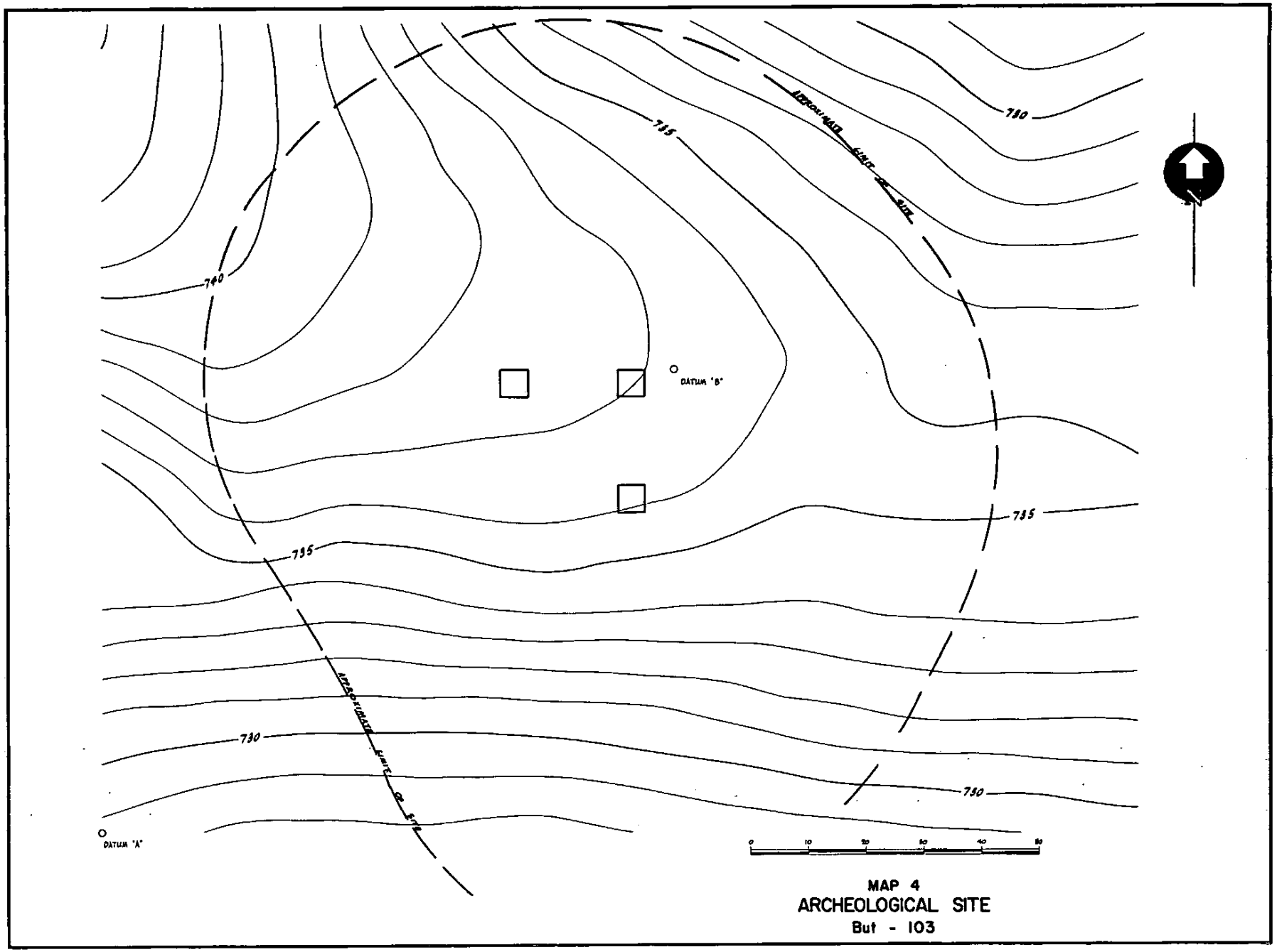
EXPLANATION OF FIGURES

EXPLANATION OF MAPS

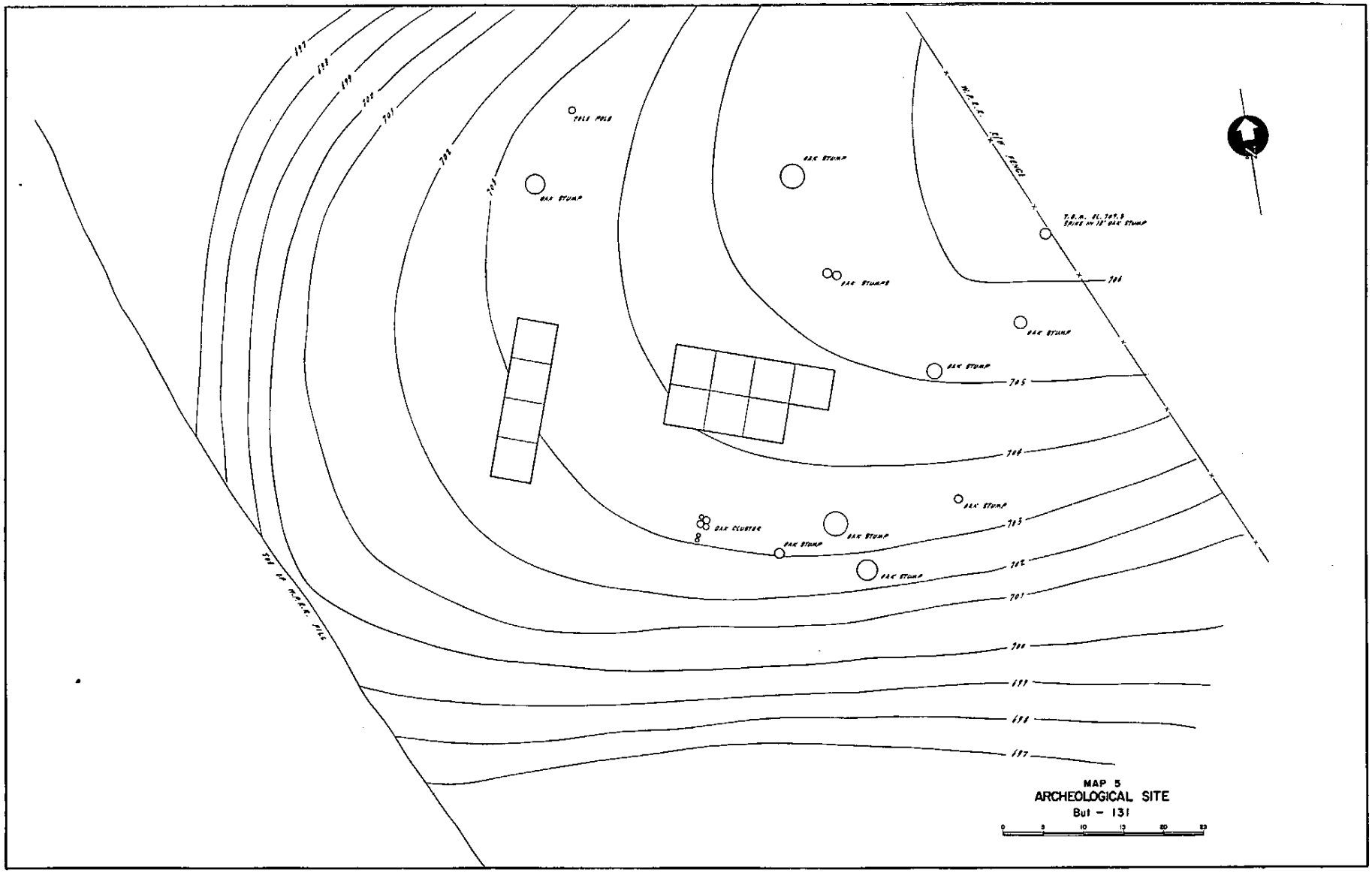

TUNNEL 5
TUNNEL 4
TUNNEL 3
TUNNEL 2
TUNNEL 1
PARISH CAMP DAM
FEATHER RIVER
WEST BRANCH
NORTH FORK
T. 21 N.
R. 3 E.
R. 4 E.
R. 5 E.
U.S. HIGHWAY 40A RELOCATION
But-107
But-102
W.P.R.R. RELOCATION
But-98
But-131
But-103
But-104
But-105
But-106
But-143
T. 20 N.
But-90
SPILLWAY
But-88
THERMALITO DIVERSION DAM
But-91
But-92
But-89
OROVILLE DAM & POWER PLANT
T. 19 N.
THERMALITO FOREBAY
OROVILLE
BIDWELL CANYON DAM
MIDDLE FORK
SOUTH FORK
OROVILLE AIRPORT
THERMALITO AFTERBAY
PERVIOUS BORROW AREA
IMPERVIOUS BORROW AREA
T. 18 N.
EUREKA
OROVILLE
SACRAMENTO
SAN FRANCISCO
LOS ANGELES
SAN DIEGO
LOCATION MAP
VICINITY MAP
0 1/2 1 2
SCALE OF MILES
MAP 1
ARCHEOLOGICAL SITE LOCATIONS
W.P.R.R. RELOCATION


710
715
APPROXIMATE LIMIT OF SITE
715
720
725
DATUM "B"
720
725
730
APPROXIMATE LIMIT OF SITE
MAP 2
ARCHEOLOGICAL SITE
But - 98
0
10
20
30
40
50


DATUM "A"
600
595
APPROXIMATE LIMIT OF SITE
605
610
APPROXIMATE LIMIT OF SITE
590
600
605
595
N
MAP 3
ARCHEOLOGICAL SITE
But - 105



MAP 4
ARCHEOLOGICAL SITE
But - 103


MAP 5
ARCHEOLOGICAL SITE
But - 131

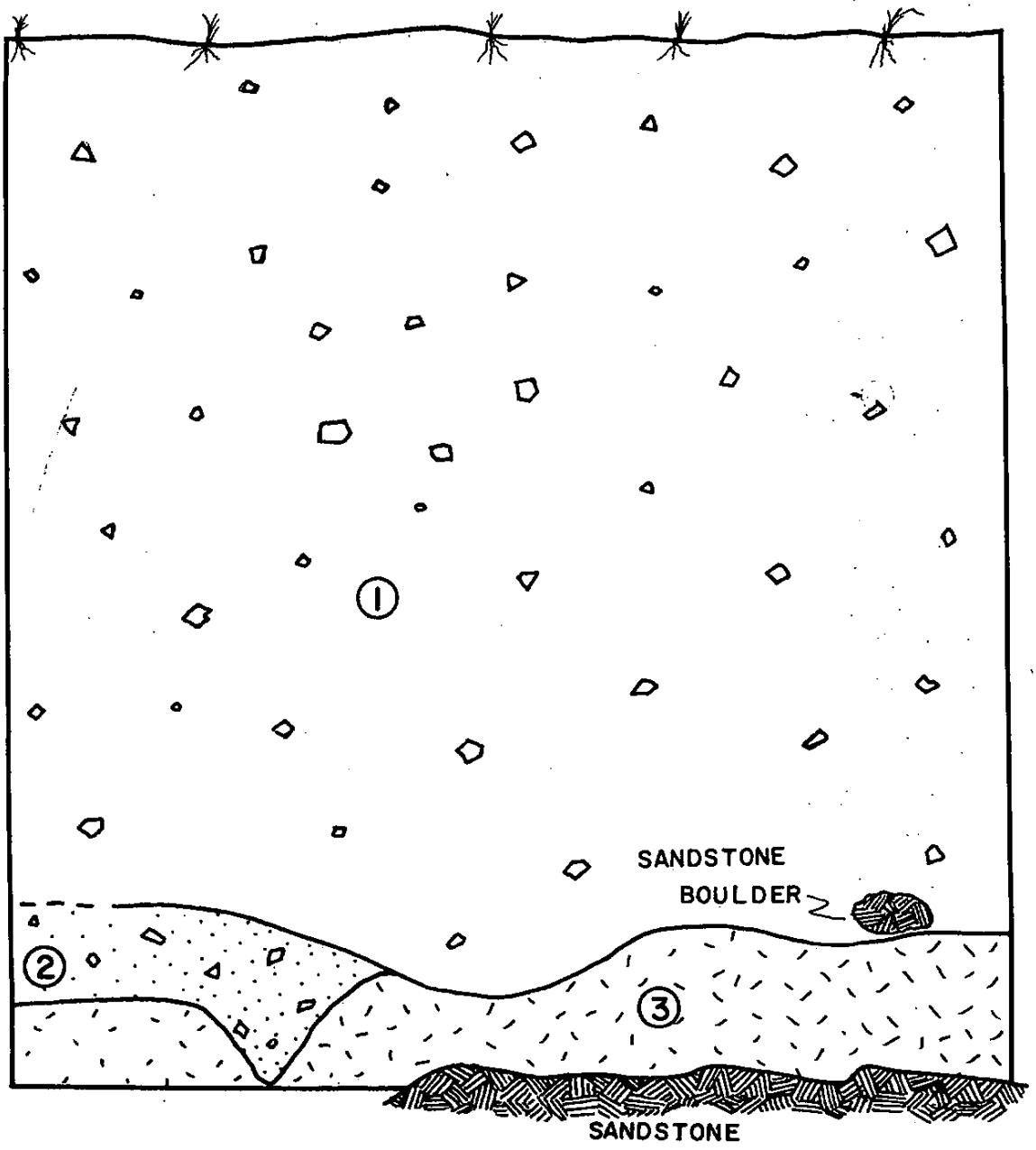
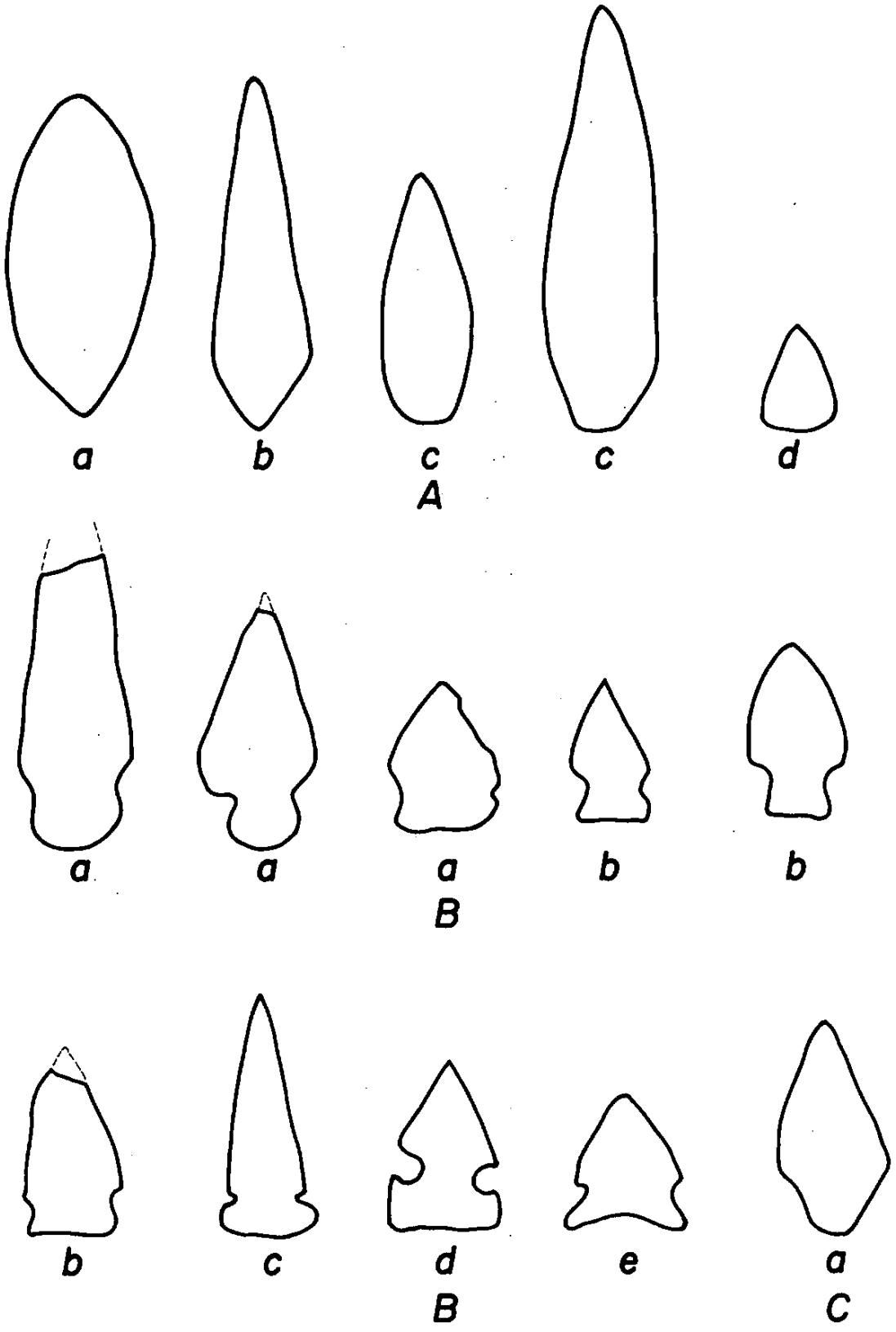


Fig. 1. PROFILE OF NORTH WALL OF UNIT 55E/100N But-98

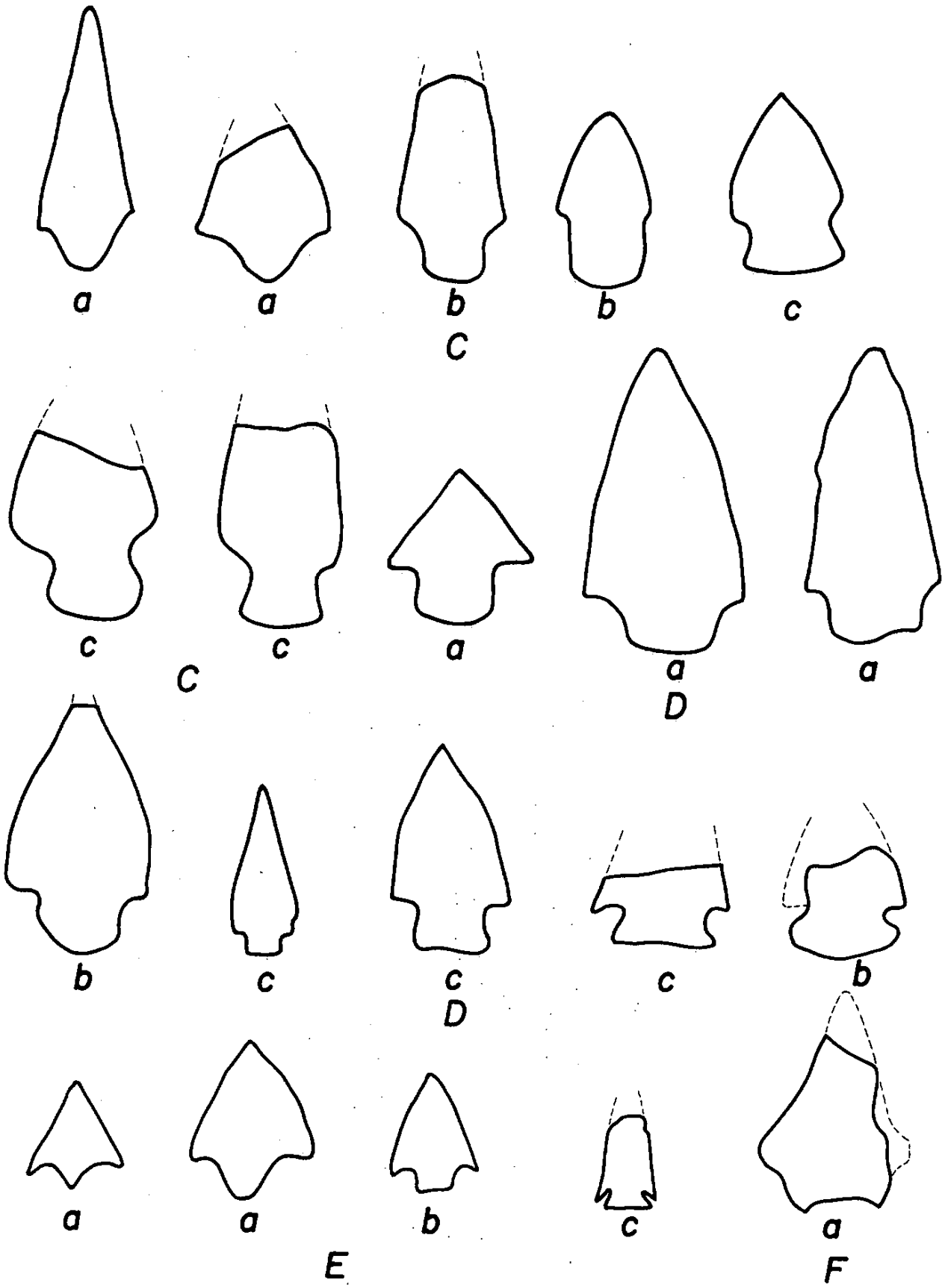
1. Dark brown sandy midden with heavy amount of thermal fractured rock. The midden becomes increasingly lighter in depth.
2. Light brown sandy midden with thermal fractured rock.
3. Orange-tan sandy deposit (non-cultural) with irregular shaped stone resting at top of this level and at base of Level 2. (Scale: 6 inches equals 5 feet.)

Figure 2



PROJECTILE POINT TYPOLOGY

Figure 3



PROJECTILE POINT TYPOLOGY

(Cont.)

Plate I

a.

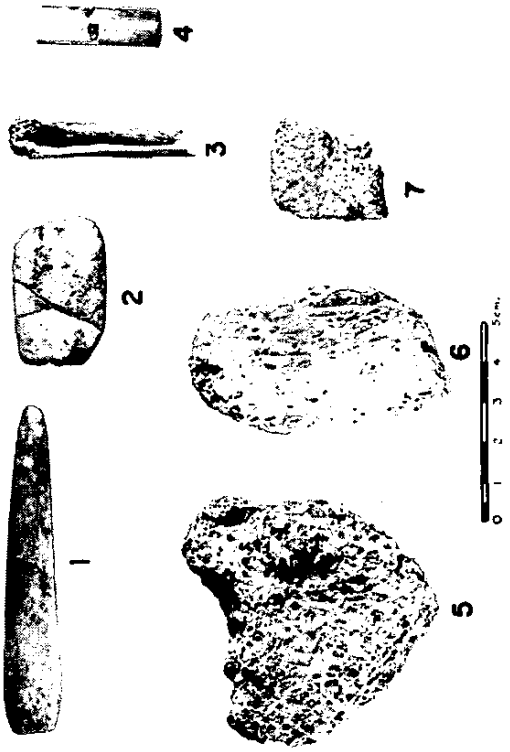
b.

c.

d.

Plate 2

b.

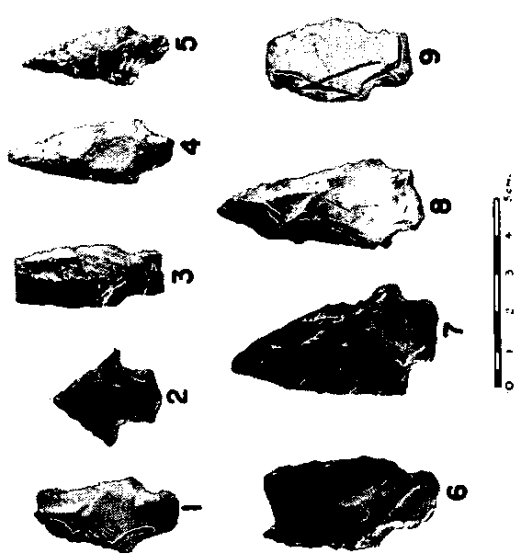


d.

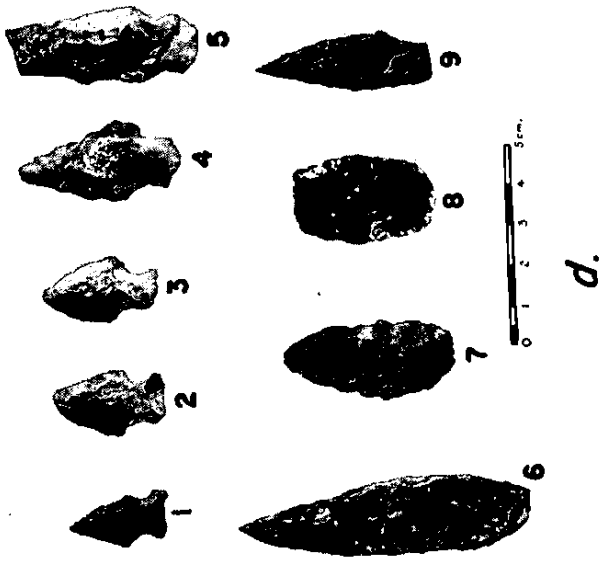
a.

c.

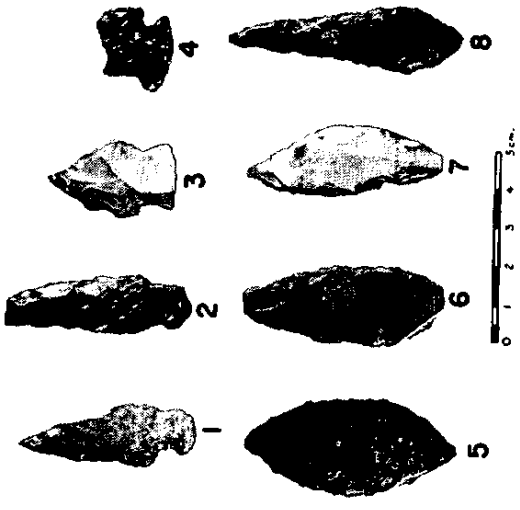
Plate 3


1
2
3
4
5
6
7
8
9
0 1 2 3 4 5cm.

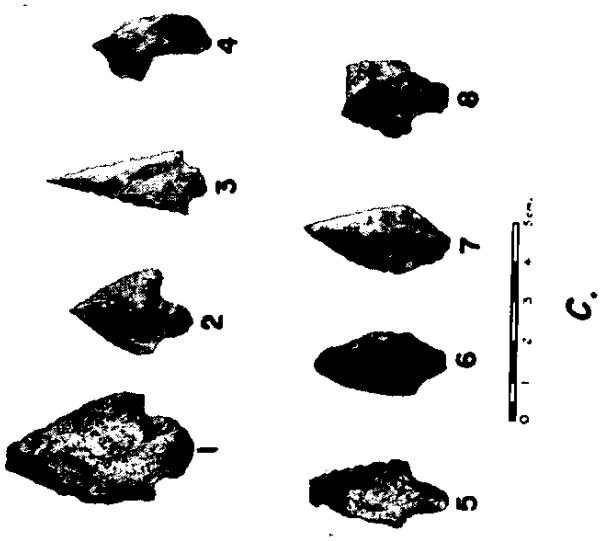
b.


1
2
3
4
5
6
7
8
9
0 1 2 3 4 5cm.

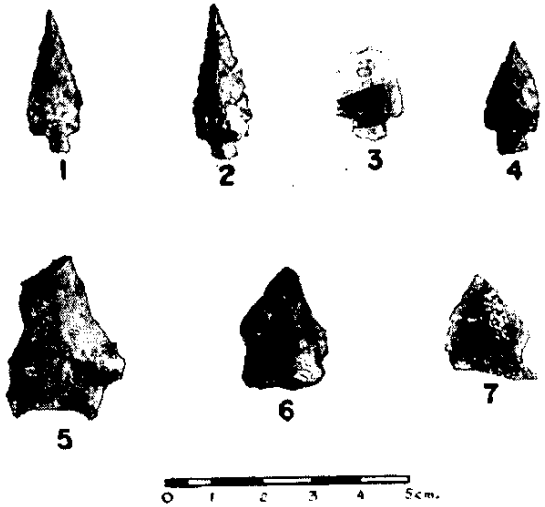
d.


1
2
3
4
5
6
7
8
0 1 2 3 4 5cm.

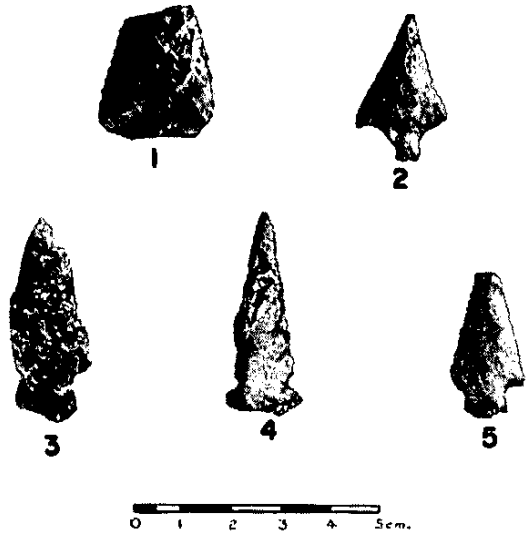
a.


1
2
3
4
5
6
7
8
0 1 2 3 4 5cm.

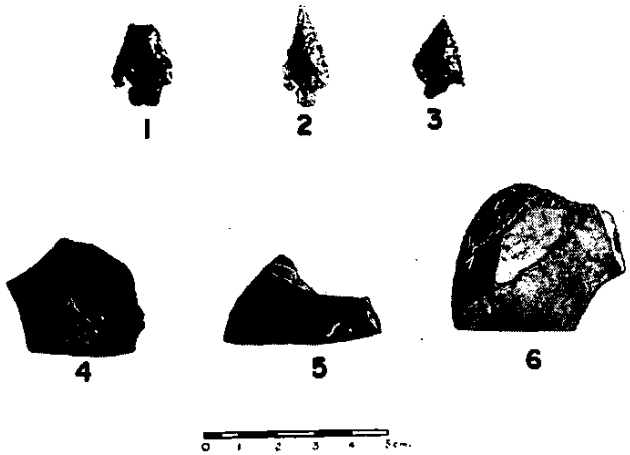
c.


1
2
3
4
5
6
7
0 1 2 3 4 5cm.

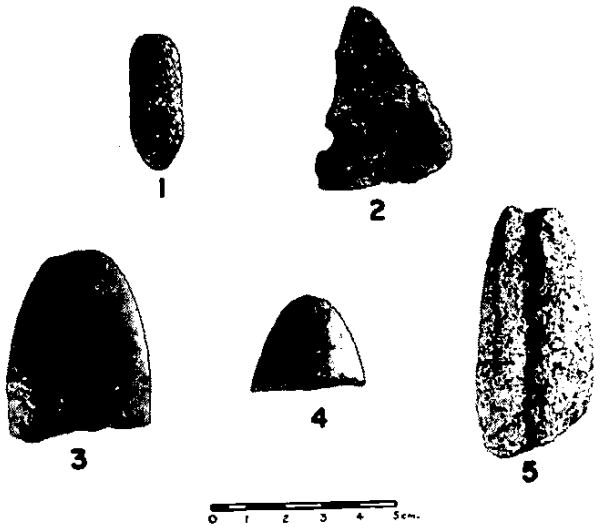
a.


1
2
3
4
5
0 1 2 3 4 5cm.

b.


1
2
3
4
5
6
0 1 2 3 4 5cm.

c.


1
2
3
4
5
0 1 2 3 4 5cm.

d.

Plate 4

Plate 7

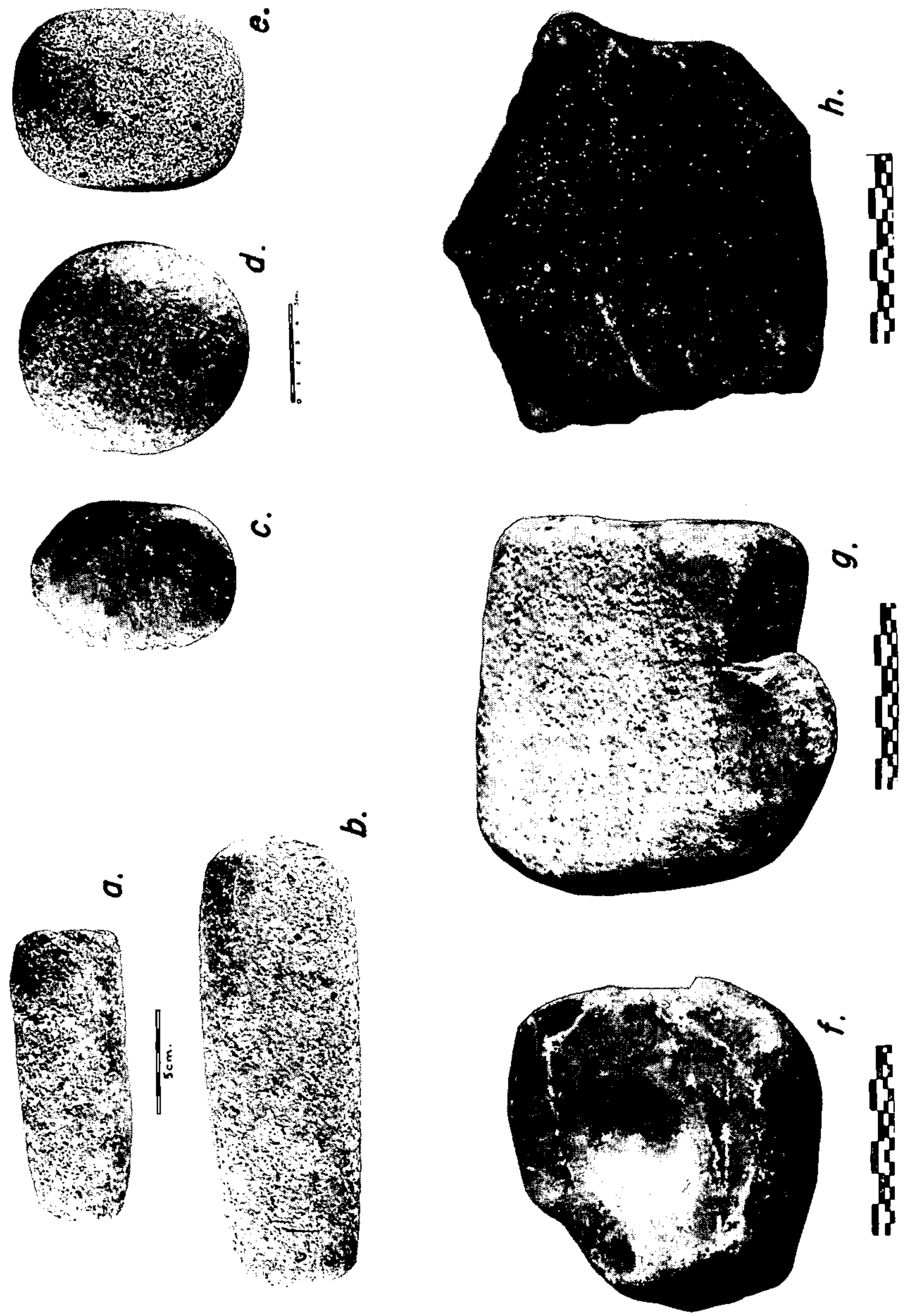
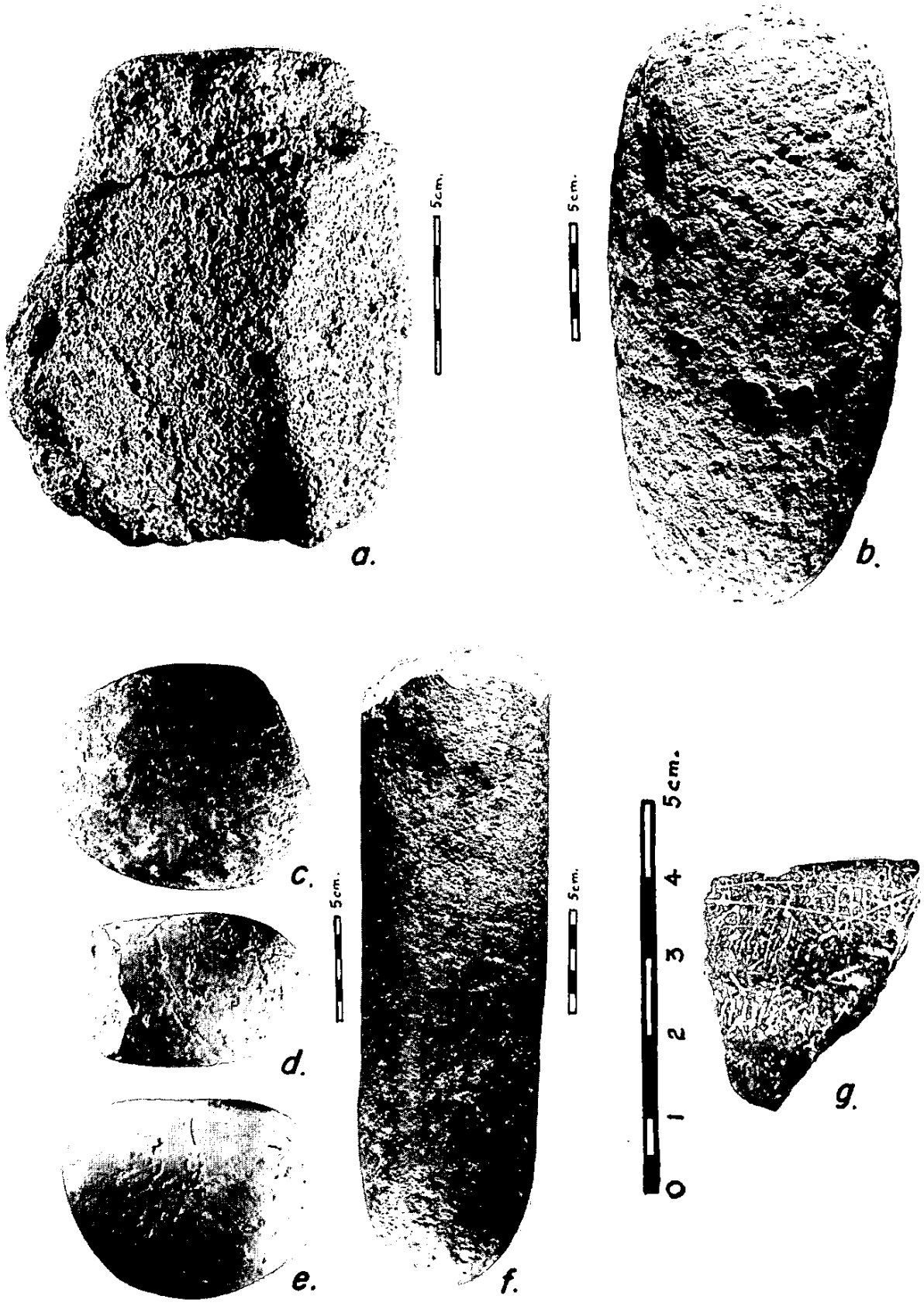


Plate 8



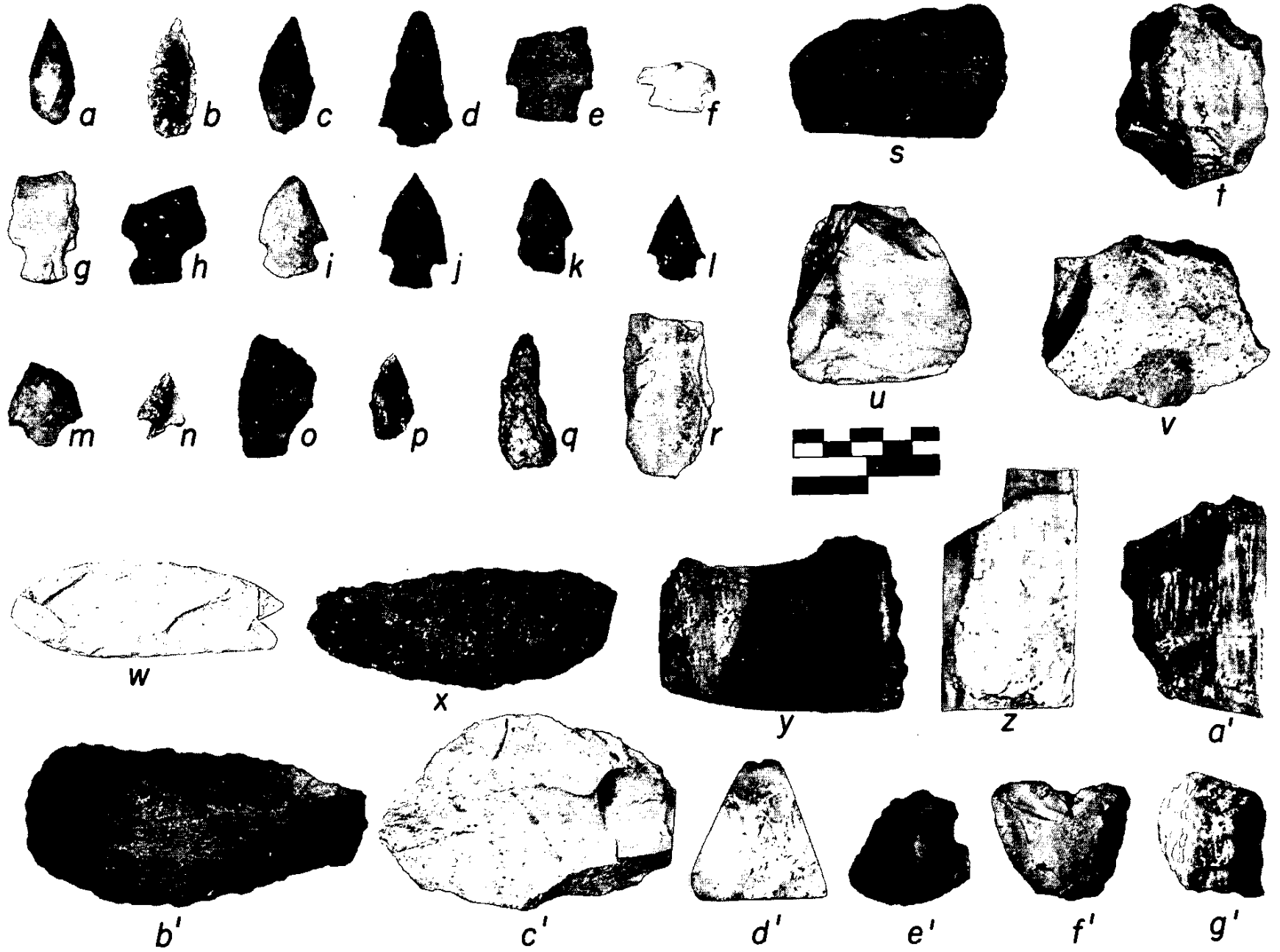


Plate 9

January 16, 1970

Archeological Resources of the Oroville Reservoir Area
Butte County, California

An intensive archeological program in the Oroville Reservoir was carried out for the Department of Water Resources by the Department of Parks and Recreation between 1960 and 1967. As a result of this work some 225 sites were recorded within the project area. This does not include the present recreation areas which, as yet, have not been surveyed.

Our knowledge of the prehistory of the Oroville region is based upon the excavation of some 13 sites. The tentative sequence for the area is defined in The Archeology of the Western Pacific Railroad Relocation, Oroville Project, Butte County, California, by W.H. Olsen and F.A. Riddell (1963) and in The Archeology of the Oroville Dam Spillway, (D.P. Jewell 1964).

The earliest occupation, the Messilla Complex, is now thought to date at prior to 2000 B.C. Following this period is the Bidwell Complex which probably dates from post 2000 B.C. to ca. A.D. 100. The last two periods, the Sweetwater and Oroville Complexes, date at post A.D. 100 to ca. A.D. 1850 when the aboriginal pattern was disrupted by the Gold Rush.

In addition to the published reports which include data on seven sites, there are unfinished manuscripts on two sites and a Master's Thesis on one additional site. Collections of photos and specimens are available for interpretive use.