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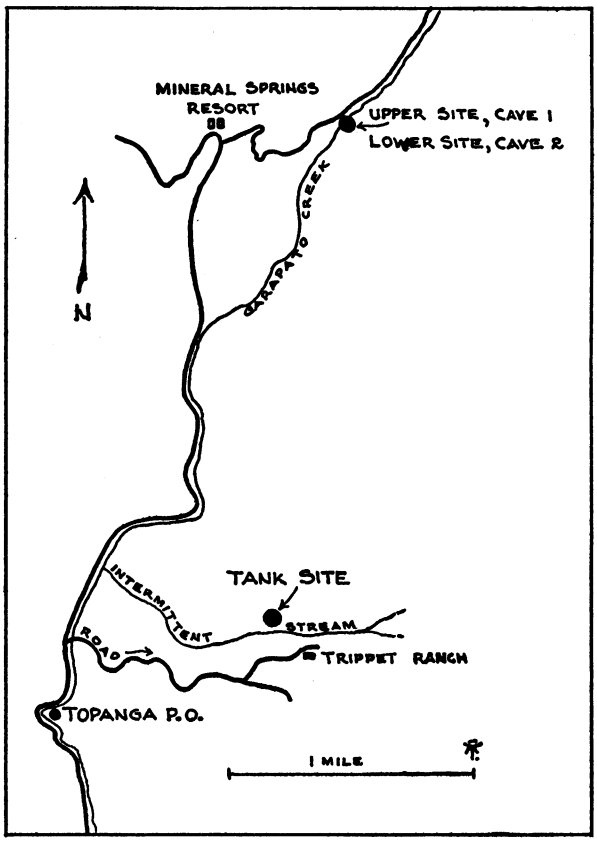

Map of Topanga Canyon sites.

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INTRODUCTION

THE SITES and remains from several sites in Topanga Canyon, Los Angeles County, California, appear to be relatively old, and the culture which the implement complex resembles has heretofore been known only much farther south. This report calls attention to the possible significance of this northernmost occurrence of the Topanga type culture, and presents certain problems which may be solved when intensive excavation is carried out. The largest of our archaeological sites (Tank Site) may be the first recorded occupation stratum which has been spared the destructive forces of weathering and degradation. All other known sites of this culture are characterized by surficial occurrence of artifacts. In Appendix 1, Mr. A. E. Treganza has summarized his observations on related cultures found just north and south of the Mexico-California boundary.

We wish to express our appreciation to Dr. Ralph L. Beals for assistance and encouragement in connection with this investigation. We were aided at times in the field and laboratory by Mr. David Whitman and Mr. Kenneth Macgowan, to whom our indebtedness is here acknowledged. Mr. Arnim Arndt made the sketches for figures 1 and 2, and Mr. Treganza kindly contributed the map and figures 3, 4, and 7. Identification of flaked materials is by Dr. Cordell Durrell.

Between March and July, 1946, we located a series of archaeological sites in Topanga Canyon (see map), in the Santa Monica Mountains, which in aboriginal times was probably one of the major routes from the San Fernando Valley to the coast. We here present data from four sites, three of which lie within a quarter-mile radius on the upper reaches of Garapato Creek, a small permanent stream; the fourth site is farther south, one mile northeast of the Topanga post office, and was situated where no year-round water supply exists today.

All sites lie within an area formerly covered with fairly heavy oak growth, and it is logical to assume that the acorn was a staple food of the early inhabitants. The sites are not at all obvious, but are marked by a soil noticeably darker than that surrounding it, and by a high concentration of stones which show marks of purposeful chipping. Limited excavation was carried out at the Upper Site and Tank Site, work being confined to the digging of small test pits, 3 by 12 feet at the former and 3 by 6 feet at the latter. Objects recovered from the occupation deposit, which was nowhere over 20 inches deep, correspond closely in type to surface specimens. Surface finds make up the bulk of both collections. Because the same implemental assemblages occur in both

localities, we assume they are manifestations of a single culture. All artifacts collected are now in the University of California Museum of Anthropology, Berkeley. Museum numbers given below refer to the UCMA catalogue.

None of the four sites appears to have been a permanent village, except possibly the Tank Site, and it must be excavated more completely to settle the point.[1] The others appear to have been campsites where a seminomadic group might stay for a while and then move on. Occupation probably coincided with the season during which acorns or other seeds were ripe. This is suggested by the discovery of stone mortar fragments, a pestle, a number of whole and fragmentary manos, and several pieces of flat slab metates. The position of the three sites on Garapato Creek is shown in the map.

The Upper Site consists of a thin mantle of dark, loose, ashy deposit spread over an area judged to be 75 yards in diameter. The trench was sunk within a small area where the deposit was most concentrated. At the edge of the site and facing east is a sandstone cave about 12 feet wide and 40 feet long (Cave 1). That it was a habitation site seems demonstrated by the smoke-blackened walls and a loose-ash floor deposit about 12 inches deep, from which a few mussel and abalone shells were recovered.

The Lower Site, about 30 by 50 feet in area, consists of a strip of occupation deposit about 2 feet thick, which lies between the base of a rocky cliff and the creek and contains worked stone. Cave 2, about 200 yards downstream and 100 yards upslope from the stream bed, is a deep rock shelter about 15 by 35 feet, again facing east. The floor is covered with a level, 18-inch deposit of ash and sand. Several artifacts were picked up in the loose top soil. The walls are smoke-blackened and the interior is protected and dry. Both sites, in our estimation, would repay excavation and would very likely produce additional artifacts such as discussed below.

The last site, called the Tank Site because of a large water tank near by, is 300 yards north of and above an intermittent stream, on a knoll capped with a heavy green-gray clay much darker than adjacent soils. It is not immediately recognizable as an occupation deposit, but the darkness seems to suggest those chemical pedologic discolorations (ash, organic refuse) which result from

[1] In April, 1947, Dr. Beals, Mr. Treganza, Miss C. Malamud, and Heizer spent a day on the Tank Site and dug three 5 by 5 foot stratipits. The results are shown in the table below. No new types of objects were found in digging, and from the relative frequencies it appears that our earlier random surface collection produced a fair sampling of types and numbers. Two small bits of marine shell and several fragments of mineralized mammal bone were also found.

Artifact	Pit A			Pit B		Pit C	Totals
	0–6″	6–12″	12–18″	0–6″	6–12″	0–12″	
Scraper planes (hemispherical)	6	22	9	2	1	6	46
Scraper planes (beaked and keeled)	..	1	..	1	..	1	3
Flake scrapers (retouched side)	1	..	..	..	..	1	2
Flake scrapers (retouched end)	1	2	..	1	..	..	4
Core choppers	..	1	..	..	1	..	2
Core hammerstones	2	4	2	..	..	3	11
Manos	4[a]	10	2	10[a]	1	2	29
Metate	..	1	..	..	..	..	1
Totals	14	41	13	14	3	13	98

[a] One has pits on both flat surfaces (see fig. 6).

man's presence. Lithic remains that have weathered out of the the surficial layer lie on the summit and on the south slope. Many are rejects or are unworked and otherwise unrecognizable as purposeful artifacts, but among them are to be found well-made manos, choppers, and scrapers. The entire site covers an area at least 300 feet in diameter with sporadic outliers, patches of ground here and there where artifacts are concentrated.

At the Tank Site a small pit was excavated on the top of the knoll. The "deposit," here a heavy dark clay about 20 inches in depth, yielded 26 artifacts, among them a sandstone mortar-rim fragment. This was the only evidence of mortars from this site. One mortar fragment was also found in the Upper Site test trench. Our findings indicate that Tank Site is very rich in artifacts and, like the others, would repay systematic excavation.

FLAKED STONE IMPLEMENTS

Listed below is a series of types of flaked tools. Classification depends primarily upon form and to a lesser degree upon flaking technique. Lithic materials (basalt, andesite, quartzite, porphyry) are poorly adapted to well-controlled chipping, and the structural limitations of the materials probably account for the fact that our "types" represent formal groups with much internal variability and a certain amount of intergradation and overlap. This fact, along with impressions gained from study of the individual implements, leads us to believe that the Topanga Canyon toolmakers had only some generalized goal in mind when producing stone tools.

Tools are either uniface (flaked on one surface) or biface (flaked on both faces). Our types 3*a*, 3*b*, 4, 5, 6, and 8 are uniface tools and types 1, 2, 7, 10, and 11 are biface. Type 9, primary flake knives, falls in neither class, since these are not reworked. In the following figures prime letters indicate front on side views. Parenthetical numbers in tables 1 and 2 indicate either size of fragmentary pieces or averages of a series.

We recognize the following types of flaked tools.

1. *Core choppers* (figs. 1, *d, d'*; 4, *a, a', c*).—Core tools with curved, scalloped cutting edge formed by striking off alternate flakes. Thickened base for hand grip is rarely trimmed, but fits the hand comfortably. Margins show some signs of use, probably in fairly light work (wood or bone?).

Materials: 10 black basalt, 3 quartzite.

2. *Cleavers or heavy flake choppers* (fig. 2, *c, c'*).—Large flat percussion flakes with retouched (percussion) scalloped edge.

Materials: 3 quartzite, 1 basalt.

3*a*. *Hemispherical scraper planes* (figs. 1, *a, a'*; 3, *a, a', b, b', d, d', e, e', e'', f, f'*; 2, *e, d*).—Formed by striking vertical or steeply sloping flakes off the perimeter of a flat platform core. Top generally rounded, ovoid, or subcircular in outline. What might be called a special class are 4 large and heavy examples, all from the Tank Site, which average 98 mm. long, 81 mm. wide, and 54 mm. high. One came from the trench (fig. 1, *b*), the others from the surface.

Materials: 4 quartzite, 21 basalt, 3 metamorphosed volcanics (blue-gray gneiss, blue-gray feldspar porphyry, pink gneiss).

3*b*. *Keeled, beaked scraper planes.*—Like 3*a* except for central ridge or keel on top and beaked "prow" on one end, and on both ends in some. Most common shape subrectangular or pointed ellipse.

Materials: 6, all black basalt.

4. *End scrapers* (figs. 3, *g*, *g'*; 4, *b*, *b'*)—Group contains widely variant forms, and with more examples, can probably be subdivided. Generally smaller and lighter than scraper planes. Made of flattened, relatively thin percussion flakes with the end, and in some the lateral edge, partly retouched to produce beveled work edge.

Materials: 11 black basalt, 1 quartzite.

TABLE 1

MEASUREMENT OF FLAKED POINTS FROM UPPER SITE

Fig. No.	UCMA no.	Material	Length (mm.)	Thickness (mm.)	Comparative references in Rogers (1939)
4, i	1–68152	Black basalt.....	37	7	Pls. 9, *d*; 14, *a*
4, *f*	1–68153	Red porphyry.....	36	6	Pls. 9, *h*; 13, *q*
4, *g*	1–68192	White porphyry.....	22	5	Pl. 13, *p*
4, *h*	1–68154	Brown-white chert.....	30	7	Pl. 14, *a*(?)
....	1–68181	Brown-white chert (frag.)..	(32)	5	.....
4, *d*	1–68171	Gray obsidian (frag.).....	(3)	4	.....
4, *e*	1–68172	Gray obsidian (frag.).....	(7)	4	.....

5. *Keeled or turtleback scrapers* (figs. 3, *c*, *c'*, *i*, *i'*, *i''*).—Made of heavy percussion flake with flat bottom. Keeled ridge running along main axis; the end, and in some, the lateral edge, retouched to produce curved working edge.

Materials: 5 black basalt, 1 gray-green rhyolite porphyry.

6. *Flake scrapers* (figs. 2, *a*, *b*; 3, *h*, *h'*; 4, *b*, *b'*).—Fairly thin flakes with percussion- or pressure-retouched cutting edge. Both end and sides may be retouched to produce a rounded work edge.

Materials: quartzite and basalt. Numerous examples.

7. *Flaked points.*—These are small, light projectile points made by pressure flaking. Seven came from the Upper Site; 4 are complete.

8. *Heavy leaf-shaped blades* (fig. 1, *c*, *c'*, *c''*).—The only representative of this class comes from the surface of the Tank Site, and is a coarsely chipped blade 73 mm. long, 30 mm. wide, and 10 mm. thick.

Material: black basalt.

9. *Flake knives.*—Large, flat, unmodified percussion flakes with natural cutting edge which is rarely pressure-retouched (resharpened?). Most of them show no intentional alteration; their function as tools is presumed.

Materials: include all those listed above.

10. *Small flaked knives.*—This type is represented by one example of brownish white chert (1-68129, fig. 1, *g*, *g'*) from the Lower Site, another of white porphyry from the Upper Site (1-68156, fig. 1, *f*, *f'*), and a third (1-68272) of gray banded chert from the Tank Site. They are similar in size and technique of construction and are clearly small cutting knives with a curved, thinly flaked cutting edge and thickened base. They fit the fingers

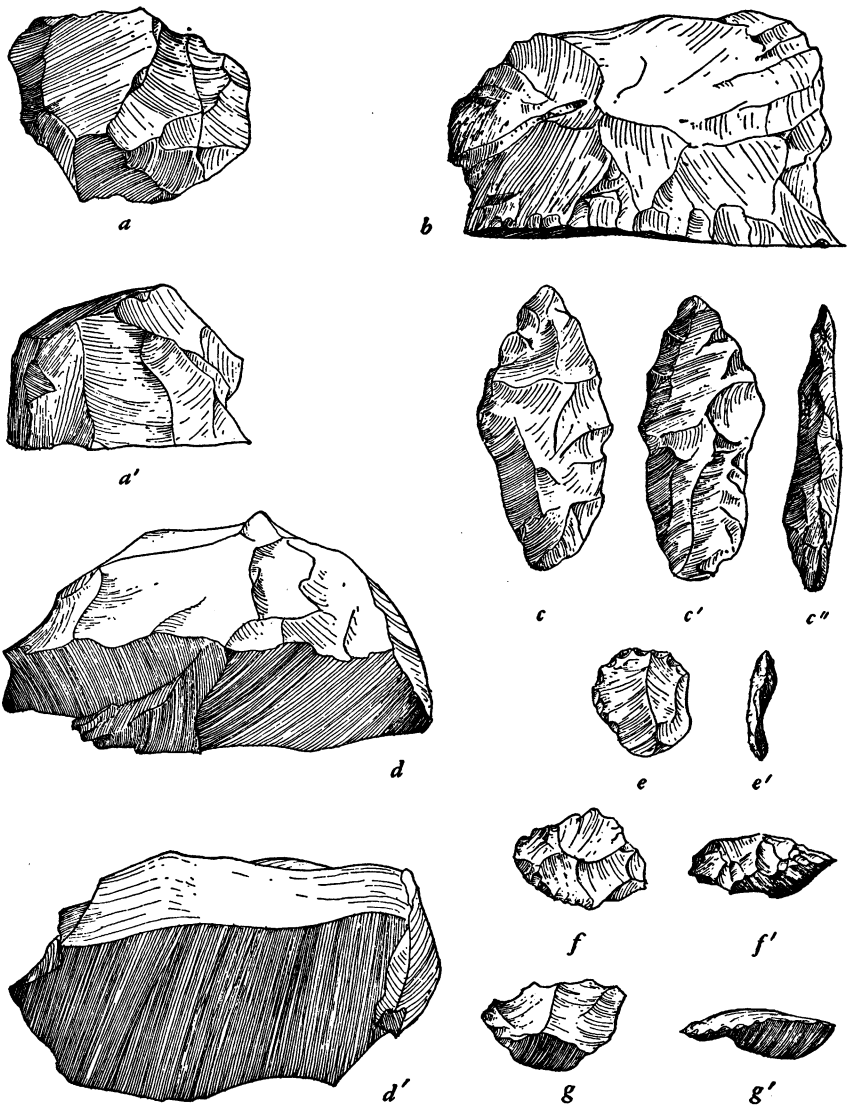

Fig. 1. Chipped core and flake tool types, Topanga sites. *a–c*, Tank Site; *d–f*, Upper Site; *g*, Lower Site. *a*, 1–68243; *b*, not in museum; *c*, 1–68271; *d*, 1–68177; *e*, 1–68188; *f*, 1–68156; *g*, 1–68129. (Scale—½ natural size.)

nicely to make very effective instruments. They are, respectively, 36, 35, and 48 mm. long, and 10, 13, and 15 mm. thick at the center.

11. *Small thumbnail scrapers.*—Thin, "thumbnail" variety. One (1-68180, fig. 1, *e, e'*) is a thin, nearly round, beige chalcedony flake 30 mm. in diameter. One section of the perimeter is delicately retouched to produce a beveled edge. The second piece is of irregular shape 40 mm. long, 30 mm. wide, and 6 mm. thick. One surface is flaked, as is the long side and rounded end. It is made of a gray, semivitreous stone (porphyry?).

FLAKING TECHNIQUE AND MATERIALS

The Topanga Canyon lithic materials were flaked, for the most part, by the percussion method. Refractory materials are eminently suited to this technique. Percussion hammerstones were recovered; many of them are exhausted,

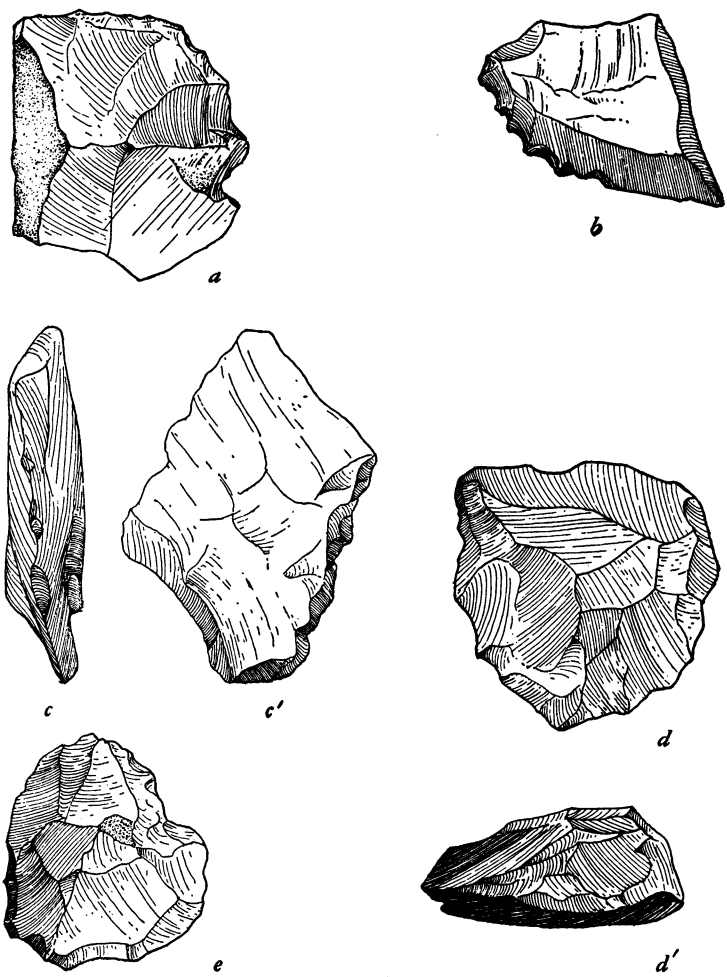

Fig. 2. Heavy flake and core tool types, Topanga sites. *a*, Upper Site; *b*, Lower Site; *c–e*, Tank Site, *a*, 1–68157; *b*, 1–68130; *c*, 1–68260; *d*, 1–68242; *e*, 1–68241. × ½.

nodular central cores of once larger masses from which implement material was struck. Pressure retouching or very light and delicate percussion chipping is exhibited on the edge of certain implements.

The accumulation of materials and recurrence of characteristic forms soon left little doubt that our types (choppers, cleavers, scrapers) were purposeful objects and not workshop materials. The lithic tool complex is plainly that heavy-duty variety by now well attested for southern California (M. Rogers, 1939; Campbell and Campbell, 1935; Campbell *et al.*, 1937). Preference for

tool materials ran to the tough, refractory rocks rather than the siliceous variety from which more refined and aesthetic work may be fashioned. M. Rogers suggests that his scraper-chopper types seem primarily intended

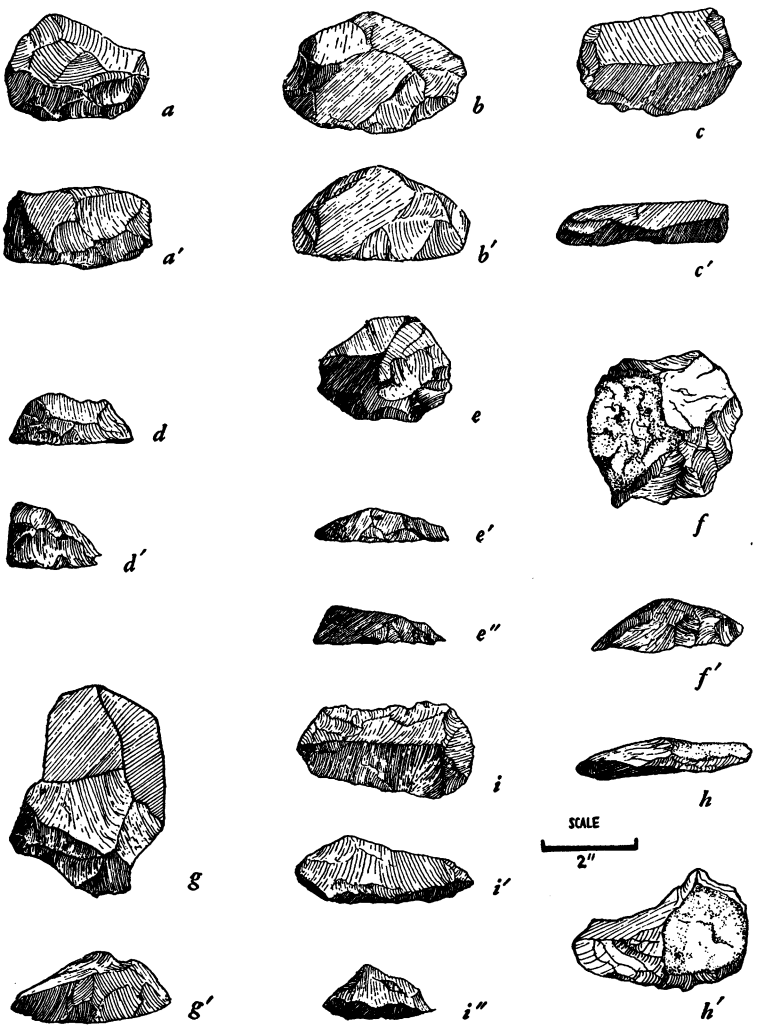

Fig. 3. Flaked tool types, Topanga sites. *a–f*, Tank Site; *g–i*, Upper Site. *a*, 1–68274; *b*, 1–68262; *c*, 1–68261; *d*, 1–68240; *e*, 1–68260; *f*, 1–68254; *g*, 1–68185; *h*, 1–68186; *i*, 1–68153. (Scale—¼ natural size.)

for skin dressing and working of vegetal stuffs; this would appear a reasonable explanation to us.

Of 82 classifiable flaked implements, 57 are made of a black to dark gray basalt of local origin, 11 are of quartzite, and 7 are of andesite, gneiss, or porphyry (metamorphosed volcanics) derived from pebbles exposed in the Topanga conglomerates. The local brown and white chert so abundant in the

coastal shell heaps is present in the form of small chips at all sites but is rare; there are only four implements of this chert in the collection. Of other, more easily fissionable materials, obsidian is represented by two broken points from the Upper Site; a single thumbnail scraper of chalcedony also comes from there. Comparison with collected materials from Santa Monica Bay shellmounds, extending from Redondo Beach to Malibu, indicates that we are

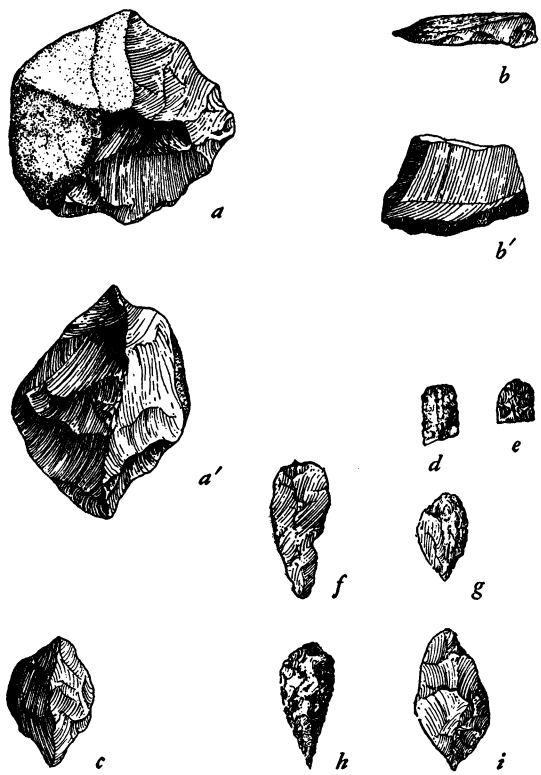

Fig. 4. Chipped point, scraper and chopper types, Topanga sites. *a*, Lower Site; *b–i*, Upper Site. *a*, 1–68135; *b*, 1–68152; *c*, 1–68155; *d*, 1–68172; *e*, 1–68173; *f*, 1–68171; *g*, 1–68170; *h*, 1–68169; *i*, 1–68168. (Scale—*a–c*, ¼ natural size; *d–i*, ½ natural size.)

dealing with a real cultural distinction: the shellmound people preferred siliceous chert, and the Topanga scraper makers preferred basalt and metamorphosed volcanics, which were much better suited to the manufacture of rugged, durable scrapers, choppers, and planes.

GROUND STONE ARTIFACTS

1. *Mortars.*—Shaped; of dense basalt or sandstone with flared sides. One fragment was recovered from the trench of the Upper Site. It is made of a dense greenish gray basalt, and has a smoothly pecked exterior surface. The surface of the interior cavity bears a thin smear of black asphaltum about the size of a silver dollar. The outside base is flat, and had an estimated diameter of 21 cm. The sides are curved and the height of the original piece may

have been about 25 cm. The interior walls are sloped, and the interior bottom is rather flattened. Figure 5, *b* is a reconstruction.

A rim fragment of mortar made of coarse-grained sandstone was found in the test trench of the Tank Site. The wall is 47 mm. thick, and the rim is gently rounded. Its original size and shape cannot be accurately estimated.

2. *Pestles.*—The one example, found in the test trench of the Upper Site, is made of soft, dark-cream limestone; it is 13.4 cm. long and tapers from a diameter of 5.4 cm. at one end to 4.1 cm at the other. This implement could not

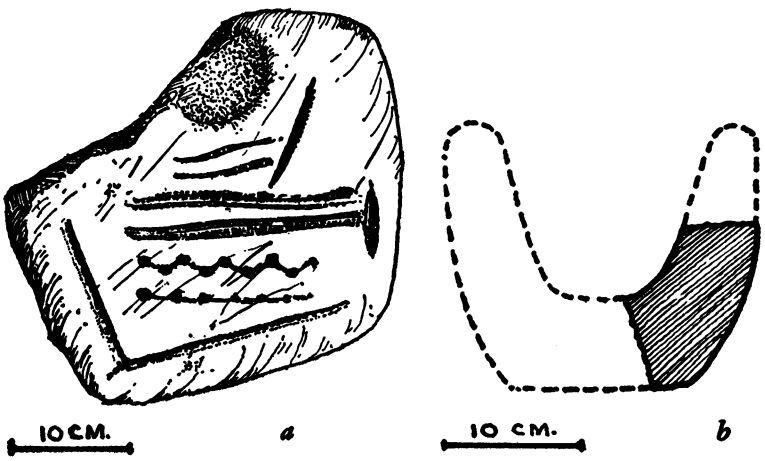

Fig. 5. *a*, Sandstone abrader, Tank Site; *b*, reconstruction of mortar, Upper Site.

have been a very serviceable tool for heavy grinding because of the softness of the stone. It is not the sort of pestle which was used in the heavy basalt mortar recovered from the same trench.

3. *Metates.*—A number of fragments of flat sandstone slabs were seen at the Tank Site. They are unshaped and undressed, and apparently represent pieces picked up and carried to the site to serve as rough-and-ready grinding stones.

4. *Manos.*—These were abundant at the Tank Site, from which we collected 20 examples, 7 of them complete; 8 came from the small test trench, the balance from the surface. Our collection is selective, since we attempted to get examples of different sizes and shapes. No manos were seen at the Upper Site or Lower Site, but one was found on the surface of Cave 2. Differential occurrence of manos may simply reflect intensity of site occupation.

Figure 6 shows the range of shapes and cross sections. Wedge-shaped profiles are common. Most of the flat grinding planes show small pecked pits which represent efforts to roughen the smoothed surface for better efficiency. The many broken manos which we found may have been cracked when hit too hard in this pitting process. The thinner edges often show wear, perhaps a sign of the use of manos as acorn mashers. Ends are often blunted or "squared," and manos appear to have served a secondary use as pestles (fig. 6, extreme lower right). A few which show pecked pits of some size (20 mm. diameter, 5 mm. deep) may have been acorn anvils.

Materials: coarse sandstone, 9; fine-grained sandstone, 5; tough metamorphosed volcanics (andesite, granite, etc.), 7.

OTHER TYPES OF STONE IMPLEMENTS

1. *Hammerstones.*—Made of refractory materials, sometimes nodular, exhausted cores which were re-used as percussion flaking tools, or perhaps general-purpose hand mauls. Edges and ends show batter marks.

Materials: basalt, 6; andesite (dark gray, purplish), 3; quartzite, 5.

2. *Sandstone abrader whetstone.*—This large block of reddish fine-grained sandstone (length 34 cm., center width 23 cm., average thickness 11 cm.), from the surface of the Tank Site, was apparently a general-purpose artifact. The

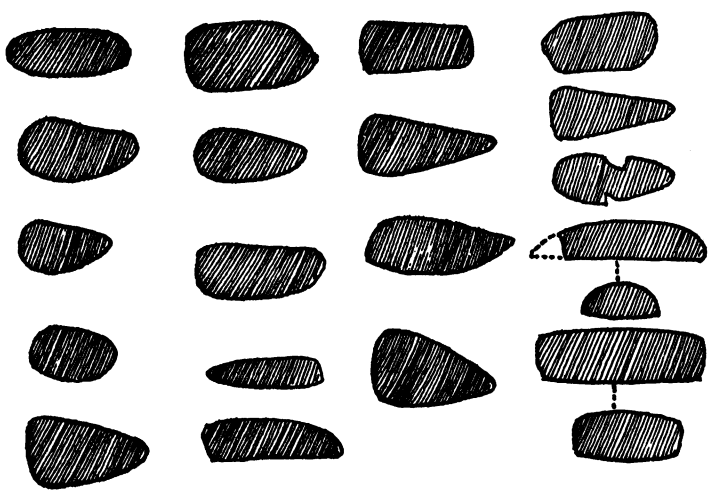

Fig. 6. Cross sections of Tank Site manos. Lower right shows cross and longitudinal sections. Note pitted mano at right.

flattened top surface bears a series of long grooves (fig. 5, *a*) which may have served as channels for grinding and sharpening bone awls. A series of pits indicates that this stone was used as an acorn anvil, the pointed end of the acorn being set in the pit and the other end hit with a stone to remove the shell. The surfaces between the grooves are smoothed down into plane surfaces, which suggests that the stone was used for smoothing long or flat objects. A smoothed concavity near one end was used in grinding convex-surfaced objects (perhaps shell ornaments?). Longitudinal grooves similar to those on the top surface are on the vertical sides. The weight of the block is approximately fifteen pounds.

3. *Rejects.*—This ample group includes ordinary wastage, rejectage, exhausted cores, and the like.

BONE OBJECTS

Two small artifacts were found on the surface at the Upper Site. One is a piece of split mammal bone awl. The other is a bird bone with a scored and cut end, perhaps a remnant of a bead or tube formed by removing the articular end of the bone.

TABLE 2

INCIDENCE AND MEASUREMENTS OF STONE ARTIFACTS

Type no.	Description	Tank site	Upper site	Lower site	Cave 2	Length (in mm.)	Width (in mm.)	Height or thickness (in mm.)
1	Core choppers	7	6	..	..	70–140(88)	30–80(60)	40–92(60)
2	Cleavers or heavy flake choppers	2	2	..	..	86–92(87)	20–33(28)	53–68(60)
3a	Hemispherical scraper or pulping planes[a]	18	9	..	1	40–83(64)	40–82(49)	17–45(30)
3b	Keeled or turtleback scraper planes	4	1	1	..	60–87(72)	45–60(50)	35–53(44)
4	End scrapers	6	4	2	..	40–110(66)	28–70(47)	7–25(16)
5	Keeled or turtleback scrapers	3	3	..	..	55–72(64)	50–60(54)	17–30(23)
6	Flake scrapers	+[b]	+	+	..	.....	.....	.....
7	Flaked projectile points	..	7	..	..	.....	.....	.....
8	Leaf-shaped blades	1	..	..	..	.....	.....	.....
9	Primary flake knives	+	+	+	+	.....	.....	.....
10	Small flaked knives	1	1	1	..	.....	.....	.....
11	Small thumbnail scrapers	..	2	..	..	.....	.....	.....
	Hammerstones	10	3	..	1	.....	.....	.....
	Manos	20	..	..	1	9–19(12)	6.2–11(8.9)	3–7.5(4.7)
	Metates (rough slab)	8	1	..	..	.....	.....	.....
	Mortars (fragments)	1	1	..	..	.....	.....	.....
	Pestles[c]	1	1	..	..	.....	.....	.....
	Totals	82	41	4	3			

[a] The 4 extra-heavy examples described on p. 239 are included in the incidence, but not in the measurements.
[b] Plus shows that type is present.
[c] See text statement on dual purpose manos also used as pestles (p. 245).

INTERSITE DIFFERENCES IN ARTIFACTS

Since the other sites produced few artifacts, the principal areas to be compared are the Upper Site and Tank Site, which, as table 1 demonstrates, are essentially similar. However, there are about twice as many artifacts from the Tank Site as from the Upper Site. The latter yielded seven small chipped projectile points, whereas the former produced none. The area surface may account for the difference, the Upper Site being exposed except for scattered chaparral, and the Tank Site being densely covered with grass. The leaf-shaped blade (knife?) from the Tank Site was not found elsewhere, and may prove to be rare. No worked bone was found at the Tank Site, but excavation may yield bone implements; there may also be burials there. Manos were absent at the Upper Site, though a single metate fragment was noted.

CULTURAL RELATIONSHIPS

Because the Topanga Canyon sites are in archaeological terra incognita, there are no comparative data from the vicinity, and we can only set up an archaeologic datum point which is of limited perspective and of indeterminate time as well.

Archaeological reports of the region to the north, along the Santa Barbara Channel, have been made by Olson (1930), D. B. Rogers (1929), Orr (1943), and J. P. Harrington (1928). Lithic assemblages corresponding to the Topanga Canyon complex are unknown here. The closest approximation lies in the Oak Grove culture described by Rogers (1929) and reviewed by Heizer (1941), which is the earliest yet reported from the Channel region. Comparison of Oak Grove material with ours is limited to inferences from descriptions of metates, crude leaf-shaped blades, and flaked scrapers. Since the Oak Grove culture has never been adequately published, possible relationships can only be surmised. The only known relative of the Santa Barbara Oak Grove culture is the Early Sacramento culture of the Sacramento–San Joaquin delta region (Heizer, 1939, 1941). The coastal region of Santa Barbara may mark an ancient cultural boundary. This is not to imply that we are categorically proposing that the Oak Grove–Early Sacramento and San Dieguito cultures were concurrent, but the possibility ought to be kept in mind. Both complexes are fundamentally alike in implementing a hunting-gathering type of life but, beyond this, specific tool types are markedly dissimilar. The critical Santa Barbara area needs reworking, not only to define properly the important Oak Grove culture, but also to discover earlier cultures which are probably present. It is difficult to visualize that interior southern California maintained ancient and widespread cultures while the attractive coastal region to the north was unoccupied.

Locally, in Los Angles County, there have been brief investigations, of which only preliminary notices have appeared in print, by E. M. Walker, of the Southwest Museum. Most of the sites excavated refer to relatively recent cultures and contain lithic assemblages different from the Topanga complex. The only site which has so far produced remains of probable antiquity is at

TABLE 3

COMPARISON OF TOPANGA, SAN DIEGUITO, PLAYA, PINTO–GYPSUM CULTURE FORMS

Topanga Canyon	Coastal complex (San Dieguito)	Reference	Desert complex		Reference
			Playa	Pinto–Gypsum	
Tool materials: quartzite, volcanics	×	.....	×	×	
Core choppers	×	A. Treganza, information.....	×	×	M. Rogers (1939), pp. 29, 49
Cleavers, heavy flake choppers	×	A. Treganza, information.....	×	×	Amsden (1937), pl. 25
Hemispherical scraper or pulping planes	×	M. Rogers (1929), pl. 29.....	×	×	M. Rogers (1939), pp. 29, 49 Amsden, pl. 26
Keeled or turtleback scrapers	×	.....	..	..	M. Rogers (1939), pp. 29, 50 Amsden, pl. 28
End scrapers	×	M. Rogers (1929), pl. 30, 460	..	..	M. Rogers (1939), p. 29, pl. 7 Amsden, pl. 30
Flake scrapers	×	A. Treganza, information.....	×	×	M. Rogers, 1939) pl. 7, p. 5 Amsden, pl. 31
Flaked projectile points (see table 1)	rare	.....	abundant	abundant	M. Rogers (1939), p. 51 Amsden, pl. 41
Leaf-shaped blades	×	M. Rogers (1929), pl. 31.....	×	×	M. Rogers (1939), pls. 9, 13, 14 Amsden, pl. 40
Primary flake knives	..	.....	..	..	M. Rogers (1939), pl. 6, p. 51 .....
Small flaked knives	..	.....	..	..	.....
Small thumbnail scrapers	..	.....	×	..	M. Rogers (1939), p. 32
Mano-metate	0	.....	0	0	Amsden, pl. 23
Mortar-pestle	0	.....	..	..	M. Rogers (1939), p. 52 .....

Malaga Cove, but here also there appears to be no cultural community with the Topanga materials (Walker, 1937; see also M. Rogers, 1939, p. 71; Heizer, 1941, pp. 373–374).

From the desert region to the east and the coastal margin to the south in the vicinity of San Diego, investigators of the Southwest Museum and San Diego Museum have succeeded in identifying a number of synchronous coastal-desert cultures which have recently been excellently summarized by M. J Rogers (1939; see pp. 70–74, pl. 21, map at end). The littoral cultures have been named San Dieguito by M. Rogers, but present knowledge of them rests upon an earlier paper published by him (1929). Mr. Treganza's report (see Appendix) is a summary of his independent investigations, which largely support Rogers' statements.

Our Topanga Canyon material is related to the San Dieguito complex, but an exact determination must wait until M. Rogers publishes his full data on this complex. In San Diego County, Rogers identifies a historic Shoshonean-Yuman ("Mission Indian") culture, and two earlier cultures called by him "Shell Midden" and "Scraper Maker." The Scraper Maker or San Dieguito complex has an eastern (desert) correlate called "Playa" or "Lake Mohave." (Campbell *et al.*, 1937; M. Rogers, 1939.) According to M. Rogers there are four coastal San Dieguito periods (I–IV) with an equal number of related desert cultures (Playa, Pinto-Gypsum, Amargosa I–II) operating in the interior (1939, pl. 21).

A comparison is attempted in table 2 of our Topanga Canyon tool types with the San Dieguito I–IV coastal cultures described by M. Rogers (1929, pp. 457 ff.) as well as the contemporaneous Playa, Pinto-Gypsum desert aspects. (M. Rogers, 1939, pp. 25–60; C. Amsden, 1937). Blanks in the table signify presumed absence. The table is not very satisfactory because of lack of full information concerning the San Dieguito culture. Nevertheless, the Topanga Canyon complex clearly has strong ties with the San Dieguito farther south on the coast and with its desert correlate, the Playa or Lake Mohave culture. In addition to similar tool types, there are further Topanga-San Dieguito parallels of site locations on inland elevations, as well as deeply patinated implements (see M. Rogers, 1929, p. 461, Fig. 1). According to M. Rogers (1939, p. 71) "To the north in the Pacific littoral no aspect of the [San Dieguito-Playa] complex has been found north of Orange County. . . ."

We believe that Topanga Canyon may now be counted as the most northerly known occurrence of the San Dieguito pattern. Where the Topanga complex will be fitted into the San Dieguito series is the major problem. If we assume the basic pattern was modified during its northward diffusion, or after its establishment, by the addition of the mortar, metate, and other forms, it is probable that the Topanga manifestation represents a later phase development of its classic and probably ancient parent farther south on the coast and in the desert.

What is much needed is a full exposition of the littoral San Dieguito culture complex, together with excavation of the Topanga sites and a careful attempt to determine their antiquity.

AGE INDICATIONS

Our brief survey and limited excavations produced little in the way of direct observations which might yield a dating of the Topanga sites. The sites are, however, relatively ancient. This conclusion is based on the following evidence:

1. *Patination of stone implements.*—Most of the flaked tools show surface chemical and color alteration. As Service (1941) has pointed out, the rate of patination is variable and no mathematical computation of age can be safely made on a chemical basis. But smoothed and weathered flake scars, changes in surface color, and surface oxidation all indicate clearly that these objects have been exposed for a long time to chemical alteration. Both buried and surface specimens are altered, the chief difference being that the buried artifacts show sharper flake scars, but degree of patination appears similar in both. Dr. C. Durrell was struck by the high degree of surface alteration and stated that "a very long period of time" was required. He pointed out that the altered surfaces of the flaked basalt implements have extruding feldspar crystals exposed. These are harder inclusions left after the softer components have decomposed and weathered out. The stone artifacts from more recent sites in the vicinity (see below) show none of the patination. A similar distinction was noted by M. Rogers in his identification of earlier and later cultures in the San Diego region.

2. *Cultural relationships.*—Our comparative analysis (see table 2) has demonstrated two significant facts. First, culture connections lie mainly to the south along the coast of Orange and San Diego counties. Second, the implemental assemblage which the Topanga complex resembles is of the pre-Mission Indian type, and fits somewhere in the San Dieguito I-IV series dated by M. Rogers 1200 B.C. to 900 A.D. Where in these two milleniums (on the assumption that Rogers' conservative chronology is accepted) our Topanga sites are to be placed is at the moment not determinable. From what we now know, it would seem most probable that the Topanga materials will correlate with the later San Dieguito phases and dates. This suggestion is based upon the presence of the mortar and metate at Topanga as additive features to the "pure" San Dieguito culture which, according to Rogers, lacks these implements.

Amsden (1937, pp. 51–52) describes manos from desert Lake Mohave. This is M. Rogers' Playa culture, and is contemporaneous with coastal San Dieguito I–II. The mortar and pestle are not described by either for these early horizons. We find it hard to visualize these early cultures as lacking any sort of seed-grinding implement. The small, delicately pressure-flaked points which occurred only at Upper Site may possibly be explained as later in time through occasional occupancy of Cave 1 by more recent Indians, who left there the few clam, mussel, and oyster shells which were not found in or on any surface sites.

3. *Site conditions.*—There is little present-day advantage in the situation of the Tank Site. Permanent streams are some distance away; hence the site could have been occupied in recent times only in winter, or in earlier times only when the stream below was running permanently. The eighteen inches of implement-bearing (one might almost say implement-packed) occupation de-

posit cap of the Tank Site is extremely indurated and heavy picking is required to penetrate it. This may be a mark of age, since extreme compaction, as well as the observed pedologic processes, require much time. Dr. H. Jenny is now attempting to determine central California site ages on the basis of soil chemistry. Dr. S. F. Cook is studying the accumulation rate of site deposits. Earlier contributions to this problem of dating are summarized in recent papers (Cook, 1946; Roberts and Gardner, 1946).

The abundance of subsurface artifacts suggests that the surface has weathered and that an occupation stratum which was at one time thicker has been removed, so that the artifacts are concentrated in the residual stratum. Much gullying has occurred, exposing a great quantity of stone material on the slopes of the Tank Site knoll. These may all be taken as indications of antiquity. The Upper Site top soil has also weathered, and residual concentration of artifacts has taken place. The marginal areas are denuded of deposit; in our small test trench the deposit had been caught and retained behind a tilted stone dike.

Finally, with the possible exception of Cave 1 and some adjacent parts of the Upper Site, there is no evidence of the obviously recent Indian remains which lie scattered along the creekbank in the bottom of Topanga Canyon and around living springs in Topanga Canyon. In these places one sees clamshells, mortars, pestles, and an abundance of chert and obsidian flakes, but none of the heavy percussion-flaked choppers, cleavers, scrapers, and other forms which mark the Tank Site and Upper Site implement complex. These spring and stream campsites are to be associated with the coastal shellmounds, and have produced more recent remains.

Here then is evidence of successive archaeological cultures in California. It is from such evidences that the long, and doubtless complicated, archaeological history of California will ultimately become known.[2]

[2] The record of provable (observed) cultural successions in California is admittedly meager when adequate citation includes no more than twenty-five titles. See, in addition to those cited above, the following published reports: Carter, 1941; Gifford and Schenck, 1926; Heizer and Fenenga, 1939; Kroeber, 1936; Lillard, Heizer, and Fenenga, 1939; Schenck, 1926; Schenck and Dawson, 1929; Wedel, 1941.

APPENDIX

NOTES ON THE SAN DIEGUITO LITHIC INDUSTRY OF SOUTHERN CALIFORNIA AND NORTHERN BAJA CALIFORNIA

BY

ADAN E. TREGANZA

THE FOLLOWING NOTES are not intended to give a full description of the San Dieguito complex, but rather to give the position of several new sites in terms of their physiography and to illustrate some of the artifacts which are comparable with the Topanga Canyon material described above. M. J. Rogers (1929) described, as fully as his data would permit, the San Dieguito lithic complex in the Pacific littoral, that is, the coastal belt of northwestern San Diego County. There are, however, sites further south and further inland.

A series of San Dieguito sites examined in 1939 were situated on an old terrace several miles east of the "Old Mission Dam" and three miles west of the town of Santee on the north side of the San Diego river. The main face of the terrace parallels the river and lies back from it about two hundred yards. The margins of the terrace have been so badly eroded by subsequent stream cuts that a scalloped pattern now exists along the face toward the river. Artifacts were found on the points of these small promontories. The only evidence of camp refuse were scrapers (fig. 7, *k*), choppers, and large blades, all of which lay on the surface. Isolated finds have been made in the lateral canyons leading back from the river and an extensive search doubtless would reveal many more sites. Below the terrace and on the more recent sandy river plain are several well-defined camp sites of the later ceramic producing peoples, Southern Diegueño Indians, who were occupying the region when the Spanish Mission was founded in 1769.

In Baja California, between Rosarita Beach and Descanso, a large site was found to be weathering out of the base of a sand dune. In this region the Peninsular Ranges have encroached upon the ocean front so far that in many places the coastal terraces are less than a mile wide. In the main the terrace either drops directly into the sea or has weathered back, and dunes have formed along the lower margins. Restriction of the coastal plain has in part brought the ceramic sites into closer contact with the older lithic remains, and several sites overlap. However, the bulk of the pottery sites are concentrated along the river mouths and extend inland along the river plain. The artifacts here weathering out of the dunes are characterized by chopper and scraper types (fig. 7, *h–j*), all of which bear a high surface polish; the sharp cutting edges have been worn by long-continued sand abrasion.

West of Punta Bonda is a series of small lithic sites occupying a narrow marine terrace. The artifacts are like those below Rosarita, but lack the sand-abraded surfaces. Several caves at the tip of Punta Bonda contain deep shell-midden deposits. The absence of San Dieguito implements and the presence of

surface pottery suggest occupation by the later Southern Diegueño. The lower levels of these deposits may well yield some interesting data, for as shelter the caves were too accessible and useful to have been overlooked by earlier residents.

In Baja California Dr. C. Sauer and W. C. Massey have recently made collections from a series of sites, some of which were well inland and around the shores of old dry lakes. The artifacts are comparable to the material so far described though they seem to lack the refinement expressed in some of the better-made San Dieguito scrapers.

In addition to this group of coastal sites, a second series is situated along the crest of the Peninsular Ranges some fifty to sixty miles inland. These sites occupy the margins of the Jacumba Valley and extend southward into Baja California for thirty miles. How far south into Mexico and how far north of Jacumba this complex extends is not yet known. I have already described (Treganza, 1942) this series of sites as comparable with the San Dieguito sites in the coastal plain (fig. 7, *a–e*).

In review, many factors not only suggest a far greater antiquity for the San Dieguito culture but likewise set it apart from that of the later ceramic-producing groups. These are: The assemblage of crude chipped implements consisting mainly of choppers, scrapers, and large knives or blades, many of which show a marked degree of patination on the flaked surfaces as well as weathering on the sharp edges. Heizer and Treganza (1944, p. 337) observe that the source of material utilized by the San Dieguito was invariably some fine-grained igneous rock such as porphyry, felsite, etc., as opposed to the conchoidal silicates, such as obsidian, chalcedony, jasper, and quartz, used by the later peoples. No observed occupation deposits can be associated with the San Dieguito sites, whereas the areas occupied by pottery-making groups are easily identified by the presence of dark ashy soil ranging in depth from a thin surface mantle to several feet. The physiographic position is again in marked contrast. The later people invariably sought the protection of large granite outcroppings or camped along the alluvial river beds; the San Dieguito sites, however, are mainly either on open exposures which can be characterized as ancient land forms (elevated marine terraces, river terraces) or around the margins of now extinct lakes.

It now becomes obvious that the San Dieguito lithic industry in southern California was widespread. By virtue of Heizer's finds in the Santa Monica Mountains and Sauer's and Massey's discoveries well into Lower California, the area has been considerably extended. How much farther north and south along the coast this complex extends and what lies between the coast and the inland is still to be determined. Likewise the exact relationship between this Pacific littoral development and the San Dieguito–Playa complex described by Rogers (1939) for the interior Colorado and Mojave desert regions should prove interesting as new data accumulate.

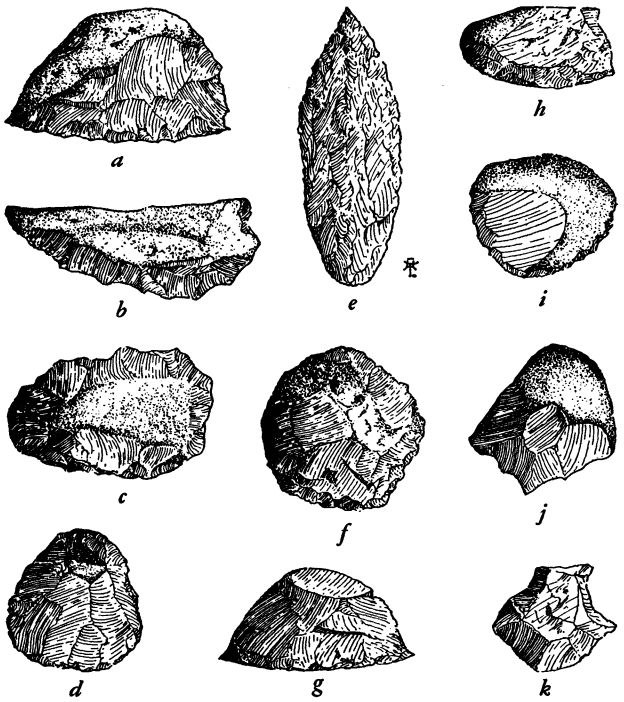

Fig. 7. Stone tool types from southern California and Baja California. *a–e*, Jacumba Valley; *f–g*, Interior Baja California; *h–j*, Coastal Baja California; *k*, San Diego County coast. *a*, 1–61454; *b*, 1–61461; *c*, 1–61469; *d*, 1–61468; *e*, 1–61446; *f*, 1–61456; *g*, 1–62175; *h*, 1–62176; *i*, 1–62173; *j*, 1–62177; *k*, 1–62159. × ½.

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