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Two Milling Stone Inventories from Northern San Diego County, California

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ALTHOUGH archaeologists have been working in San Diego County for well over 50 years, comparative studies are regularly frustrated by a lack of published artifact and site data. The deficiency is perhaps most critical with regards to the early and middle time range in the interior parts of the county. In all such areas, basic descriptive data are sorely needed. It is with such lacunae in mind that we present some additional information on the as yet poorly known inland Early Milling Stone Complex in northern San Diego County. To set the stage for this presentation, a short background statement on the Early Milling Stone Complex in northern San Diego County is provided.

Elements of a probable Early Milling Stone occupation were identified for the northern parts of interior San Diego County in the late 1940s, and by the early 1950s several sites had been located that were clearly part of such a pattern. These loci were recorded as "Old Complex" sites (True, field notes 1945-1955). The sites in this category were characterized by artifact scatters consisting of basined milling stones, manos, occasional scraper planes, and, rarely, discoidals. Chipped stone artifacts were uncommon. Soil alteration, bedrock mortars, pottery, and small triangular projectile points (all of which seemed to be associated with later sites in the

area) were conspicuous by their absence at the "Old Complex" sites.

The idea that the series of "Old Complex" sites represented a meaningful cultural complex was proposed in print in 1958, and was given the name Pauma Complex, after the valley in which several of the more important sites were located (True 1958). It was clear at the time of publication that the definition of the Pauma Complex would be subject to modification, and that more than one recognizable cultural manifestation probably had been lumped under a single heading. In this regard, the presence of possible San Dieguito-like elements as well as artifacts with seeming desert affiliations was a source of concern. No immediate attempt was made to segregate such elements pending the recovery of additional data from several local investigations in progress at the time. Through the late 1950s and into the 1960s, surveys were continued in the general area, and the known or suspected distribution of Pauma Complex-like artifacts was expanded over a larger and larger portion of the Valley Center plateau, into the Escondido and San Marcos valleys, and into the Green Valley Region. Some survey work was done along the Santa Margarita River drainage, and several areas in western Riverside County were subjected to unsystematic examination. In all of the above-indicated regions, generally similar aggregates of artifacts were noted in generally similar environmental contexts.

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The data available at the time for the immediate Pauma Valley area suggested seemingly obvious relationships with sites described for the adjacent coast (Rogers 1929; Harding 1951). Except for middens and the relatively high frequency of cobble tools at the coastal sites, the inland inventories shared most of the diagnostic artifacts proposed for the coastal locations. Investigations in several coastal contexts during the late 1950s and early 1960s tended to reinforce the idea that the two complexes were in some way related (Moriarty, Shumway, and Warren 1959; Shumway, Hubbs, and Moriarty 1961; Crabtree, Warren, and True 1963).

Basically, interest in the Early Milling Stone sites of the interior regions of northern San Diego County was focused on site distributions with some concern for tentative inter-site or inter-regional relationships. A significant problem with delineating such potential relationships stemmed from a lack of published site and general artifact data, and more importantly, perhaps, the lack of meaningful chronological information from inland contexts. Evidence for subsurface Pauma Complex artifacts in stratigraphic contexts (Pankey Site), and some information from a small test excavation on the Santa Margarita River, were generally useful and important, but unfortunately no datable organic material was recovered (True, field notes 1962; True 1980). A number of coastal sites and components had been dated, however, and it was generally agreed that the La Jolla Complex of the Encinitas Tradition (as described by Warren), lasted from about 8000 years ago to near the beginning of the Christian era, or even a little bit later (Warren 1968:2). Based on the available data, there was no reason to think that the occupation of the interior was significantly different than that of the adjacent coast in terms of time, but a dearth of specific dates for particular aggregates of artifacts in the interior called for considerable

caution with respect to any proposed interpretations.

An updating of some aspects of the Pauma Complex discussion was developed in 1978 (True 1980), but this did not add significantly to the data base and, in fact, did not provide any specific new insights into the question of coastal-interior relationships, age of occupancy, or functional considerations relative to the known artifact inventories.

The purpose of the present paper is to add to the existing data base two previously undescribed Pauma Complex artifact inventories. We recognize that our presentation is descriptive and contains no recognizable research design. It has no list or discussion of local plants, no discussion of regional rainfall figures, and no significant comments on the local geology. These omissions are not accidental. While we recognize the need for such information under some circumstances, and are fully cognizant of the many unresolved local theoretical issues, it is our opinion that such matters are best developed in other contexts, and when dealing with substantially larger artifact samples.

THE SITES

Both sites considered here, Rincon 301 (SDi-9537) and Rincon 133 (SDi-303), share similar physical environments and quite similar collection histories. Figure 1 shows the location of the study area and the several locales mentioned above.

Each site was discovered several years ago on the basis of minimal scattered surface remains. In subsequent years, agricultural activities resulted in disturbance of the site surfaces, with consequent exposure of additional artifacts. These artifacts have been collected over the past several years (Rincon 301 by D. L. True, Rincon 133 by E. Beemer). Although neither site was excavated, intensive surface collections over an extended period of time have produced what we con-

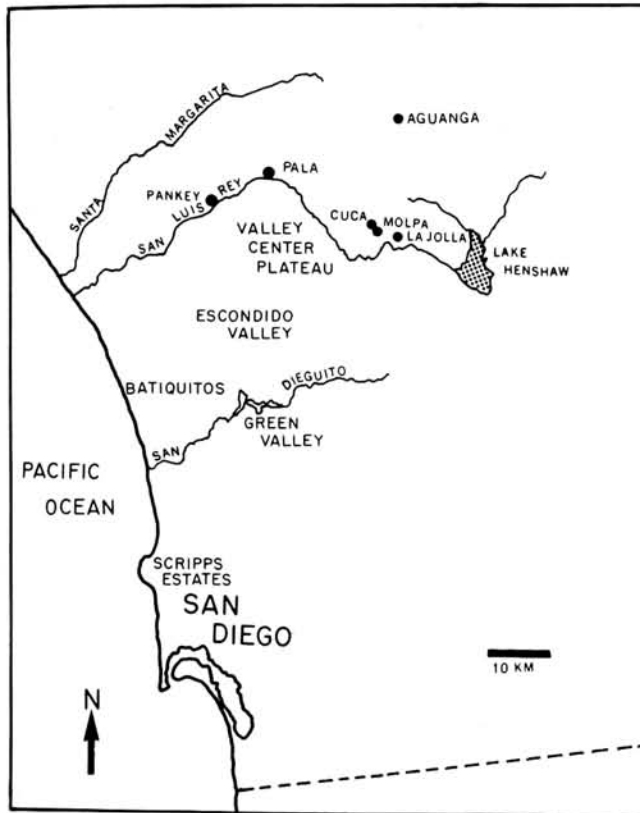


Fig. 1. Location map showing study areas relative to San Luis Rey River.

sider to be a meaningful artifact assemblage for each locale.

No attempt has been made to develop a formal classification for these artifacts since our purpose at the present time is to describe the artifacts on a basic level using several generally recognized categories proposed for similar artifacts in other southern California contexts (Warren, True, and Eudey 1961; Crabtree, Warren, and True 1963; Moriarty, Shumway, and Warren 1959; King 1962; King, Blackburn, and Chandonet 1968). We are well aware of the potential deficiencies inherent in this general approach to artifact description, as well as the pitfalls associated with attempts to develop finely detailed descriptions and classifications for multi-purpose core and cobble tools. It is our intention as part of the long-term assessment of the inland Milling Stone resources, to examine the artifacts again in a systematic

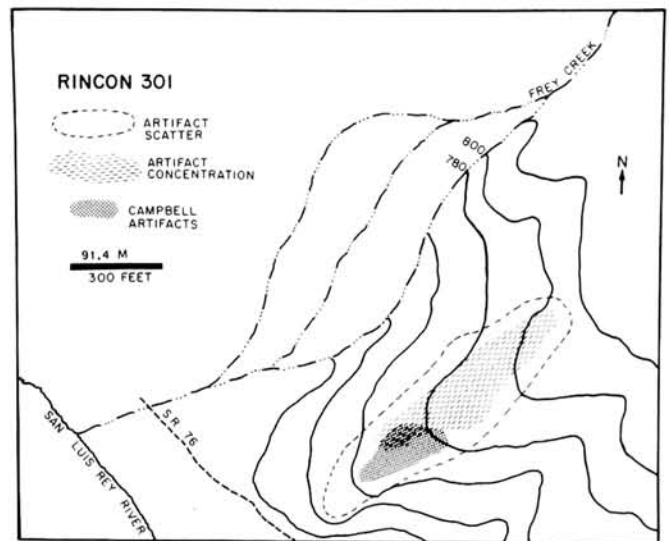


Fig. 2. Location of Rincon 301 relative to Frey Creek and possible concentration of "Campbell" artifacts.

and perhaps more useful way, *after* a larger inventory has accumulated for the immediate northern San Diego County inland region. In the interim, readers who find the simplistic categories used here inadequate, are urged to develop a more effective and refined set of categories, and to get these into print as soon as possible. A precise, detailed, and at the same time flexible and culturally meaningful "rock-knocker" artifact typology is sorely needed, and if such a categorization were based on several hundred artifacts for each proposed major category it would be most useful and appreciated.

RINCON 301 (SDI-9537)

Rincon 301 is located on the Frey Creek drainage near its junction with the San Luis Rey River. Figure 2 shows orientation of the site relative to Frey Creek and the surrounding terrain. The knoll or ridge-like feature on which the site is situated almost certainly represents an eroded remnant of the Agua Tibia mudflow formation. The surface of the site exhibits no recognizable soil alteration, and artifacts recovered to date have been turned up from the upper few inches of a residual clay soil.

The Artifacts

A total of 180 artifacts has been recovered since discovery of the site in the late 1940s. Several more manos were removed from the site during the most recent clearing and planting operation, and are in the possession of the ranch foreman. These have been examined, but are not included in the present discussion.

Metates. Both deep and shallow-basined forms were present at site Rincon 301. No whole specimens were recovered since these larger artifacts had been removed from the surface as part of the land-clearing operation. Enough fragments have survived, however, to verify the presence of the two categories. The specimens observed are made of granitic rock with occasional specimens consisting of a local metamorphic (Julian Schist). These artifacts are not illustrated.

Manos. Although the cultural significance of most mano classifications is uncertain, the artifacts in this class from Rincon 301 have been tentatively subdivided on the basis of presence or absence of shaping or edge modification, and the number of working or grinding faces. A total of 44 manos was recovered from Rincon 301. (See Fig. 3 for schematic illustration.)

Hammers. Twenty-five artifacts recovered from Rincon 301 are believed to have been used as pounding tools. Four basic categories are proposed.

- a. *Cobble Hammers:* These are typically small cobbles or large pebbles with evidence of batter on one or more edge or surface. Usually there is no other evidence of modification.
- b. *Core Hammers:* Core hammers are handsized cores that have been used for pounding. There is evidence of batter on the flake scars.
- c. *Fieldstone:* These are unmodified fragments of country rock that are

not technically cores, cobbles or pebbles, but which have been used for pounding. These are casual tools and often exhibit minimal evidence of use.

- d. *Shaped Core:* Core-like artifacts that have been thinned to form a narrow working edge.

Hammer Grinders. This artifact category consists of fieldstone, core, and cobble fragments with evidence of battering on one or more edge, *plus* evidence of wear (rubbing) on at least one surface, suggesting use as a mano-like tool. In some instances, this wear is subtle and easily overlooked. In other cases, however, the wear is well defined with obvious wear facets and well rounded "heels" along one of the planar surfaces.

Scraper Planes. Scraper planes are present but not common in the Rincon 301 inventory. Specimens recovered so far are crude and irregular in form. The only significant characteristic appears to be the planar surface and some evidence for a working or cutting edge.

Domed Scrapers. Conventionalized, well-made, domed scrapers are conspicuous by their rarity in most Pauma Complex site inventories. Site 301 is no exception. Domed scrapers here are irregular in form with minimal evidence for deliberate shaping. Sizes vary and the distinction made between the smallest scraper planes and the larger domed scrapers is probably arbitrary.

Flake Scrapers. Flake scrapers from the site tend to be heavy (10-40 g.), and are irregular in form. Edge modification may be variable but is typically minimal, and overall shaping appears to be rare. There may be some intergrading between the smaller of the flake scrapers and some artifacts designated as "used flakes," although this overlap is probably minor.

Irregular Flake Knives. Irregular flake knives are defined here as flakes with some deliberate modification, presumably to en-

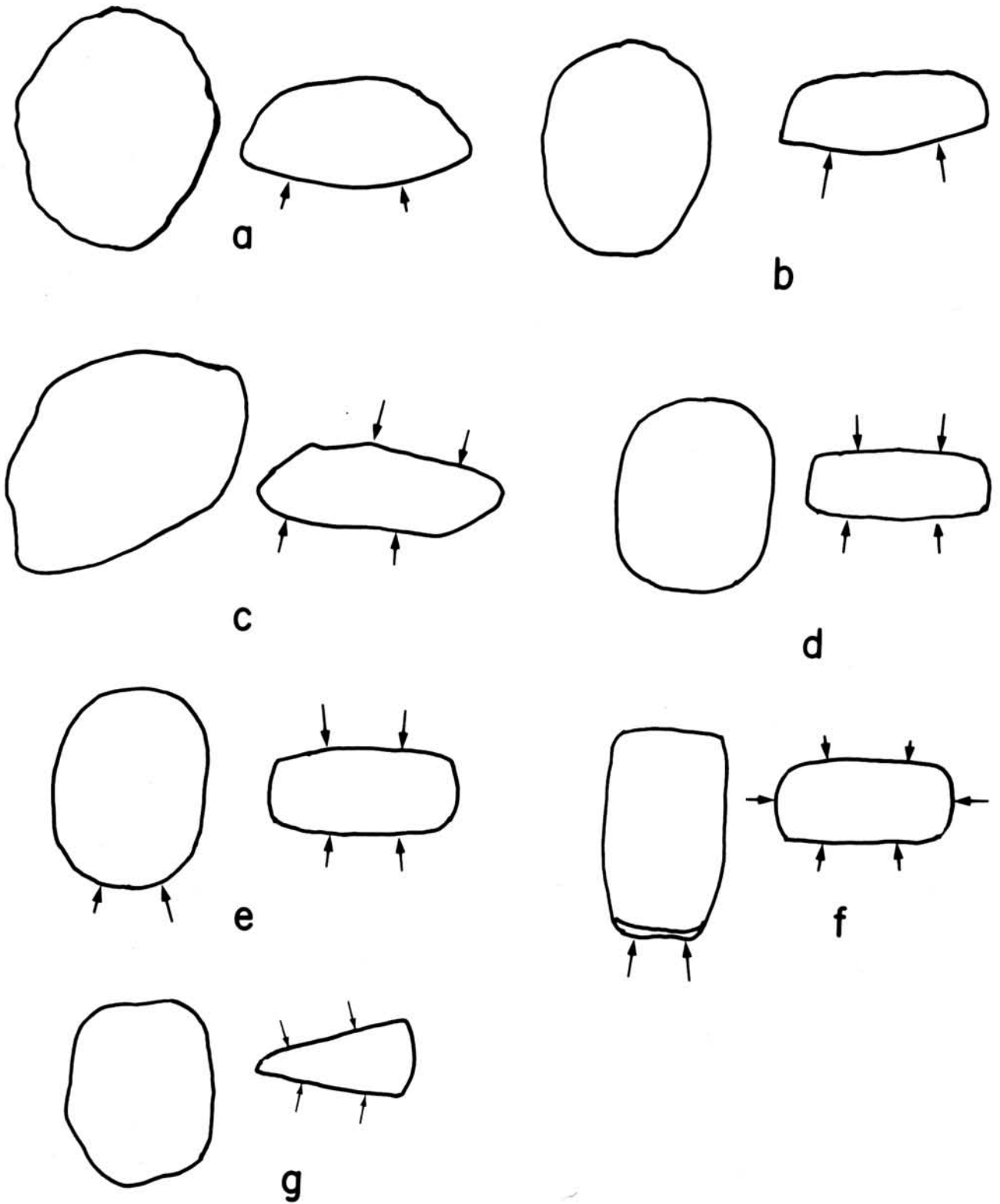


Fig. 3. Schematic outlines of mano forms; a, unshaped uniface; b, shaped uniface; c, unshaped biface; d, shaped biface; e, shaped biface with pestle end; f, shaped biface (all sides and edges worked and polished); g, wedge section biface.

hance a cutting or working edge. This modification stops short of conventionalized shaping, and the degree of modification typically consists of a few flake removals along one edge. This apparently deliberate edge modification differentiates irregular flake knives from used flakes.

Used Flakes. These tools are represented by a variety of flake forms which appear to have been used for cutting or light-duty scraping. Because of the well-recognized difficulty in identifying some use wear, and distinguishing it from non-cultural or "natural" edge modification, the concept of a "used flake" must be applied with caution. The edges of all specimens were examined under magnification, but we assume that at least some of the artifacts from Rincon 301 are questionable in this regard.

A subgroup can be proposed under the general heading of used flakes that consists of flakes characterized by well-defined wear facets on the platform end. These seem to be sharpening flakes removed from a larger tool and are designated here as used flakes-II. In some instances, flakes removed from larger implements as part of a sharpening process were also used for casual cutting or scraping so they fit both categories.

Smoothing Stones. Smoothing stones are described here as small cobbles or large pebbles with evidence of polish or wear on one or more surfaces. These may be small mano-like forms with some shaping, or little more than a polished area on an otherwise natural pebble.

Conventionalized Bifacially Flaked Artifacts. Bifacially flaked tools are not common at Pauma Complex sites. Many of the specimens recovered so far appear to be intrusive and may, in at least some instances, represent evidence of the Campbell Intrusion proposed by Warren (1968: 2-6). Two of the nine bifacially flaked forms recovered from Rincon 301 appear to be San Dieguito point frag-

ments, and two others are large side notched forms similar to points described elsewhere as Northern Side Notched (Heizer and Hester 1978: 13) and Amargosa (Rogers 1939: Pl. 16).

Worked Flakes. This category includes all lithic fragments with evidence of modification on one or more edge or surface that cannot be placed in any of the artifact categories described above. Typically, worked flakes are represented by unfinished tools, rejects, or nondiagnostic fragments of finished tools.

Cores. Included here are all core-like fragments that do not seem to fit any of the usual artifact categories (core scrapers, core hammers, etc.). It is uncertain whether or not specimens in this category should be treated as true cores (sources of flakes to be used to manufacture other artifacts).

Additional data on the artifacts from Rincon 301 are presented in Table 1.

RINCON 133 (SDI-303)

Rincon 133 is located on a mudflow remnant or landslide feature adjacent to Nate Harrison Creek. Fig. 4 shows the general orientation of the site relative to the stream and local terrain.

The terrain configuration represents a sloping surface situated along the lower margin of that part of Palomar Mountain known locally as Boucher Hill. The surface in the vicinity has been deeply incised by both Jaybird and Nate Harrison creeks. There is no evidence of soil alteration due to cultural activities, and the artifacts were recovered from a residual, stony-faced, clay loam typical of the older erosion surfaces in the general area.

Rincon 133 was recorded in the early 1950s on the basis of a very sparse scatter of surface artifacts. At the time it was believed that the site was a temporary camp or an intermittently used food processing station with minimal evidence of occupancy. Subse-

Table 1
ARTIFACTS FROM RINCON 301 (SDI-9537)

Artifact Categorization	Number	Size Range ¹	Illustration
Basin/slab	present	MILLING STONES not collected or measured	not illustrated
		MANOS	
Shaped Biface	22	95-126; 71-86; 38-63	Fig. 5a
Unshaped Biface	4	112-?; 84-90; 48-66	Fig. 5b
Shaped Uniface	3	108-?; 71-95; 49-59	Fig. 5d
Unshaped Uniface	3	89-99; 77-83; 46-59	Fig. 5c
Wedge Section	2	116-?; 90-103; 60-64	Fig. 5e
Nondiagnostic Fragments	10	no measurements	not illustrated
		HAMMERS	
Irregular Fieldstone	13	60-85; 51-73; 36-58	Figs. 7a, 8a, d
Core	11	57-88; 48-72; 40-52	Fig. 7b-c
		HAMMER GRINDERS	
Irregular	25	66-106; 44-98; 30-79	Figs. 7d-e, 8b-c, 9a-d
		SCRAPER PLANES	
Domed Irregular	2	86-96; 65; 49-59	Fig. 10a-b
		DOMED SCRAPERS	
Irregular	10	40-74; 37-62; 23-42	Figs. 11a-f, 12a
		FLAKE SCRAPERS	
Irregular	5	29-55; 30-48; 11-18	Fig. 12b-f
		FLAKE KNIVES	
Irregular	3	60-118; 30-80; 12-21	Fig. 13a
		USED FLAKES	
I	31	12-62; 9-48; 2-18	Fig. 13b-e
II	16	14-46; 10-38; 3-11	Fig. 13c, f
		BIFACIALLY FLAKED ARTIFACTS	
Points and Knives	9	fragmentary	Fig. 14a-h
		WORKED FLAKES	
-	1	fragmentary	not illustrated
		CORES	
-	4	46-62; 44-60; 30-37	not illustrated
		SMOOTHING STONES	
-	7	69-91; 49-71; 30-49	not illustrated

¹All measurements, in millimeters unless specified otherwise, are, in order: length, width, thickness.

quent clearing of the area as part of a citrus and avocado planting led to the recovery of a much increased artifact inventory, and the

realization that the location had been a relatively important Pauma Complex camping area.

Table 2
ARTIFACTS FROM RINCON 133 (SDI-303)

Artifact Categorization	Number	Size Range ¹	Illustration
MILLING STONES			
Basined	9	400-500; 360-410; 20-60	not illustrated
Nondiagnostic Fragments	13	no measurements	not illustrated
MANOS			
Shaped Biface	11	88-128; 56-90; 48-64	not illustrated
Unshaped Biface	8	92-135; 70-118; 36-78	not illustrated
Shaped Uniface	8	108-134; 82-99; 42-70	not illustrated
Unshaped Uniface	5	not measured	not illustrated
Nondiagnostic Fragments	51	not measured	not illustrated
HAMMERS			
Core	5	47-86; 43-77; 35-64	Fig. 15b-d, f
Cobble	1	86; 77; 64	Fig. 15a
HAMMER GRINDERS			
Irregular	1	115; 71; 35	Fig. 15e
SCRAPER PLANES			
Irregular	4	62-122; 53-80; 36-72	Fig. 16a-c
DOMED SCRAPERS			
Irregular	1	36; 32; 13	Fig. 17a
FLAKE SCRAPERS			
Irregular	2	32-34; 28-33; 12-12	Fig. 17b-c
FLAKE KNIVES			
Irregular	1	58; 37; 9	Fig. 17f
SMOOTHING STONES			
Irregular	29	not measured	not illustrated
Nondiagnostic Fragments	10	not measured	not illustrated
BIFACIALLY FLAKED ARTIFACTS			
Points and Knives	0	none recorded	not illustrated
Drill	1	37.5; 16; 11	Fig. 17e
COBBLE CHOPPER			
-	1	88; 100; 52	Fig. 17d
DISCOIDAL			
Disc with straight edge	1	91 diameter; 31.8 thick	Fig. 16d
Perforated	1	fragmentary	not illustrated

¹All measurements, in millimeters unless specified otherwise, are, in order: length, width, thickness.

The Artifacts

With a few exceptions the artifacts recovered from Rincon 133 duplicate those described for Rincon 301. The basic inventory

for Rincon 133 is presented in Table 2. Artifacts found at Rincon 133 but not represented at Rincon 301 are described briefly below.

Cobble Chopper. Although present in

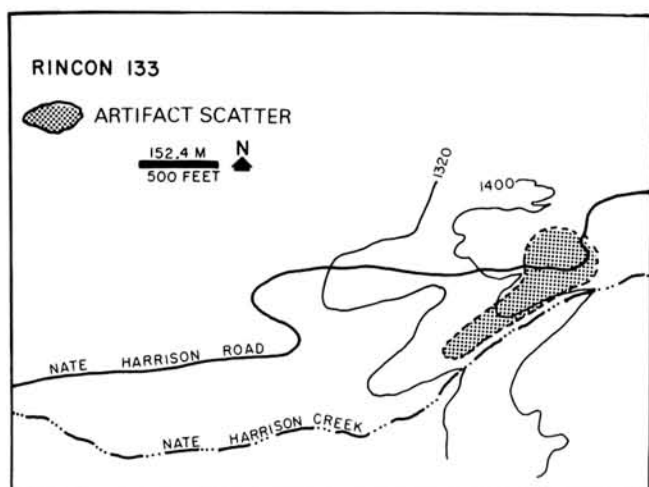


Fig. 4. Location of Rincon 133 relative to Nate Harrison Creek.

Pauma Complex inventories, chopping tools are not common. A single specimen was recovered from Rincon 133.

Discoidals. Discoidals have been recovered from several Pauma Complex sites and are clearly part of the inventory for the complex. The single specimen recovered from Rincon 133 is made of a reddish colored, volcanic rock of non-local origin. It is highly finished.

Perforated Discoidals. Disc-like artifacts that have been drilled (donut stones), are believed to be typical of the Pauma Complex, but they are relatively uncommon. One biconically drilled specimen was recovered from Rincon 133.

Drill. A single quartz, drill-like tool was collected from Rincon 133.

The artifacts recovered from Rincon 133 are in the possession of E. Beemer. The Rincon 301 artifacts are accessioned in the Department of Anthropology, University of California, Davis. Table 3 provides some comparative data on artifacts recovered from the three principal Pauma Complex sites in the Pauma Valley area.

DISCUSSION

Although the sample to date is still modest, the Pauma Complex site and artifact inventory is increasing, and our general under-

standing of the distribution and nature of the inland Early Milling Stone Complex is slowly improving. We cannot yet talk convincingly about lifeways, and we have no specific temporal data, but relationships between sites in the Pauma Valley area can now be proposed in somewhat more positive terms. We see tentative gains in our understanding of artifact distributions for any given site and, in general, the *potential* for an increased recognition of differences *within* the larger Milling Stone site distribution pattern for San Diego County.

We propose, with these thoughts in mind, that the process of unraveling this particular part of the local prehistory, as well as the eventual development of hypotheses relating to the processes responsible for its configuration, has to be a cumulative one. It is unlikely, for example, that any one study or any one paper would be able to pull all the pieces together, and obviously the addition of one or two local artifact inventories is unlikely to open a floodgate of understanding. It seems quite likely, in fact, that the route to understanding this aspect of the local prehistory will be slow and tedious.

Presentation of data from two small site inventories cannot provide the basis for any definitive statement, or any substantive new interpretation. On the other hand, the addition of any data should be useful, and the inventories from sites Rincon 301 and 133 provide an adequate excuse for discussing our current contribution to the tedium.

The Nature of Artifact Distributions

At the time the Pauma Complex was first recognized it was assumed that the sites so identified represented surface scatters with minimal or no potential for subsurface investigations. The excavations at Molpa in 1957 (True, Meighan, and Crew 1974), however, provided evidence of a Pauma component in a

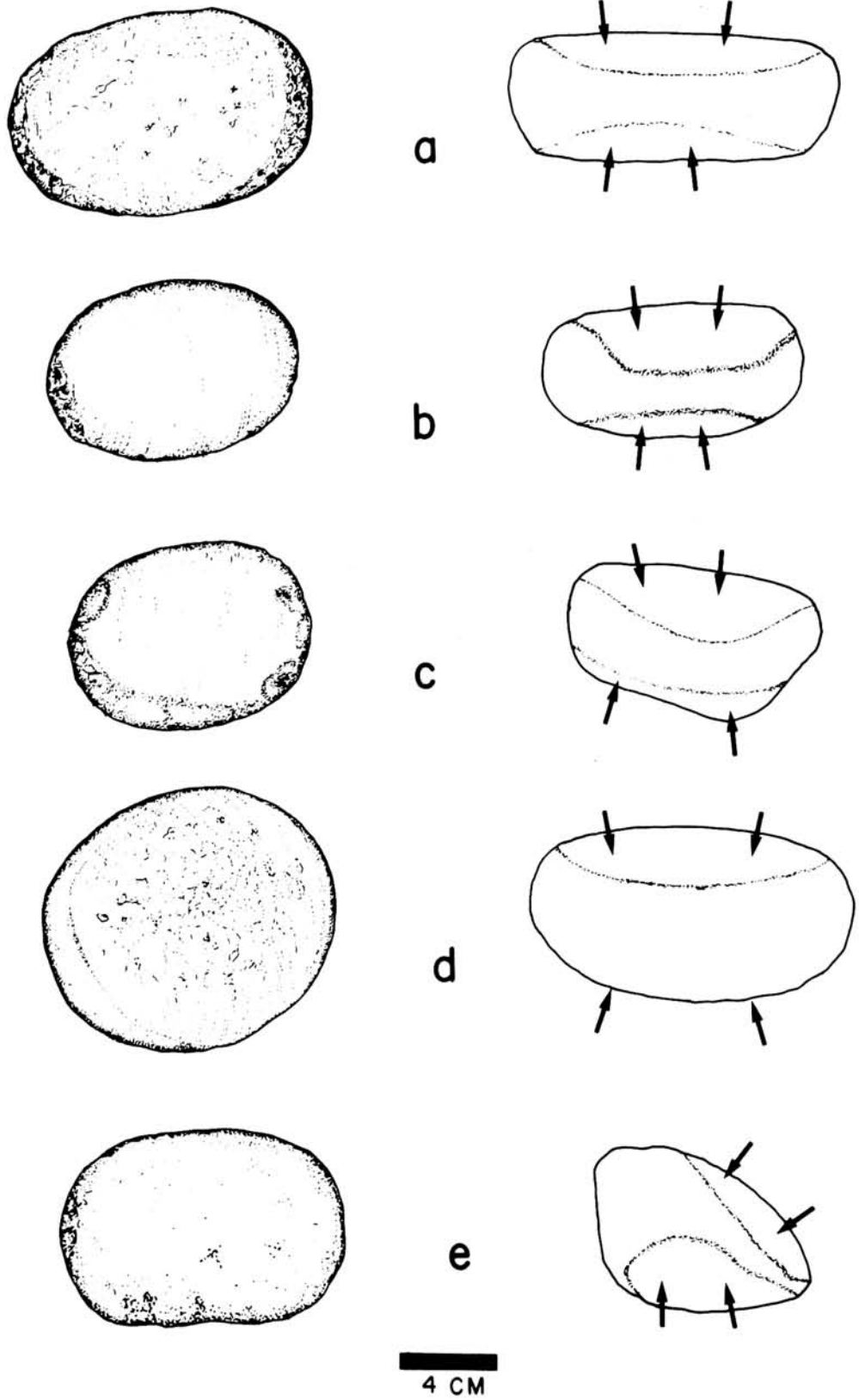


Fig. 5. Manos from Rincon 301.

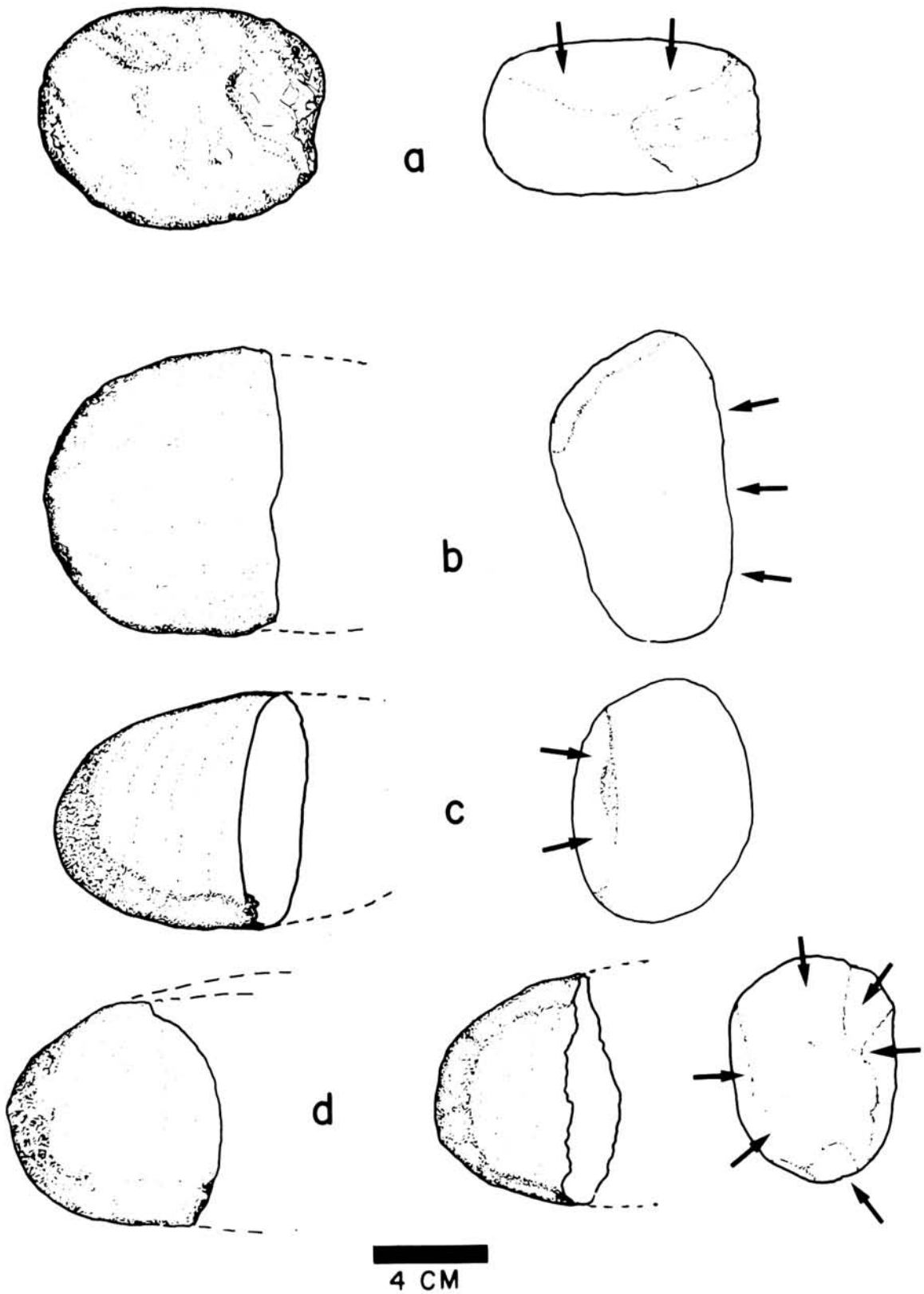


Fig. 6. Additional manos from Rincon 301.

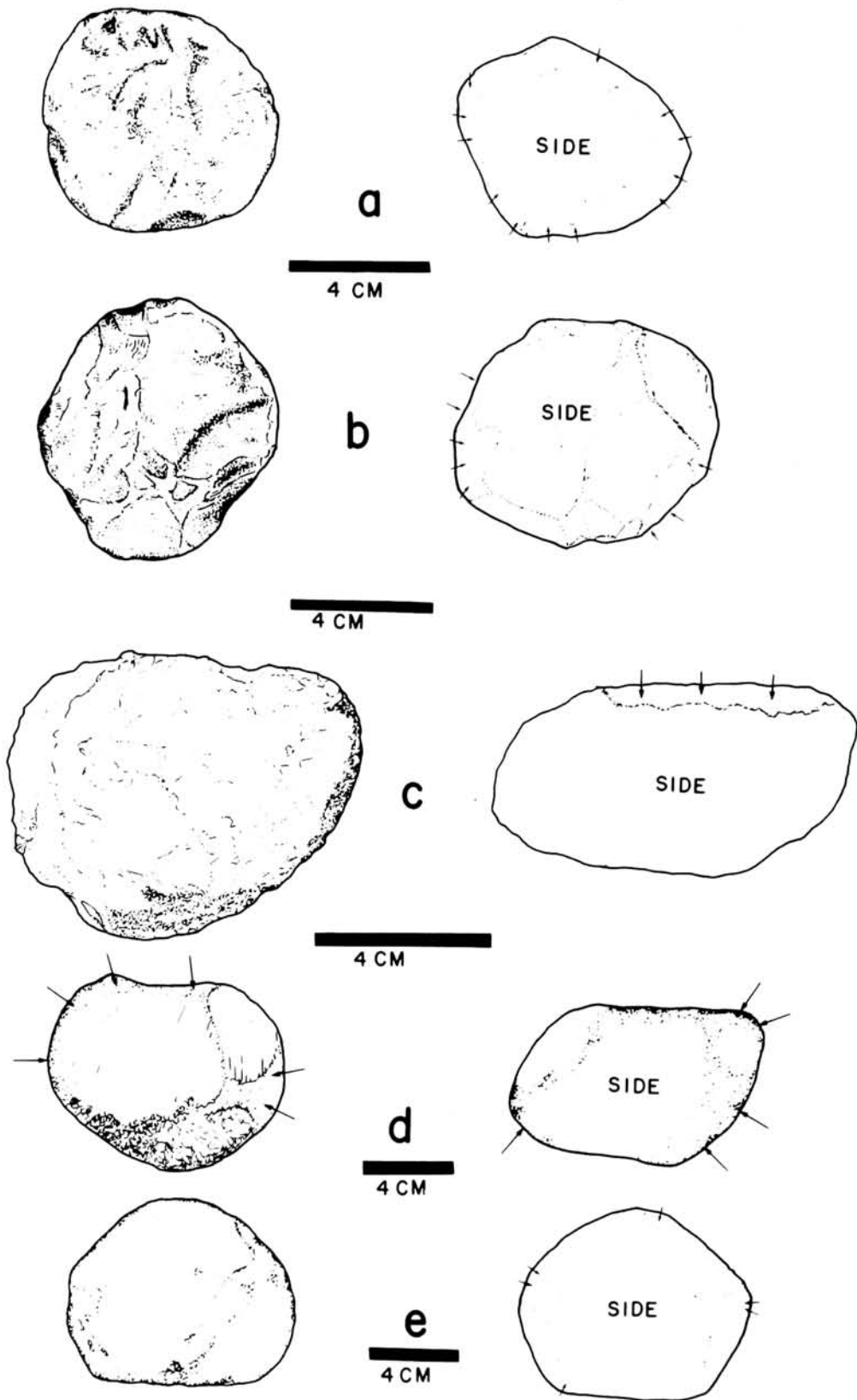


Fig. 7. Hammer fieldstone (a), hammer cores (b-c), and hammer grinders (d-e) from Rincon 301.

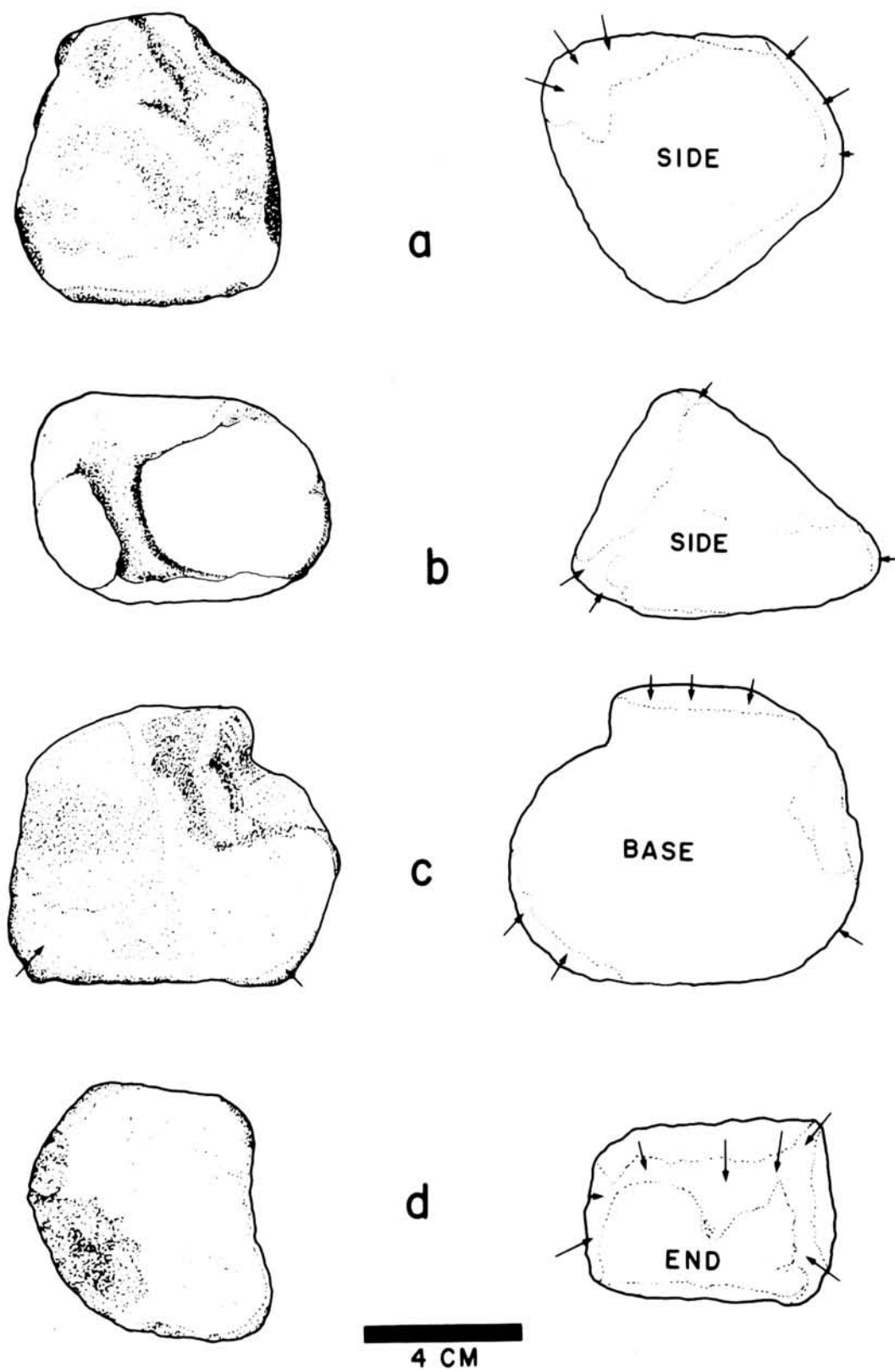


Fig. 8. Hammer fieldstones (a, d) and hammer grinders (b-c) from Rincon 301.

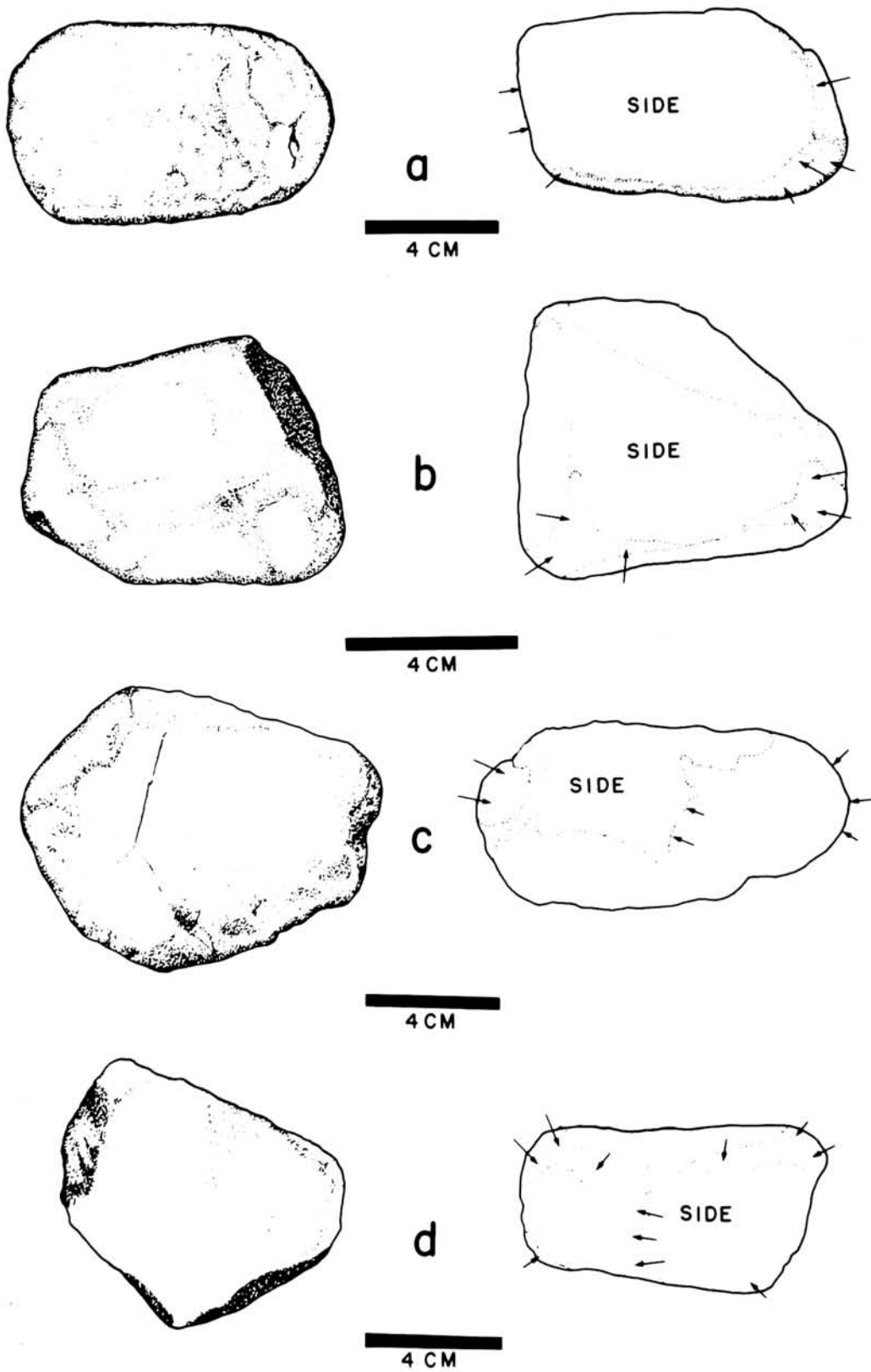


Fig. 9. Hammer grinders from Rincon 301.

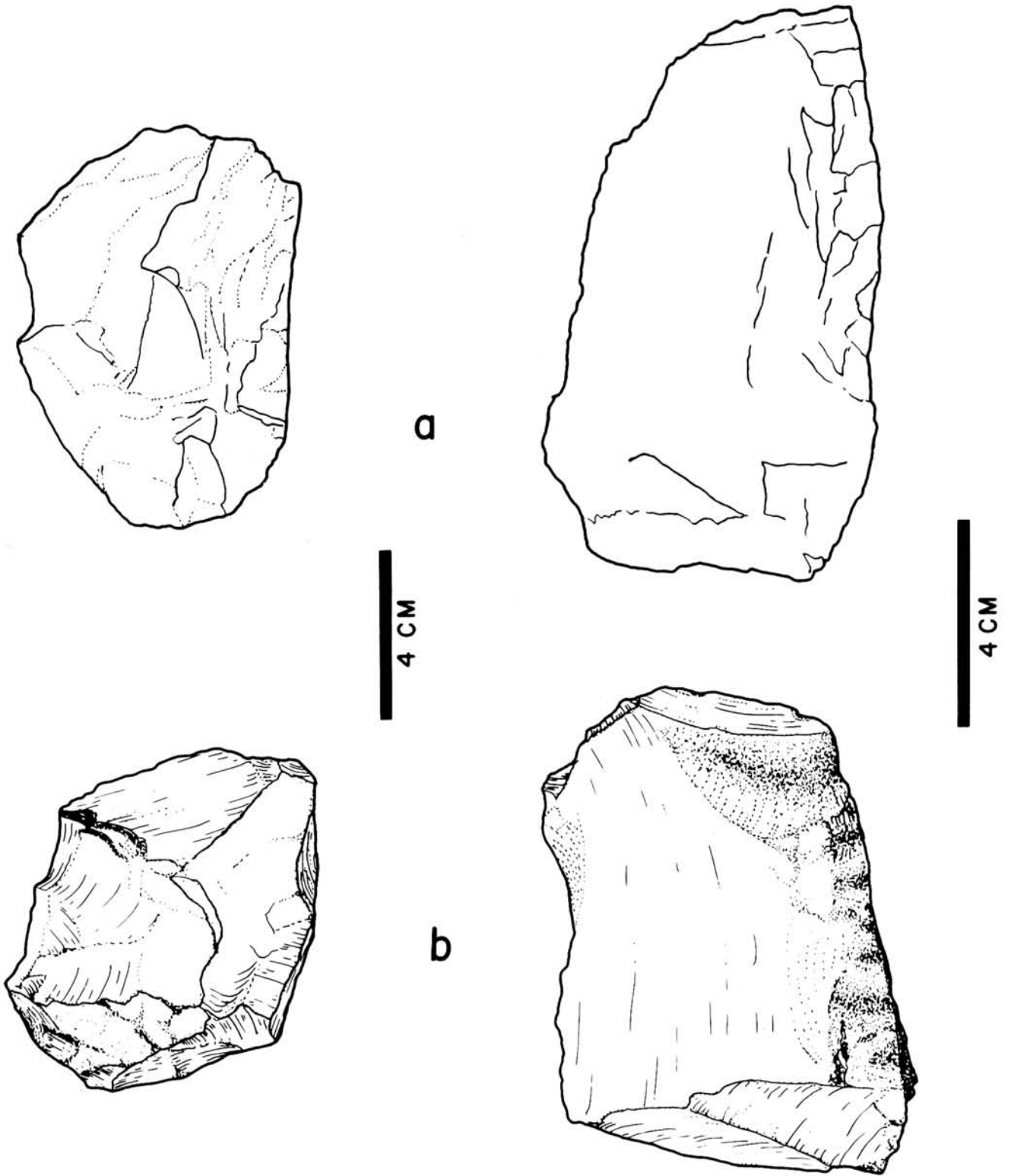


Fig. 10. Irregular scraper planes from Rincon 301.

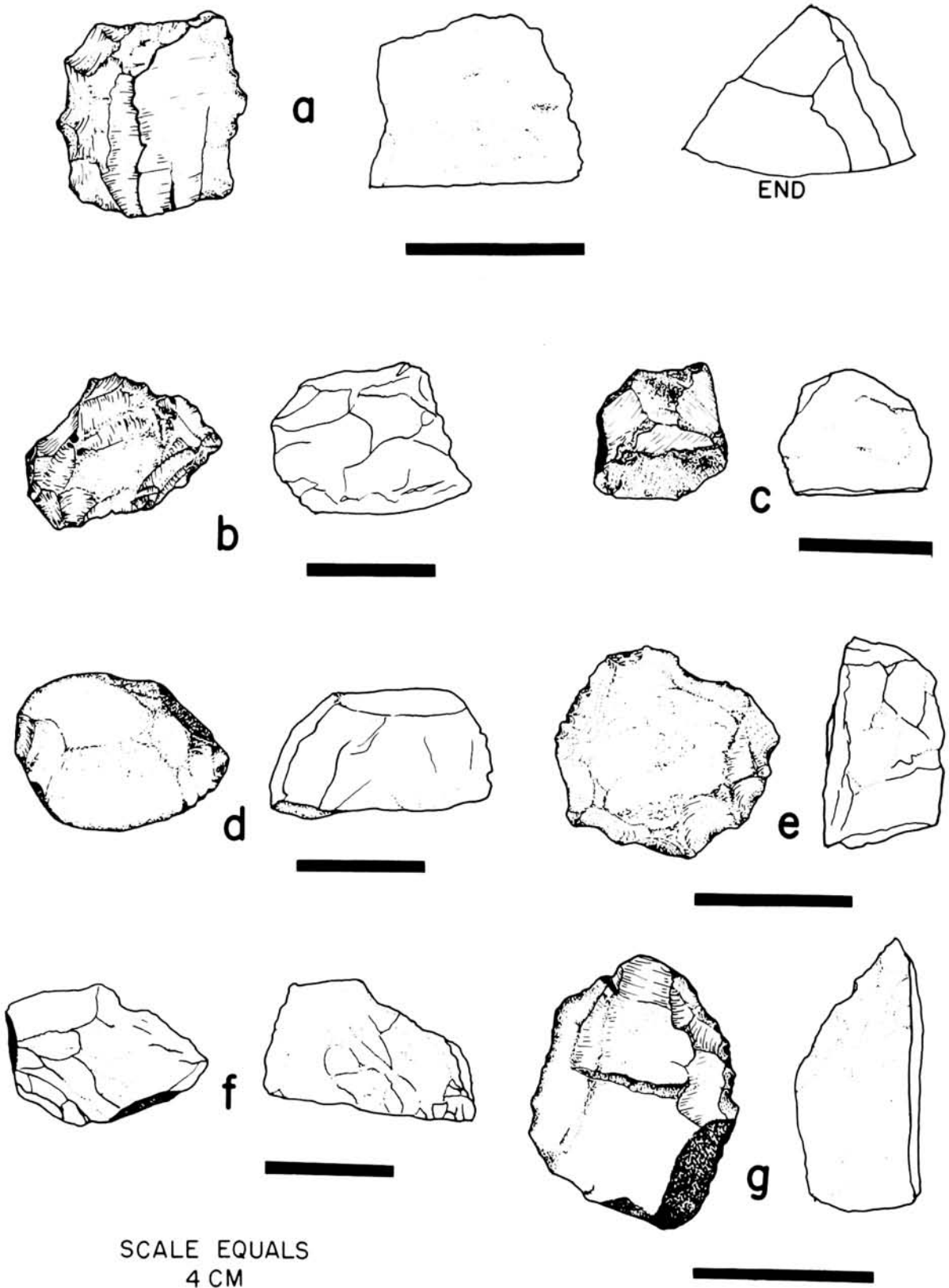


Fig. 11. Irregular domed scrapers from Rincon 301.

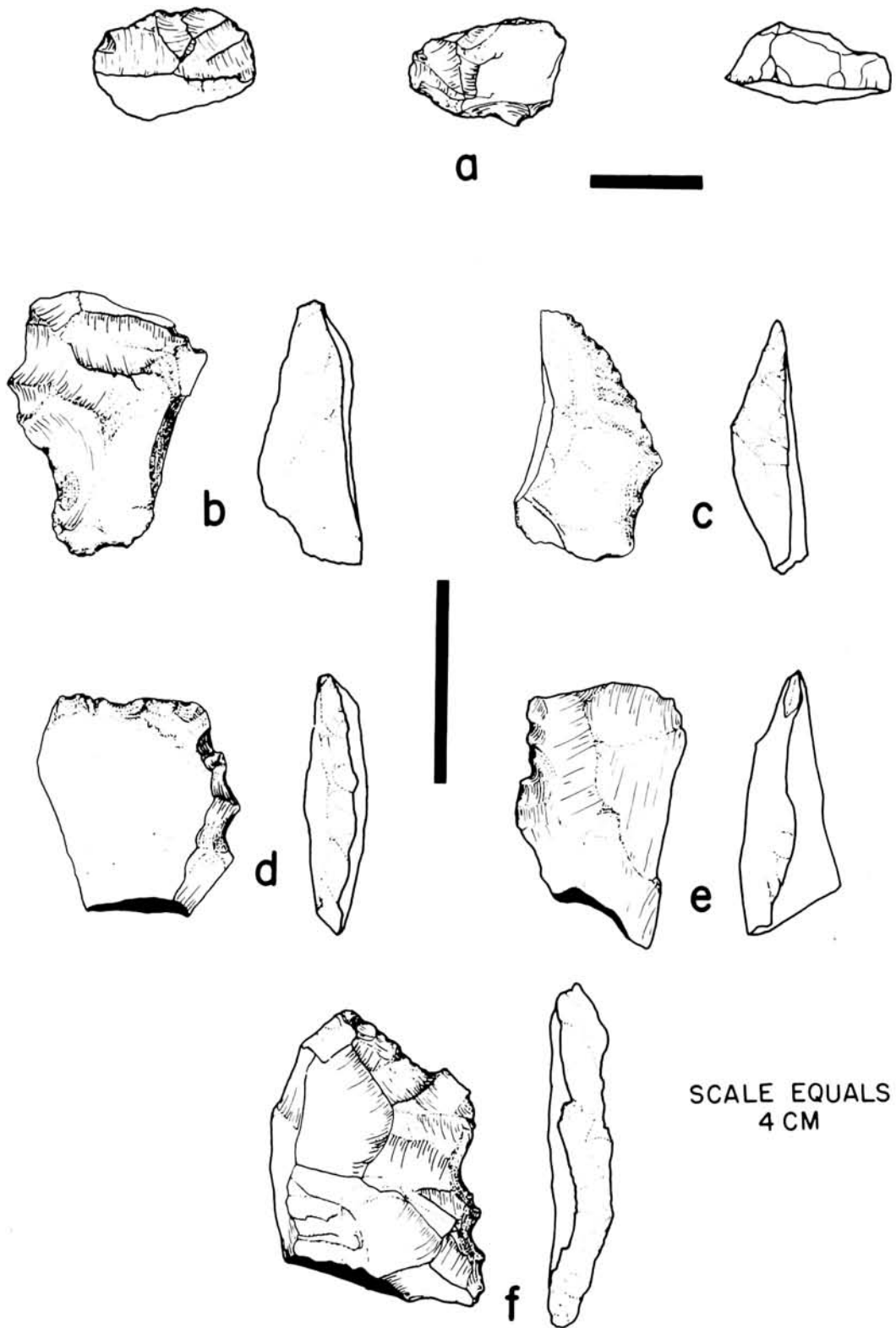


Fig. 12. Irregular domed scraper (a) and irregular flake scrapers (b-f) from Rincon 301.

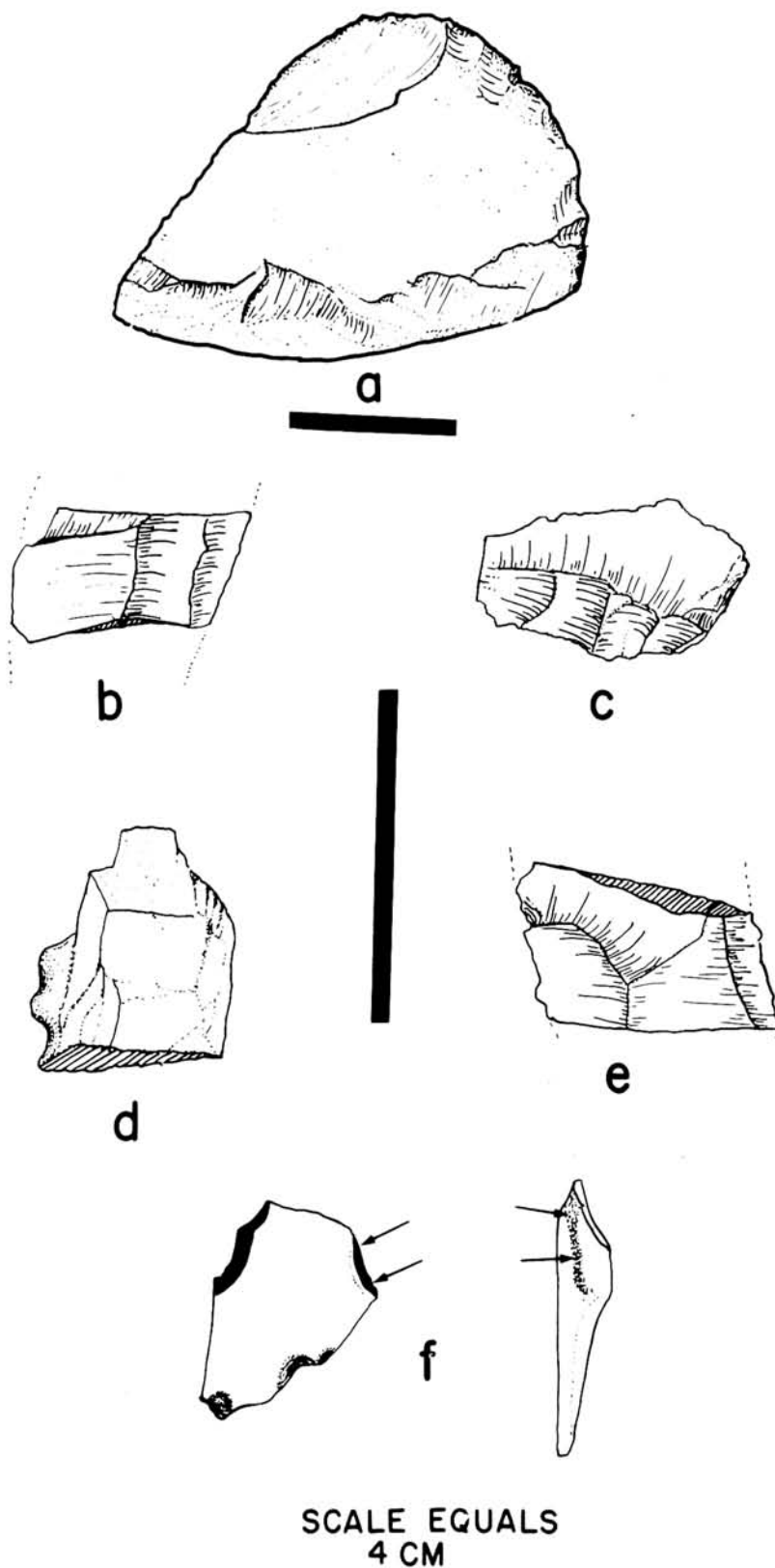


Fig. 13. Irregular flake knife (a), used flakes (b, e), used flakes - 11 (c, f), and worked flake (d) from Rincon 301.

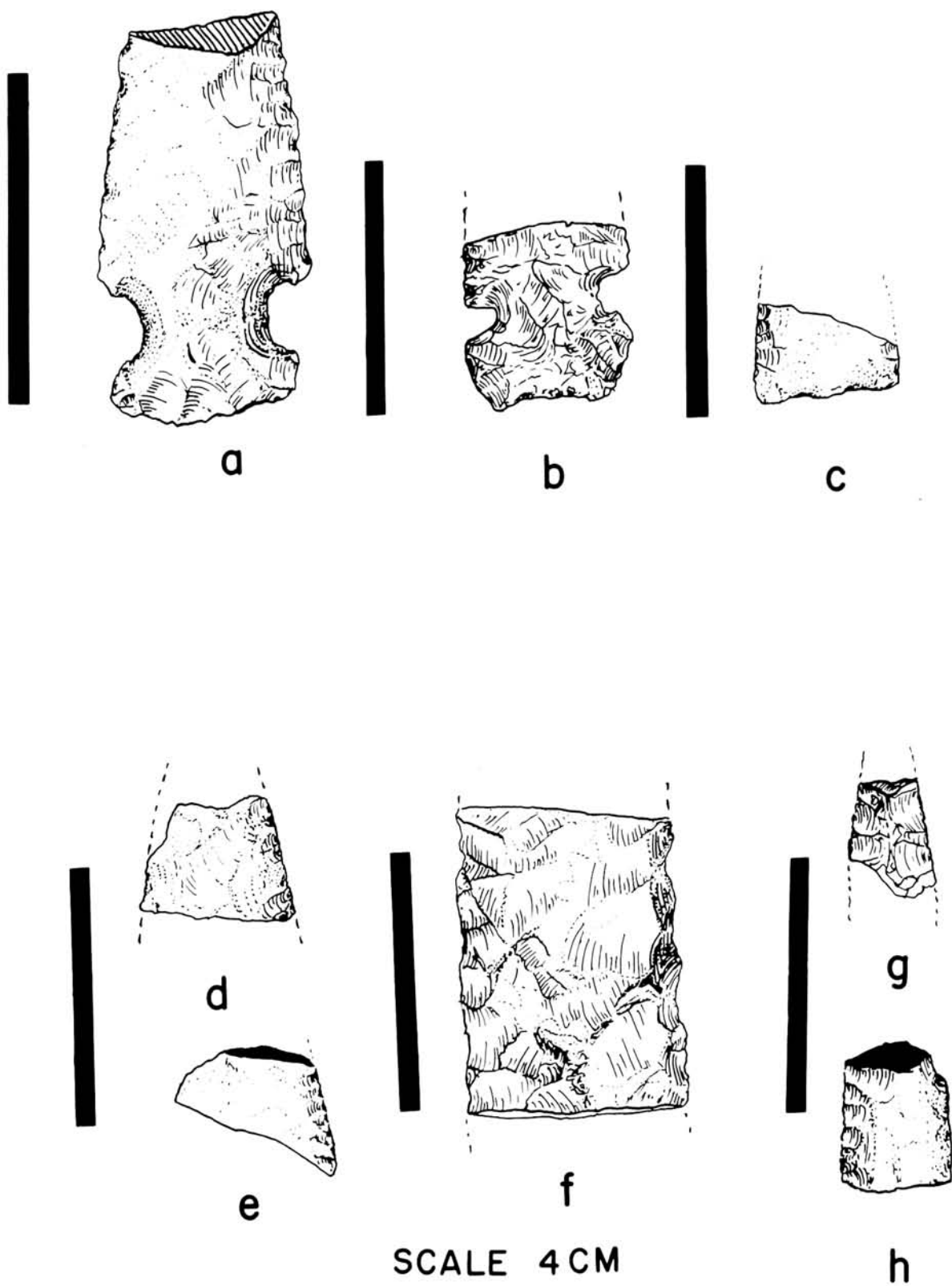


Fig. 14. Bifacially flaked point (a-e, g-h) and knife (f?) fragments from Rincon 301.

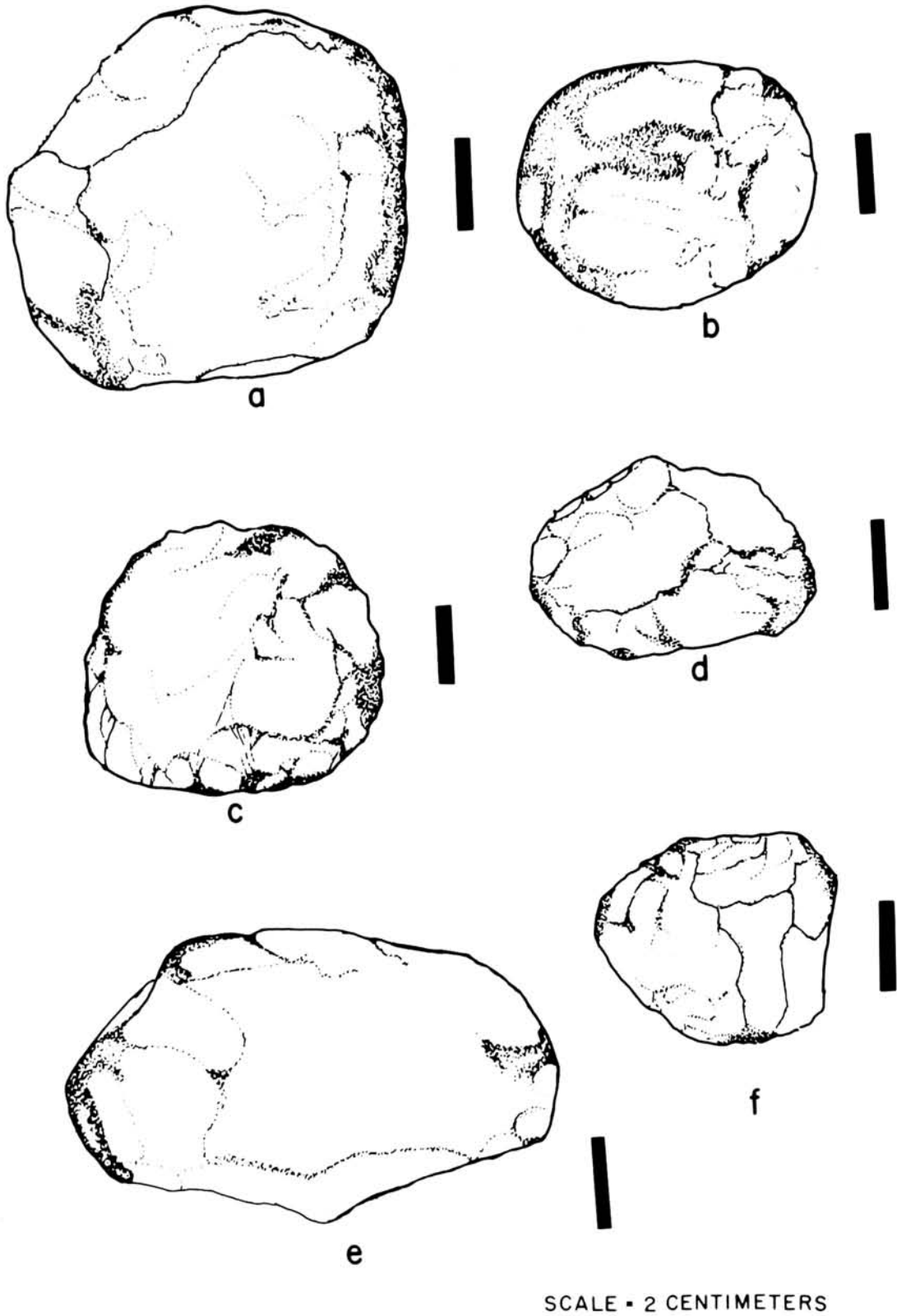


Fig. 15. Hammer cobble/fieldstone (a), hammer cores (b-d, f), and hammer grinder (e) from Rincon 133.

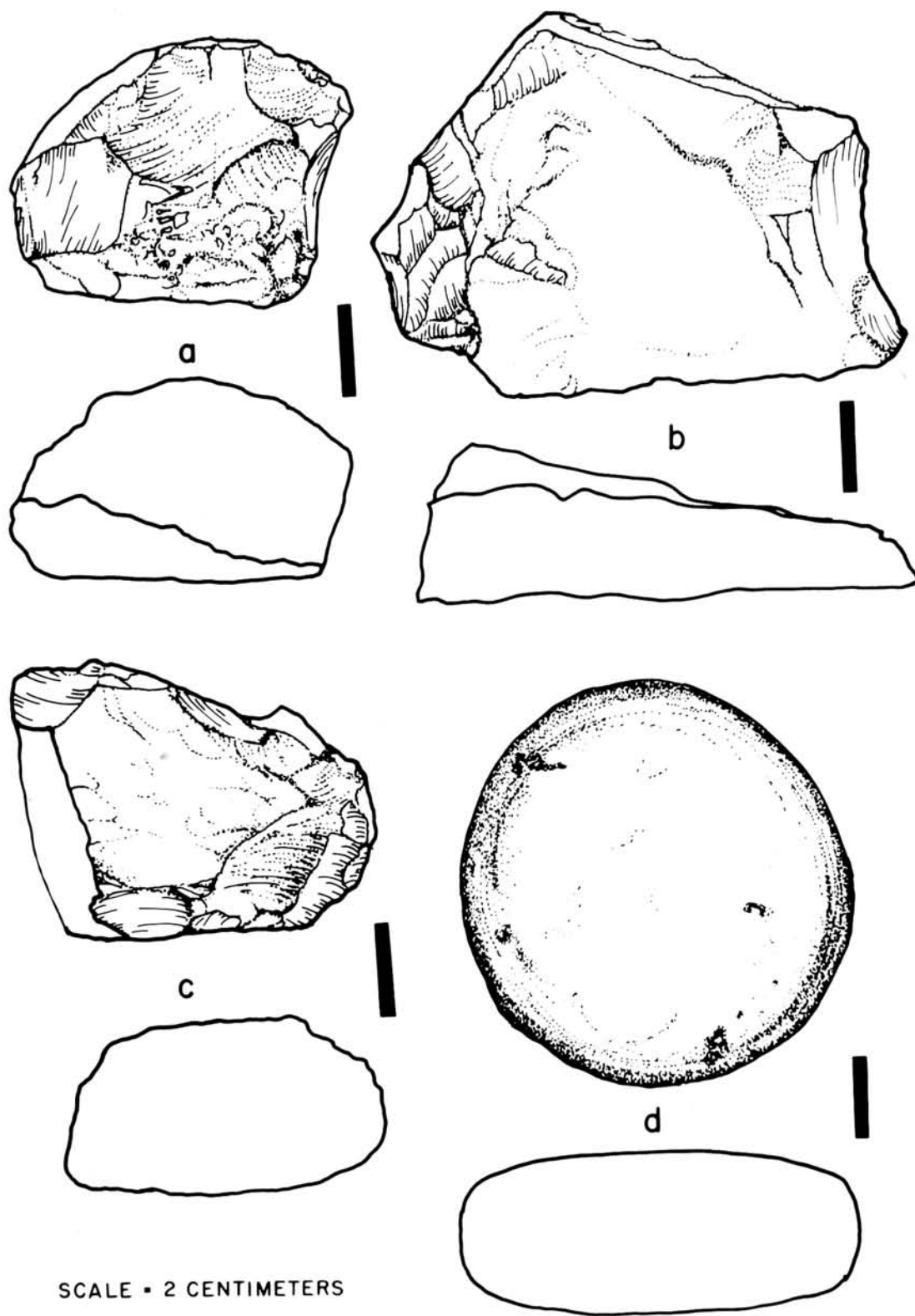


Fig. 16. Irregular scraper planes (a-c) and discoidal (d) from Rincon 133.

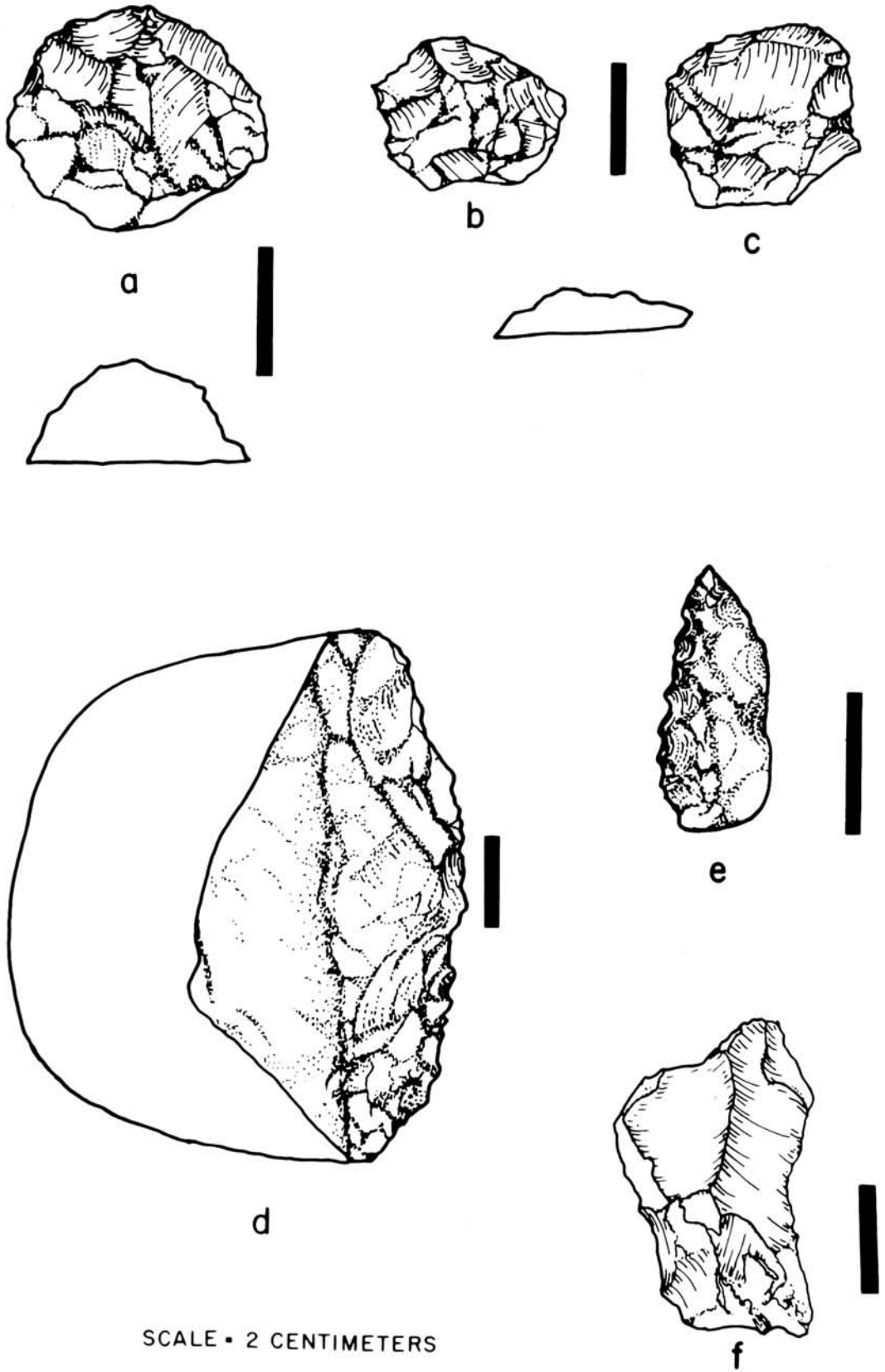


Fig. 17. Domed scraper (a), irregular flake scrapers (b-c), unifacial cobble chopper (d), drill (e), and flake knife (f) from Rincon 133.

buried context, and this was reinforced shortly thereafter when another buried Pauma component was discovered at the Pankey site several miles downstream. Subsequent test excavations at a small site near Escondido, and another near Fallbrook on the Santa Margarita River drainage, confirmed the potential for at least some subsurface Pauma Complex remains. It was recognized that these subsurface components were important, but it was still assumed that the basic characteristic of the complex was a widespread distribution of very small camps and food-processing stations often marked by no more than a handful of fragmentary and often nondescript artifacts.

While it is still the case that the majority of the known Milling Stone sites in northern San Diego and western Riverside counties are characterized by small, apparently surficial

scatters of artifacts, the data from both Rincon 301 and 133 indicate that at least some of these "small" sites are likely to be larger than they appear. The idea that some small surface scatters are the end product of a partial disturbance of an otherwise inconspicuous subsurface cultural deposit was recognized in northern San Diego County several years ago when locations in the Valley Center region that had been surveyed previously with negative results, produced several sites (artifacts) after bulldozing. This observation was reinforced several years later in northern California (True, Baumhoff, and Hellen 1979), and is certainly a phenomena well known to most archaeologists.

Because the area in which Rincon 301 is located had been cleared and planted at an early date (long before the site was recorded), the initial small artifact inventory supported

Table 3

**ARTIFACT SUMMARIES FROM THREE LARGEST PAUMA COMPLEX
INVENTORIES IN PAUMA VALLEY AREA**

Artifact	Rincon 47	Rincon 301	Rincon 133
Metates	20	present (no count)	15
Manos	45	44	81
Smoothing Stones	6	7	39
Hammers	8	25	7
Hammer Grinders	9	25	1
Domed Scrapers	3	-	-
Irregular Domed Scrapers	5	9	1
Scraper Planes	11	2	4
Flake Scrapers	10	5	2
Choppers	--	-	1
Discoidals	1	-	1
Donut Stones	1	-	1
Balls	2	-	-
Bifacially Flaked ¹	7	9	-
Flake Knives	-	3	1
Used Flakes	17	47	-
Cores	6	4	-
Drills	--	-	1
Cortex Based Scraper	--	-	1
Cortex Backed Scraper	--	-	-
Worked Flakes	-	1	-

¹Point and knife fragments.

the idea that this was a near classic example of a tiny camp or processing station. That is to say, the area had *already* been disturbed and the artifact recovery was still minimal in spite of this disturbance. At the time the Pauma Complex material was re-examined for the 1978 assessment, this site was credited with three artifacts (True 1980: 12). The correct number should have been four artifacts, however, since one scraper-like tool had been excluded from the count. (This inventory has now increased to 180 artifacts.)

In retrospect, it is clear that the original planting and clearing had been done at a time when such work was normally done by hand. As a result there was minimal disturbance of the ground surface. Hand removal of brush and excavation of small holes for seedling trees, for example, would not require or result in any significant movement of soil. This minimal subsurface disturbance, plus clearing of the planted surface of loose stones could easily account for the near sterile appearance of the site ca. 1945.

In contrast, the more recent clearing activities were accomplished using a bulldozer and involved the removal of mature olive trees and their root systems. While the basic configuration of the knoll was not altered in this clearing, the entire soil surface was disturbed to a depth of several inches. It is this more substantial disturbance that led to a reassessment of the site boundaries and its relative significance.

Rincon 133 had a similar history except that the initial disturbance was confined to a light discing along one margin of the site area, and that the second disturbance consisted of a major reshaping of the entire site area using heavy earthmoving equipment. This second disturbance destroyed the site.

Our present assessment of the Pauma Complex settlement pattern concludes that sites range from tiny camps to extensive contiguous areas of occupation (Rincon 47

[SDi-505], for example, is some 2000 ft. in length), and that most sites include at least a shallow subsurface deposit (for the location and description of site Rincon 47, see True 1958, 1980). It appears to be increasingly likely that these shallow subsurface deposits do not become exposed or surficial until they have been subjected to some degree of disturbance either by erosion or some cultural process.

The significance of this as it relates to surface surveys is obvious. It is possible, and indeed likely, that some Early Milling Stone camps would not be detected using standard survey procedures if the area had not already been subjected to some erosion or other disturbance. For environmental impact assessments in northern San Diego and western Riverside counties it is probably important to identify all loci which fit the *pattern* of distribution for Early Milling Stone sites, and to mark these areas as potentially sensitive. Clearing and construction activities in such areas should be monitored or at least checked during and after such construction.

Another aspect of the Early Milling Stone site and artifact distribution that is becoming more evident is the apparent linear arrangement of occupational components. It appears that in at least some instances, components or site units of one kind or another are strung out along certain drainages, or occupy a series of flats, benches, or knolls in some kind of linear arrangement. There is a possibility that these loci may be temporally distinctive. Data supporting this consideration will be discussed in greater detail in another context.

Pauma Complex—San Luis Rey Relationships

Although it seemed obvious that the milling stone assemblages identified here as part of the Pauma Complex were substantially different than assemblages recovered from San Luis Rey sites, the small artifact inventory from any given site, and the scattered

nature of the Pauma Complex sites, made meaningful comparisons difficult. The presence of metates and manos in both site categories suggested to some investigators that the isolated artifact scatters were nothing more than food-processing stations belonging to the San Luis Rey pattern. While there were always reasons why this interpretation was suspect, lack of specific dating information, as well as the small artifact counts, made attempts at clarification complicated and un-

convincing. We are not interested in developing the various possibilities inherent in this controversy in the present paper, but do present a comparison of available Pauma artifact inventories (the aggregate of the three largest documented Pauma Complex inventories) with the San Luis Rey as represented by the Frey Creek (San Luis Rey I), and Molpa (San Luis Rey II) assemblages (True and Waugh 1981; True, Meighan, and Crew 1974). These data are presented below as Table 4.

Table 4

COMPARISON OF ARTIFACTS FROM THE PAUMA AND SAN LUIS REY COMPLEXES: NORTHERN SAN DIEGO COUNTY

Artifact	Pauma ¹	Frey ²	Molpa ³
Bedrock Mortars	absent	31	289
Bedrock Slicks and Metates	absent	39	109
Pestles	absent	present	present
Portable Metates	present	present	present
Manos	225	40	91
Biface Tools ⁴	16	145	533
Hammers	40	3	7
Flaked Knives	3	absent	3
Scrapers ⁵	35	6	12
Drills	1	5	12
Bone Artifacts	rare	5	57
Ornaments	rare	17	21
Cortex Based Scrapers	absent	4	4
Scraper Planes	17	rare	rare
Hammer Grinders	35	absent	2
Discoidals	2	absent	absent
Balls	2	1	absent
Donut Stones	3	absent	absent
Choppers	1	absent	1
Other ⁶	rare	uncommon	5
Ceramic Vessels ⁷	absent	absent	common
Clay Pipes	absent	absent	7
Figurines	absent	absent	4
Miniatures	absent	absent	1

¹Includes sites Rincon 47 (three loci), Rincon 301, and Rincon 133.

²Includes all San Luis Rey I sites on lower Frey Creek (see True and Waugh 1981).

³See True, Meighan, and Crew 1974.

⁴Includes all items generally recognized as projectile points and bifacially flaked knives.

⁵Includes all categories of scraping tools except planes and cortex-based scrapers.

⁶Includes crystals, paint stones, etc.

⁷Consists of sherds. No whole vessels were recovered from Molpa other than the one probable ceremonial vessel described by White (1963:132-133; True, Meighan and Crew 1974:67).

Comparison of the Pauma Complex Inventory with Sites Representing the Coastal La Jolla

Although space limitations preclude any extended discussion of possible Pauma-La Jolla relationships at this time, it seems increasingly clear that the two complexes share a number of important diagnostic elements. Likewise it is evident (if the known assemblages are any measure) that there are, as well, significant differences. It is not clear to what degree these differences are temporal, economic, or cultural in nature. Furthermore, the visible differences are complicated by typological and definitional problems that result when standardized criteria and typologies are not employed by individual analysts. Ultimate resolution of this kind of problem requires a direct examination and analysis of each collection by the same investigator. This has not yet been done.

Recognizing that at least some of the apparent differences may be a by-product of sampling inadequacies, definitional variations, and a lack of time control, we have examined the available published artifact inventories for La Jolla, and compared them with existing Pauma Complex data. To minimize the definitional or typological differences, we have resorted to some lumping of artifact categories. The resultant groupings include: milling implements (metates, manos, and smoothing stones), scrapers, scraper planes, hammers, chopping tools, bifacially flaked artifacts (includes projectile points, knives, and what some writers call blades), and a category called "other" which includes ornaments, discoidals, donut stones, etc.

We are cognizant of the arbitrary nature of this lumping process, and recognize that the results of comparisons based on such categories are little more than *suggestive of possible relationships*, or the lack thereof. One of the more obvious results of such an exercise is the recognition (again) of the

dearth of La Jolla sites for which meaningful artifact inventories have been published. While it is assumed that several inventories do exist in unpublished reports, a reasonable examination of the literature suggests that only the Scripps Estates (Moriarty, Shumway, and Warren 1959; Shumway, Hubbs, and Moriarty 1961) and Batiquitos Lagoon (Crabtree, Warren, and True 1963) reports include artifact descriptions and counts sufficient for even rudimentary comparisons. These comparisons are presented in Table 5.

The most obvious differences in the compared assemblages *appear* to be in the percentages of milling implements (63% for Pauma assemblages compared to an average of about 25% for the combined Scripps and Batiquitos samples). Scraping and planing tools, in contrast, seem to be more common on the coast. This latter relationship is even more evident when all scraping and planing tools are lumped. As shown in Table 6, this comparison indicates that less than 13% of the inland inventories and 54% of the coastal inventories consist of planing and scraping tools. Hammers appear to be more common on the coast, while hammer grinders are more common inland. In the latter case, however, there may be some definitional confusion, and items categorized as hammers may in some cases represent what we are identifying as hammer grinders.

In any case, the gross level of comparison must be emphasized. The samples are still small enough to include undetected skewing and, most importantly, each sample represents (presumably) several thousand years of time. Recognizing these shortcomings, it appears that the overall ratio of milling to scraping and planing tools may be generally valid, and that the indicated differences represent some meaningful variations in subsistence, or possibly subsistence-related shifts in artifact use through time.

To examine this *apparent* relationship

Table 5

**COMPARISON OF ARTIFACT FREQUENCIES BETWEEN
PAUMA COMPLEX (INLAND) AND LA JOLLAN (COASTAL) SITES**

Artifact	Pauma Complex ¹	Batiquitos Lagoon ²	Scripps Estates ³
Grinding (Metates and Manos)	260 (63.26)	77 (22.37)	42 (27.62)
Pounding	40 (9.73)	82 (23.83)	12 (27.62)
Scraping	35 (81.51)	62 (18.01)	45 (29.58)
Planing	17 (4.13)	36 (10.46)	24 (15.78)
Chopping	1 (0.24)	72 (20.92)	20 (13.15)
Bifacial ⁴	16 (3.89)	12 (3.48)	2 (1.31)
Hammer Grinders	35 (8.51)	1 (0.29)	—
Other ⁵	7 (1.70)	2 (0.58)	7 (4.59)
	411 (99.97)	344 (99.94)	152 (99.92)

¹Pauma Complex includes artifacts from sites Rincon 47, 301, and 133.

²Batiquitos Lagoon (La Jollan) includes sites excavated by Crabtree, Warren, and True (1963).

³Scripps Estates (La Jollan) includes artifacts reported by Moriarty, Shumway, and Warren (1959).

⁴Bifacial here refers to all bifacially flaked artifacts suggestive of projectile points or knives.

⁵"Other" includes stone balls, discoidals, and perforated discoidals, but does not include chipping waste, cores, etc.

Table 6

**PERCENTAGE COMPARISON OF ARTIFACT FREQUENCIES BETWEEN
PAUMA COMPLEX AND LA JOLLAN SITE ASSEMBLAGES**

Artifact	Pauma Complex (Inland)	La Jollan (Coastal)
Milling	63.26	25.01
Scraping, Planing and Chopping	12.88	53.86
Hammers	9.73	15.86
Hammer Grinders	8.51	0.30
Bifacial	3.89	2.39
Other	1.70	2.58

Table 7

**PERCENTAGE COMPARISON OF ARTIFACT FREQUENCIES AMONG
INLAND, INTERMEDIATE, AND COASTAL SITE ASSEMBLAGES**

Artifact	Inland	Intermediate		Coastal
	Pauma Valley	Valley Center	Escondido - Green Valley	La Jolla
Milling	63.26	35.00	32.45	25.01
Scraping	12.88	34.11	31.82	53.86
Hammers	9.73	17.78	18.74	16.00
Hammer Grinders	8.51	0.96	2.10	0.30
Bifacial	8.89	10.09	3.36	2.39
Other	1.70	1.44	0.81	2.58

further we extracted crude artifact counts for the intermediate area (Valley Center, Escondido, Green Valley) taken from earlier survey data (Warren, True, and Eudey 1961), and compared these data with the Pauma Complex and La Jollan numbers. These comparisons are presented in Table 7. If it is recognized that the Valley Center surface collections include some unsegregated San Dieguito elements (which tend to increase the percentages of scraping-related implements), the resulting pattern shows a reasonable gradient from inland to the coast with respect to milling implements and a reverse pattern with regard to scraping tools.

If hammers and hammer grinders are combined, the distribution of pounding tools is essentially the same in all regions. Numbers of bifacially flaked artifacts are high in the Pauma and Valley Center areas relative to the Escondido-Green Valley regions. This is probably the result of inclusion in the Pauma and Valley Center counts of artifacts which almost certainly are part of either the Campbell Intrusion and/or San Dieguito (see Warren 1968 for discussion of the Campbell Intrusion).

Obviously the numbers presented here are crude and may well be wrong. Our intent is *not* to provide statistically valid data at this stage of the research, nor to suggest that the data presented are anything more than gross indications of possibly interesting relationships. More artifacts from many more documented contexts are needed, and a careful analysis of these artifacts is required with both subsistence and cultural problems in mind. Further work is in progress for the inland regions, and additional data should be forthcoming in the not-too-distant future.

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