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Casual Artifacts in Northern San Diego County, California: The Hammergrinder

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ARTIFACT collections made as part of surveys conducted in northern San Diego County during the late 1940s and early 1950s included hammer-like implements characterized by batter and evidence of wear. Such artifacts were typically irregular in form, seemingly lacked evidence of purposeful shaping, and for lack of a better designation, were termed hammergrinders. Some kind of undefined multi-purpose function was assumed (Warren, True, and Eudey 1961: 17). At the time such artifacts were not given a great deal of consideration, and the only real concern was that they were cultural and that their critical identifying attributes were the not always obvious wear facets on one or more surfaces.

Unfortunately, in the years since 1961, no systematic treatment of this artifact has been proposed or published, and they are seldom mentioned in regional reports. Reasons for this lack of mention and/or reporting are uncertain but several possibilities come to mind:

1. It may be the case that they are not being recognized. This is especially likely (possible) when they are made of local rock with minimal evidence of cultural modification;

2. In other cases it may be that specimens fitting this category have been recognized as artifacts and collected, but were placed in a hammerstone category without further comment;

3. In a few cases (probably rare) such artifacts were collected and categorized as incipient manos or rubbing stones;

4. It may be that people working in the larger area are actually collecting these implements and simply prefer not to use the term hammergrinder.

It is not the purpose of this paper to argue for any particular name, and it does not matter what the artifacts are called. It does matter if they are not considered in the overall assessment of the local and regional prehistory. Fig. 1 shows the location of the study region.

THE ARTIFACTS

An important aspect of the description of this artifact is clearly its casual and nondescript appearance. Although there is a range of forms that seem to fit the general category, the primary diagnostic attributes are evidence of pounding or light batter on one or more edges, and some evidence of rubbing or grinding wear on one or more surfaces. It is the rubbing or grinding wear that separates the hammergrinder from an ordinary hammer. In many cases there is a well developed "heel" on one or more edges of a planar-like surface which gives the appearance of being the result of some quite patterned grinding or rubbing. These wear facets could in some cases be the byproduct of well-controlled light batter in combination with some kind of grinding or

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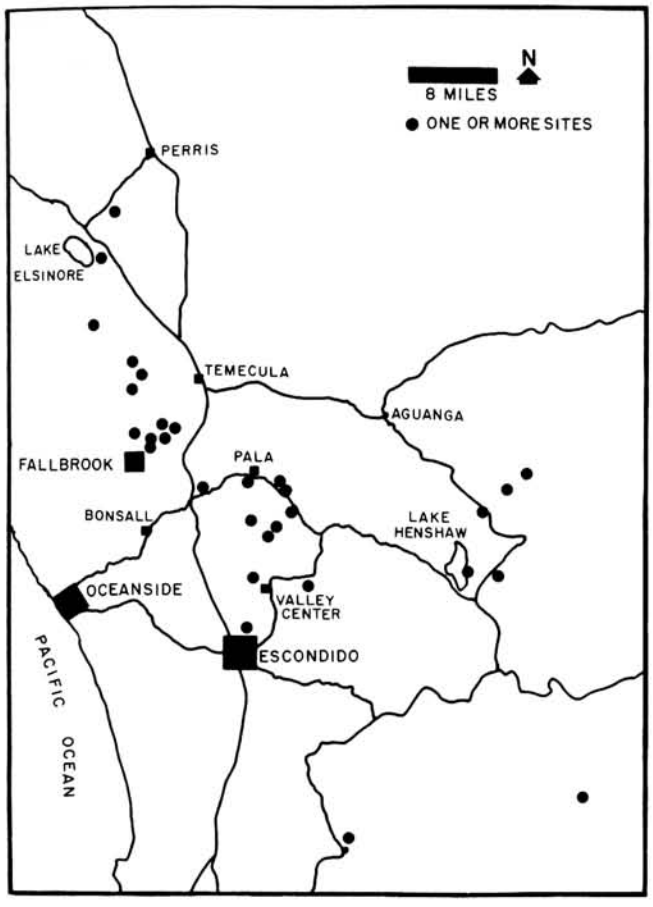

Fig. 1. Location map showing general study area and location of sites from which hammergrinders have been recovered.

smoothing motion. In other instances, the nature of the faceted surface is such that it is unlikely to be the result of pounding, and almost certainly has developed from some kind of grinding or rubbing action without the pounding. In almost every case, these facets are smooth and lack the texture usually associated with any normal hammer-like use.

In general this is an irregular artifact and there is, as yet, no clearly defined distribution of forms. There is within the study collection, however, a substantial number of specimens which have the *appearance* of blunt, non-cutting scraper planes. In spite of this configurational similarity, the differences are usually obvious since hammergrinders do not have a meaningful cutting edge. Scraper planes in this region are typically made of basaltic or felsitic rocks, or other material suited for flaking, and are characterized by flake removals that form a potentially sharp, if sometimes worn, bit (see Fig. 2). Worn or well-used planes with rounded, heel-like wear facets and battered bits are rather easily differentiated from hammergrinders albeit there *may* be some overlap. Although of minimal importance in the context of the present paper, it should be noted that many artifacts designated scraper planes in this part of California have *no* easily recognized evidence of wear on the planar surface. For the most part, hammergrinders here are made of local rocks (usually metamorphic), which seldom lend themselves to controlled flaking. Because of the material selection and the lack of obviously defined flake removals, this artifact is often difficult to see under field conditions. Furthermore, possible failure to identify such specimens as cultural (or as hammergrinders)

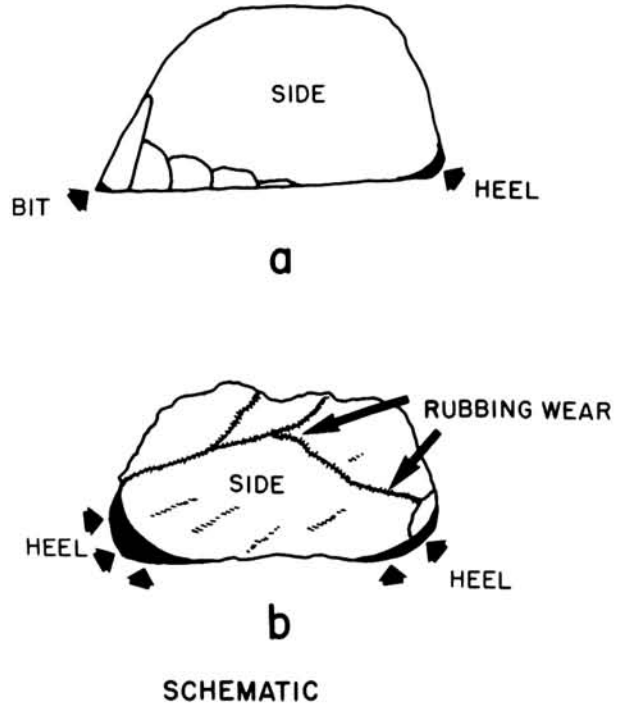

Fig. 2. A schematic showing the position of the heel-like wear surfaces and comparing the configuration of a scraper plane (a) and a hammergrinder (b).

is enhanced by the nature of the rubbed surface on many artifacts which is often uneven and irregular (see Fig. 3f). In many other instances, the rubbed surface is characterized by relatively small wear facets, which are confined to the high spots and ridges of the uneven surface. Some specimens are weathered, which increases the difficulty of identification, and many artifacts examined as part of this study have a somewhat abrasive texture which may also have been deliberately selected.

Because of the presence of the wear facets or rubbed surfaces there may be a tendency to see some hammergrinders as incipient manos or rubbing stones with basic mano-like functions. Obviously there is a slight overlap of attributes, but the rubbed surface of the hammergrinder is most often uneven and typically is marked with minimal evidence of wear (small, irregular, worn surfaces). *Developed mano-like surfaces* do not appear to be characteristic of this artifact. Table 1 presents dimensional data for the hammergrinder specimens presently available at the University of California, Davis, for examination. Table 2 summarizes these data by region and Table 3 presents the artifact distribution by material. Figs. 4-10 are line drawings of typical specimens.

THE DISTRIBUTION

Because it is difficult to deal with the distribution of this artifact based on the extant literature, the comments presented here are based upon collections available for study in the Anthropology Research Facility, University of California, Davis. This circumstance is not intended to suggest that other useful and meaningful data sources do not exist.[1]

At the time the term "hammergrinder" was first proposed (Warren, True, and Eudey 1961), its distribution was *seemingly* confined to the inland manifestation of the Early Milling Stone tradition with examples from several sites in the Valley Center-Escondido region as well as from portions of the central San Luis Rey River drainage (Pauma Valley-Pala region).

In the time since 1961, many more hammergrinder specimens have been recorded, and the distribution of this artifact has been significantly expanded. It should also be noted, however, that the distribution, as discussed in the present paper, is based on sporadic surveys which represent non-systematic coverage of the geographic space indicated in Fig. 1. In any consideration of the distribution of these artifacts, it should be noted that although many site inventories which include hammergrinders *are* seemingly part of the Early Milling Stone pattern, there are exceptions, and in some instances hammergrinders *appear* to be affiliated with more recent occupancies. For example, several specimens have been noted from the Pankey site (SDI-862) which is generally recognized as a late prehistoric San Luis Rey village. Because there is an Early Milling Stone component underlying this late occupation, however, there is no way to know whether the artifacts there are really part of the more recent occupancy or are simply intrusive from the earlier period. Likewise, hammergrinders were noted at Molpa (SDI-308) but, as was the case at the Pankey site, there is an associated Early Milling Stone component and it is impossible at the present time to know whether or not hammergrinders were actually used during the San Luis Rey occupancy. The same general situation applies to the Frey Creek assemblages, where hammergrinders are present but uncommon (see Meighan 1954; True and Waugh 1981).

In sum, it appears that although hammergrinders are on occasion found associated with late prehistoric sites in northern San Diego County, their status in these contexts is still uncertain. This is in contrast to the

Table 1

HAMMERGRINDER DIMENSIONS BY SITE[1]

Site	Sample		Length (mm.)	Width (mm.)	Thickness (mm.)
Monkey Island (SDI-1082)	8 (80,10.0%)[2]	Average Range	79.6 53-102 (14.99)[3]	65.6 43-94 (15.30)	48.3 36-63 (10.73)
Pankey (SDI-862)	11 (447, 2.5%)	Average Range	90.2 59-97 (14.40)	50.6 45-75 (12.48)	44.1 28.60(11.28)
Santa Rosa 4 (no permanent site number, U.C. Davis accession no. 123)	1 (55, 1.8%)		85	65	73
Santa Rosa 5 (no permanent site number, U.C. Davis accession no. 124)	1 (5, 20.0%)		92	70	71
Santa Rosa 6 (no permanent site number, U.C. Davis accession no. 131)	1 (17, 5.9%)		75	70	67
Santa Rosa 9 (no permanent site number, U.C. Davis accession no. 261	1 (11, 9.1%)		87	70	30
Santa Rosa 15 (no permanent site number, U.C. Davis accession no. 304)	2 (30. 6.7%)	Average Range	65.5 43-78 (17.17)	64.6 52-76 (16.97)	47.0 45-49 (2.82)
Santa Margarita 2 (no permanent site number, U.C. Davis accession no. 113)	1 (7, 14.3%)		*	67	50
Santa Margarita 7 (no permanent site number, U.C. Davis accession no. 115)	1 (8, 12.5%)		77	63	39
Santa Margarita 9 (no permanent site number, U.C. Davis accession no. 118)	10 (50, 20.0%)	Average Range	89.7 65-116 (18.02)	68.4 48.101(18.18)	43.7 41-78 (11.56)
Santa Margarita 11 (no permanent site number, U.C. Davis accession no. 203)	1 (9, 11.1%)		74	57	41
Temecula Canyon 7 (no permanent site number, U.C. Davis accession no. 107)	1 (13, 7.7%)		105	91	70
Temecula Canyon 9 (no permanent site number, U.C. Davis accession no. 109)	7 (70, 10.0%)	Average Range	77.8 70-85 (7.17)	55.3 45-69 (9.97)	47.7 38-58 (7.86)
Temecula Canyon 10 (no permanent site number, U.C. Davis accession no. 110)	1 (21, 4.8%)		80	53	61
Temecula Canyon 11 (no permanent site number, U.C. Davis accession no. 117)	1 (18, 5.6%)		82	66	40
Valley Center 26 (SDI-289, U.C. Davis accession no. 218)	1 (30, 3.3%)		66	52	43
Valley Center 28 (SDI-291, U.C. Davis accession no. 306)	2 (16, 12.5%)	Average Range	85.0 75-95 (14.14)	70.0 62-78 (11.31)	65.0 60-70 (7.07)
Valley Center 31 (SDI-294, U.C. Davis accession no. 324)	2 (51, 3.9%)	Average Range	87.5 82-93 (7.77)	75.5 71-80 (6.36)	63.0 59-67 (7.07)
Valley Center 37 (SDI-743, U.C. Davis accession no. 329)	2 (5, 40.0%)	Average Range	76.5 60-93 (40.30)	56.5 50-63 (9.19)	43.0 38-48 (7.07)
Valley Center 46 (SDI-666, U.C. Davis accession no. 327)	1 (65, 1.5%)		77	53	60
Valley Center 15 (SDI-278)	1 (10, 10.0%)		63	53	54

Table 1 (continued)

Site	Sample		Length (mm.)	Width (mm.)	Thickness (mm.)
Escondido Watershed 17 (SDI-1050, U.C. Davis accession no. 127)	1 (7, 14.3%)		67	50	46
Escondido Watershed 24 (SDI-1054, U.C. Davis accession no. 134)	4 (32, 12.5%)	Average Range	79.3 68-89 (10.59)	66.0 65-67 (1.41)	41.6 33-49 (8.08)
Escondido Watershed 27 (SDI-1060, U.C. Davis accession no. 126)	1 (14, 7.1%)		65	55	51
Rincon 41A (SDI-510, U.C. Davis accession no. 315)	1 (41, 2.4%)		111	89	61
Rincon 47 (SDI-505, U.C. Davis accession no. 314)	3 (151, 2.0%)	Average Range	76.0 72-80 (4.0)	58.0 54-62 (4.0)	49.6 48-52 (2.0)
Rincon 301 (SDI-9537, U.C. Davis accession no. 301)	25 (181, 13.8%)	Average Range	79.8 60-106 (12.16)	64.7 44-94 (12.98)	51.3 30-79 (11.98)
High Meadows Ranch (no permanent site number, U.C. Davis accession no. 260)	3 (70, 4.3%)	Average Range	102.0 85-114 (12.16)	77.0 70-85 (12.94)	58.0 49-73 (11.98)
Pala 102 (no permanent site number, U.C. Davis accession no. 294)	1 (6, 16.7%)		65	63	48
Johnson Canyon (no permanent site number, U.C. Davis accession no. 302)	7 (30, 23.3%)	Average Range	83.0 73-94 (8.45)	70.0 57-86 (9.45)	56.3 47-68 (8.45)
Manzanita (SDI-800)	6 (25, 24.0%)	Average Range	92.2 73-103 (20.17)	76.6 51-128 (28.28)	43.2 34-76 (13.64)
Warners 101 (no permanent site number, U.C. Davis accession no. 125)	1 (6, 16.7%)		77	56	52
Cuyamaca (SDI-860)	12 (1238, 0.97%)	Average Range	76.5 57-90 (11.62)	42.0 53-83 (12.40)	40.3 39-53 (5.35)
Rancho California 1 (no permanent site number, U.C. Davis accession no. 263)	1 (4, 25.0%)		89	74	67
Elsinore 1 (no permanent site number)	1 (8, 12.5%)		67	68	40
Perris 1 (no permanent site number)	1 (6, 16.7%)		94	83	70

[1]Includes only artifacts available for study at the University of California, Davis.

[2]Number and percentage of total chipped stone inventory at specified site.

[3]Standard deviation.

*Indicates fragment.

southern part of the county (Diegueño territory) where hammergrinders appear to be relatively common on at least some late sites. The inventory at SDI-860 (in Cuyamaca Rancho State Park), for example, includes several specimens with no evidence for a milling stone component. In addition to the Cuyamaca specimens, the notion that hammergrinders are more common on late sites in southern San Diego County than to the north is reinforced by data from at least two late, pottery-bearing sites situated within Diegueño territory. Site SDI-800, for example, which was surface collected several times over a period of some three decades, clearly contains hammergrinders as part of its assemblage, and no Early Milling Stone component appears to be represented. Likewise site SDI-1082 (Mon-

Table 2

SUMMARY OF HAMMERGRINDER DIMENSIONS BY REGION[1]

Region	Sites with Pottery	Sites without Pottery	Total Artifacts		Length (mm.)	Width (mm.)	Thickness (mm.)
Cahuilla/Cupa territory	0	3	9	Average	84.0	69.5	57.4
				Range	59-97 (7.58)[2]	56-86 (9.69)	47-68 (8.30)
Luiseño territory	2	18	72	Average	79.9	63.7	50.5
				Range	53-116 (14.18)	40-101 (13.49)	28-79 (11.87)
Diegueño territory	3	9	38	Average	81.8	64.9	50.7
				Range	53-130 (14.52)	43-128 (16.14)	33-76 (10.82)
Overall	5	30	119	Average	80.8	65.1	51.1
				Range	53-130 (14.40)	40-128 (14.14)	28-79 (11.39)

[1]Samples from various areas are not comparable and reflect collecting bias rather than any cultural reality. Differences refer only to relative sizes of artifacts from region to region for the available artifacts. No attempt was made to examine artifacts from other collections.

[2]Standard deviation.

key Island) is recognized by all investigators familiar with the region as a late prehistoric-historic Diegueño occupancy characterized by bedrock mortars, pottery, small projectile points, and hammergrinders, with no known Early Milling Stone component.

No meaningful data are presently available in the study collections for *late* prehistoric sites in western Riverside County.

While not *directly* related to the present discussion, it should be noted that artifacts similar or identical to those described here have been noted at several sites in northwestern Arizona (author's field notes), and are present on several sites in parts of the Owens Valley (R. Bettinger, personal communication 1982).

DISCUSSION

In addition to noting the existence of the hammergrinder and its general distribution in this part of southern California, the most important result of the present investigation *may* be the tentative recognition of some potential *patterning* in this class of artifact. Although obviously irregular, hammergrinders may not be quite as casual as they seem. There are, of course, many variations in form, but when seen as a group several attributes seem consistent.

Of these attributes it is probably most worthwhile to focus attention on the rubbing or grinding wear rather than the pounding that is usually fairly obvious. Two factors may be noteworthy here:

1. The apparent large percentage of specimens with coarse or gritty surfaces;

2. The large percentage of artifacts so far examined that exhibit evidence for rubbing or grinding on *irregular rough or broken surfaces.*

It seems quite likely that use of the rough, irregular surfaces was not fortuitous, and the presence of somewhat abrasive surfaces may well have been a factor in the choice of raw material. Examination of the rubbed areas on the most obvious and well-developed specimens indicates that the wear is mostly confined to high spots on the usually irregular surfaces and that, in some instances, striations are present. No patterned or directional wear can be postulated based on the present sample.

The wear facets so far observed tend to be mostly flattened or perhaps slightly convex, but in some instances slight evidence of rubbing can be seen *within* the depressed areas between the high spots and such surfaces could be slightly concave in character. The potential significance of this observation is tempered by the so far limited sample examined, but the indications suggest that

Table 3

HAMMERGRINDER LITHIC MATERIAL DISTRIBUTION BY REGION AND SITE

Region	Site	Quartzitic	Granitic	Basaltic	Metamorphic[1]	Other	Total
Cahuilla/Cupa territory	Johnson Canyon	4			3		7
	Rancho California 1			1			1
	Warners 101				1		1
Luiseño territory	Pankey (SDI-862)	1	3	2	3	2	11
	Santa Rosa 4				1		1
	Santa Rosa 5				1		1
	Santa Rosa 6		1			1	1
	Santa Rosa 9	1					1
	Santa Rosa 15				2		2
	Santa Margarita 2			1			1
	Santa Margarita 9	2	1	2	5		10
	Santa Margarita 11				1		1
	Temecula Canyon 7		1				1
	Temecula Canyon 9	1	1	1	4		7
	Temecula Canyon 10				1		1
	Temecula Canyon 11				1		1
	Rincon 41A (SDI-510)		1				1
	Rincon 47 (SDI-505)				3		3
	Rincon 301 (SDI-9537)		10	1	14		25
	Pala 102		1				1
	Elsinore 1				1		1
	Perris 1			1			1
Diegueño territory	Monkey Island (SDI-1082)	5			2	1	8
	Valley Center 26 (SDI-289)	1					1
	Valley Center 28 (SDI-291)		2				2
	Valley Center 31 (SDI-294)		1				1
	Valley Center 37 (SDI-743)		2				2
	Valley Center 46 (SDI-666)				1		1
	Valley Center 15 (SDI-278)		1				1
	Escondido Watershed 17 (SDI-1050)					1	1
	Escondido Watershed 24 (SDI-1057)	3				1	4
	Escondido Watershed 27 (SDI-1060)					1	1
	High Meadows Ranch				3		3
	Manzanita (SDI-800)	3			3		6
	Cuyamaca (SDI-860)	2	2			2	6
Total		23	26	10	50	8	117

[1] Metamorphic here refers to various rocks associated with the Julian Schist formation and includes, in addition to quartzite (listed separately), sandstones, marble schists, gnessic rock, and a number of variations on the above.

whatever was being processed was compressible rather than rock-like in character.

In addition to the "rubbed" surfaces which may be diagnostic, hammergrinders have to be seen in terms of the heel-like wear pattern often associated with a planar-like surface, and the recognition that the usually obvious wear associated with the "heels" is or may be different than the more subtle wear on the described irregular surfaces. In some instances the "irregular" surface *is* the planar as indicated by the placement of the heel-like facets on one or more edges, but in other cases the "heels" appear to relate to one surface while the irregular rubbed areas are on another. This relationship is indicated schematically in Fig. 2.

Two other comments may be in order

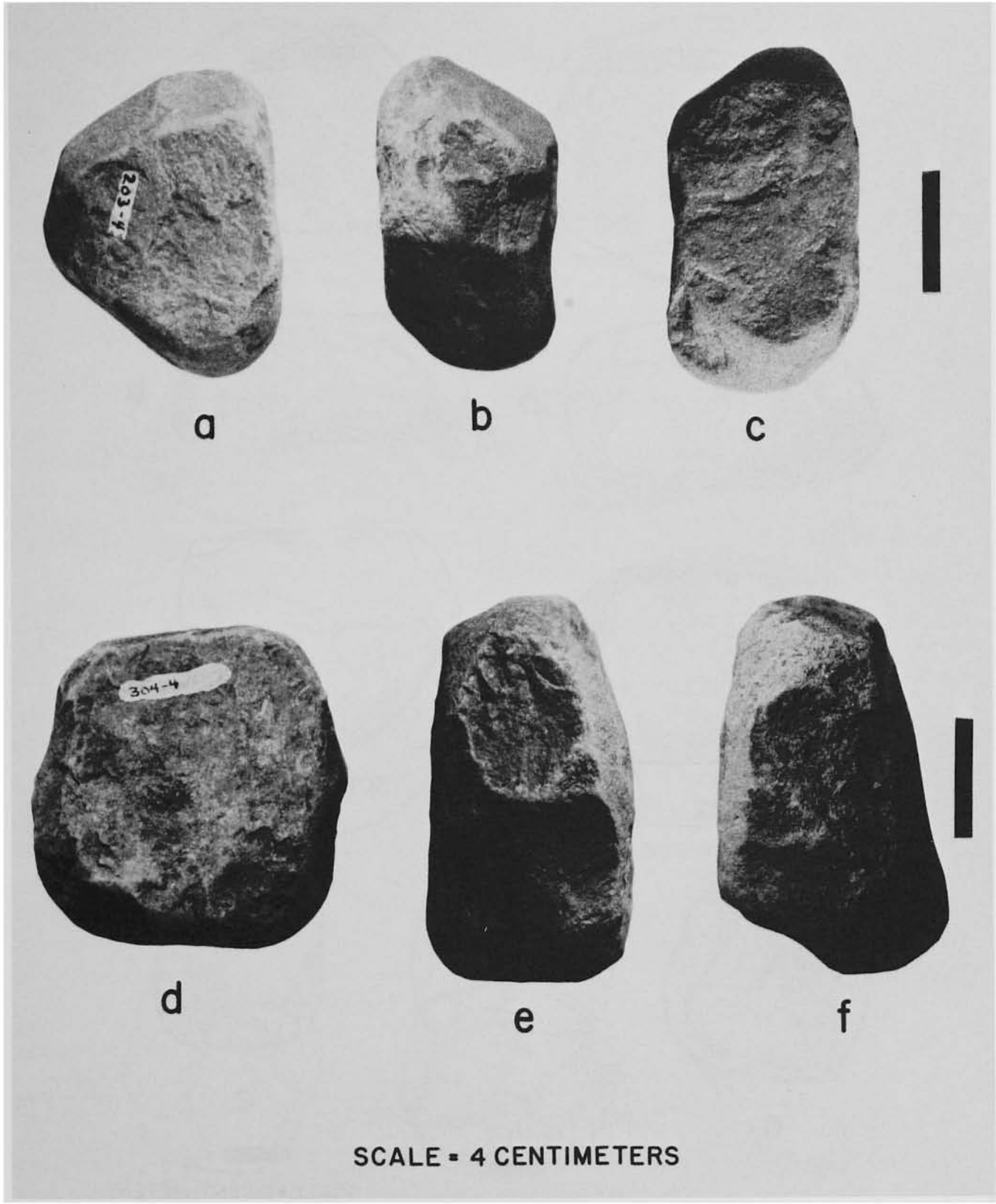

Fig. 3. Illustrates two specimens (U.C. Davis accession nos. 203-4 and 304-4). The rounded heel-like wear surfaces are obvious, as are the irregular rubbing surfaces (c and d).

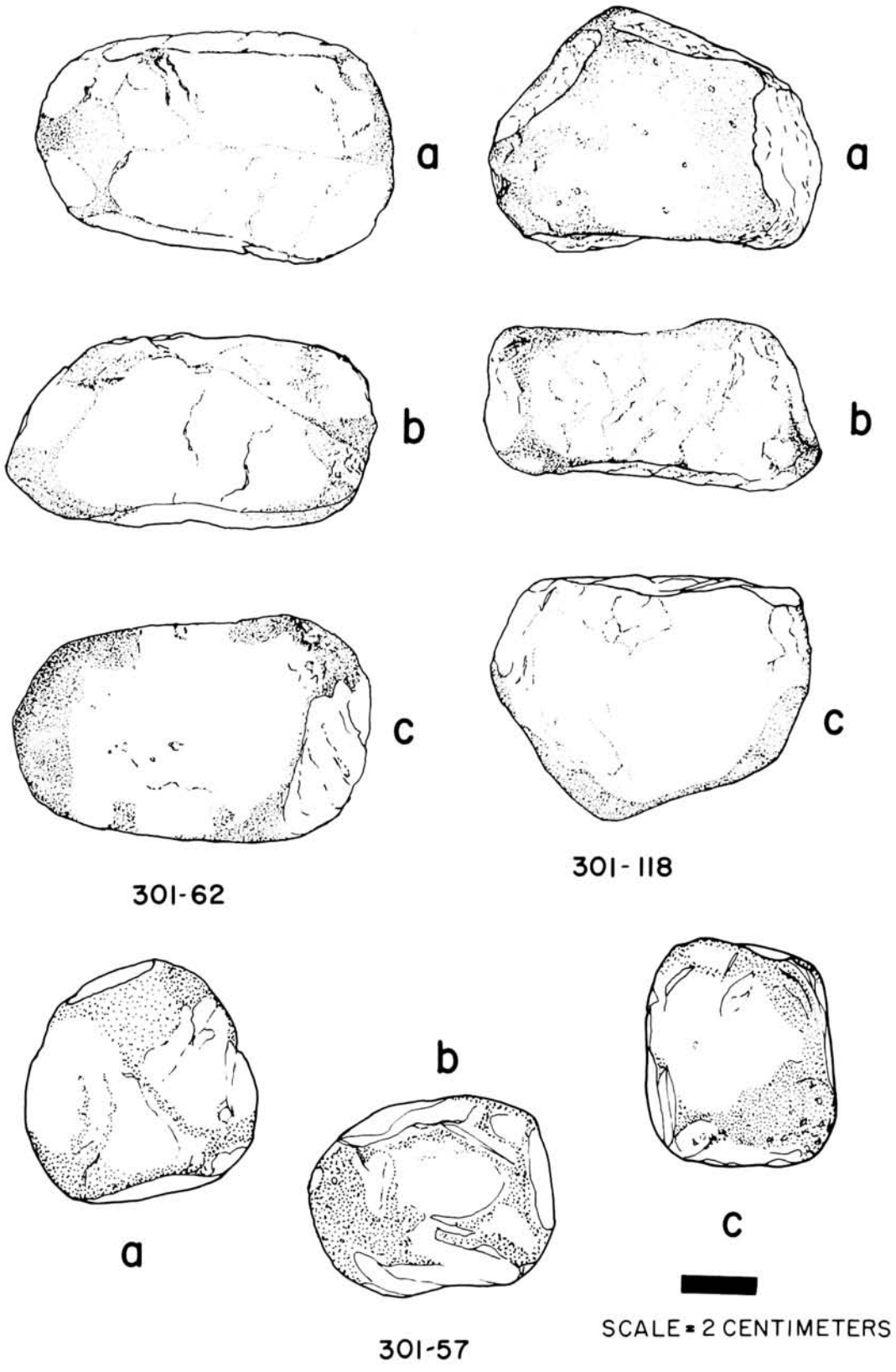

Fig. 4. Line drawings of three specimens (U.C. Davis accession nos. 301-62, 301-118, 301-57) with wear facets and surfaces indicated.

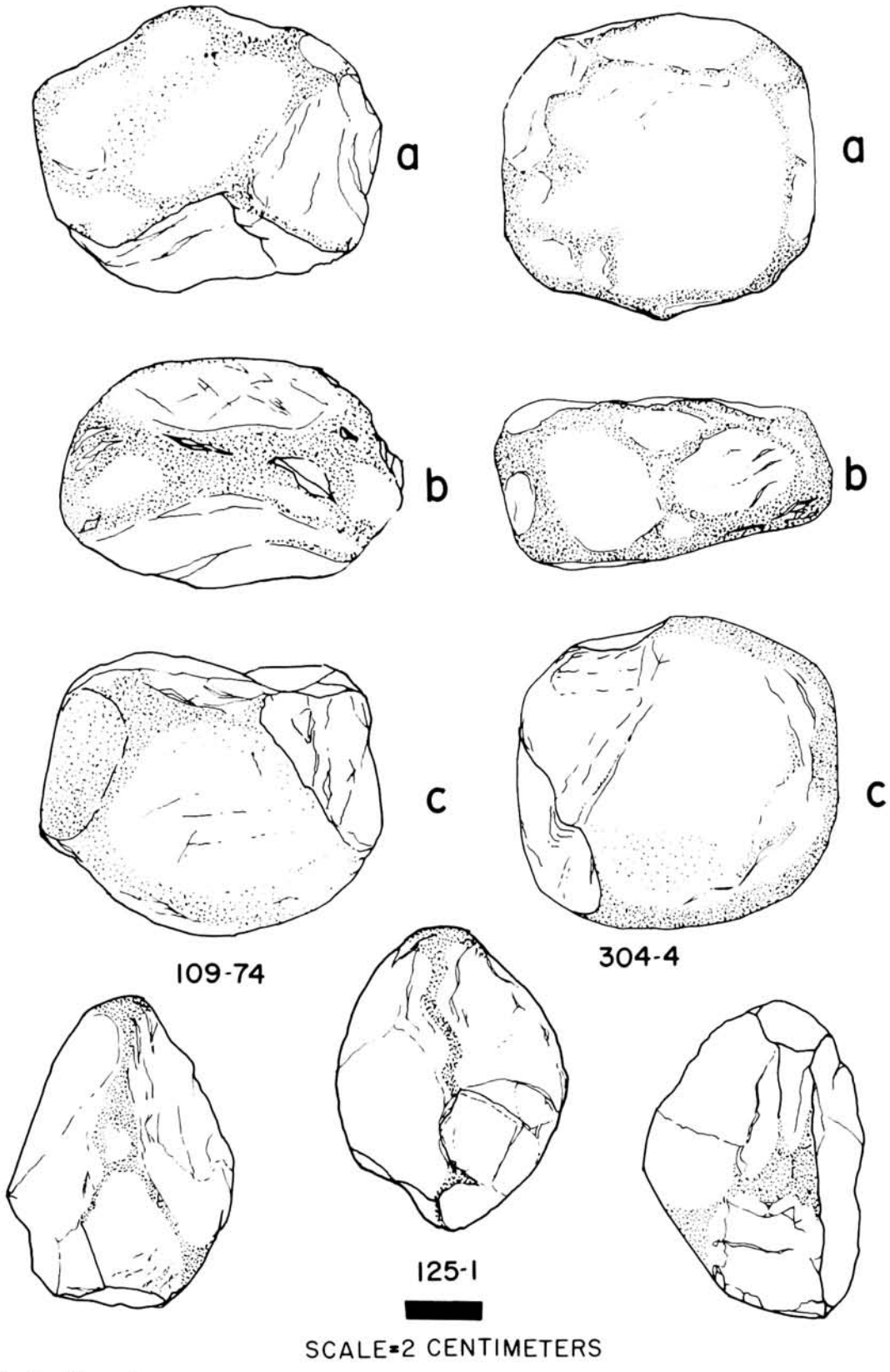

Fig. 5. Line drawings of three specimens (U.C. Davis accession nos. 109-74, 304-4, 125-1) with wear or batter surfaces indicated.

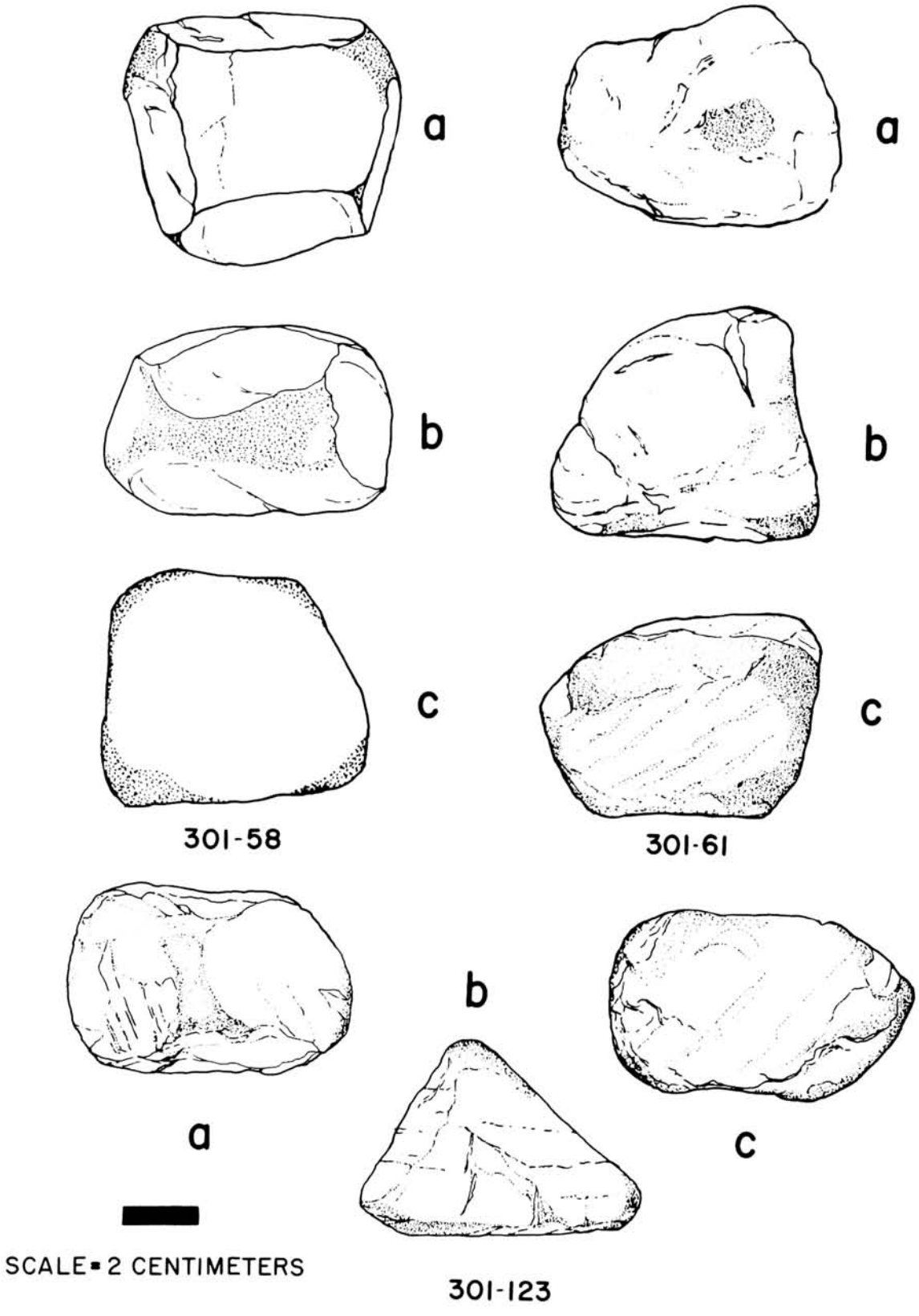

Fig. 6. Line drawings of three specimens (U.C. Davis accession nos. 301-58, 301-61, 301-123) with wear and batter facets and rubbed surfaces indicated.

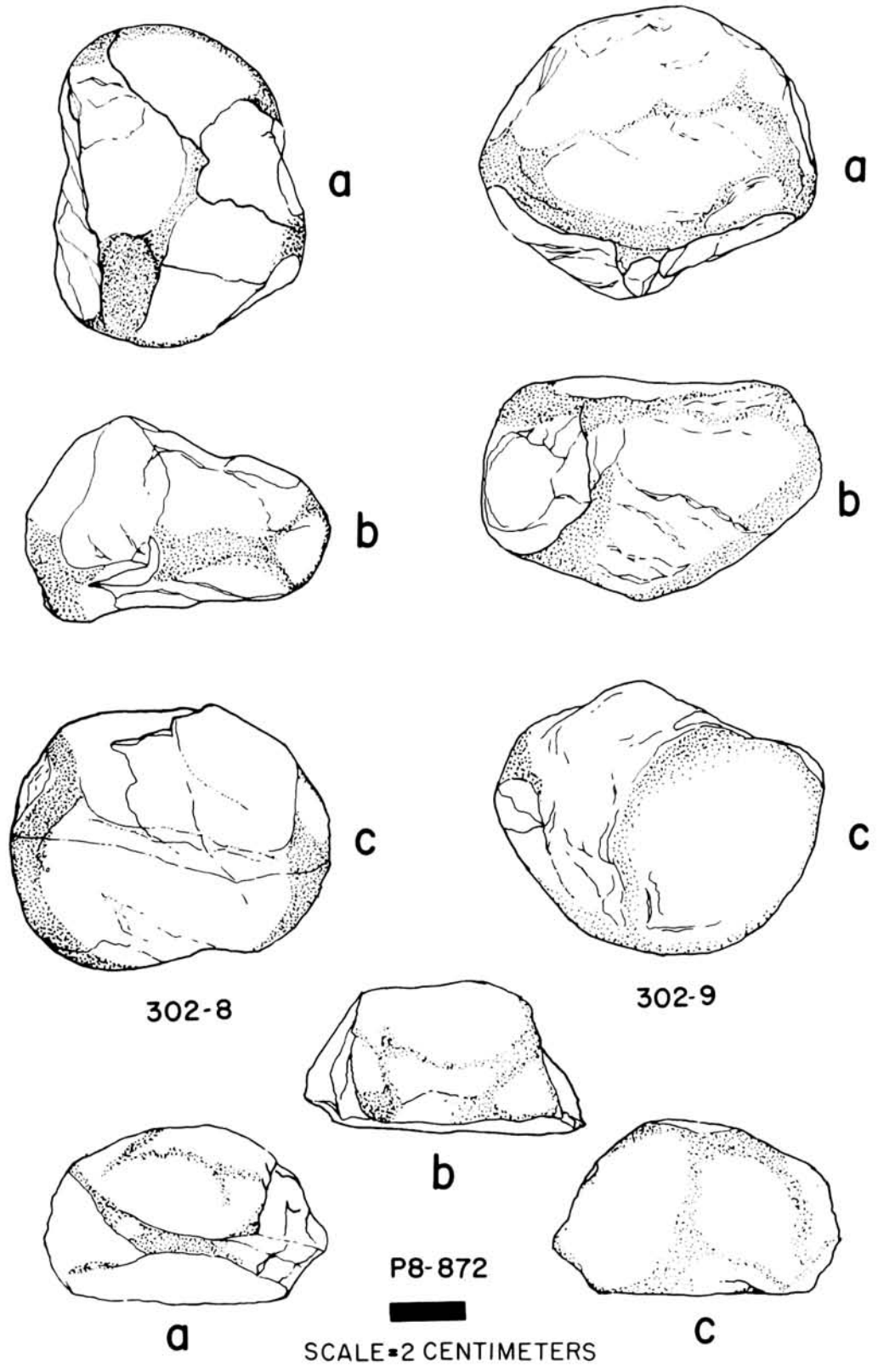

Fig. 7. Line drawings of three specimens (U.C. Davis accession nos. 302-8, 309-9; and Pankey site number P8-872) with wear facets, batter and rubbing surfaces indicated.

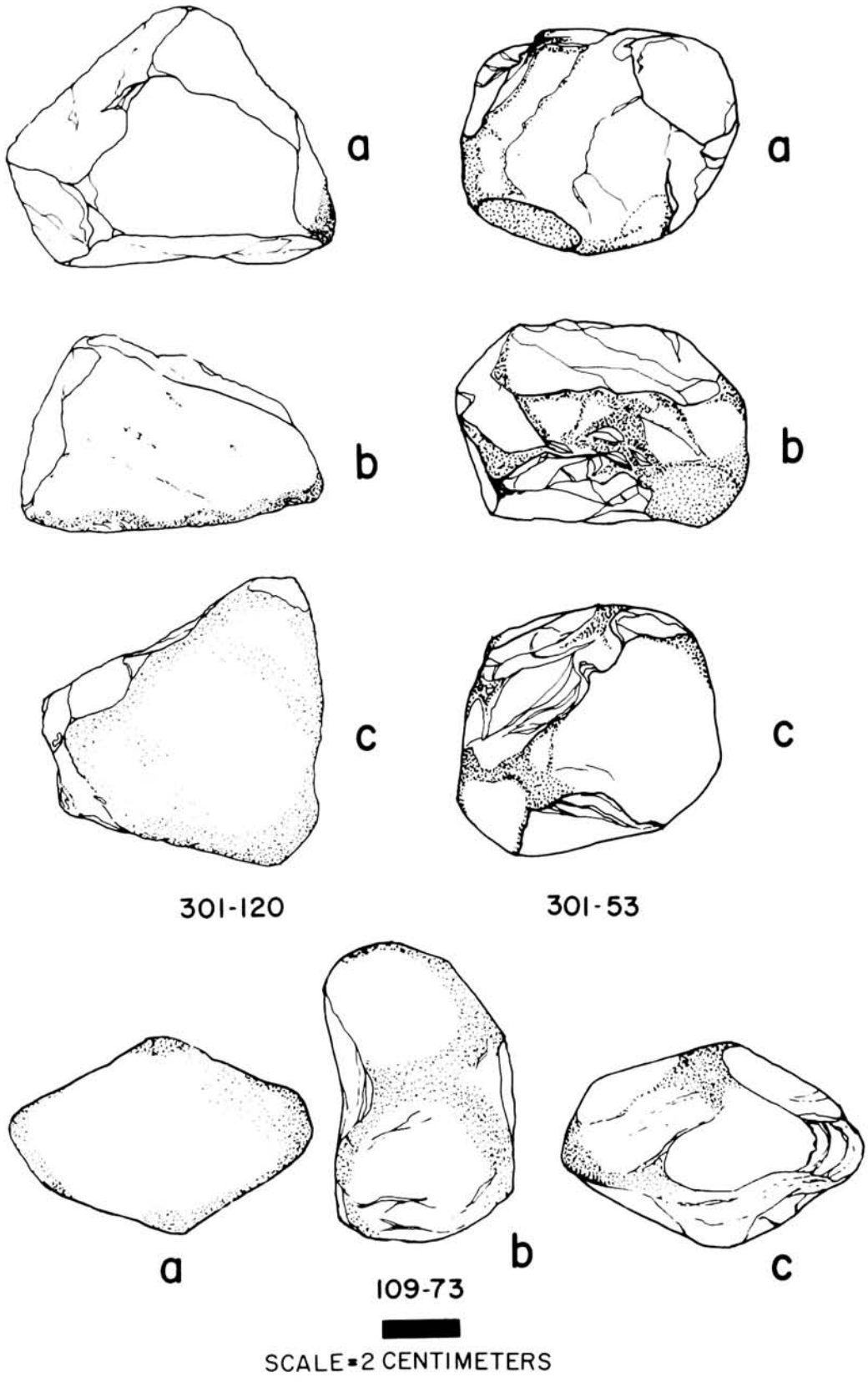

Fig. 8. Line drawings of three specimens (U.C. Davis accession nos. 301-120, 301-53, 109-73) with wear facets, batter and rubbing surfaces indicated.

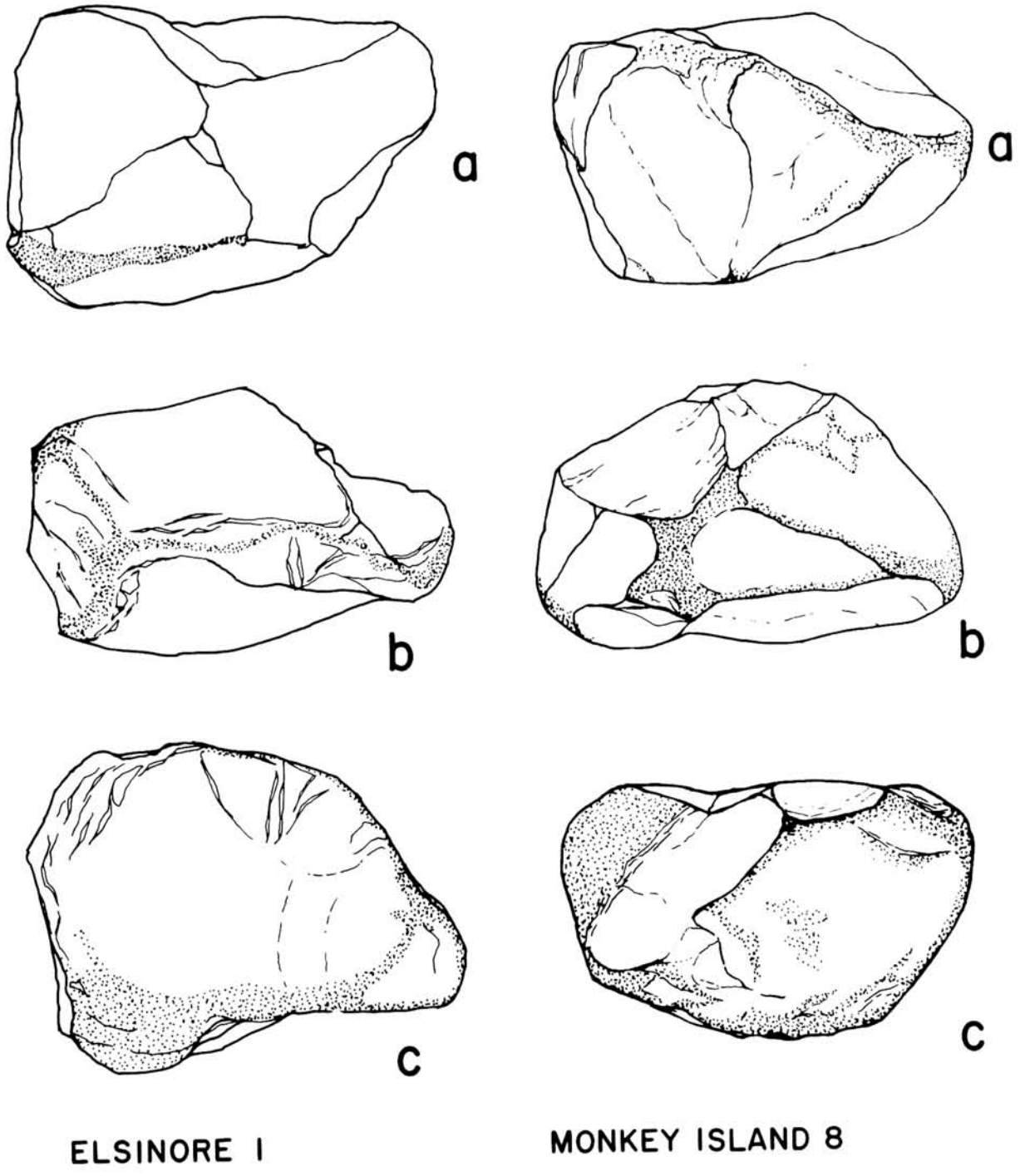

Fig. 9. Line drawing of two specimens (site accession nos. Monkey Island 8 and Elsinore 1) with wear facets, batter and rubbing surfaces indicated.

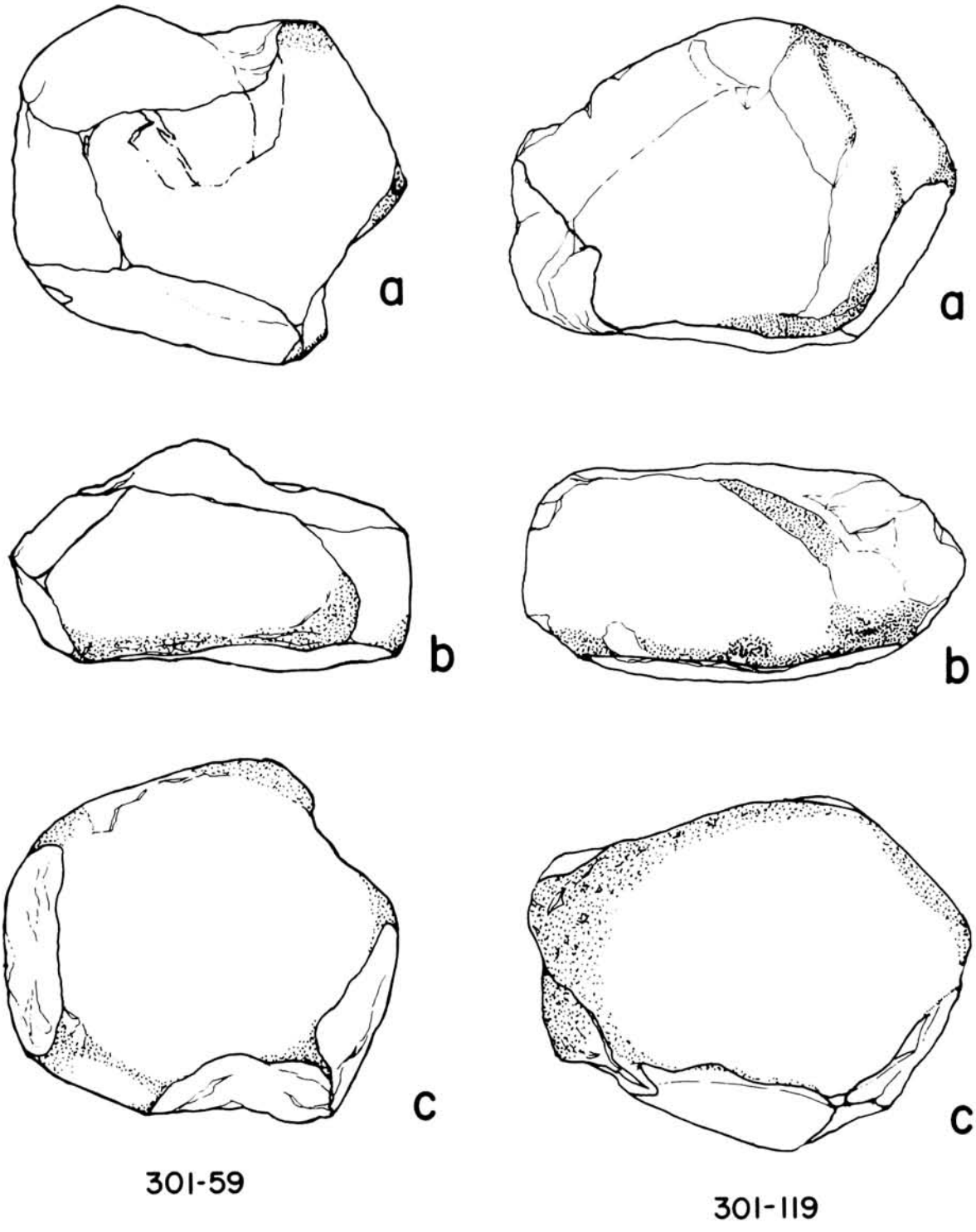

Fig. 10. Line drawing of two specimens (U.C. Davis accession nos. 301-59, 301-119) with wear facets, batter and rubbing surfaces indicated.

relative to the heel-like configuration noted above. The first is in conjunction with the nature of these facets themselves. Some have surfaces which *could* be the result of some patterned, light-battering activities, but many others are quite smooth or evenly "ground" and it is difficult to see how such a condition could result from any traditionally recognized hammering activities. A logical possibility would call for some, as yet undefined, light pounding in conjunction with a rubbing or planing action. Such processing over a curved metate surface *could* account for the configuration of the edge facets (heels), although this relationship has not been documented.

The second comment relates to those instances where there has been some weathering and patination of the heel-like edge facets. In such cases, evidence of use may be subtle and identification in the field is not always obvious. Care should be taken to avoid discarding potentially meaningful artifacts that fit this categorization.

Because the sample is as yet small and the actual geographic distribution mostly unknown, it is not possible to talk meaningfully about function or significance. Based on the distribution represented by the present sample, however, it looks like there may be a meaningful correlation between hammer-grinders and the use of the milling stone, and in an entirely speculative vein, it is suggested that these tools were used as part of some food or fiber processing.

The most important issue at the present time, however, is not idle speculation about possible function, but an increased awareness of the existence of this artifact and more effective reporting of its presence and cultural contexts.

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NOTE

1. Literally hundreds of unpublished manuscripts and reports are buried in files of several San Diego County institutions (and other limited distribution contexts). It is assumed that some of these works contain important data that bear on the many problems inherent in northern San Diego County archaeology and prehistory. Unfortunately, until these data are subjected to editorial review and published in conventional scholarly outlets, their usefulness will be substantially limited, and most will seldom be cited in contexts other than environmental reports similarly conceived and filed. Archaeologists with such data are urged to take the next step and get this potentially useful material into print.

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