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THE CASTALDÍ COLLECTION FROM CENTRAL AND SOUTHERN BAJA CALIFORNIA

William C. Massey

UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ANTHROPOLOGY
BERKELEY, CALIFORNIA

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PREFACE

The collection of aboriginal artifacts gathered together by the late Padre César Castaldí of Mulegé is famous throughout southern Baja California. Parts of the collection have been seen by many North American scientists working in the area. Indeed as an archaeologist making site surveys in the south, I was invariably told that the secrets and history of the Indians were to be found at Mulegé with this collection. Certainly it has much value when supplemented with data from surveys and excavations.

A preliminary description and notation of the collection was made in 1949 while conducting a survey supported by the Department of Anthropology of the University of California, Berkeley. This initial, cursory examination led to the present complete study made during a field session of the North Mexican Center for Anthropology (University of Washington and Escuela Nacional de Antropología e Historia) in 1953. Students of the Center who participated in the initial classification, description, and measuring of the specimens included Marvelle Burris, Robert Drake, Prescott Eaton, and Donald R. Tuohy.

A debt is owed to a number of institutions for the opportunities to make the study presented here. These include both the Department of Anthropology and the Associates in Tropical Biogeography of the University of California, Berkeley, and the Department of Anthropology of the University of Washington.

Initial typing facilities were generously provided by the Department of Geography and Anthropology at Louisiana State University, Baton Rouge. Final typing was provided through the kindness of Biological Sciences, University of Florida, Gainesville. These services are very much appreciated. I am especially indebted to the Wenner-Gren Foundation for Anthropological Research for a grant-in-aid which made possible the completion of the manuscript.

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INTRODUCTION

Under ordinary circumstances data derived from the analyses of private archaeological collections remain in museum files or are incorporated into reports on investigations of the source areas of the collections. Reports on the archaeology of Baja California are so few, however, that any collection of the magnitude of the Castaldí Collection merits separate publication, to enlarge our knowledge of local prehistory and to provide comparative material for neighboring areas in California and the Desert Oasis.

This collection was gathered by Padre César Castaldí, S. J., who was assigned to the old Spanish Jesuit mission of Santa Rosalia de Mulegé on the central Gulf coast from 1905 until his death in 1946. The preservation of the material was due to the interest of this twentieth century Jesuit priest in the history of the peninsula. Although the Indians had disappeared from central and southern Baja California more than one hundred and fifty years before his time, Padre Castaldí embarked upon a program of gathering archaeological material to enrich a projected history of the peninsula in Spanish colonial times. This history was still an incomplete manuscript at the time of his death. The collection of aboriginal artifacts remained in the custody of Señora Cristina Huñaus of Mulegé, who very graciously permitted a complete examination of the collection.

The majority of the specimens in the collection had been given to Padre Castaldí by rancheros whom he visited periodically. These gifts were collected primarily as surface findings from both open and cave sites in the mountains west of Mulegé and on the Pacific coast in the same latitude. Padre Castaldí kept most of these specimens segregated according to the location of the donors' ranches, which, one can assume, were central to the collecting areas. In addition there are projectile points allocated to other areas and towns as far north as Calmallí and as far south as Cabo San Lucas (fig. 1). Among the specimens from these other areas more are noted from the south of Mulegé than from the north; this simply reflects the greater importance of contacts which people in Mulegé and other central Baja California towns maintain with the territorial capital at La Paz. The greater precision of allocation according to ranches rather than towns for central Baja California represents the close relations which Padre Castaldí maintained with the ranchers in that area. Although precise site locations are unknown, we fortunately have applicable checks on locations and distributions from previous site surveys and excavations in the region.


El Rosario
B. de Los Angeles
Calmallí
S. Ignacio
Sta. Rosalia
El Contrabando
El Patrocinio
Mulegé
Estero S. José de Gracia
La Giganta
Metate Cave
Loreto
La Purificacion
S. Luis Gonzaga
El Pilar
S. Hilario
B. de La Paz
La Paz
La Junta
El Carrizal
S. Pedro
La Rivera
Todos Santos
Santiago
Cabo S. Lucas
GULF OF CALIFORNIA
PACIFIC OCEAN
CALIF.
ARIZONA
MAP AREA
COLLECTION AREAS
The Castaldí Artifacts
BAJA CALIFORNIA, MEXICO
COLLECTION CENTERS: Town Ranch

Figure 1

Chipped stone artifacts, especially projectile points, comprise the bulk of the collection. These projectile points had been sewn on to cloth covered cardboard plaques and labeled according to the source area (pl. 1). There are 53 plaques, each with an average of 25 artifacts. The majority of the specimens are from the Mulegé area (15 plaques) and the ranch of Estero San José de Grácia on the Pacific coast opposite Mulegé (14 plaques). Stone projectile points are the only artifacts occurring in significant numbers from areas north and south of Mulegé. Other types of specimens included in the original Castaldí Collection—notably stone pipes—were unmounted but were ascribed to the immediate Mulegé region by Señora Huñaus.

Following the death of Padre Castaldí in 1946, rancheros in the mountains to the west of Mulegé continued to bring artifacts and geological curiosities to Señora Huñaus. This additional material includes perishable artifacts obviously taken from dry caves in the area. Many who have seen the Castaldí Collection in the house of Señora Huñaus have apparently been unaware of the added material which has been entrusted to the custodian (cf. Aschmann 1959:45).

The work of describing and photographing the specimens was necessarily compressed into three days, during which time mission documents were microfilmed. It was unfortunate for the photography that only natural light was available; some of the photographs would have been improved had electricity been at hand.

Certain problems were encountered because of the artifacts having been mounted on plaques. The custodian would not permit their removal for measurement; therefore all of the plaques were photographed individually. Each plaque and individual specimen was numbered, and measurements were obtained with a metric scale placed on each plaque (pl. 1). This restriction means that there are no thickness nor weight measurements available, and illustrations had to be made from the photographs with the aid of proportional dividers.

None of this presented any serious drawback to the study, and acquiescence to the requirements led Señora Huñaus to bring out the additional stone artifacts and perishable materials which had not previously been revealed.

In organizing the material for publication, the artifacts were grouped systematically according to material. No other approach is feasible with an unannotated collection. The plan has been to present a description of the collection so that it can provide a base of knowledge for the peninsula and, for comparative purposes within a permissible

scope, to present data for use beyond Baja California. Occasionally, where there is archaeological or ethnographic support in Baja California, comments have been added regarding cultural affiliation and distribution.

STONE ARTIFACTS

Ground Stone

All of the specimens of ground or polished stone must be assigned to the area near and to the west of Mulegé. There are no known specific data for any of these artifacts.

Grinding stone (pl. 2j): There is a single rim fragment of a thin slab granite grinding stone in the collection. This specimen is 3.6 cm. thick and measures 27.6 cm. in length and 9.5 cm. in width. The outer edges have been trimmed by hammering.

Handstone (pl. 2i): The collection contains a single fragment of a basalt handstone. This broken fragment represents a one-hand mano with a single grinding face. It is a fragmentary 6 cm. in present length, 7.8 cm. in width, and 3.9 cm. in thickness.

Stone rings: A single, well made ground sandstone ring, unique to this collection, can be reported. It has vertical—not rounded—sides and is flat both top and bottom. The hole was biconically drilled. Its dimensions are 5.2 cm. for the external diameter, 2.3 cm. for the internal hole diameter, and 1.5 cm. for the thickness.

In addition there is a crudely worked sandstone disc, 7.9 cm. high and 11.7 cm. in diameter. The central hole, which is 4 cm. in diameter, has been pecked from one side only.

Sandstone artifact (pl. 2h): Included is a well ground piece of gray sandstone which served an unknown purpose. It is a thin (2.3 cm.), small (9.6 by 7.4 cm.), pecked and smoothed piece of sandstone with ground depressions on both flat surfaces. Essentially it has the appearance of a miniature grinding slab with two working surfaces.

Tubular stone pipes (fig. 2, pl. 3): The collection contains 22 tubular stone pipes and pipe fragments, all of which must be referred to the Mulegé area according to available information.

The specimens fall into two major types recognizable in Baja California. Type I (pl. 3a, b, e, g, j, k) is a relatively short, thick, cylindrical or conical pipe, from 6.1 to 17.3 cm. or more in length. Type II (pl. 3f, h) is a long, slender, cylindrical pipe which tapers slightly from the mouth to the bowl end. It ranges in length from 22.2 to over 32.0 cm. The two types overlap in length ranges, but the short, thick specimens have an external diameter which is equal to, or half of, the length. On the other hand, the long, slender type (II) is five to six times longer than its diameter.

All specimens are biconically drilled (see pl. 3c and d for examples of drilled holes). In Type I the apices of the internal cones meet about mid-length of any specimen (fig. 2a, b, c); in Type II they meet about one-quarter to one-third of the total length measured from the narrow, or mouth, end (fig. 2e, f, g). Two sandstone examples had been abandoned or lost before drilling was complete (fig. 2d).

The two types of stone pipes are unequally represented in the collection. Of the 17 complete types included among the 22 specimens, 15 are classified Type I and only two Type II, although one fragment (pl. 3h) obviously belongs to the latter type. The range for lengths for Type I is from 6.1 to 11.4 cm., with diameters from 3.2 to 8.4 cm. The means of these Type I measurements lie at 10.0 cm. for length and 6.5 cm. for outside diameter.

The majority of the pipes are of sandstone although volcanic materials such as pumice and scoriaceous basalt were also used. There is a single steatite specimen.

Usually the pipes are undecorated stone tubes. Rarely they are decorated with grooved or graved lines; flanged ends and raised decorations are absent. In the Castaldí Collection one complete pipe and two fragmentary ones bear incised or grooved decorations. The design on one fragment consists of double lined lozenges separated by double parallel lines (pl. 3a). The second fragmentary sandstone pipe has a few randomly placed incised X's (pl. 3e). The single complete specimen (pl. 3f) is of Type II and is decorated with pairs of incised parallel lines as well as by a single long line intercepted by incised chevrons. The long lines run the length of the pipe.

As previously reported, the tubular stone pipe is known from Spanish accounts for the Peninsula Yumans and for the historic levels of the Comondú Culture of central Baja California (Massey 1961:420). Such pipes were commonly used by shamans in curing. They were smoked and the

smoke was blown on diseased parts, or they were used for sucking out disease-producing objects. Both types of pipes in the Castaldí Collection were recovered by Edward Palmer at Bahía de Los Angeles (Massey and Osborne 1961:341f.). Such pipes are widely known in the Southwest and in north Mexico.

Stone projectile points and knives: In classifying the projectile points and bifacially flaked knives, an amended version of Haury's classification (1950:261) for like materials at Ventana Cave has been used. The choice is an earlier one for projectile points from the Cape Region (Massey MS) because its categories are consonant with general typologies and because previous collections from southern California (Rogers 1939; Campbell and Campbell 1935; Campbell et al. 1937) can be handled in equivalent terms.

The classification was amended for Baja California because in certain categories of projectile points—most notably points with tapering (tanged) stems—the peninsular types are more elaborate and introduce additional features. The original Haury Classification was so organized that categories could be systematically expanded. The classification as applied to Baja California is illustrated in Figure 3.

In the tables to follow, the projectile points and knives are considered systematically on the basis of type. The locations are the collection areas to which Padre Castaldí assigned his materials; that is, the towns or ranches from which they came to him. In no cases are there specific site data although in certain instances, where surveys have been made, we have supplementary data to clarify the situation.

Identification of materials may occasionally be in error since field identification is not as reliable as laboratory analysis. Understandably, in this volcanic section of the peninsula most of the rocks used in the manufacture of implements were igneous in origin. Obsidian, basalt, rhyolite, and tuff account for about 90 per cent of the total; the remaining 10 per cent is largely quartzite.

All specimens were measured accurately on the basis of the photographs. These measurements are given in the tables (+ indicates broken specimens) along with the means for two or more specimens of the same type from any locality. The number of specimens from each location is indicated in parentheses following the place name. Naturally the fewer the specimens of any type at a particular location, the less significant are the mean lengths and widths. Nevertheless, they have comparative value. The designation of percentages under the column "Frequency at

Location" indicates a percentile rating of the type for the assigned collection area as it is represented within the collection. The percentages provide information on relative areal frequency. They have little significance for actual conditions because we know neither the cultural context nor the antiquity of the unknown sites from which they were collected.

However, we can get a general idea of the relative frequencies from one geographical area to another which, together with the known distribution of the types, provides a good picture of the relative age of types. Conclusions gained from considering these data were made on a basis of first-hand survey information and observation.

In the tables which follow all measurements are shown in centimeters unless otherwise indicated.

Type IB1 (leaf shape, bi-point) Illustrated: Figure 4

Number of specimens: 7

Materials: Rocks used for manufacture varied. Basalt accounted for three, tuff for one, rhyolite for two, quartzite for one.

Description and comment: All are stone flakes with pressure edge retouch. In cross section they are either plano-convex or lenticular. This is a rare type which occurs sporadically in the area. Size range would indicate use as projectile points. None in this collection are from the Cape Region in the south; however, on the basis of other collections, we know that they occur infrequently in that area (Massey MS).

	Ranges		Means		Frequency
Location	Length	Width	Length	Width	at Location
Calmallí (1)	7.2	3.2	-	-	2.27
Mulegé (2)	5.7-2.2	1.4-1.1	3.9	1.25	0.52
S. José de Grácia (1)	6.7	2.9	-	-	0.74
San Hilario (2)	5.0-3.6	2.0-1.9	4.3	1.95	8.60
El Carrizal (1)	3.6	2.3	-	-	3.03

Type IB2 (leaf shape, convex base) Illustrated: Figure 5

Number of specimens: 221

Materials: The bulk of the specimens are obsidian, but tuff and rhyolite occur in significant numbers.

Description and comment: These are characteristically percussion flaked on both faces, with pressure edge retouch. The widest section is near the convex base, giving them a "pear shape." There is a great size range among the specimens, some of which clearly are hafted knives and others projectile points. However there is intergradation all along the line.

This is the most common single type in the collection. It occurs significantly in all localities. The same is true in all other collections throughout the peninsula (Massey field notes; MS).

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
Calmallí (7)	12.0-3.0	3.7-1.6	5.96	2.78	15.89
Sta. Rosalia (3)	2.5-2.2	1.4-1.0	2.40	1.16	15.60
El Contrabando (1)	3.5	2.4	-	-	3.72
Mulegé (140)	10.0-2.0	5.5-1.3	3.98	2.27	36.14
El Patrocinio (4)	6.6-1.2	2.9-0.6	2.95	1.30	23.52
S. José de Grácia (18)	6.2-2.5	4.7-1.2	5.01	2.64	13.32
La Giganta (2)	(+)4.5-1.6	1.9-0.5	-	1.20	11.10
La Purificación (8)	7.8-3.0	2.7-1.7	4.84	2.33	30.72
El Pilar (1)	3.6	2.0	-	-	4.76
San Luis (1)	2.4	1.3	-	-	4.16
San Hilario (3)	4.8-3.2	2.6-1.6	3.86	2.25	12.90
La Paz (9)	7.0-2.8	3.5-0.8	4.88	2.02	11.97
El Carrizal (2)	(+)4.5-2.7	1.7-1.2	-	1.45	6.06
La Rivera (5)	3.4-2.4	2.1-1.7	3.10	1.88	14.70
Santiago (6)	6.4-2.9	3.6-2.0	3.96	2.15	19.98
Cabo S. Lucas (2)	8.0-4.5	4.6-2.2	6.25	3.40	6.06
Todos Santos (3)	5.0-3.5	2.4-1.6	4.16	2.00	8.31
San Pedro (5)	3.7-2.1	2.1-0.9	2.96	1.82	16.65
La Junta (1)	2.3	1.2	-	-	3.33

Type IB3 (leaf shape, straight base) Illustrated: Figure 6

Number of specimens: 37

Materials: Specimens are about equally divided among basalt, ryolite, and obsidian. Basalt and obsidian are confined to points from central area.

Description and comments: As with other leaf shaped subtypes, the maximum width is close to the base. Larger examples are bifacially percussion-flaked with a pressure edge retouch. Smaller specimens are often flakes with a simple pressure-flaked edge. Bases are usually thinned by

pressure retouch. Some may be reworked, broken specimens of Type IB2. A single specimen (fig. 6, right) was notched along the edges of the blade. All are lenticular in cross section. They occur with significant frequency all through the area.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (2)	5.0-4.8	3.0-2.3	4.90	2.65	4.54
S. Ignacio (1)	4.8	1.6	-	-	2.32
Sta. Rosalia (1)	2.6	1.5	-	-	5.20
El Contrabando (1)	2.2	1.0	-	-	3.72
Mulegé (7)	6.3-3.2	2.4-1.3	4.70	1.91	1.82
S. José de Gracía (4)	4.0-2.5	1.8-1.3	3.17	1.67	2.96
La Giganta (1)	2.0	0.4	-	-	5.55
El Patrocinio (2)	2.2-2.0	1.2-0.6	2.10	0.90	11.76
S. Hilario (1)	2.6	2.3	-	-	4.30
La Paz (4)	6.1-2.6	3.0-1.2	3.95	2.07	5.32
El Carrizal (1)	2.6	2.0	-	-	3.03
La Rivera (3)	3.6-2.1	1.5-1.1	2.90	1.33	8.82
Santiago (3)	3.5-1.7	2.0-0.9	2.66	1.63	9.99
Cabo San Lucas (2)	2.6-2.5	1.7-1.2	2.55	1.45	6.06
Todos Santos (1)	3.6	2.6	-	-	2.77
S. Pedro (2)	3.8-3.1	1.9-1.4	3.45	1.65	6.66
La Junta (1)	2.0	1.4	-	-	3.33

Type IB4 (leaf shape, concave base) Illustrated: Figure 7

Number of specimens: 23

Materials: Majority of obsidian, few of basalt and rhyolite.

Description and comments: These specimens are all bifacially percussion-flaked with a fine pressure edge retouch. None bears any trace of fluting, nor has any but the outline resemblance to the fluted point reported from near San Ignacio (Aschmann 1952). Castaldí Collection points of this general type are uniformly smaller, and were clearly projectile points. The type occurs sporadically and is nowhere significantly important. It does occur with greater frequency in the extreme south.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (1)	2.1	1.1	-	-	2.32
El Contrabando (3)	2.6-2.0	1.0-0.6	2.33	0.80	11.60
Mulegé (5)	3.2-1.7	2.2-1.2	2.40	1.64	1.70

Type IB4 [cont'd.]

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Luis (1)	2.3	1.5	-	-	4.16
S. Hilario (1)	2.4	1.0	-	-	4.30
El Carrizal (1)	2.8	1.4	-	-	3.03
La Rivera (5)	3.2-2.6	1.3-0.7	2.58	1.08	14.70
Todos Santos (2)	2.7-1.6	1.7-1.6	2.15	1.65	5.54
S. Pedro (2)	2.6-2.2	1.5	2.40	1.50	6.66
La Junta (2)	1.8-1.7	0.9-0.7	1.75	0.80	6.66

Type IC1 (triangular, convex base) Illustrated: Figure 8

Number of specimens: 29

Materials: Obsidian is most common; basalt and rhyolite occur rarely.

Description and comments: Characteristically small with fine pressure edge retouch. Bases are thinned. Notched edges occur occasionally; serrated edges are common in the south. Cross section is lenticular. It is found as an historic-level type of the Comondú Culture at Metate Cave (Massey and Tuohy MS).

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (1)	3.5	1.0	-	-	2.32
Sta. Rosalia (1)	1.9	1.7	-	-	5.20
Mulegé (4)	5.7-3.2	3.0-1.2	4.62	2.10	1.04
S. José de Grácia (1)	6.2	2.8	-	-	0.74
La Giganta (1)	3.7	0.6	-	-	5.55
La Purificación (2)	4.8-4.4	2.5-1.8	4.60	2.15	7.68
El Pilar (1)	3.1	2.6	-	-	4.76
S. Hilario (2)	4.0-2.3	2.9-1.1	3.15	2.00	8.60
La Paz (2)	3.1-2.4	2.3-1.1	2.75	1.70	2.66
El Carrizal (2)	(+)3.5-2.7	2.2-1.5	-	1.85	6.06
Santiago (2)	4.5-2.5	2.4-1.5	3.50	1.95	6.66
Cabo S. Lucas (4)	3.5-2.5	1.0-0.8	2.92	0.90	12.12
Todos Santos (4)	3.3-2.3	1.5-1.0	2.82	1.37	11.08
La Junta (2)	3.8-2.1	1.2-1.1	2.95	1.15	6.66

Type IC2 (triangular, straight base) Illustrated: Figure 9

Number of specimens: 72

Materials: Obsidian and quartzite are most common. Rhyolite, tuff, and basalt also occur.

Description and comments: These characteristically have a finely worked pressure-retouched edge. Even the La Paz specimen, which is 8.3 cm. long, is narrow and delicate (fig. 9, left). Notched edges are rare. This type occurs with significant frequency in all areas but, in this collection at least, is especially prominent in the south. It is known from historic levels of the Comondú Culture at Metate Cave (Massey and Tuohy MS).

Location	Ranges		Means		Frequency at Location
	Length	Width	Length	Width	
Calmallí (2)	4.0-2.5	1.4	3.25	1.40	4.54
S. Ignacio (1)	3.7	1.2	-	-	2.32
Sta. Rosalia (6)	2.0-1.2	2.0-1.0	1.79	1.35	31.20
El Contrabando (2)	3.7-2.0	2.5-0.7	2.85	1.60	7.44
El Patrocinio (3)	2.1-1.2	0.8-0.6	1.56	.70	17.64
Mulegé (1)	11.1	3.2	-	-	0.26
S. José de Grácia (9)	5.8-1.0	3.0-0.9	3.15	1.54	6.66
La Giganta (3)	2.6-2.4	0.6	2.50	.60	16.65
La Purificación (2)	3.2-3.0	1.9-1.3	3.10	1.60	7.68
El Pilar (3)	4.0-2.0	3.0-1.3	2.90	1.96	14.28
San Luis (2)	3.0-2.5	1.6-1.1	2.75	1.35	8.32
S. Hilario (1)	2.4	1.0	-	-	4.30
La Paz (4)	8.3-1.7	2.3-0.9	3.47	1.47	5.32
El Carrizal (8)	3.0-2.2	2.1-0.6	2.78	1.38	24.24
La Rivera (3)	3.2-2.3	2.0-1.5	2.85	1.76	8.82
Cabo S. Lucas (5)	2.7-1.7	2.0-1.0	2.90	1.40	15.15
Todos Santos (3)	3.3-2.2	1.7-1.5	2.60	1.60	8.31
S. Pedro (4)	6.0-1.6	2.0-0.8	3.27	1.40	13.32
La Junta (10)	5.0-1.8	1.8-1.0	3.09	1.46	33.30

Type IC3 (triangular, concave base) Illustrated: Figure 10

Number of specimens: 118

Materials: Obsidian is predominant, quartzite is frequent. Rhyolite, tuff, and basalt occur rarely.

Description and comments: These small, carefully made points usually have serrated edges. The basal concavity is occasionally made by removing

a single flake to produce a triangular notch. This type of point is characteristic of historic levels in caves in central Baja California (Massey and Tuohy MS).

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (9)	4.7-2.3	2.0-0.8	3.02	1.43	20.43
S. Ignacio (7)	3.5-1.8	2.1-0.7	2.57	1.28	16.24
Sta. Rosalia (4)	2.4-1.0	1.5-1.4	1.75	1.45	20.80
El Contrabando (14)	2.8-1.7	2.0-0.7	2.37	1.18	52.08
El Patrocinio (3)	2.0-1.6	1.3-0.7	1.80	1.06	17.64
Mulegé (1)	3.3	2.4	-	-	0.26
S. José de Grácia (5)	2.7-1.6	1.6-0.7	2.16	1.30	3.70
El Pilar (1)	6.0	1.6	-	-	4.91
S. Luis (6)	4.4-2.1	1.6-1.2	2.90	1.40	24.96
S. Hilario (2)	3.0-2.5	1.4-1.2	2.75	1.30	8.60
La Paz (8)	4.4-1.7	1.8-1.1	2.90	1.35	10.64
El Carrizal (13)	3.2-1.9	2.0-1.1	2.58	1.40	39.39
La Rivera (4)	3.6-3.1	1.7-1.6	3.35	1.65	11.16
Santiago (6)	2.7-1.6	1.6-0.7	2.03	1.28	19.98
Cabo S. Lucas (11)	3.0-1.2	1.8-1.0	2.27	1.37	33.33
Todos Santos (8)	3.7-2.1	2.3-1.4	2.58	1.70	22.16
S. Pedro (9)	3.5-1.8	1.5-1.0	2.74	1.23	29.97
La Junta (7)	4.1-2.0	2.0-0.6	2.95	1.25	23.31

Type ID1 (diamond shape, bi-pointed) Illustrated: Figure 11

Number of specimens: 27

Materials: The majority are of obsidian; the remainder are of tuff, rhyolite, and basalt.

Description and comments: The essential difference between this type and types IB1 and IC1 lies in the angularity of the broadest part of the blade which is near one end of the point. No serrated or notched edges are reported for this type. Some specimens have fine pressure retouch over the entire surface of the blade. They are lenticular in cross section. Large examples, like the 9.7 cm. long specimen from La Paz (fig. 11, left), were probably used as hafted knives.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (1)	4.0	2.8	-	-	2.32
Mulegé (7)	5.4-3.8	3.3-1.8	4.50	2.56	1.82
S. José de Grácia (3)	5.0-3.5	3.5-1.9	4.25	2.70	1.48
La Giganta (1)	4.2	2.6	-	-	5.55
La Purificación (2)	6.4-4.3	2.4-2.2	5.35	2.30	7.68
El Pilar (1)	2.1	1.6	-	-	4.76
S. Hilario (1)	4.0	2.5	-	-	4.30
La Paz (5)	9.7-2.9	4.2-2.1	6.68	3.22	6.65
La Rivera (1)	2.5	1.7	-	-	2.94
Santiago (2)	4.1-3.0	1.9-1.6	3.55	1.75	6.66
Cabo S. Lucas (3)	3.0-2.4	1.7-0.9	2.66	1.30	9.09

Type ID2 (diamond shaped, straight or convex base) Illustrated: Figure 12

Number of specimens: 14

Materials: Obsidian, basalt, and rhyolite are about equally frequent.

Description and comments: This type readily grades into type IB2 (leaf shape, with convex base). Critical difference is in obliqueness of basal angle. With the exception of the single Calmallí specimen (fig. 12, left), these are small projectile points. It is a rare type in the entire collection and for any area, a conclusion which is verified by other collections.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (1)	8.0	3.0	-	-	2.27
Mulegé (2)	3.9-2.5	2.8-2.2	3.20	2.50	0.52
S. José de Grácia (4)	5.5-3.4	2.8-2.1	4.02	2.60	2.96
La Giganta (1)	4.5	3.2	-	-	0.55
El Pilar (1)	2.4	1.4	-	-	4.76
S. Hilario (1)	3.0	1.7	-	-	4.30
La Rivera (2)	2.4-1.8	1.7-1.0	2.10	1.35	5.88
Santiago (1)	3.1	2.1	-	-	3.33
Todos Santos (1)	2.4	1.4	-	-	2.77

Type ID3 (diamond shape, concave base) Illustrated: Figure 13

Number of specimens: 2

Materials: Mulegé specimen (fig. 13, left) is rhyolite, that from La Purificación is quartzite.

Description and comments: This is one of the rarest types in the collection. It appears to be a variation of type IB4 which is not numerically significant in the area.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Mulegé (1)	3.7	2.2	-	-	0.26
La Purificación (1)	2.5	2.0	-	-	3.84

Type IIA1 (stem wider than blade, convex base) Illustrated: Figure 14

Number of specimens: 5

Materials: Rhyolite predominant. La Paz specimen of obsidian.

Description and comments: These points are generally small with pressure retouched edges. Only the Mulegé specimen is particularly long, the length being in its parallel-sided body. Serrated edges occur in only one specimen from San José de Grácia. Cross sections are lenticular.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Mulegé (1)	6.6	2.4	-	-	0.26
S. José de Grácia (2)	3.8-3.2	2.2-2.1	3.50	2.13	1.48
La Paz (1)	(+)4.0	2.4	-	-	1.33
Cabo S. Lucas (1)	2.4	1.0	-	-	3.03

Type IIA2 (Stem wider than body, straight base) Illustrated: Figure 15

Number of specimens: 12

Materials: Basalt and quartzite predominate, although tuff and obsidian occur.

Description and comments: These are all small projectile points which occur sporadically throughout the area. Some have serrated edges. The distinction between this type and type IIB3a2 lies in the greater width of the base in the point under consideration.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (1)	3.4	1.3	-	-	2.27
S. Ignacio (1)	3.5	2.1	-	-	2.32
El Patrocinio (1)	2.2	1.1	-	-	5.88
Mulegé (3)	4.4-2.4	2.6-1.0	3.10	1.86	0.78
S. José de Grácia (2)	4.2-3.2(+)	2.6-1.9	-	2.25	1.48
La Paz (2)	5.7-3.1	2.1-1.7	4.40	1.90	2.66
La Junta (2)	3.5-2.7	1.6-1.2	3.10	1.40	6.66

Type IIA3 (Stem wider than body, concave base) Illustrated: Figure 16

Number of specimens: 68

Materials: The majority of the specimens from the central area are of obsidian; those from the south are predominately tuff. Basalt, rhyolite, and andesite also occur.

Description and comments: This is numerically the most important subtype of points with stems wider than the body. Frequently the stems are produced by two side and one basal notch. Serrated edges are common. They are all lenticular in cross section. This is one of the common Pinto types in southern California (Rogers 1939:54, pl. 13). It should be noted that this type grades into type IIB3a3.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (1)	2.0	1.3	-	-	2.27
S. Ignacio (3)	3.1-2.6	2.2-1.3	2.83	1.76	3.96
Sta. Rosalia (1)	1.6	1.3	-	-	5.20
El Patrocinio (1)	2.3	1.2	-	-	5.88
Mulegé (33)	5.7-1.7	3.0-1.4	3.73	2.01	8.58
S. José de Grácia (16)	10.5-2.4	3.2-1.2	4.63	2.08	11.84
La Paz (4)	4.0-1.8	2.7-1.6	2.87	1.87	5.32
El Carrizal (1)	4.3	1.8	-	-	3.03
La Rivera (6)	3.6-2.7	1.7-1.1	3.08	1.40	17.64
Todos Santos (1)	6.5	3.0	-	-	2.77
S. Pedro (1)	2.3	1.5	-	-	3.33

Type IIB1a1 (Tapering stem, rounded shoulder, pointed tang) Ill.: Fig. 17

Number of specimens: 38

Materials: Obsidian predominates with tuff, basalt, and rhyolite occurring occasionally. Quartzite specimens do not occur.

Description and comments: These are bifacially worked points, but there are differences in workmanship. Close-grained materials are carefully percussion- and pressure-flaked overall. Basalt specimens are flakes in which the point outline has been produced by edge pressure-flaking. In this collection most specimens of the type are from the area around Mulegé. It is rare in the south.

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
S. Ignacio (1)	4.0	2.4	-	-	2.32
El Contrabando (2)	2.8-2.6	2.4-1.7	2.70	2.05	7.44
Mulegé (24)	7.2-2.5	4.7-1.3	4.06	2.48	6.24
S. José de Grácia (5)	9.3-2.6	4.7-1.9	4.82	2.98	3.70
La Giganta (1)	4.1	2.0	-	-	5.55
La Purificación (1)	6.5	2.2	-	-	3.84
El Pilar (2)	6.5-2.7	3.1-2.0	4.60	2.55	9.52
San Luis (1)	5.4	2.5	-	-	4.16
San Pedro (1)	2.9	1.8	-	-	3.33

Type IIB1a2 (Tapering stem, rounded shoulder, convex base) Ill.: Fig. 18

Number of specimens: 55

Materials: Tuff, obsidian, and basalt equally represented in the central area; tuff is most common in the south.

Description and comments: As with the previous subtype, workmanship was related to the texture and characteristics of the rock. Tuff and obsidian specimens appear to be more carefully flaked and retouched. In all examples great care was taken to pressure flake the stem. The areal distribution is general, although the greatest numerical concentration lies in the Mulegé area in this collection.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Sta. Rosalia (1)	5.1	2.3	-	-	5.20
El Patrocinio (1)	5.2	2.6	-	-	5.88
Mulegé (31)	12.9-2.5	5.7-0.5	5.23	3.02	8.06
S. José de Grácia (14)	8.0-0.3	4.5-1.8	5.20	3.20	18.36
La Giganta (2)	5.8-4.3	3.5	5.05	3.50	11.10
S. Hilario (1)	5.6	3.0	-	-	4.30
La Paz (3)	5.7-3.6	2.9-2.5	4.33	2.76	3.99
Cabo S. Lucas (1)	6.2	3.9	-	-	3.03
Todos Santos (1)	3.8	1.6	-	-	2.77

Type IIB1b1 (Tapering stem, straight lateral shoulder, pointed tang) Ill.: Fig. 19

Number of specimens: 35

Materials: Basalt and obsidian predominate. Tuff is common in the south. Rhyolite is occasional everywhere.

Description and comments: Workmanship is comparable to others in the IIB1 series. Greatest care and skill in pressure-flaking is exhibited in the making of the tang.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (4)	4.2-2.8	2.7-2.5	3.80	2.60	9.28
El Contrabando (1)	2.5	2.5	-	-	3.72
Mulegé (13)	7.7-2.1	5.0-1.8	4.22	3.21	3.38
S. José de Grácia (10)	4.8-2.5	3.5-1.7	3.98	2.65	7.40
El Pilar (1)	3.8	2.7	-	-	4.76
La Paz (2)	(+)6.0-4.2	4.2-3.0	-	3.60	2.66
La Rivera (1)	3.4	2.2	-	-	2.94
S. Pedro (2)	3.2-2.6	2.1-1.4	2.90	1.75	6.66
La Junta (1)	2.1	2.3	-	-	3.33

Type IIB1b2 (Tapering stem, straight lateral shoulder, convex tang) Ill.: Fig. 20

Number of specimens: 60

Materials: Obsidian, tuff, rhyolite, and basalt are equally represented.

Description and comments: Workmanship is like that on other points of the tanged-stem type. Particular care was taken in pressure-flaking the base.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (2)	3.2-2.6	2.4-2.0	2.90	2.20	4.54
Mulegé (29)	7.8-2.3	4.8-2.3	4.64	3.03	7.54
S. José de Grácia (18)	7.2-3.2	3.5-2.0	4.05	2.63	13.32
La Giganta (1)	5.5	4.3	-	-	5.55
La Purificación	5.8	2.8	-	-	3.84
El Pilar (1)	2.5	1.8	-	-	4.76
La Paz (7)	7.8-3.2	4.4-2.0	5.34	3.08	9.31
La Rivera (1)	4.0	2.9	-	-	2.94

Type IIB1c1 (Tapering stem, barbed shoulder, pointed tang) Ill.: Fig. 21

Number of specimens: 17

Materials: Tuff and obsidian predominate. Basalt and rhyolite also occur.

Description and comments: All specimens carefully flaked bifacially, with the exception of basalt ones from Mulegé and San José de Grácia. Generally these were long points, or possibly knives. Many are broken specimens so that we have deficient information on mean length. In this collection the type is represented chiefly in the Mulegé area and not in the south; however, from personal observation and collection, the reverse appears to be true.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (1)	3.0	2.1	-	-	2.27
Mulegé (12)	11.5-2.3	5.3-1.8	5.04	3.34	3.12
S. José de Grácia (2)	4.0-3.9	2.2-2.0	3.95	2.10	1.48
San Luis (1)	5.4	2.5	-	-	4.16
La Paz (1)	9.7	3.5	-	-	1.33

Type IIB1c2 (Tapering stem, barbed shoulder, convex tang) Ill.: Fig. 22

Number of specimens: 20

Materials: Predominantly tuff, basalt, and rhyolite. Obsidian rare.

Description and comments: These are manufactured like the other tanged points (IIB1). Care in pressure-flaking was emphasized on the tang and in delineating the barbs. The great size range indicates distinct purposes for the variant sizes.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Mulegé (11)	8.0-3.2	5.2-1.8	5.21	3.55	2.86
S. José de Grácia (3)	12.6-4.0	6.6-4.3	8.20	5.13	2.22
La Giganta (1)	11.0	6.2	-	-	5.55
El Pilar (1)	5.0	4.2	-	-	4.76
La Paz (2)	7.0-4.3	5.5-2.1	5.65	3.80	2.66
Santiago (1)	6.0(+)	5.9	-	-	3.33
Cabo S. Lucas (1)	6.6	3.6	-	-	3.03

Type IIB2a1 (Parallel-sided stem, rounded shoulder, convex base) Ill.: Fig. 23

Number of specimens: 13

Materials: There is no predominance of any material in any area. Obsidian, rhyolite, tuff, basalt, and quartzite occur.

Description and comments: All are carefully made, although most care was directed towards careful pressure work on the stem and base. Notched blade edges occur on quartzite specimens. This is not a common type in the south as represented in this collection; however, its presence is confirmed elsewhere (Massey MS).

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (2)	3.9-3.6	2.7-2.2	3.75	2.45	4.64
Mulegé (6)	8.5-2.5	3.6-2.0	5.40	2.90	1.56
S. José de Grácia (1)	3.5	2.1	-	-	0.74
La Purificación (1)	5.4(+)	2.5	-	-	3.84
S. Hilario (1)	3.2	1.5	-	-	4.30
La Paz (1)	9.0	5.1	-	-	1.30
El Carrizal (1)	2.5	1.2	-	-	3.03

Type IIB2a2 (Parallel-sided stem, rounded shoulder, straight base) Ill.: Fig. 24

Number of specimens: 22

Materials: These are varied for this type. Tuff is most frequent. Obsidian, rhyolite, basalt, and quartzite occur.

Description and comments: All examples with the exception of some basalt and quartzite specimens show basal thinning by careful pressure-flaking. The type has a general distribution but is nowhere common.

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
S. Ignacio (1)	4.5	2.5	-	-	2.32
El Patrocinio (1)	5.0	3.5	-	-	5.88
Mulegé (11)	5.5-3.1	3.4-1.3	4.45	2.30	2.86
S. José de Grácia (4)	5.4-2.7	3.3-2.2	3.97	2.60	2.96
La Paz (1)	4.0	3.5	-	-	1.33
El Carrizal (1)	2.4	1.9	-	-	3.03
Todos Santos (2)	5.3-3.5	2.7-1.7	4.40	2.20	5.54
San Pedro (1)	3.7	1.9	-	-	3.33

Type IIB2b1 (Parallel-sided stem, straight lateral shoulder, convex base) Ill.: Fig. 25

Number of specimens: 18

Materials: Rhyolite is most common; tuff and quartzite also occur.

Description and comments: The majority of the specimens are percussion-flaked, but exhibit careful pressure thinning in the basal area. They are lenticular in cross section. The largest concentration is noted from the Mulegé area, but the type is also scattered in the south.

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
Mulegé (8)	5.6-1.5	4.3-1.5	3.66	2.91	2.08
La Purificación (1)	6.3	4.0	-	-	3.84
El Pilar (1)	4.1	2.2	-	-	4.76
San Luis (1)	3.0	1.6	-	-	4.16
El Carrizal (1)	2.7	1.7	-	-	3.03
Todos Santos (3)	4.0-3.8	3.0-2.3	3.70	2.66	8.31
San Pedro (1)	3.4	2.6	-	-	3.33
La Junta (2)	4.0-3.7	3.3	3.85	3.30	6.66

Type IIB2b2 (Parallel-sided stem, straight lateral shoulder, straight base) (Ill.: Fig. 26

Number of specimens: 12

Materials: Basalt and rhyolite common. Tuff and obsidian also occur.

Description and comments: These points are generally percussion-flaked and are formed by removal of large flakes. The stem sometimes accounts for half of the entire length. They are lenticular in cross section. These medium sized points are found sporadically throughout the area; nowhere do they form a conspicuous part of the collection.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (1)	4.7	2.5	-	-	2.32
Mulegé (5)	3.7-2.7	3.2-2.2	3.32	2.76	1.30
S. José de Grácia (1)	7.2(+)	4.7	-	-	0.74
El Pilar (1)	3.1	2.7	-	-	4.76
S. Hilario (1)	4.4	3.6	-	-	4.30
La Paz (1)	4.5	2.1	-	-	1.33
Cabo S. Lucas (1)	3.8	2.6	-	-	3.03
Todos Santos (1)	4.3	3.5	-	-	2.77

Type IIB2c1 (Parallel-sided stem, oblique shoulder, convex base) Ill.: Fig. 27

Number of specimens: 6

Materials: The majority of these specimens are of tuff, obsidian is rare.

Description and comments: These rare points are carefully percussion-flaked. The bases are invariably thinned to a chisel-like edge. Nowhere is it prominently represented.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (1)	3.5(+)	3.7	-	-	2.27
Mulegé (2)	(+)9.5-2.8	3.6-2.5	-	3.05	0.52
S. Hilario (1)	6.4	2.7	-	-	4.30
Santiago (2)	4.3-2.9(+)	2.8-2.6	-	2.70	6.66

Type IIB2c2 (Parallel-sided stem, oblique shoulder, straight base) Ill.: Fig. 28

Number of specimens: 11

Materials: Rhyolite predominates, but both obsidian and quartzite occur.

Description and comments: These are carefully made points. The bases are markedly thinned by pressure-flaking. Nowhere does the type appear in significant numbers; however, there is a marked concentration in the central area according to the specimens in the collection.

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
Calmallí (4)	3.7-3.2	4.0-2.0	3.45	3.12	9.08
S. Ignacio (3)	7.0-3.6	4.1-2.5	4.80	3.33	3.96
Mulegé (1)	3.2(+)	3.7	-	-	0.26
S. José de Grácia (1)	5.9	4.0	-	-	0.74
San Hilario (1)	1.6	0.6	-	-	4.30
La Paz (1)	5.0	3.3	-	-	1.33

Type IIB3a1 (Expanding stem, rounded shoulder, convex base) Ill.: Fig. 29

Number of specimens: 17

Materials: Most prominent are obsidian and tuff. Quartzite, basalt, and rhyolite also occur.

Description and comments: These are small to medium-sized projectile points which are generally percussion-flaked. A single specimen from San José de Grácia has a serrated edge (fig. 29, left). The distribution is general, with no marked preponderance at any location.

Location	Ranges		Means		Frequency
	Length	Width	Length	Width	at Location
S. Ignacio (1)	3.4	1.6	-	-	2.32
Sta. Rosalia (1)	3.2	1.9	-	-	5.20
Mulegé (6)	9.1-3.4	2.8-1.6	5.05	2.26	1.56
S. José de Grácia (2)	(+)6.6-5.0	2.1-1.7	-	1.90	1.48
La Purificación (2)	7.2-5.4	3.0-2.4	6.30	2.70	7.68
S. Hilario (1)	4.5	1.9	-	-	4.30
La Rivera (1)	3.2	1.6	-	-	2.94
Cabo S. Lucas (2)	8.3-2.6	2.7-0.7	5.45	1.70	6.06
La Junta (1)	4.5	2.1	-	-	3.33

Type IIB3a2 (Expanding stem, rounded shoulder, straight base) Ill.: Fig. 30

Number of specimens: 16

Materials: Tuff is most common. Rhyolite, obsidian, and basalt also occur.

Description and comments: These points are produced by bifacial percussion-flaking, although the stems and edges are carefully retouched by pressure-flaking. A few of the longer examples exhibit a "fish-tail" type of stem and base. They occur generally throughout the collection area, but appear to have local importance around La Paz where tuff outcrops are prominent. This type is unrecorded in other collections from the area.

Location	Ranges		Means		Frequency at Location
	Length	Width	Length	Width	
El Contrabando (1)	3.3	1.8	-	-	3.72
Mulegé (3)	5.8-4.0	2.8-1.5	5.16	2.20	0.78
S. José de Grácia (2)	5.5-4.2	3.2-2.0	4.85	2.60	1.48
La Purificación (1)	4.7	1.6	-	-	3.84
La Paz (7)	8.7-3.0	3.5-1.9	5.25	2.47	9.31
El Carrizal (1)	2.6	1.6	-	-	3.03
Santiago (1)	2.7	1.5	-	-	3.33

Type IIB3a3 (Expanding stem, rounded shoulder, concave base) (Ill.: Fig. 31

Number of specimens: 60

Materials: The rocks used were varied with no evident preponderance. They include obsidian, basalt, rhyolite, quartzite, and tuff.

Description and comments: The majority of these specimens are percussion-flaked. There is a minimum of pressure retouch, usually confined to the stem and base. Side and basal notching are common. This type is found from all of the collection area, although it is most frequent in the north. That they are rare to the south of La Paz, however, is borne out by other collections (Massey MS).

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Calmallí (8)	5.0-2.0	2.5-1.4	3.26	1.80	18.16
S. Ignacio (6)	4.6-2.7	2.2-1.5	3.75	1.78	13.92
Sta. Rosalia (1)	2.7	1.5	-	-	5.20
El Contrabando (1)	2.5	1.2	-	-	3.72
El Patrocinio (1)	6.2	2.7	-	-	5.88
Mulegé (4)	3.4-1.7	2.6-1.2	2.43	2.05	1.04
S. José de Grácia (4)	4.2-3.1	2.7-1.7	3.76	2.12	2.96
La Giganta (2)	4.0-3.4	2.4-2.3	3.70	2.35	11.10
La Purificación (2)	6.7-4.2	2.5-2.0	5.45	2.25	7.68
El Pilar (4)	2.8-2.1	2.6-0.9	2.66	1.77	17.04
San Luis (7)	5.7-2.7	3.0-1.1	3.47	1.97	29.12
S. Hilario (2)	2.6-2.3	1.7-1.6	2.45	1.65	8.60
La Paz (9)	4.6-2.7	2.8-1.5	3.97	2.20	11.97
La Rivera (1)	3.4	1.7	-	-	2.94
Santiago (5)	3.2-2.6	2.1-1.2	2.96	1.54	16.65
Todos Santos (1)	3.21	1.5	-	-	1.77
San Pedro (1)	2.5	2.1	-	-	3.33
La Junta (1)	2.8	1.7	-	-	3.33

Type IIB3b1 (Expanding stem, straight lateral shoulder, convex base) Ill.: Fig. 32

Number of specimens: 7

Materials: These specimens are predominantly of quartzite; tuff and rhyolite also occur.

Description and comments: Several of the quartzite examples are deeply side-notched (fig. 32, left). This type is neither numerically important nor concentrated in any area.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (1)	4.2	2.0	-	-	2.32
La Giganta (1)	4.2	3.5	-	-	5.55
La Purificación (2)	5.9-5.0	3.0-2.0	5.45	2.50	7.68
San Luis (1)	4.6	3.0	-	-	4.16
La Rivera (1)	3.3	3.0	-	-	2.94
San Pedro (1)	3.5	2.4	-	-	3.33

Type IIB3b2 (Expanding stem, straight lateral shoulder, straight base) Ill.: Fig. 33

Number of specimens: 4

Materials: Four rocks are equally represented: tuff, obsidian, basalt, and quartzite.

Description and comments: Stems were produced by careful pressure-flaking rather than by notching. This is a rare type which may be a variant of the more common convex base type.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
Mulegé (3)	(+)5.0-3.4	2.6-2.5	-	2.53	0.78
Santiago (1)	(+)3.0	3.5	-	-	3.33

Type IIB3b3 (Expanding stem, straight lateral shoulder, concave base) Ill.: Fig. 34

Number of specimens: 21

Materials: Rhyolite is most frequent; quartzite and obsidian are both common.

Description and comments: The stem and base are usually formed by corner and basal notches. Fine pressure retouch occurs on some stems. These points are consistently small. The type has a sporadic occurrence in the collection.

Location	Ranges Length	Ranges Width	Means Length	Means Width	Frequency at Location
S. Ignacio (7)	3.5-2.5	2.3-1.5	2.91	1.75	16.24
El Contrabando (1)	2.6	1.7	-	-	3.72
S. José de Grácia (2)	3.2-2.8	2.6-2.2	3.00	2.40	1.48
El Pilar (2)	3.0-2.6	1.6	2.80	1.60	9.52
San Luis (1)	2.7	1.6	-	-	4.16
S. Hilario (1)	4.0	1.3	-	-	4.30
La Paz (2)	2.9-2.1	1.5-1.4	2.50	1.45	2.66
Todos Santos (5)	3.1-1.9	2.0-1.4	2.30	1.60	13.85

Type IIB3c1 (Expanding stem, oblique shoulder, convex base) Ill.: Fig. 35

Number of specimens: 5

Materials: These specimens are of obsidian and rhyolite.

Description and comments: The obsidian specimens are particularly noteworthy for the care in pressure-flaking on all edges. This is a rare type not occurring in the south in this collection; however, it is recorded for the southern Cape Region in strength in other collections (Massey MS). Possibly this is a shoulder variant of the general, rare IIB3 type.

Location	Ranges		Means		Frequency at Location
	Length	Width	Length	Width	
Calmallí (1)	4.0	2.0	-	-	2.27
Mulegé (1)	4.2	3.5(+)	-	-	0.26
S. José de Grácia (1)	4.3	3.3(+)	-	-	0.74
San Luis (2)	4.1-2.6	2.6-1.7	3.35	2.15	8.32

Type IIB3c3 (Expanding stem, oblique shoulder, concave base) Ill.: Fig. 36

Number of specimens: 7

Materials: Rhyolite is most common. Tuff, basalt, and obsidian also occur.

Description and comments: Workmanship varies, with the finer-grained rocks being more carefully pressure-flaked. A variant form (fig. 36, left) occurs in which the body has a broad, swollen, leaf shape, and the stem is diminutive. The type as a whole is rare and largely confined to the north of the collection area.

Location	Ranges		Means		Frequency at Location
	Length	Width	Length	Width	
Calmallí (1)	4.6	3.0	-	-	2.27
Mulegé (3)	7.9-3.0	3.6-2.0	5.30	3.00	0.78
S. José de Grácia (1)	3.2	2.7	-	-	0.74
La Giganta (1)	2.5	0.6	-	-	5.55
La Paz (1)	3.8	3.0	-	-	1.33

Scraper: There is a single scraper of basalt. It is a plano-convex keeled end-scraper with a pointed end produced by pressure-flaking along the forward ends of both long sides. It is 9 cm. long, 6.2 cm. wide, and 1.6 cm. thick.

Flake knives: There are 13 knives made on thin plano-convex stone flakes. They are characterized by having one long edge retouched by pressure-flaking. With a single exception, they are of black basalt.

Rectangular knives: There are five rectangular flake knives. These are characteristically pressure-flaked along one long thin edge. The dimensions are as follows:

Length	Width	Thickness
8.0	5.6	1.3 (pl. 2c)
13.2	7.2	1.2 (pl. 2b)
9.1	8.2	1.5
8.2	6.0	2.0 (pl. 2g)
10.2	8.0	1.8

Triangular knives: There are five basalt flake knives which are plano-convex and roughly triangular in plan view. Pressure-retouch is along one of the long edges. Their dimensions are as follows:

Length	Width	Thickness
8.7	10.7	1.5
7.6	8.7	3.3
9.4	11.4	3.8
14.2	8.0	3.3 (pl. 2d)
9.5	6.3	2.2 (pl. 2f)

Oval knives: There are three oval or ovoid thin flake knives. Two are of basalt, and one is of chalcedony. The pressure-retouch is along a curving thin edge. The dimensions are as follows:

Length	Width	Thickness
9.5	6.3	1.6
8.4	7.0	2.0 (pl. 2e)
10.5	7.7	2.0

Biface core chopper (fig. 37): There is a single pear-shaped core chopper of basalt. It is 24 cm. long, 13.2 cm. wide, and 3.2 cm. thick. Its provenience is unknown but presumably is in the vicinity of Mulegé. It is a tool type known from Lake Chapala and the adjacent area (Arnold 1957:250-253) and from quarry sites on the east edge of La Paz Bay in the south (Massey MS).

Stone drills: There are seven identifiable drills in the collection, all of which belong to the "large flanged" type (Haury 1950:301-302). Typologically this includes drills which have a "tear drop" shape. All specimens are flaked on both surfaces. These drills are considered here according to the area of their collection.

Mulegé: The large collection of artifacts from this area includes a single large flanged drill which has a symmetrical "tear drop" outline with a long point (fig. 38a). It is 5.2 cm. long and 2.4 cm. wide.

Cabo San Lucas (fig. 38b): There is a single drill of rhyolite, 2.1 cm. long and 6 mm. wide, from this area.

La Paz: Specimens from this area include three of the large flanged drills which range from 7.4 to 4.5 cm. in length and 3.1 to 1.5 cm. in basal width. The mean measurements for the three are: 6.3 cm. long and 2.4 cm. wide. All are of rhyolite (fig. 38c).

Estero San José de Grácia: There is a broken basalt specimen which has an incomplete length of 8 cm. and a basal width of 2.5 cm. (fig. 38d). The second drill is a quartzite specimen with a "tear drop" outline. It is broken, with a present length of 5.3 cm. and a width of 2.7 cm.

Painted Fragments

There are two painted figures of stylized birds on pink sandstone which appear to have been removed from an outcrop or boulder. Possibly they were parts of a petroglyph group.

Both represent birds complete with outspread wings. They are both painted red, probably with ochre. Although the body of each bird is a circle, they differ in treatment of this circular area. In one the circle is blank or undecorated, while in the other there are concentric circles (pl. 2a). The former was painted on a white wash which had apparently been applied as a base for the red pigment.

The proportions of the painted figures are similar. The one with concentric circles filling the body circle measures 12 cm. across the "wing span" and is 7 cm. in height. The other has a "wing span" of 4.5 cm. and a height of 2.9 cm.

In both representations the head of the bird is turned in profile toward the right of the observer.

Stone Cross (fig. 39)

There is a "Christian" cross chipped of rhyolite in the Mulegé collection. This artifact is apparently the result of missionary inspiration and is the work of an expert craftsman. The specimen measures 2.6 cm. in length, 2 cm. in width, and 8 mm. in width of the longest arm.

BONE ARTIFACTS

All of the bone specimens are from the Mulegé area, and hence are probably from dry caves. There are seven in all, of which bone awls and fragments comprise six of the artifacts; the remaining one is a spatulate artifact of a type heretofore associated with the Las Palmas Culture burials in the south (Massey MS).

Bone awls (pl. 4b, c, d, e, f): Three of the six bone awls are complete or virtually so (pl. 4b, c, d). All six were made by sawing and grinding the metapodials of a large mammal, presumably deer. Articular ends of these bones are not preserved. They are all straight shafts of types known from historic levels in the Giganta Caves between Comondú and Loreto (Massey and Tuohy MS).

Bone "spatula" (pl. 4a): There is a single fragment of a bone "spatula" which is a type of artifact frequently found with Las Palmas Culture burials in caves in the Cape Region (Massey MS). The Castaldí specimen may actually be derived from the south of the peninsula since there are no data for it. The specimen is 16.4 cm. long in its broken state. Its maximum width is 3.1 cm, and its thickness 1.6 cm . In all cases these implements were made by sawing a metapodial lengthwise and then grinding the broad articular end down to the cancellous area of the bone.

WOODEN ARTIFACTS

Pitahaya hooks (pl. 5a, a', b): There are three examples of the compound hooks commonly used to pierce and secure cactus fruit (which were beyond reach in this area). Two conform to a type known from cave excavations in the Giganta Region (Massey and Tuohy MS). This type was made by binding either the spine from a viznaga cactus (Echinocactus wislizeni) or a sharpened piece of hardwood to a cane shaft at an acute angle to form a hook. In the Castaldí specimens of this type cord was lashed to the cane to brace the spine to the desired angle, and was then used to secure it by tight wrapping, with the roving end secured by overwrapping.

The manufacture of a third specimen is similar except that the viznaga spine is tied to a pointed piece of hardwood 36 cm. long (pl. 5a, a'). Apparently the hardwood piece functioned as a foreshaft for insertion into a cane shaft.

In one of the specimens with the viznaga spine attached to a cane shaft, the cordage is 2-ply S-twist, with medium degree of twist. It is 2 mm. in diameter. The other two specimens have 2-ply Z twist cordage that is 1 mm. in diameter, with medium to hard twist (see Cordage below).

No exact location is available for these specimens, but since they undoubtedly come from dry caves, they were probably obtained in the vicinity of Mulegé.

Ethnographic literature bears out the fact that gathering poles were widely used for collecting fruit from cactus in the Desert area (Driver and Massey 1957:214, map 33).

Wooden "paddle" (pl. 5e): There is a hardwood (ironwood, Olneya tesota) "paddle" in the collection. It measures 18.8 cm. in total length. The paddle end is 2.8 cm. in width. The sharp-pointed and rounded handle is 8 mm. in diameter and appears to have been designed for insertion into a cane handle.

No similar specimens have been recorded in Baja California to date; however, a like example was found at Ventana Cave for which no modern parallel was known in the area (Haury 1950:417, pl. 35c).

Bundle of viznaga spines (pl. 5f): There is a bundle of fifteen straightened spines from the viznaga cactus (Echinocactus wislizeni).

They are held in a bundle by a single ply, S-twist yarn 2 mm. in diameter, which is twined among the spines and loosely wrapped.

An untied group of spines was reported from Los Angeles Bay (Massey and Osborne 1961:344).

Fragment of worked wood (pl. 5c): Among the specimens is a fragment of smoothed and polished wood 7.5 cm. long, 1.6 cm. wide, and 6 mm. thick. On the single intact end it is rounded and is plano-convex in cross section. Thus it is a small fragment of an object, the use of which is unknown.

Fire drill hearth (pl. 4i): This is a plano-convex specimen made by splitting and scraping the inner surface of a branch to a flattish surface. Two drill holes are set on one edge of the flat side, with side slots cut in from the edge so that the spark could reach the tinder. The hearth has a length of 10 cm., and is 2.3 cm. wide and 2.5 cm. thick. The drill holes have a depth of 7 mm.

No other hearths have been recorded for Baja California. Hearths of this type with slotted sockets have been previously reported in widespread parts of western North America (see Martin et al., 1952:345-346 for distributions).

Hinged stick snares: There are three examples of artifacts which have previously been referred to as "hinged stick snares" (Cosgrove 1947: 135-137) in the Southwest. This type of artifact is consistent in measurement and manufacture among the specimens in the Castaldí Collection. One example (pl. 4j) was made by tying two cut sticks, 13.2 cm. long and 4 mm. in diameter, together at both ends. The ends themselves were prepared for the tying by first encircling the end with a groove. The sticks are tied together in parallel fashion by close knotting so that there is about 5 mm. space between them. The tying cordage is 2-ply S-twist with a diameter of 1 mm. A shorter third stick, 6.2 cm. in length, is tied with 2-ply Z-twist cordage, 1 mm. in diameter, to one end of one of the long sticks with two granny knots.

A second specimen is a duplicate except in certain details. The long sticks are 13.5 cm. in length and 7 mm. in diameter. The shorter attached stick is 5.1 cm. in length. The long parallel sticks are tied in a series of overhand knots with 2-ply Z-twist cordage 1 mm. in diameter.

The third specimen lacks the attached shorter stick, and the two long sticks tied in parallel fashion are joined only at one end. Length

of the sticks is 14.6 cm. with a diameter of 7 mm. The tying cordage is 2-ply Z-twist with a narrow diameter of 0.5 mm.

This type of artifact has been previously unreported in the archaeology of Baja California. However, similar specimens have been noted in Basketmaker sites (Guernsey and Kidder 1921:92, pl. 41a), and others with marked resemblance have a scattered occurrence in the Desert area (Loud and Harrington 1929:115, pl. 48b; Cosgrove 1947:136-137, fig. 128b, d, f). The method of use remains unknown. The provenience of the peninsular specimens is unknown, although they probably derive from caves in the Mulegé area.

Bark bundle (pl. 5d): There is a bundle of bark wrapped with bark. The bundle is 11 cm. long and 2.8 cm. in diameter. It consists of a bundle of narrow bark wrapped with a wider, darker bark.

Strung carrizo beads and tubes: There are two pieces of cordage strung with nodes from carrizo. One string is 22.5 cm. in length and the other is 11.4 cm. Each is knotted at one end with an overhand knot (see Cordage below).

In addition to the node beads there are three fragmentary strings of carrizo tubes, some of which are incised with encircling lines. One specimen (pl. 4h) consists of 2-ply Z-twist cordage with a diameter of 1 mm. and a length of 29.2 cm. One end of the cord is tied with a granny knot. 13.9 cm. above this knot there is an overhand knot and, above this, there is a carrizo tube 2.4 cm. in length and with a diameter of 4 mm. This tube has two incised girdling lines. Above this carrizo tube there are three shorter tubes of similar diameter and a length of about 1.2 cm. each.

A second of these specimens has two tubes, each of which is about 1.2 cm. in length and of the same diameter as those described above. These tubes have a black adhesive smeared on them.

The third example is a short string (14.6 cm.) with eight carrizo tubes. Cordage is 2-ply Z-twist tied with an overhand knot at the end (pl. 4g). Four of the tubes are incised with encircling lines.

CORDAGE AND KNOTS

Perishable materials reported to have come from caves in the mountains to the west of Mulegé included thirty-six examples of string and

light cord, and one specimen of braid.

The string falls into two main types according to twist. First, there are four distinct examples of 2-ply S-twist cordage with a medium to hard degree of twist, and a diameter of 1.5 to 2 mm. In all cases this type was used as binding or wrapping. A fifth example, used in sewing a sandal, has a diameter of 4 mm.

The second and more numerous type is 2-ply Z-twist in medium to hard degree which occurs in two distinct diameters, 0.7-1.0 mm. and 1.5-3.0 mm (pl. 6d, e). The broader type was used exclusively in stringing carrizo tubes and beads, as well as in making netting and tie-twined matting.

A single example of three-strand braid, with a diameter of 4 mm. and a length of 3.2 cm., is in the collection (pl. 6c).

The preponderance of 2-ply Z-twist cordage in the collection agrees with the findings for the cave at Bahía de Los Angeles (Massey and Osborne 1961) and from the caves in the Sierra de La Giganta (Massey and Tuohy MS). In the extreme south of the peninsula, however, cordage is about evenly balanced between Z- and S-twist (Massey MS).

Three kinds of knots were recorded among these cordage specimens: square, overhand, and granny knots. Strings of carrizo beads and tubes were ended with overhand knots. Granny knots were used in tying sticks together. The fragmentary net was made by the square-knot technique characteristic of prehistoric net-making in central Baja California (fig. 40). Two cords were joined together with a square knot, and there is one example of 2-ply Z-twist cordage spliced together (pl. 6d).

Netting: Two distinct fragments of netting made by the square knot technique were obviously obtained from dry caves, presumably near Mulegé. One fragment (pl. 6b) is from a net, the size and function of which cannot be determined. It was made by square-knotting, but had at least one series cast-on, as a repair, by lark's-head knotting (pl. 6b). The mesh is 1.4 cm., and the cordage is 2-ply Z-twist with a medium to hard degree of twist and a diameter of 1 mm.

The second specimen (pl. 6a) may well be a hairnet to judge from the fineness of the mesh, 7 mm. In this example casting-on was by lark's-head knotting with subsequent square-knotting and an occasional lark's-head. The cord itself is 2-ply Z-twist, 1 mm. in diameter, with a hard twist.

The netting in the Castaldí Collection corresponds to netting known from eighteenth century levels in the nearby Sierra de La Giganta (Massey and Tuohy MS) and from Bahía de Los Angeles in north central Baja California (Massey and Osborne 1961:96). It differed from known netting in the southern Cape Region which was made entirely of lark's-head knotting (Massey MS).

BASKETRY

Three fragments of coiled basketry were included. Possibly all were derived from the same shallow tray or bowl. All were made by a simple uninterlocking stitch on a bundle foundation (Morris and Burgh 1941:10-11, fig. 3a). A single rim specimen (pl. 7a) has a simple self rim. The three fragments, which are all 6 mm. thick, had three coils and two stitches per centimeter.

These specimens are identical to those excavated from caves in the Sierra de La Giganta immediately to the south (Massey and Tuohy MS). Coiled baskets occasionally recovered in the Cape Region all have a single-rod foundation (Massey MS).

Woven sandal (pl. 7b): There is a single heel fragment of a woven sandal. This specimen is 10.2 cm. long by 7.6 cm. wide, and it is 1.1 cm. in thickness. Attached to the fragment is a 2-ply, S-twist cord with a diameter of 4 mm. Presumably this was for attaching the sandal to the foot. Construction of the sandal was by the tie-twining technique which was ordinarily used for matting. There are similar specimens from historic levels at Metate Cave (Massey and Tuohy MS).

Matting (pl. 7c, d): Matting is represented by a single fragment which is of the tie-twined type familiar in Baja California. This specimen is 21.8 cm. long and 12.8 cm. wide. It was made by tie-twining bundles of unspun fibers which measure roughly 1 cm. in diameter. The cordage used for the tying is 2-ply Z-twist in medium degree, with a diameter of 1 mm.

Matting of this type has been reported from cave excavations throughout the peninsula. These include Los Angeles Bay (Massey and Osborne 1961:346-347, see fig. 2 for technique), the caves of the Sierra de La Giganta (Massey and Tuohy MS), and various caves in the Cape Region (Massey MS).

ARTICLES OF EUROPEAN ORIGIN

In addition to the aboriginal artifacts which compose the greater part of the collection, there are four metal specimens of European cultural origin or inspiration: three wrought iron spurs, and one bronze key. It is more than possible that these items found their way into the collection as curiosities rather than as specimens occurring in archaeological sites.

One of the spurs (pl. 8d) is complete even to the extent of having its leather strap intact. The other two (pl. 8b, c) are fragmentary and are represented only by the shank portion with the rowels. The key (pl. 8a) is complete and not corroded.

SUMMARY AND CONCLUSIONS

Working with a collection such as this, from a land which is largely unknown to archaeology, means that it is impossible to assign all of the materials to their cultural context. On the positive side, we can allocate some artifacts on the basis of present tentative outlines of peninsular prehistory. This allocation can be made on the basis of the known cultures and sequences at the gateway to the peninsula in the north, archaeological surveys throughout Baja California, and excavations and delineations of prehistoric cultures on the peninsula.

In the absence of precise locations for the Castaldí material, the cultural assignments are on typological grounds tempered with field knowledge of Baja California. The cultural traditions to which this type of allocation can be made are: (1) the Peninsular Pinto-Gypsum culture (Amargosa I and II) based on southern California data; (2) the Comondú Culture of central Baja California; and (3) the Las Palmas Culture of the Cape Region. It is beyond the intent or capabilities of this presentation—or the materials upon which it is based—to extend comparisons outside of Baja California.

The Pinto Basin Complex

Evidence of the Pinto Basin Culture on the peninsula in the artifacts of this collection is purely typological and concerns the projectile points (cf. Amsden 1935:pls. 12, 13; Rogers 1939:54, pl. 13). Considering these points according to the classification used here, we can note the following for the Castaldí points:

Type	Number of Specimens	Generalization
IB2	222	Numerous throughout peninsula
IB3	37	Frequent in central and south areas
IB4	23	Most numerous in extreme south
ID2	14	Rare everywhere
IIA3	68	Common; most significant at San José de Grácia (central) and La Rivera (Cape Region)
IIB2a2	22	General; nowhere common
IIB2a3	--	*Not represented*
IIB2c3	--	Not represented
IIB3a3	60	Frequent north of Cape Region
IIB3b2	4	Rare

In considering this from a purely typological standpoint, several facts emerge; two of the concave-based types considered diagnostic of the Pinto Basin Complex (IIA3 and IIB3a3) are common, and two others (IIB2a3 and IIB2c3) are not represented. However, in the latter case neither are they noted by Rogers (1939) as present in southern California. At the same time, the great numbers of type IB2 seem meaningless because they are found everywhere—including the peninsula—under a variety of cultural contexts.

Earlier, the stone implements and heavy rounded-shoulder, stemmed, concave-based Pinto Basin Points, which characterize the Complex, were reported from sites at dry Lake Chapala (Massey 1947:354). The "Scraper-Plane Assemblage" which Arnold (1957:253-261, pl. 18) described from old levels of this lake appears to represent this same complex. The Pinto Basin type of projectile point is found in wide distribution throughout western North America under conditions suggestive of some antiquity (Lister 1953:265).

Gypsum Cave Type Points and Derivatives

The original Gypsum Cave type (Harrington 1933:pl. 19; Rogers 1939:pl. 14, 54-57) represented typologically in this collection as Type IIB1a1 amounts to a total of 39 points, with a marked concentration around

Mulegé. The variant oblique-shouldered type (IIB1c1) totals 16, with all specimens in the collection from north of the Cape Region; however, surveys in the south have demonstrated the presence of this type under precontact conditions (Massey, field notes).

In addition to the appearance of the true Gypsum Cave type, there are a number of symmetrical, carefully flaked types with pointed or rounded tangs which appear typologically to be derivative of the short-tanged Gypsum Cave type. They have not been found except as surface finds.

The majority of these derivative types occur in one of two forms. There are points, designated La Paz Points, characterized by a slender, triangular blade, sharp oblique shoulders, and a pointed tang (type IIB1c1 in the Haury classification as amended for Baja California). A second tanged group has been named Loreto Blades. These have a relatively heavy, broad leaf-shaped blade, rounded or slightly oblique shoulders, and a broad convex tang (types IIB1a2 and IIB1c2).

Both of these specific types of central and southern Baja California seem to be elaborations and refinements of the basic type represented by the Gypsum Cave Point. Both the La Paz Points and the Loreto Blades have a general distribution in the area under consideration, although the Loreto Blades, with a grand total in the Castaldí Collection of 74 specimens, were found most frequently in the Mulegé area.

Comondú Culture

Since the bulk of the collection is derived from sites in central Baja California, it is not strange that most of the materials, especially perishables, pertain to the Comondú Culture (Massey 1961; n.d.). A list of the artifacts in the collection which now appear to be diagnostic elements in this complex follows:

Tubular stone pipes: two types
Bone awls: straight shaft
Carrizo beads and tubes
Square-knot netting: exclusive
Tie-twined matting
Coiled basketry: bundle foundation,
simple uninterlocking stitch; trays
Projectile points: Types IC1, IC2, IC3
Pitahaya hooks: compound
2-ply, Z-twist cord: predominant
Woven sandal
Viznaga spine bundles

In addition, there are three kinds of perishable artifacts of unknown cultural provenience which probably belong to the Comondú Culture. These include the wooden "paddle," the fire-drill hearth, and the hinged-stick snares.

Las Palmas Culture of the Cape Region

Artifacts of the Las Palmas Culture of the Cape Region (Massey MS) are represented in the collection by the bone "spatula." The carrizo beads and tubes are common to both the Comondú and the Las Palmas cultures; conceivably the bone "spatula" could also be a common artifact.

The characteristic projectile points of the Amargosa Culture (formerly Amargosa III) of Rogers (1939:62-65, pl. 16) are missing in the Castaldí Collection—and the culture may well be missing from the prehistory of Baja California.

In sum, then, on the basis of present knowledge of Baja California archaeology, the Castaldí Collection represents a good cross section. To be sure there are some types of projectile points which must go unaffiliated at present, but future work will diminish the number of specimens about which some reasonable conclusion cannot be drawn.

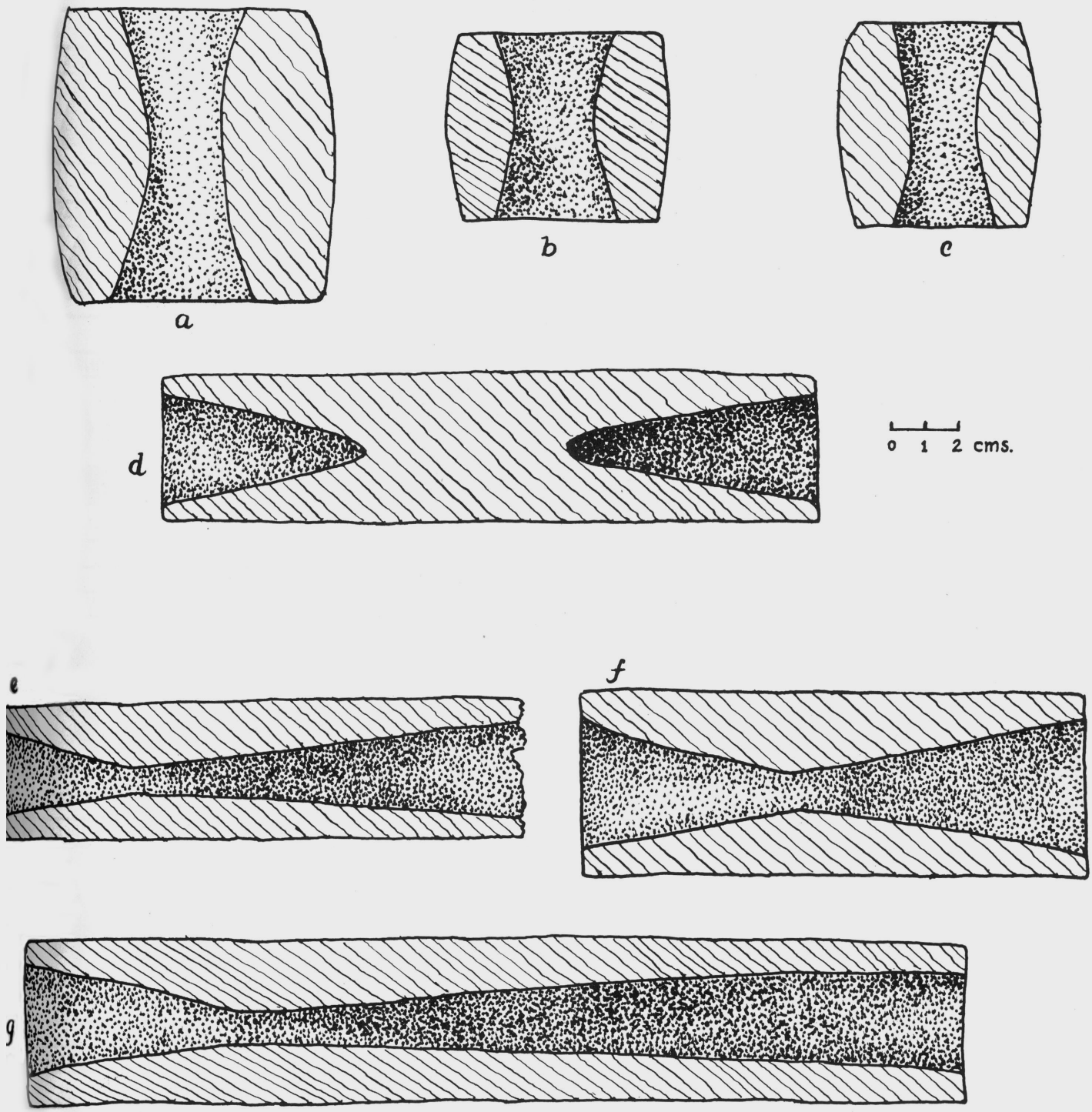


Figure 2. Construction of tubular stone pipes

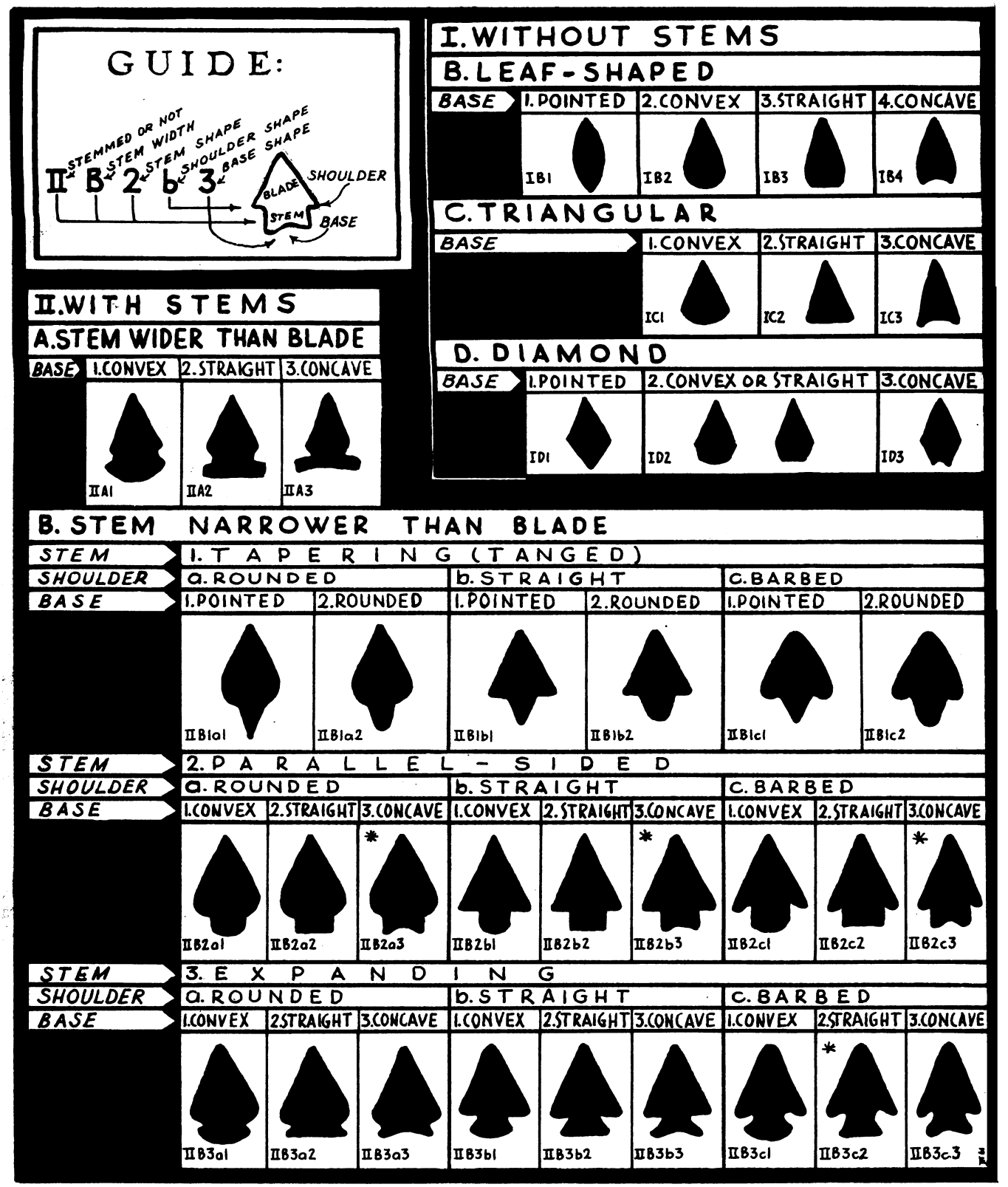


Figure 3. Chart of projectile point classifications
(Points starred do not appear in this collection)

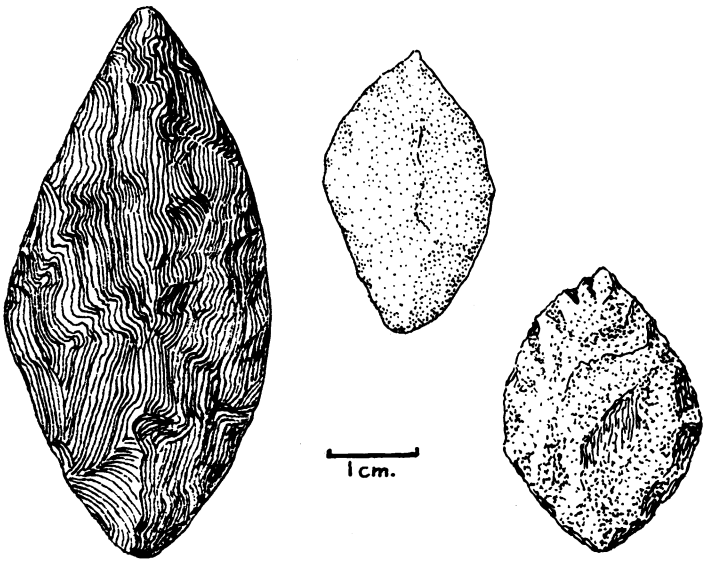


Figure 4. Projectile points, Type IB1

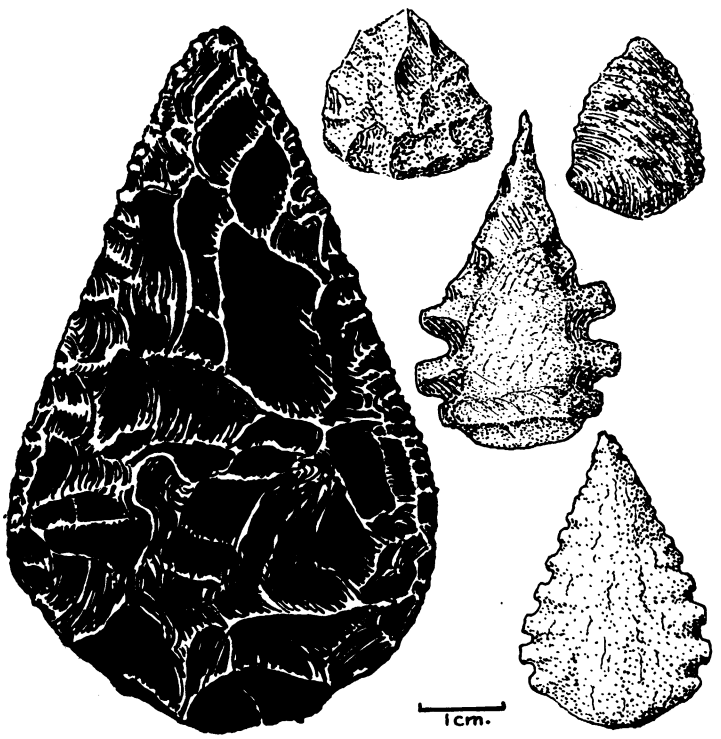


Figure 5. Projectile points, Type IB2

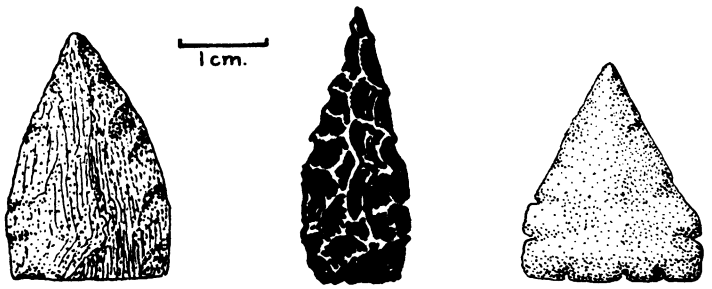


Figure 6. Projectile points, Type IB3

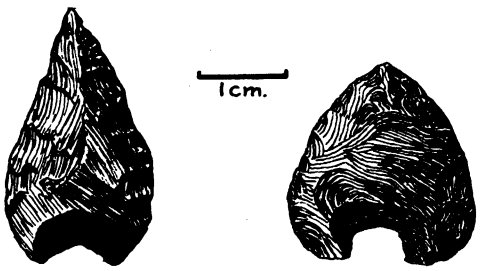


Figure 7. Projectile points, Type IB4

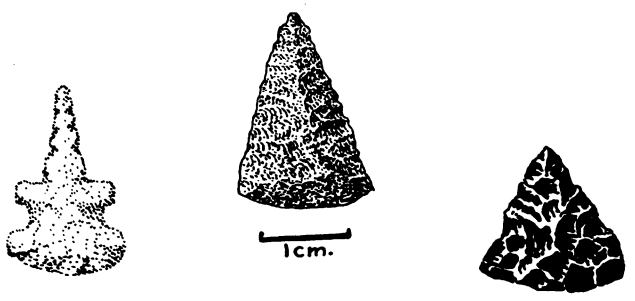


Figure 8. Projectile points, Type IC1

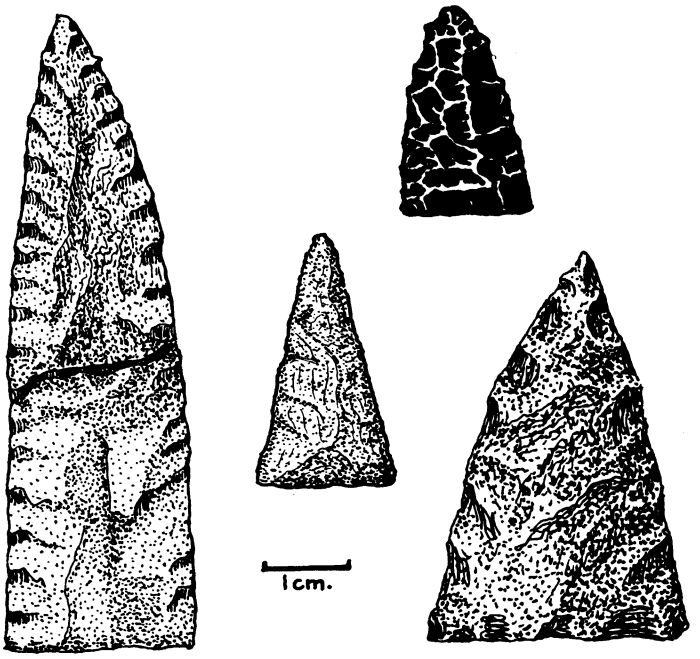


Figure 9. Projectile points, Type IC2

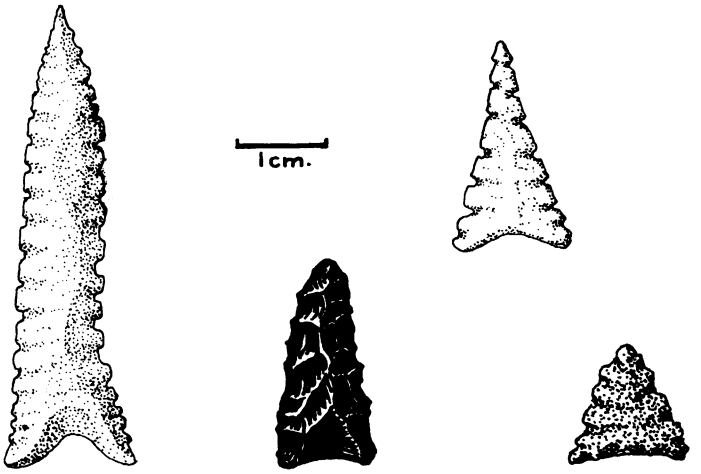


Figure 10. Projectile points, Type IC3

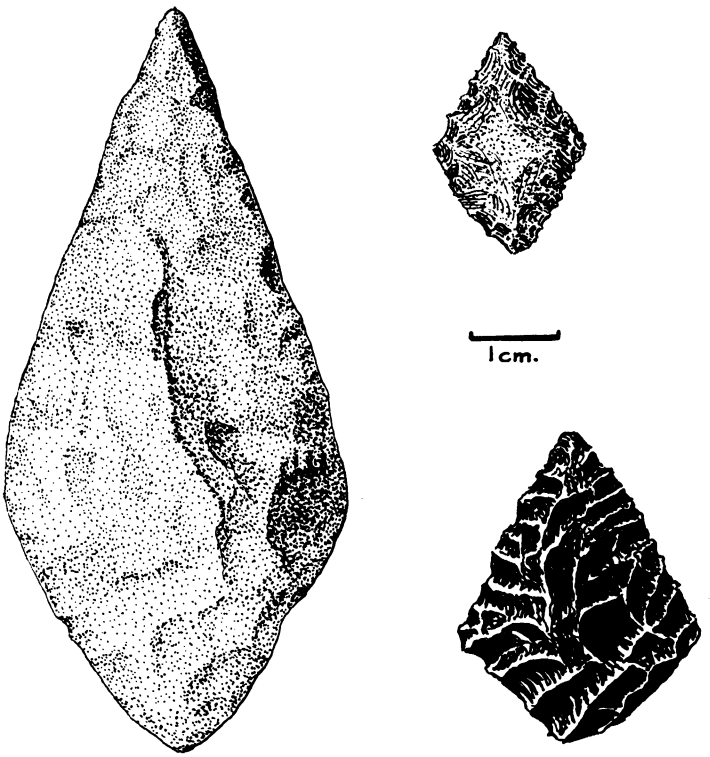


Figure 11. Projectile points, Type ID1

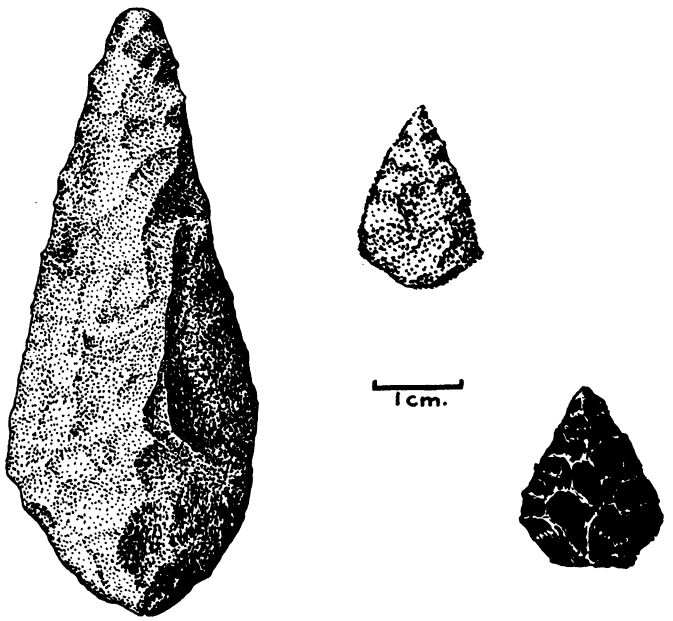


Figure 12. Projectile points, Type ID2

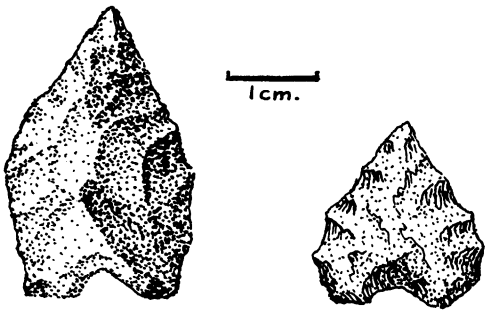


Figure 13. Projectile points, Type ID3

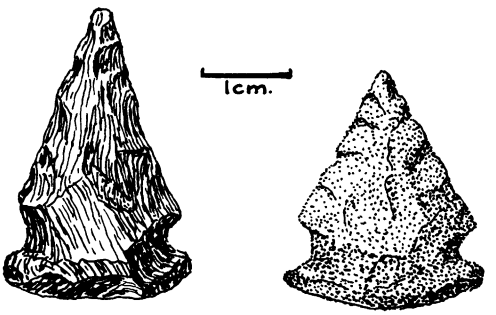


Figure 14. Projectile points, Type IIA1

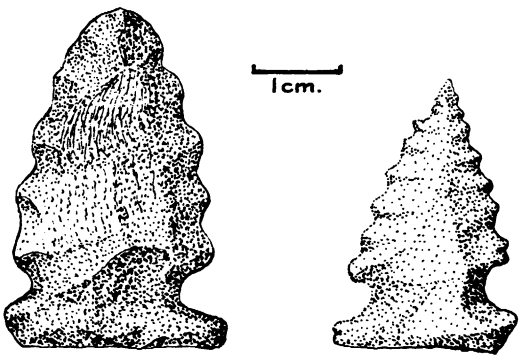


Figure 15. Projectile points, Type IIA2

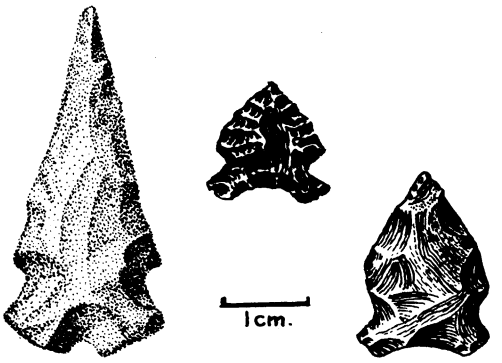


Figure 16. Projectile points, Type IIA3

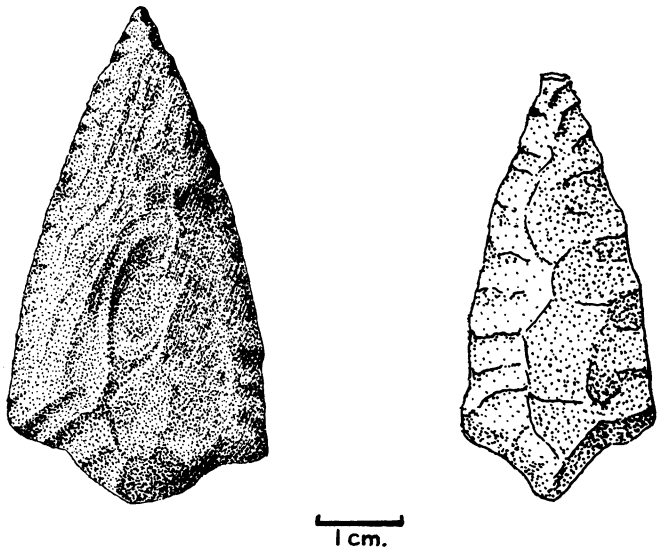


Figure 17. Projectile points, Type IIB1a1

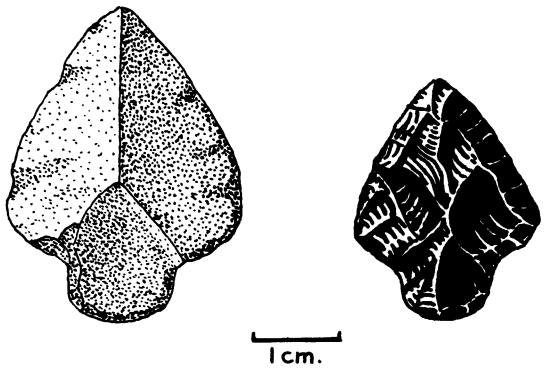


Figure 18. Projectile points, Type IIB1a2

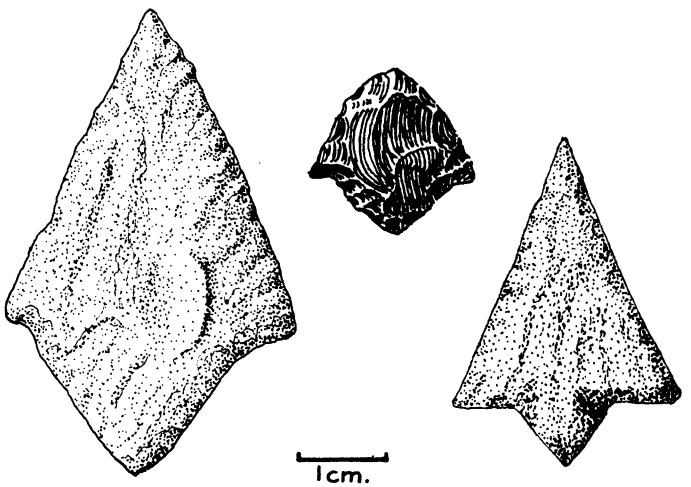


Figure 19. Projectile points, Type IIB1b1

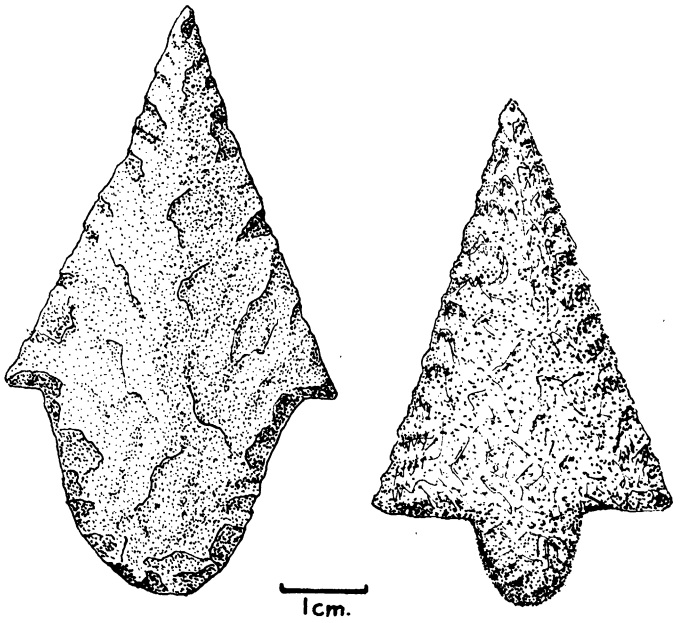


Figure 20. Projectile points, Type IIB1b2

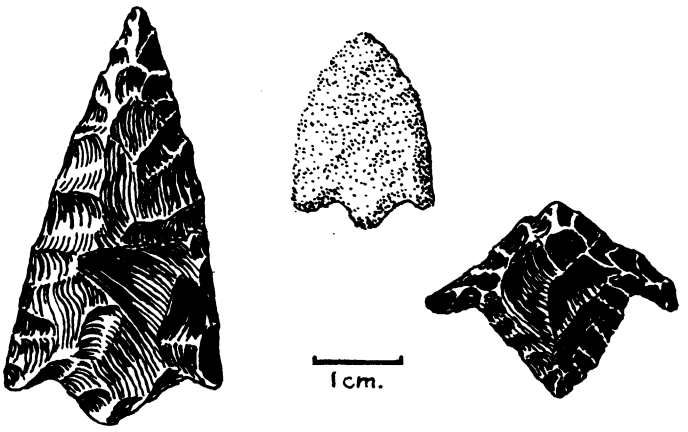


Figure 21. Projectile points, Type IIB1c1

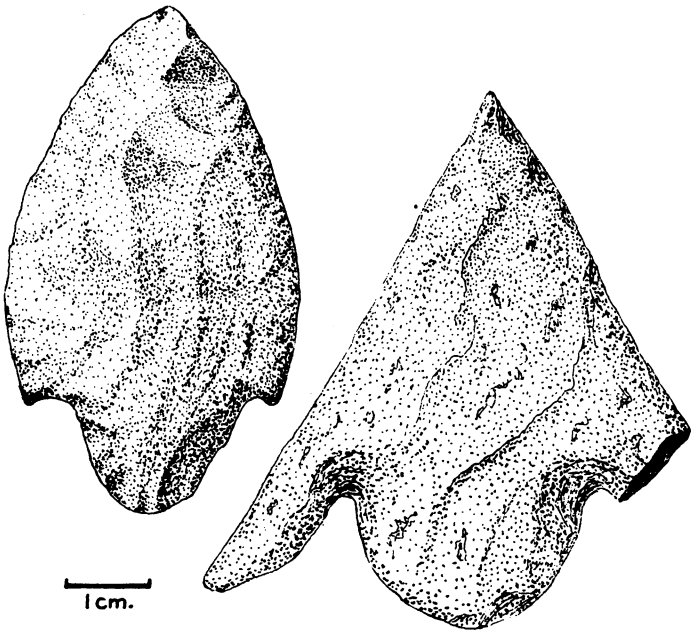


Figure 22. Projectile points, Type IIB1c2

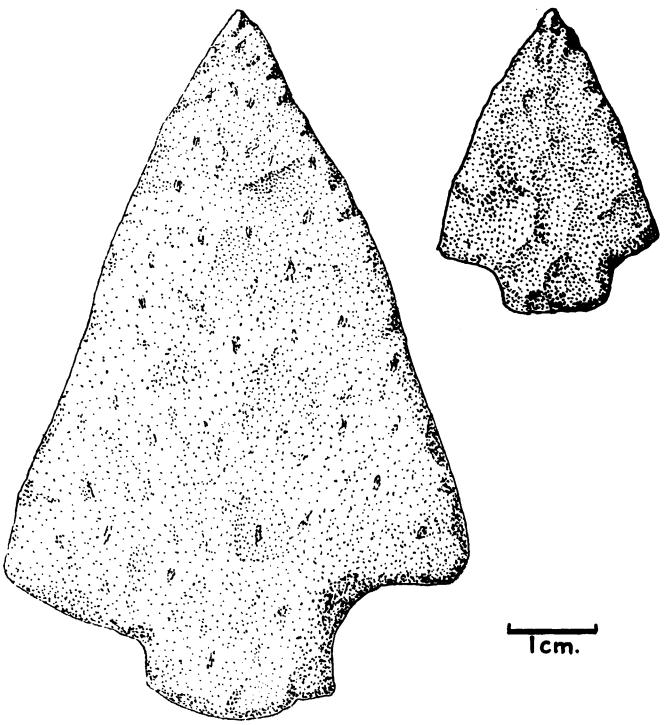


Figure 23. Projectile points, Type IIB2a1

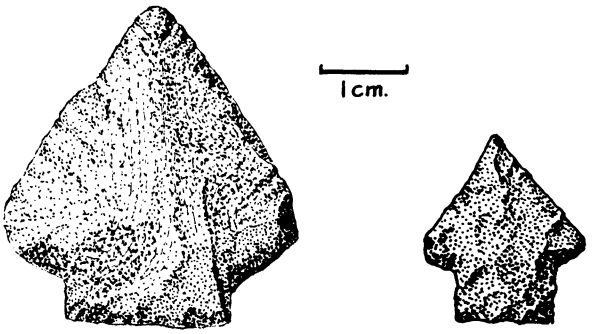


Figure 24. Projectile points, Type IIB2a2

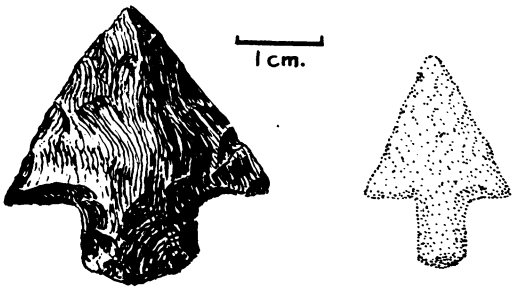


Figure 25. Projectile points, Type IIB2b1

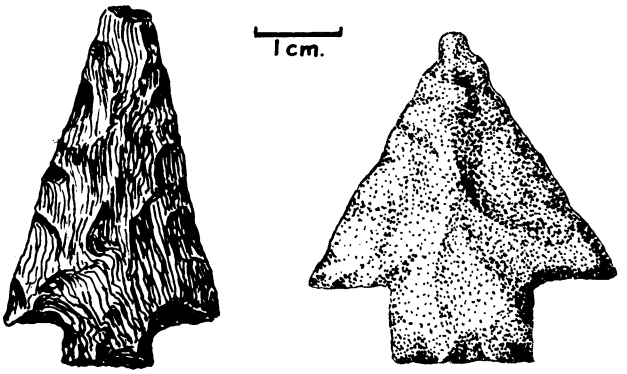


Figure 26. Projectile points, Type IIB2b2

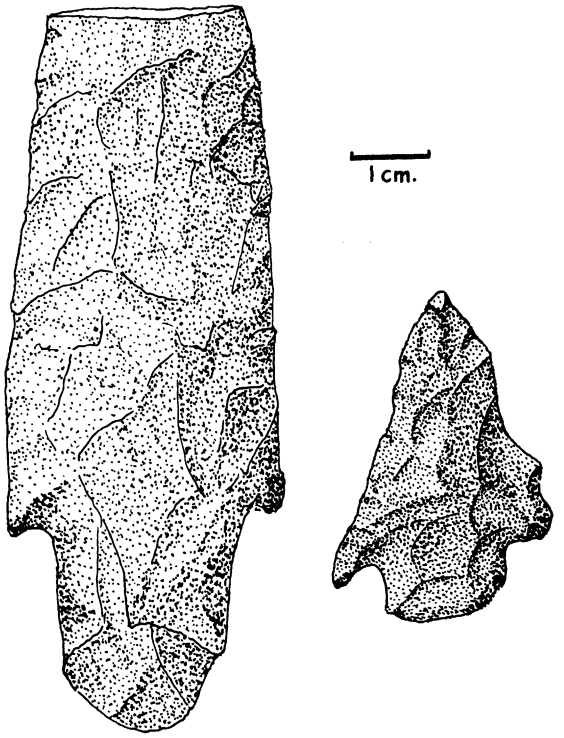


Figure 27. Projectile points, Type IIB2c1

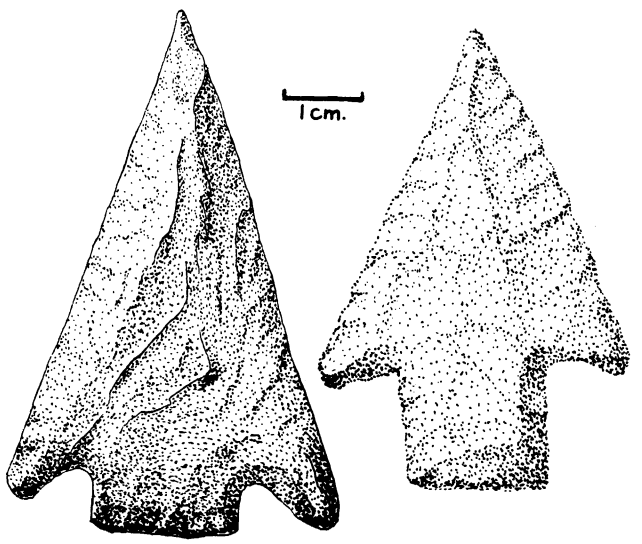


Figure 28. Projectile points, Type IIB2c2

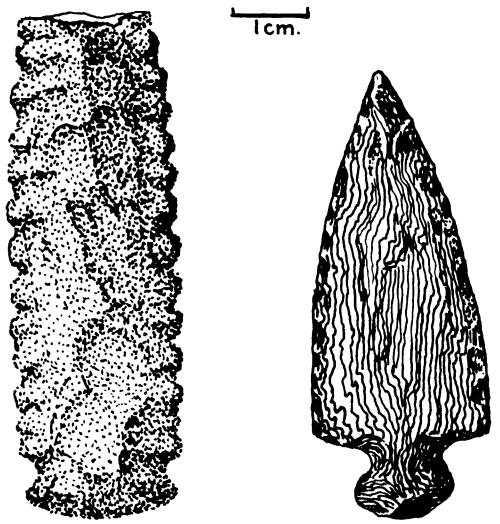


Figure 29. Projectile points, Type IIB3a1

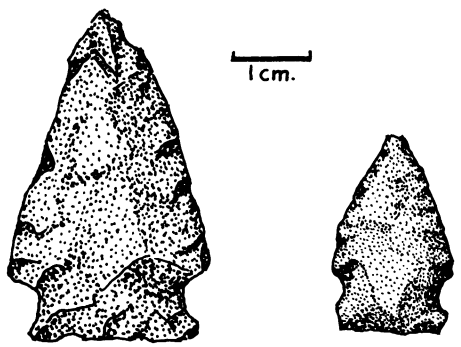


Figure 30. Projectile points, Type IIB3a2

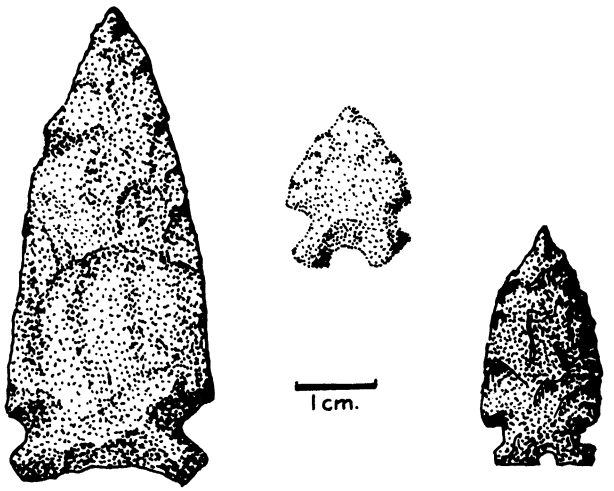


Figure 31. Projectile points, Type IIB3a3

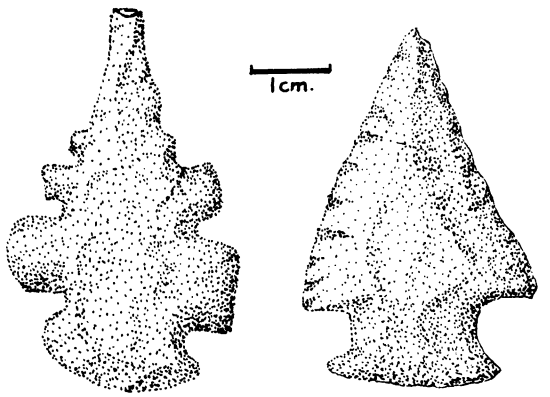


Figure 32. Projectile points, Type IIB3b1

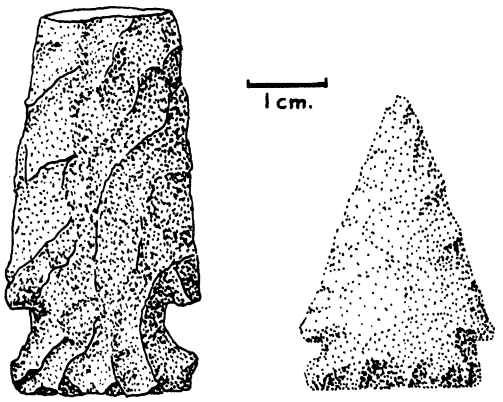


Figure 33. Projectile points, Type IIB3b2

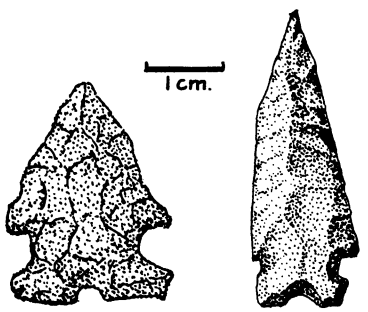


Figure 34. Projectile points, Type IIB3b3

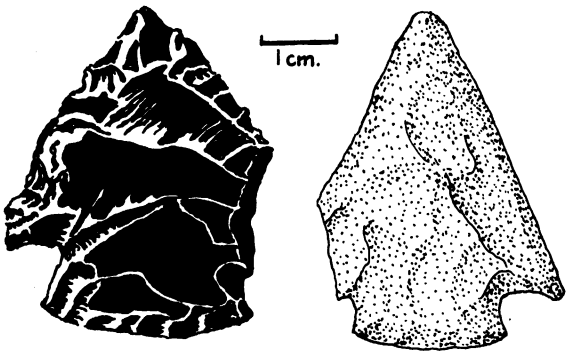


Figure 35. Projectile points, Type IIB3c1

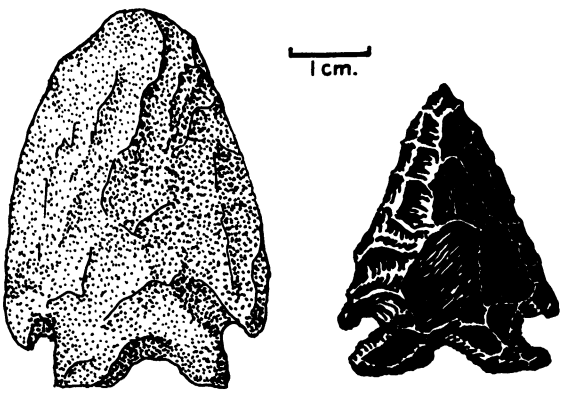


Figure 36. Projectile points, Type IIB3c3

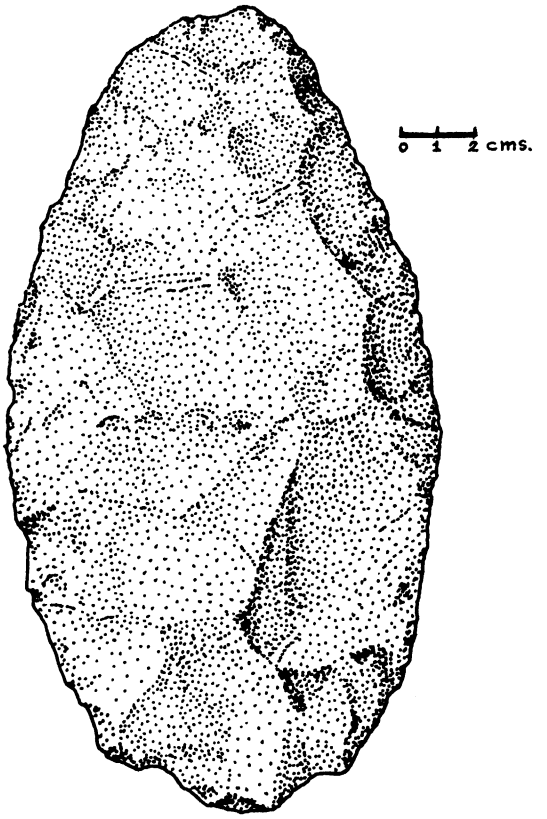


Figure 37. Chopper

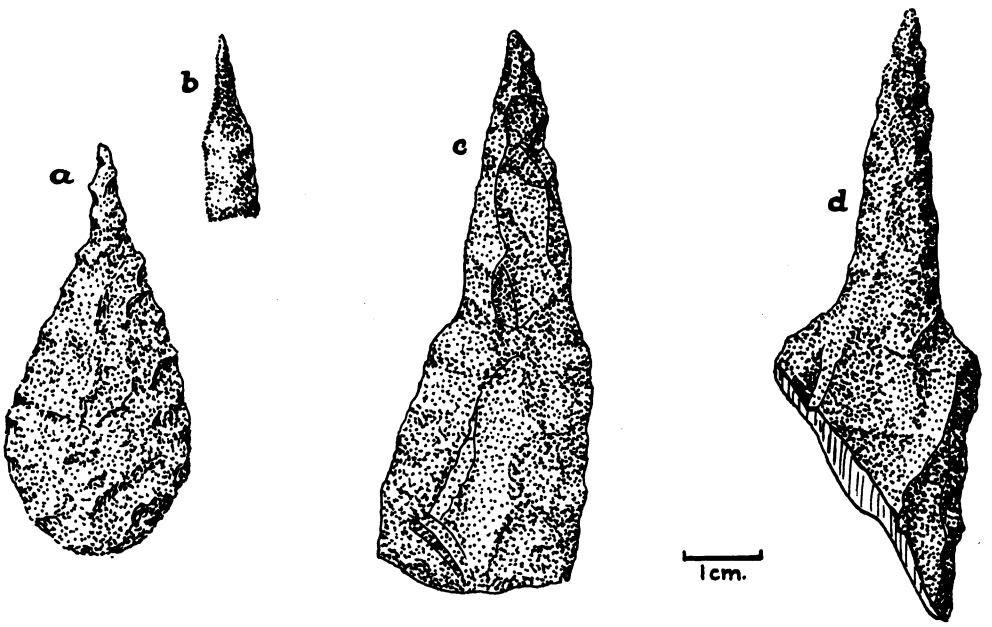


Figure 38. Drills

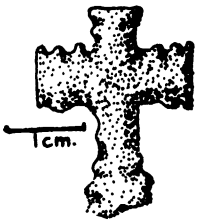


Figure 39. Stone cross

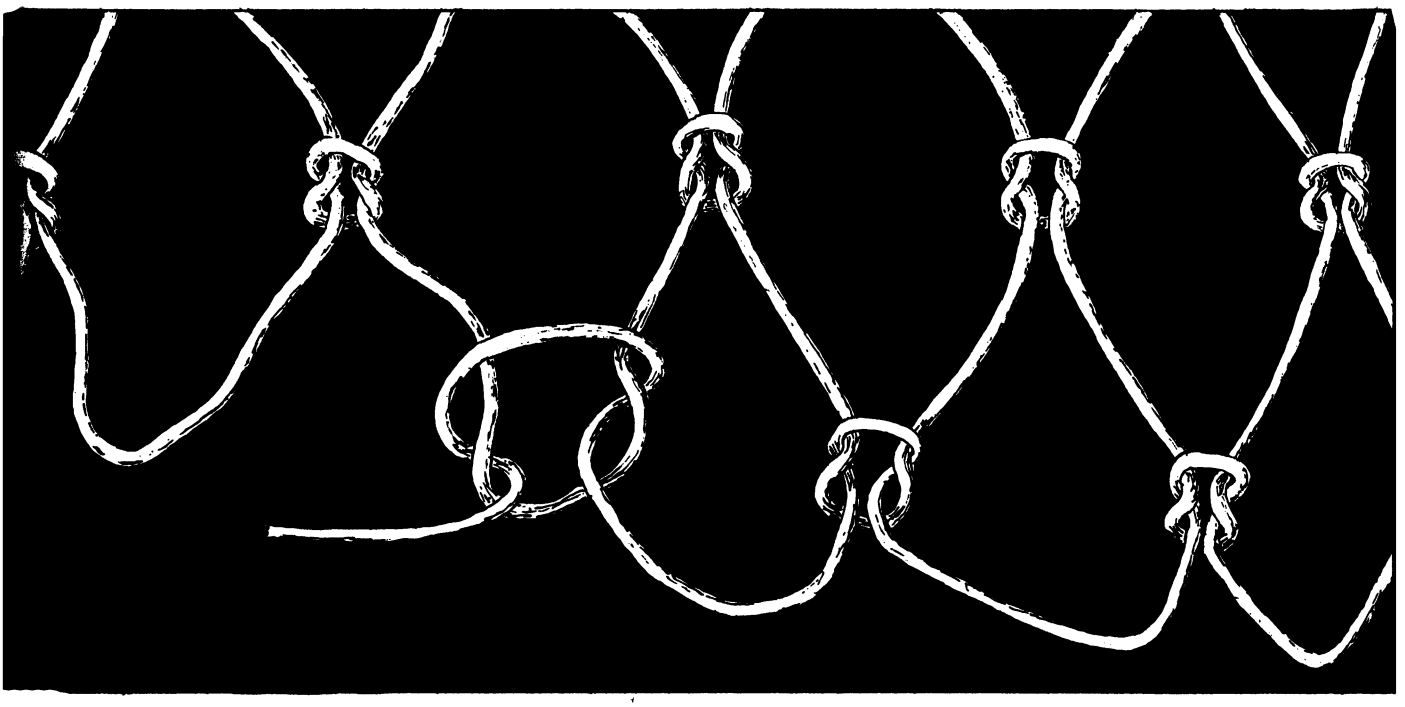


Figure 40. Square-knot netting technique

Plate 1

One of the fifty-three plaques of chipped stone artifacts assembled by Padre Castaldí.

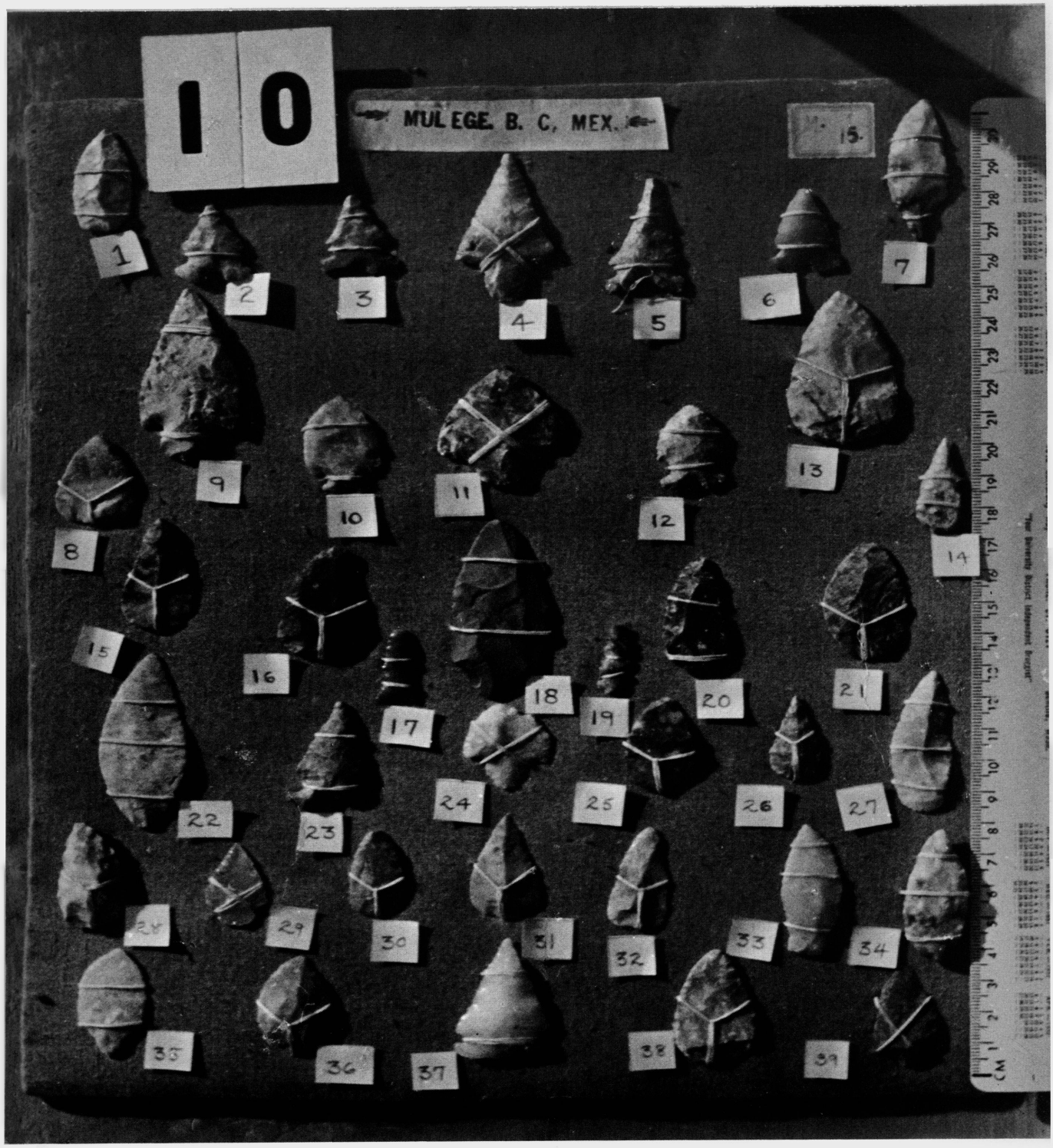


Plate 1

Plate 2
Ground and Chipped Stone Artifacts

a. Painted bird figure on sandstone, 16.0 cm. long, 11.5 cm. wide.

b. Thin tabular flake knife, 13.2 cm. long, 7.2 cm. wide, 1.2 cm. thick.

c. Thin tabular basalt flake knife, 13.2 cm. long, 5.6 cm. wide, 1.3 cm. thick.

d. Uniface basalt flake knife, 14.2 cm. long, 8.0 cm. wide, 3.3 cm. thick.

e. Biface basalt flake knife, 8.4 cm. long, 7.0 cm. wide, 2.0 cm. thick.

f. Flake knife, 9.5 cm. long, 6.3 cm. wide, 2.2 cm. thick.

g. Thin tabular basalt flake knife, 8.2 cm. long, 6.0 cm. wide, 2.0 cm. thick.

h. Ground sandstone with biconvex faces, 9.6 cm. long, 7.4 cm. wide, 2.3 cm. thick.

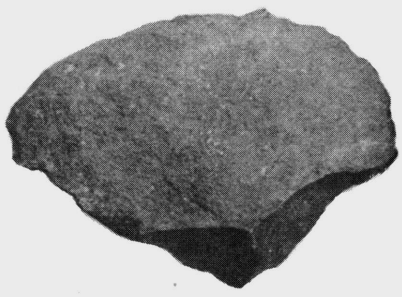
i. End view of grinding stone fragment, 6.0 cm. long, 7.8 cm. wide, 3.9 cm. thick.

j. Grinding stone fragment, 27.6 cm. long, 9.5 cm. wide, 3.6 cm. thick.

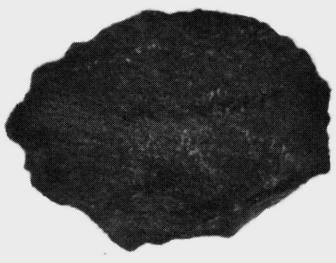
a

b

c



d

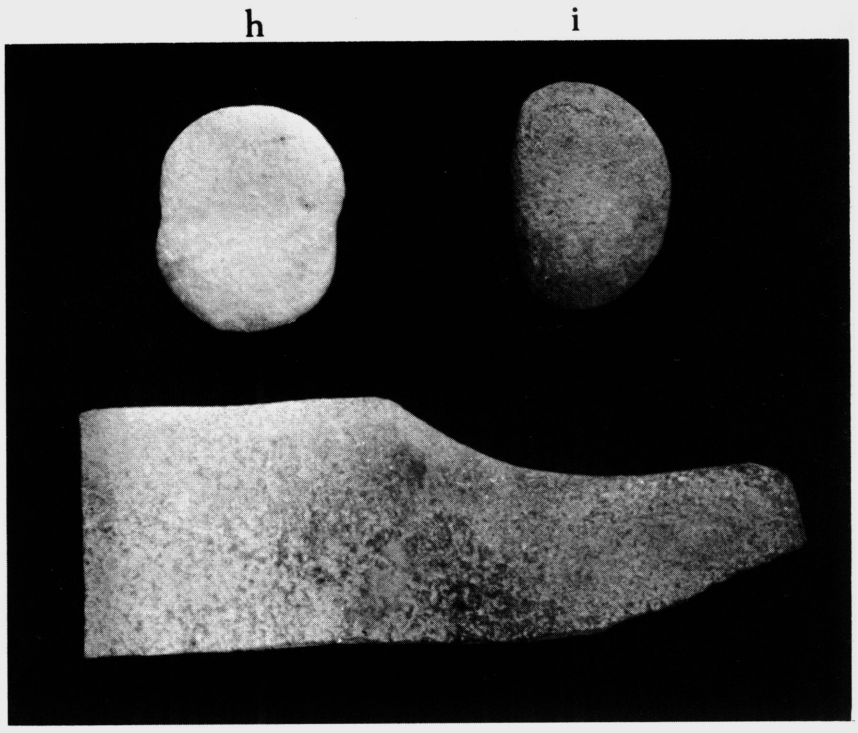


e

f

g

h i



j

Plate 2

Plate 3
Tubular Stone Pipes (Chacuacos)

a. Type I pipe with grooved geometric decoration, 5.0 cm. long, 4.4 cm. maximum diameter.

b. Type I basalt tubular pipe, 10.5 cm. long, 4.7 cm. maximum diameter.

c,d. End views of Type I pipes.

e. Type I pipe with randomly incised decoration, 12.0 cm. long, 7.4 cm. maximum diameter.

f. Type II pipe with incised decoration, 32.4 cm. long, 5.3 cm. maximum diameter.

g. Type I stone pipe, 10.5 cm. long, 3.6 cm. maximum diameter.

h. Type II sandstone pipe fragment with girdling incised lines, 19.2 cm. long, 4.5 cm. wide.

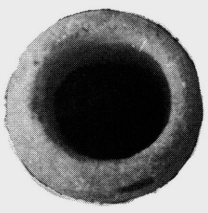
i. Partially drilled stone pipe, 22.2 cm. long, 4.9 cm. maximum diameter.

j. Type I stone pipe, 17.3 cm. long, 6.1 cm. maximum diameter.

k. Type I stone pipe, 13.2 cm. long, 5.1 cm. maximum diameter.


a


b

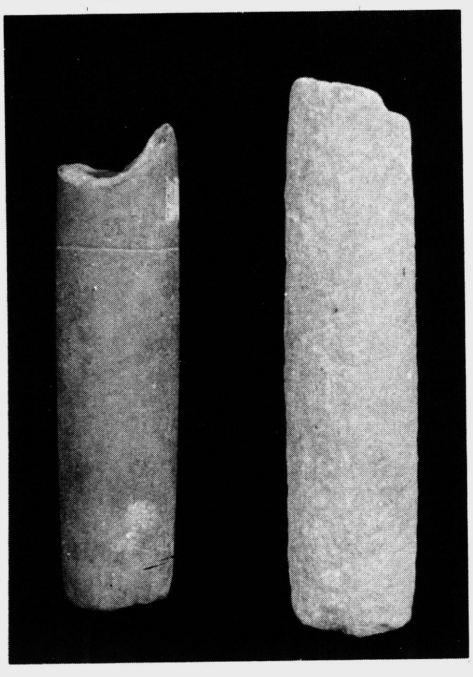

c


d


e


f

g


h i


j k

Plate 3

Plate 4
Bone and Wood Artifacts

a. Bone "spatula" fragment, 16.4 cm. long, 3.1 cm. maximum width, 1.6 cm. thick.

b. Bone awl, 15.4 cm. long, 1.4 cm. wide, 6.0 mm. thick at base.

c. Bone awl fragment, 15.2 cm. long, 7.0 mm. maximum width, 4.0 mm. thick.

d. Bone awl fragment, 13.2 cm. long, 2.5 cm. wide, 5.0 mm. thick.

e. Worked bone fragment, 6.9 cm. long, 1.9 cm. maximum width, 4.0 mm. thick.

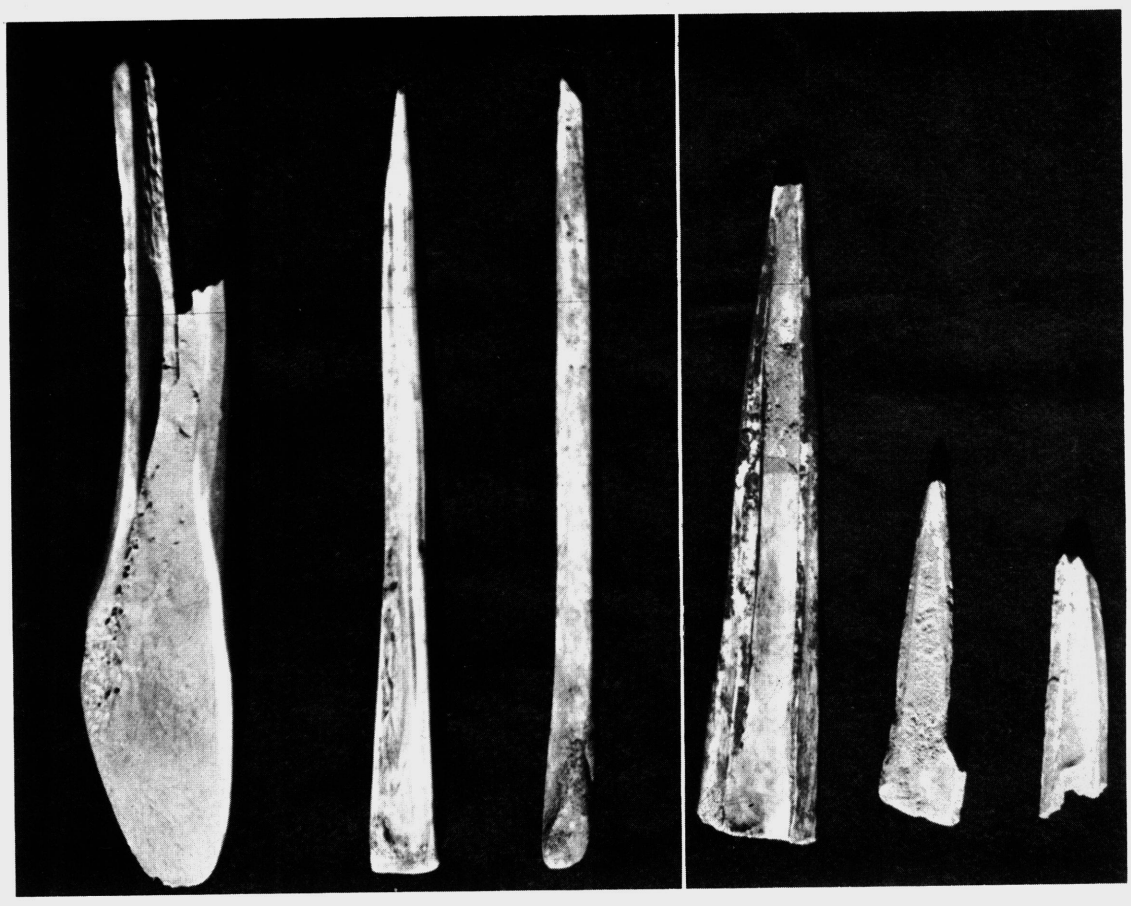
f. Worked bone fragment, 5.3 cm. long, 7.0 mm. maximum width, 5.0 mm. thick.

g. Eight incised carrizo tubes strung on 2-ply Z-twist cord 14.6 cm. long. Longest tube is 2.2 cm. long, 4.0 mm. diameter.

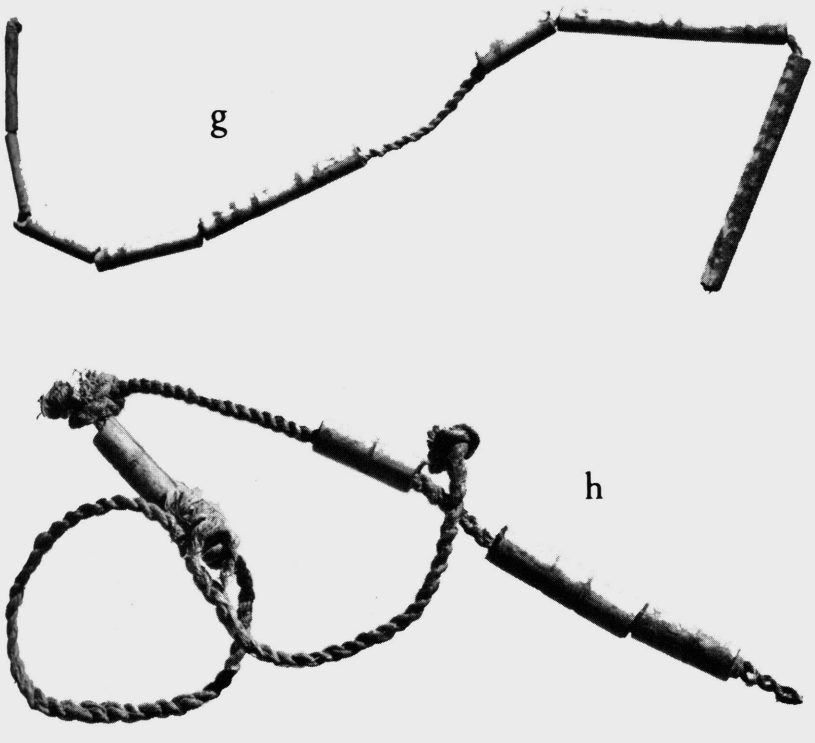
h. Four carrizo tubes strung on 2-ply Z-twist cord 1.0 mm. in diameter. Longest tube is 2.4 cm. long, 4.0 mm. in diameter.

i. Wood drill hearth, 10.0 cm. long, 2.3 cm. wide, 2.5 cm. thick, with holes 7.0 mm. deep.

j. Hinged stick snare, 13.2 cm. long. Diameter of sticks 4.0 mm.



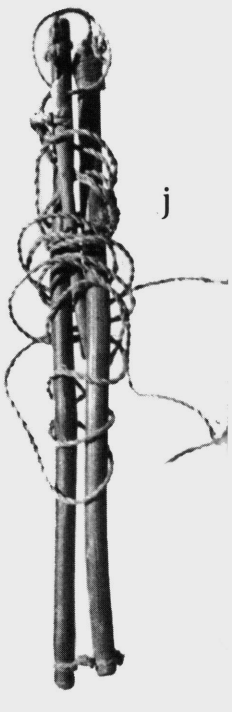
a b c d e f



g

h

i



j

Plate 4

Plate 5
Wood Artifacts

a. Compound pitahaya hook, 30.4 cm. long.

a'. Detail of a.

b. Compound pitahaya hook fragment, 18.3 cm. long, 8.0 mm. diameter.

c. Worked wood fragment, 7.5 cm. long, 1.6 cm. wide, 6.0 mm. thick.

d. Bundle of bark strip, 11.0 cm. long, 2.8 cm. diameter.

e. Hardwood "paddle," 18.8 cm. long, blade 2.8 cm. wide, handle 8.8 cm. diameter.

f. Detail of viznaga spine bundle. Cord 4.0 mm. diameter.

Plate 5

Plate 6
Netting and Cordage

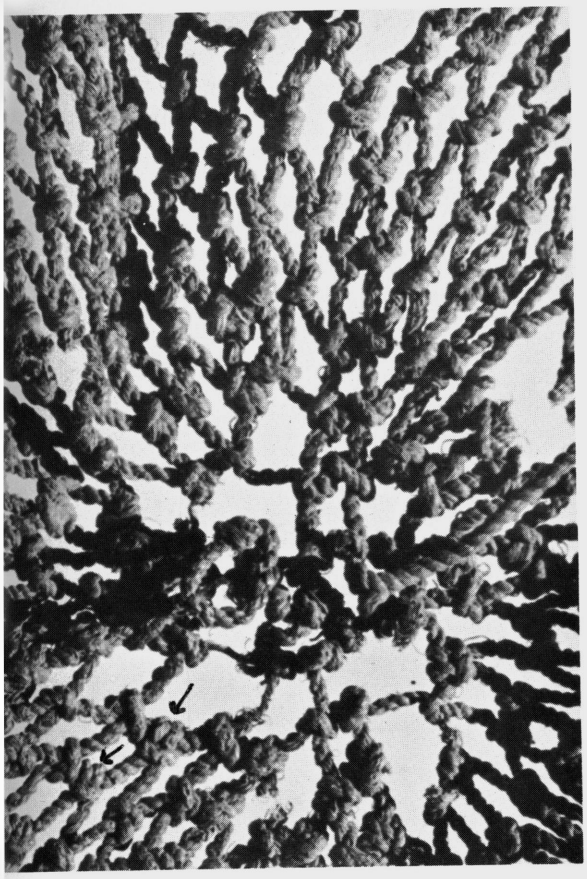
a. Detail of square-knot netting fragment. Diameter of cord 1.0 mm. Note lark's-head knots.

b. Detail of square-knot netting. Diameter of cord 1.0 mm. Net gauge 1.4 cm. Note lark's-head knot.

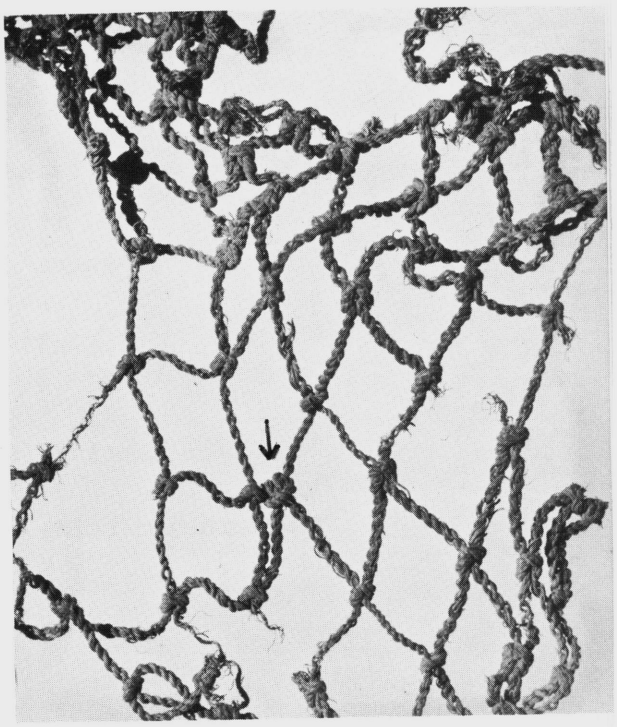
c. Braid fragment, 3.2 cm. long, 4.0 mm. diameter.

d. Spliced 2-ply Z-twist cordage, 18.0 cm. long, 3.0 mm. diameter.

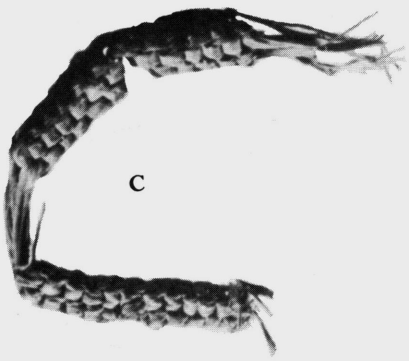
e. Cordage fragment, 2-ply Z-twist, 24.0 cm. long, 2.0 mm. diameter.



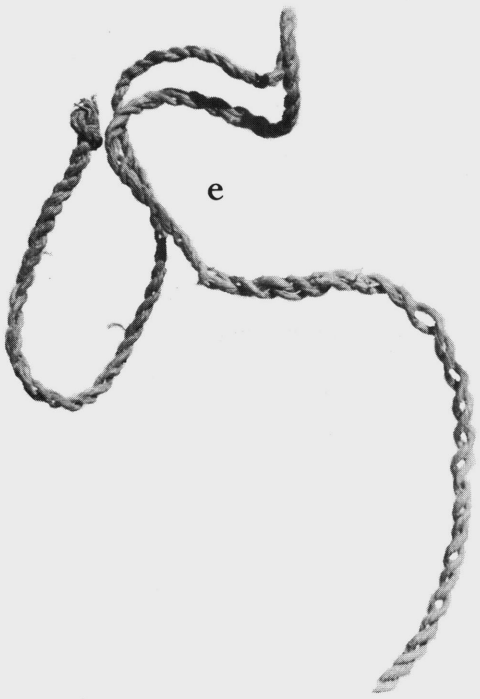
a



b



c



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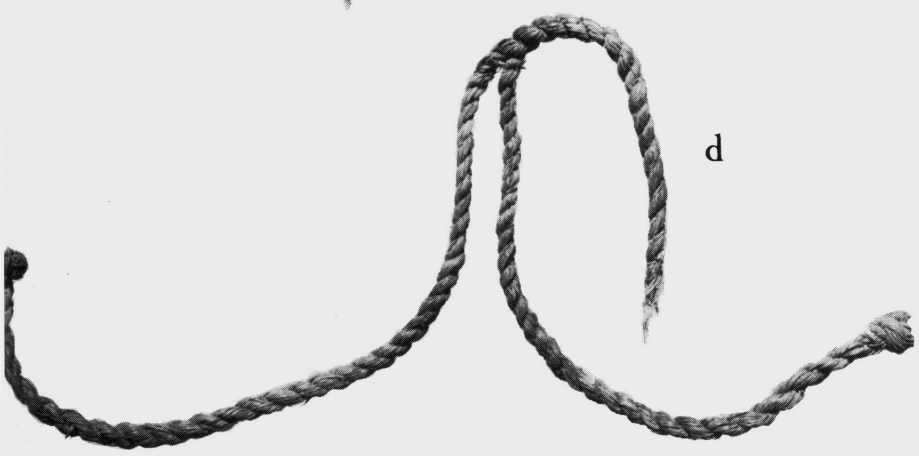


d

Plate 6

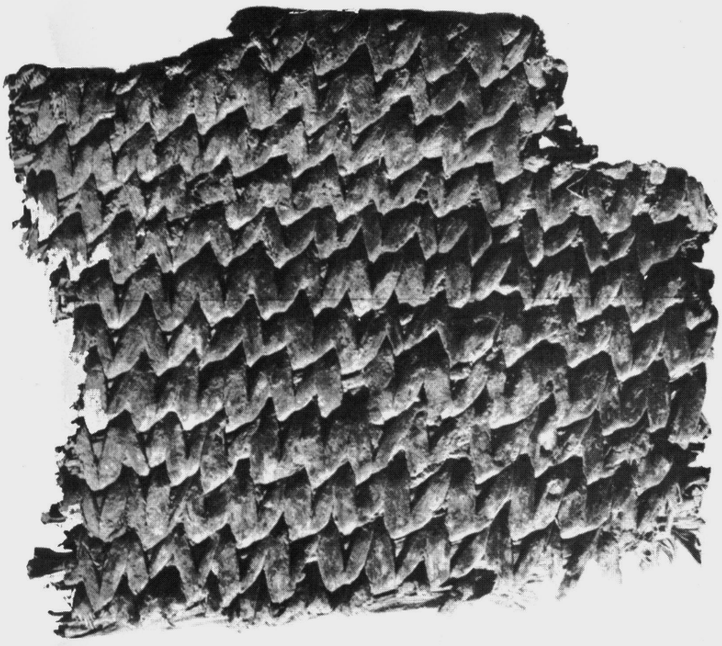
Plate 7
Basketry, Sandal, and Matting

a. Detail of fragment of coiled basketry. Three coils per cm.

b. Woven sandal fragment, 10.2 cm. long, 7.6 cm. wide, 1.1 cm. thick.

c. Detail of matting fragment.

d. Tie-twined matting fragment, 21.8 cm. long, 12.8 cm. wide.



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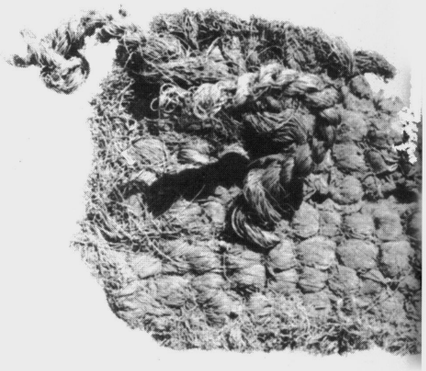

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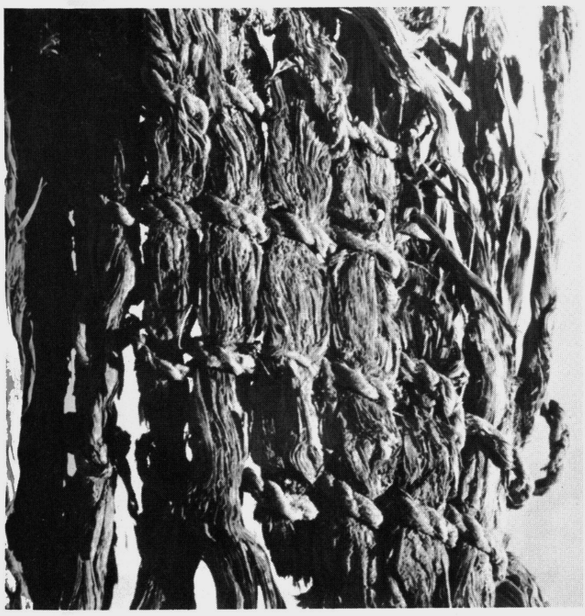


c

d

Plate 8
Metal Objects of European Origin

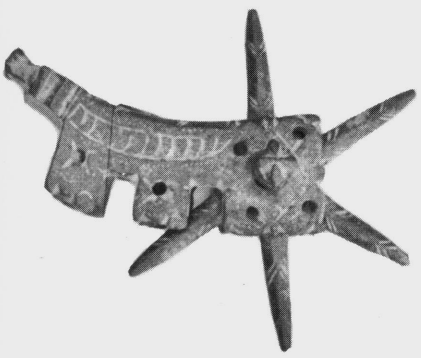
a. Bronze key, 9.3 cm. long.

b. Wrought iron rowel, 13.0 cm. long.

c. Wrought iron rowel, 11.3 cm. long.

d. Wrought iron spur, 20.4 cm. long overall.

a



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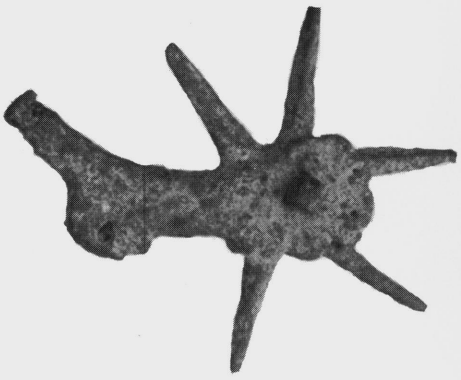

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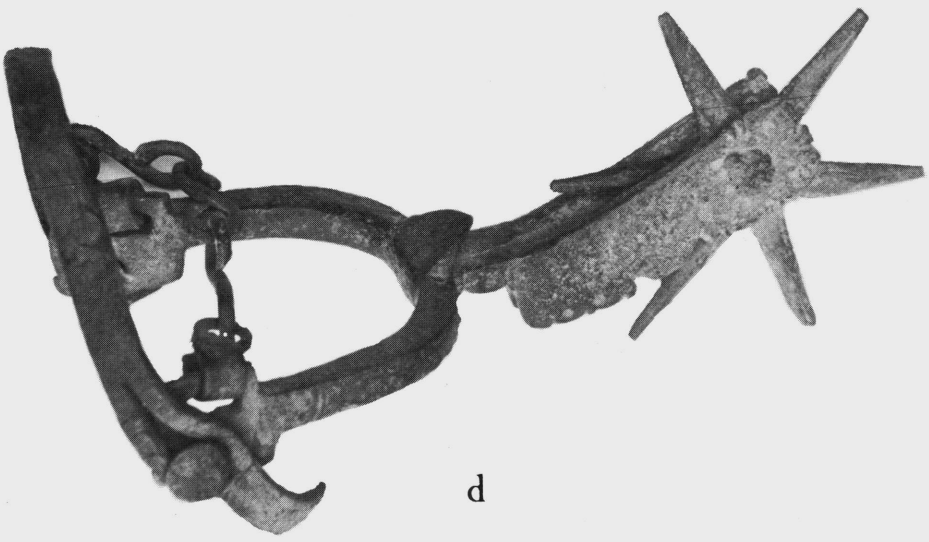

d

Plate 8

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