

## A PRECERAMIC STONE TOOL COLLECTION FROM VISCACHANI, BOLIVIA

Thomas Carl Patterson and Robert F. Heizer

Viscachani is an archaeological site located in the Provincia de Sica Sica, Departamento de La Paz, in the west-central highlands of Bolivia. It is reported to occupy an area of nine to twelve hectares on an ancient beach terrace overlooking the highway between La Paz and Oruro at about Km. 131 (fig. 19). The site has been severely eroded by the wind, but there are said to be areal differences in the kinds of stone artifacts that are found.

Stone tools from Viscachani were first described in 1954 by Dick Edgar Ibarra Grasso in a communication to the XXXI International Congress of Americanists at São Paulo.<sup>1</sup> In this communication Ibarra Grasso suggested that certain artifacts from Viscachani resembled ones characteristic of the Abbevillean-Acheulian tradition of Europe and others the Sandía points of North America. Still other specimens, according to Ibarra Grasso, were related to artifacts characteristic of the Ayampitín assemblages of northwestern Argentina. Oswald F. A. Menghin subsequently divided the lithic materials from Viscachani into two hypothetical industries; one, which he called Viscachanense, that was characterized by crudely chipped artifacts and was supposed to be earlier, and one called Ayampitinense that was composed of implements similar to those found in the Ayampitín assemblages which was supposed to be later.<sup>2</sup> This classification was similar to the one that Ibarra Grasso had made earlier, and, by 1957, Ibarra Grasso was using the terminology proposed by Menghin.<sup>3</sup> The next significant commentary on the lithic materials from Viscachani appeared in the discussion of early lithic industries in western South America published by E. P. Lanning and E. A. Hammel in 1961.<sup>4</sup> Lanning and Hammel pointed out that several of the projectile points illustrated by Menghin were similar to ones found in late preceramic assemblages rather than those in earlier ones, and that there was no apparent justification for segregating an early Viscachanense unit on typological grounds. The artificiality of the distinction between the Viscachanense and Ayampitinense units as defined by Menghin and Ibarra Grasso is clearly demonstrated by the fact that both kinds of lithic materials have been found in an association of contemporaneity at Intihuasi Cave in northwestern Argentina, about 1600 km. to the south of Viscachani.<sup>5</sup> The most recent publication of material from Viscachani available to the authors is the catalog of the Rubén A. Vela collection, a publication which provides thirty high quality illustrations of specimens from Viscachani but contributes nothing to the interpretation of the Viscachani materials.

The present paper records an unpublished collection of 63 chipped stone implements from Viscachani recently donated to the Robert H. Lowie Museum of Anthropology, University of California, Berkeley. The collection in question is a highly selected surface collection made about fifteen years ago. Our discussion of it is necessarily limited, because neither of us has visited the Viscachani site.

Most of the specimens represented in this collection are projectile points, although bifacially flaked knives, side scrapers, core scrapers, blanks for both projectile points and knives, and workshop waste are also represented. Fifty-eight specimens are made of quartzite of different colors, one of pink fossiliferous chalcedony, two of red jasper, and two of hornblende andesite.<sup>7</sup>

Projectile points with notched bases (RHLMA 16-11721 to 11723). There are three fragments of projectile points with notched or hollow bases in the collection. These points are bifacially flaked by percussion and have bifacially retouched lateral edges which are nearly even and which, on two of the fragments, are noticeably serrated. The concavity at the base of the points is produced by chipping that has a steeper angle than that along the lateral edges. The points are lenticular in cross-section, and one of the faces consistently has a greater degree of convexity than the other. Other specimens from Viscachani similar to these are illustrated by Menghin and Vela.<sup>8</sup>

Stemmed projectile points (figs. 1-3; RHLMA 16-11718 to 11720). There are three projectile points with short, straight-sided or contracting stems, and pronounced lateral barbs. These specimens are bifacially chipped and have bifacially retouched lateral edges. The stem portion of the point is only slightly thinner than the remainder of the artifact. These points vary from 29 to 43 mm. in length, from 17 to 25 mm. in width, and from 5 to 8 mm. in thickness. Two of the points are made of hornblende andesite, the third of quartzite. Menghin illustrates a stemmed point similar to those described above.<sup>9</sup>

Small leaf-shaped projectile points (figs. 4-12; RHLMA 16-11733 to 11754). Twenty-three small leaf-shaped projectile points occur in the collection. Two specimens are made of red jasper and the remainder of quartzite. All of the specimens are bifacially chipped, frequently have bifacially retouched lateral edges, and occasionally have bifacially retouched bases. On several of the more carefully worked points, long narrow shallow chips have been removed from both faces. Many of the points have serrated lateral edges, although these are only particularly noticeable on a few of them; in addition, a few of the serrated points have noticeable barbs on the lateral edges. There is some variation in both the size and the shape of these points, so that there are noticeable differences between extreme samples; however, the sample is large enough to show that this variation is continuous and that there are specimens intermediate in both size and shape between the extremes. These projectile points are most commonly between 40 and 45 mm. in length though they range from about 32 to 52.5 mm.; they vary in width from 16 to 29 mm. though the majority is between 16 and 18 mm. wide; all of the points are 6 to 9 mm. thick. Other small leaf-shaped points from Viscachani are illustrated by Menghin and Vela.<sup>10</sup>

Large leaf-shaped projectile points (figs. 13, 14; RHLMA 16-11724 to 11732). At least nine fragments of large leaf-shaped projectile points made of quartzite are found in the collection. These artifacts are chipped bifacially and, with two exceptions, have bifacially retouched lateral edges. Two of the fragments have noticeably serrated edges. The specimens, representing both bases and tips of

points, vary from 21 to 24 mm. in width and from 8 to 9 mm. in thickness. Specimens similar to these fragments are usually referred to as Ayampitín points and have been illustrated by Menghin and other authors.<sup>11</sup>

Bifacially flaked, leaf-shaped knives (figs. 15, 16; RHLMA 16-11708 to 11714). At least seven of the fragments in the collection come from bifacially chipped knives or points with rounded bases. These pieces are made of quartzite and vary from 27 to 33 mm. in width and from 8 to 10 mm. in thickness. Menghin illustrates a complete knife from Viscachani.<sup>12</sup>

Blanks for large leaf-shaped projectile points or knives (RHLMA 16-11696 to 11703). Seven bifacially chipped fragments and one unifacially chipped flake with rounded bases are characteristically thicker than either the large leaf-shaped points or knives and are probably blanks from which the two kinds of tools were made. All of the fragments are quartzite.

Small side scrapers (RHLMA 16-11715 to 11717). Three specimens in the collection -- two made of quartzite and one of fossiliferous pink chalcedony -- are small side scrapers, made on long thin flakes. Two of the scrapers are unifacially chipped, while the third is chipped on both faces. One of the lateral edges on each of the scrapers is bifacially retouched with fine percussion or pressure chipping while the opposite lateral edge is purposefully blunted with steep-angle flaking. These scrapers are 40 to 50mm. long, 19-21 mm. wide, and 6-10 mm. thick.

Core scrapers (figs. 17, 18; RHLMA 16-11704 to 11707). This term is used, for lack of a better one, to describe four roughly made, percussion-flaked artifacts in the collection. These implements are made on bifacially flaked, oval-shaped quartzite cores that have wavy cutting edges extending all or nearly all of the way around the circumference and vary in length from 50 to 63 mm., in width from 34 to 41 mm., and in thickness from 14 to 20 mm. Specimens similar to these are illustrated by Vela.<sup>13</sup>

Chipped objects (RHLMA 16-11755 to 11757). The three remaining quartzite specimens in the collection are probably workshop waste; they are chipped in random patterns and exhibit no indications of use.

When the collection described here is compared with the published illustrations of the Vela collection it is immediately evident that more kinds of artifacts are found in the latter. Artifact types found in the Vela collection that are absent in the collection we have described are small triangular projectile points, small hollow base projectile points, large flakes, and tabular implements with bifacially worked edges.<sup>14</sup> The difference between the two collections no doubt results in part from the fact that there are many more artifacts in the Vela collection and in part from a difference in selection criteria. The collection in the Lowie Museum seems to have been selected in such a way that large, crudely chipped implements are absent.

The implements from Viscachani in the Lowie Museum collection resemble implements from several other preceramic assemblages in western South America. These assemblages are not all of the same age. With the exception of the small stemmed projectile points and the bifacially flaked knives, implements in the Lowie Museum collection are similar to those recovered from the earliest (Ayampitín) occupation at Intihuasi Cave.<sup>15</sup> The stone work of the earliest occupation at Intihuasi Cave in turn has certain similarities to that of the Luz and Canario Complexes of the central Peruvian coast.<sup>16</sup> The relationships are complicated, however. The bifacially flaked knives in the Lowie Museum collection from Viscachani are not paralleled in the earliest occupation at Intihuasi Cave, as we have noted, but they are similar to artifacts found in the Luz Complex; the Luz Complex, as noted, has other similarities to the earliest occupation at Intihuasi Cave. The Luz Complex is followed by the Canario Complex, which includes leaf-shaped projectile points similar to those in the Lowie Museum collection from Viscachani and to the Ayampitín points corresponding to the earliest occupation of Intihuasi Cave.<sup>17</sup>

Small stemmed projectile points occur rarely in the later occupations at Intihuasi Cave but are not particularly characteristic there; they are, however, characteristic of the industries of Laguna Hedionda (southwestern Bolivia) and Pichalo Preceramic II (northern Chile).<sup>18</sup>

The Lowie Museum collection thus has its earliest resemblances to the first occupation of Intihuasi Cave and to the Luz Complex of the central Peruvian coast. The first occupation of Intihuasi Cave is dated after 6300 B.C. by radiocarbon measurements on samples of charred bone, while the Luz Complex is dated to about 5500 B.C. by measurements on charcoal samples. The Canario Complex is dated by one measurement on a charcoal sample to about 4950 B.C.<sup>19</sup> The latest resemblances of the materials from Viscachani are to the Laguna Hedionda and Pichalo Preceramic II industries, the estimated age of which falls between 3000 and 2000 B.C. The Viscachani site may very well have been occupied for over 3000 years, but its Ayampitín-like component is the earliest rather than the latest one indicated by the evidence. Crude stone work is not an indication of antiquity in South America; roughly made stone implements continued to be produced in places on the Peruvian coast down to the time of the Inca occupation.

#### Notes

<sup>1</sup>Ibarra Grasso, 1955.

<sup>2</sup>Menghin, 1955.

<sup>3</sup>Ibarra Grasso, 1957.

<sup>4</sup>Lanning and Hammel, 1961.

<sup>5</sup>González, 1962.

<sup>6</sup>Vela, 1964.

<sup>7</sup>Howel Williams, Department of Geology, University of California, Berkeley, has examined the Viscachani collection and reports that most of the implements are made of varicolored quartzites (brown, pink, and black). One side scraper (RHLMA 16-11716) is made of pink fossiliferous chalcidony; two small leaf-shaped points (RHLMA 16-11734 and 11751) are made of red jasper; and two of the stemmed points (RHLMA 16-11718 and 11720) are made of hornblende andesite.

<sup>8</sup>Menghin, 1955, lám. XII, third row, left, and fourth row, right; Vela, 1964, lám. XXVIII, nos. 143, 148-151, 155-160.

<sup>9</sup>Menghin, 1955, lám. XII, fourth row, third from left.

<sup>10</sup>Menghin, 1955, lám. XII, second row; Vela, 1964, láms. III, nos. 237-242, 246, 249; XXIX, nos. 199-201; XXX, nos. 218-223, 227-229.

<sup>11</sup>Menghin, 1955, lám. XI, upper right.

<sup>12</sup>Menghin, 1955, lám. XI, lower right.

<sup>13</sup>Vela, 1964, láms. XXI, nos. 44, 45, 55, 56; XXIV, nos. 86-90, 94.

<sup>14</sup>Small triangular projectile points: Vela, 1964, lám. VI, nos. 337-340; small hollow base projectile points: Vela, 1964, lám. VII, nos. 350-354; large flakes: Vela, 1964, láms. VIII, no. 482, and IX, no. 422; tabular implements: Vela, 1964, lám. XVII.

<sup>15</sup>González, 1962.

<sup>16</sup>Lanning, 1963.

<sup>17</sup>Lanning, 1963, and González, 1962.

<sup>18</sup>Laguna Hedionda: Barfield, 1961, fig. 11 i-n; Richalo: Bird, 1943, p. 259.

<sup>19</sup>Radiocarbon measurements are currently published as calculated on the basis of the Libby half-life value for radioactive carbon. The Cambridge half-life value, which gives an age 1.03 times greater than the Libby value, is generally agreed to be a closer approximation to the true one. In the following list of measurements Ly indicates a measurement calculated on the basis of the Libby half-life and Cb a measurement calculated on the basis of the Cambridge one. The date in parentheses following the laboratory number designates the year the measurement was made.

Intihuasi, earliest occupation (charred bone)

Y-228 (1956)	Ly 7970 ± 100	Cb 8209 ± 100 = 6260 B.C. ± 100
P-345 (1960)	Ly 8060 ± 100	Cb 8302 ± 100 = 6353 B.C. ± 100

## Luz Complex (charcoal)

UCLA-201 (1962)	Ly 7300 ± 100	Cb 7519 ± 100 = 5570 B.C. ± 100
Y-1303 (1963)	Ly 7300 ± 120	Cb 7519 ± 120 = 5570 B.C. ± 120
UCLA-202 (1962)	Ly 7140 ± 100	Cb 7354 ± 100 = 5405 B.C. ± 100
Y-1304 (1963)	Ly 6600 ± 120	Cb 6798 ± 120 = 4849 B.C. ± 120

## Canario Complex (charcoal)

UCLA-203 (1962)	Ly 6700 ± 100	Cb 6901 ± 100 = 4952 B.C. ± 100
-----------------	---------------	---------------------------------

Y-1304 is inconsistent with the rest of the series and should be rejected.

## Bibliography

Barfield, Lawrence

- 1961 Recent discoveries in the Atacama Desert and the Bolivian Altiplano. *American Antiquity*, vol. 27, no. 1, July, pp. 93-100. Salt Lake City.

Bird, Junius Bouton

- 1943 Excavations in northern Chile. *Anthropological Papers of the American Museum of Natural History*, vol. XXXVIII, part IV, pp. i-ii, 171-318. New York.

González, Alberto Rex

- 1962 La estratigrafía de la Gruta de Intihuasi (Prov. de San Luís, R.A.) y sus relaciones con otros sitios precerámicos de Sudamérica. *Revista del Instituto de Antropología, Universidad Nacional de Córdoba*, tomo I, 1960, pp. 5-296. Córdoba.

Ibarra Grasso, Dick Edgar

- 1955 Hallazgos de puntas paleolíticas en Bolivia. *Anais do XXXI Congresso Internacional de Americanistas, São Paulo*, 23 a 28 de agosto de 1954, vol. II, pp. 561-568. São Paulo.

- 1957 El Paleolítico inferior en América. *Cuadernos Americanos*, año XVI, no. 4, julio-agosto, pp. 135-175. México.

Lanning, Edward Putnam

- 1963 A pre-agricultural occupation on the central coast of Peru. *American Antiquity*, vol. 28, no. 3, January, pp. 360-371. Salt Lake City.

Lanning, Edward Putnam, and Hammel, Eugene Alfred

- 1961 Early lithic industries of western South America. *American Antiquity*, vol. 27, no. 2, October, pp. 139-154. Salt Lake City.

Menghin, Oswald F. A.

- 1955 Culturas precerámicas en Bolivia. *Runa, Archivo para las Ciencias del Hombre*, vol. VI, partes 1-2, 1953-1954, pp. 125-1932. Buenos Aires.

Vela, Ruben A.  
 1964 Catálogo de la Colección Vela (prehistoria americana). Contribución al XXXVI Congreso Internacional de Americanistas. Diputación Provincial de Valencia, Servicio de Investigación Prehistórica, Valencia.

### Key to Illustrations

All specimens are reproduced at half natural size. The drawings are the work of Robert Berner.

#### Plate I

- Fig. 1. Stemmed projectile point, quartzite. 16-11719, 29 mm. long, broken tip.  
 Fig. 2. Stemmed projectile point, hornblende andesite. 16-11720, 41 mm. long.  
 Fig. 3. Stemmed projectile point, hornblende andesite. 16-11718, 43 mm. long, broken tip.  
 Fig. 4. Small leaf-shaped projectile point, quartzite. 16-11754, 52.5 mm. long.  
 Fig. 5. Small leaf-shaped projectile point, quartzite. 16-11753, 45 mm. long.  
 Fig. 6. Small leaf-shaped projectile point, quartzite. 16-11747, 47 mm. long.  
 Fig. 7. Small leaf-shaped projectile point, quartzite. 16-11735, 46.5 mm. long.  
 Fig. 8. Small leaf-shaped projectile point, quartzite. 16-11736, 42 mm. long.  
 Fig. 9. Small leaf-shaped projectile point, quartzite. 16-11750, 41.8 mm. long.  
 Fig. 10. Small leaf-shaped projectile point, quartzite. 16-11748, 44 mm. long.  
 Fig. 11. Small leaf-shaped projectile point, quartzite. 16-11742, 36.5 mm. long.  
 Fig. 12. Small leaf-shaped projectile point, quartzite. 16-11741, 34.5 mm. long.

#### Plate II

- Fig. 13. Large leaf-shaped projectile point, quartzite. 16-11727, 38 mm. long, broken at lower edge.  
 Fig. 14. Large leaf-shaped projectile point, quartzite. 16-11726, 42.5 mm. long, broken at upper edge.  
 Fig. 15. Bifacially flaked knife, quartzite. 16-11710, 40 mm. long, broken at lower edge.  
 Fig. 16. Bifacially flaked knife, quartzite. 16-11708, 49.5 mm. long, broken at upper edge.  
 Fig. 17. Core scraper, quartzite. 16-11705, 54 mm. wide.  
 Fig. 18. Core scraper, quartzite. 16-11706, 51 mm. wide.  
 Fig. 19. Location map based on a sketch provided by the collector. The stippled area represents the area in which the collection described here was made and does not necessarily indicate the entire area of the site.

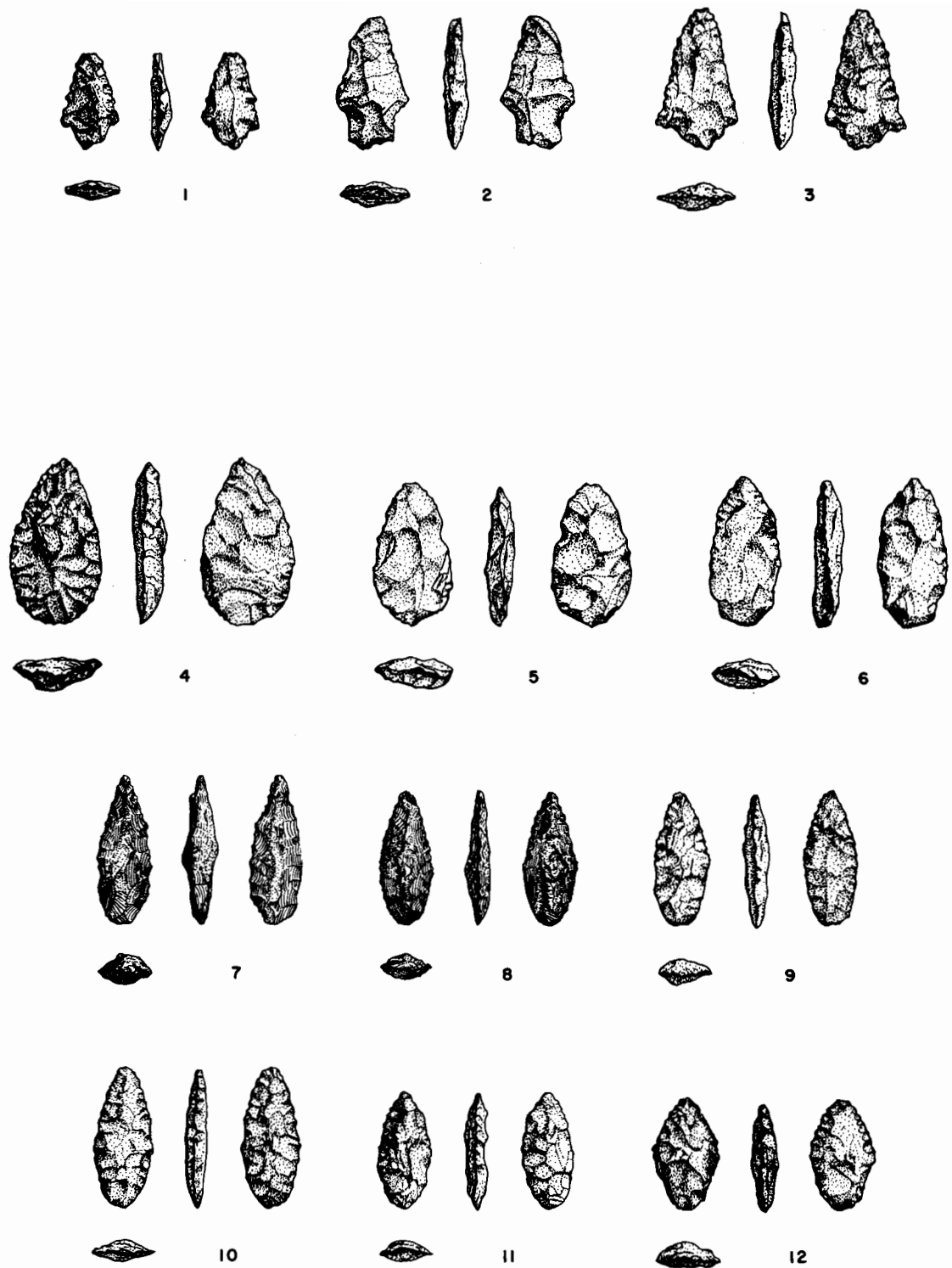


Plate I. Stone implements from Viscachani. Stemmed projectile points (figs. 1-3); small leaf-shaped projectile points selected to represent the range of variation (figs. 4-12). See key to illustrations.



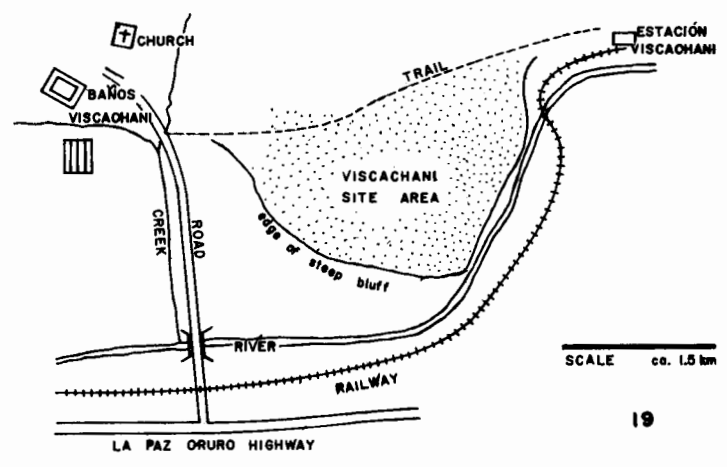
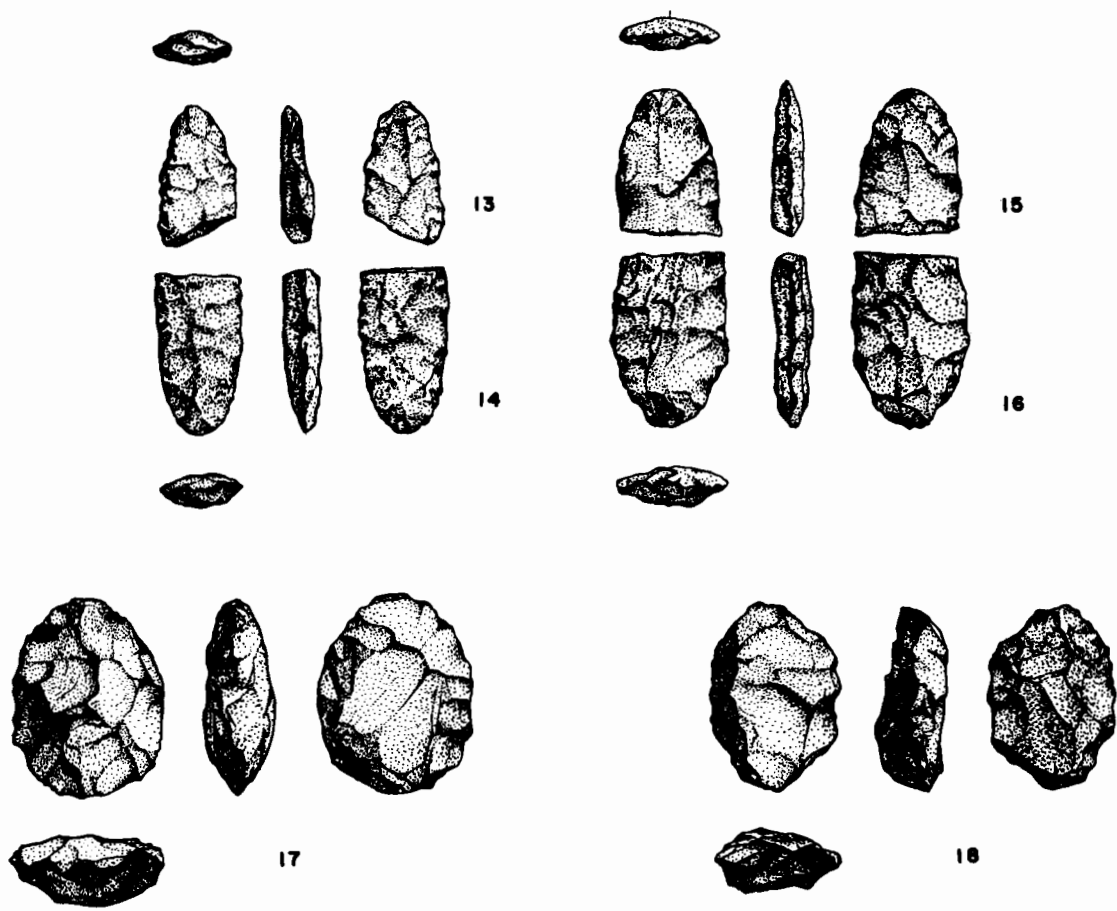


Plate II. Stone implements from Viscachani. Large leaf-shaped projectile points (figs. 13-14); fragments of two implements mounted to suggest probable original size; bifacially flaked knives (figs. 15-16); fragments of two implements mounted to suggest probable original size; core scrapers (figs. 17-18); sketch map of site (fig. 19). See key to illustrations.