

# ***Large Projectiles and the Cultural Distinction of Southern Baja California: A Reexamination***

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## **Abstract**

William C. Massey proposed that bow-and-arrow technology only replaced the atlatl and dart in the Cape Region of Baja California Sur as late as the middle of the seventeenth century AD. This has been taken as an indication of the relative cultural isolation of the southern peninsula from the remainder of North America, where such a transition generally occurred 1,000 years earlier. However, a reexamination of the early historical evidence suggests that the use of larger projectiles coexisted with the use of the bow and arrow on a sustained basis, both in the Cape Region and throughout the Californias.

The advent of the bow and arrow figures prominently in the prehistory of North America. The new system constituted a notable technological advance over its predecessor, the atlatl and dart, providing improved range, accuracy, portability, and stealth. Archaeologically, the innovation is conspicuously signaled by the appearance of small stone projectile points. Questions of anthropological interest concern the rapidity with which the new technology spread to various regions on the continent and the extent to which it replaced or merely supplemented earlier technologies.

William C. Massey (1955, 1957, 1961a, 1961b), a pioneering archaeologist in the Cape Region of Baja California Sur (between Isla Partida and Cabo San Lucas), called attention to early historic evidence

from that region. According to W. Massey (1961a: 91), the use of large projectile missiles, such as the atlatl and dart survived in the Cape Region, although “on the verge of disappearance,” until the middle of the seventeenth century. This observation gave support to the “layer cake” model of Baja California’s prehistory, advocated by Kirchhoff (1942), W. Massey, and others. According to the model, waves of migration or cultural diffusion were impeded as they moved down the peninsula, and the relatively isolated south preserved archaic cultural patterns which were overlain by later cultural “strata” farther north.

A reexamination of the evidence on this question is appropriate, both because more of the early historic record has become accessible since W. Massey wrote, and because the preferred models for explaining cultural variability have shifted from an emphasis on migration and diffusion to an emphasis on differential adaptive circumstances. The key issues are (1) whether the atlatl and dart were in substantial use in the Cape Region during the sixteenth and early seventeenth centuries, (2) whether they ceased to be used there after the 1640s, and (3) whether such use was anomalous in the context of the early historic Californias.

William C. Massey's interest in atlatls was stimulated by his recovery of four archaeological specimens in a primary flexed burial in the Cape Region, at Cerro Cuevo Cave (W. Massey 1955). The burial was undated, it had no reported historic-period associations, and it appeared to predate a later prehistoric burial pattern at the same site. The archaeological specimens therefore do not address the question of how late the atlatl continued to be used in the region. Additional atlatls have subsequently been recovered in the Cape Region, also from undated contexts (L. Massey 1972; Molto and Fujita 1995).

Turning to the early historic evidence, W. Massey noted that the use of the bow and arrow was ubiquitous in Baja California, including the Cape Region, from the time of earliest European contacts. However, he also found two apparent references to the use of the atlatl.

The first reference was by Nicolás de Cardona, referring to a visit to La Paz in 1615-16. Cardona mentioned the local use of *estólicas*, which W. Massey reported to be a standard term in South America for the dart-thrower. However, Cardona in fact referred to "*estólicas tostadas*" (Mathes 1970:258), which has been translated as "fire-hardened spears" (Cardona 1974:100). Because fire-hardening of atlatls is unlikely, *estólicas* evidently meant darts rather than atlatls, and this evidence for the use of atlatls is, at best, indirect. In an earlier report of the same visit, Cardona merely referred to fire-hardened darts (*dardos tostados*) (Mathes 1970:60).

William C. Massey's second reference came from a Jesuit priest, Jacinto Cortés, who accompanied the governor of Sonora, Luis Cestín de Cañas, to the La Paz area in 1642. Cortés reported that fire-hardened darts (*dardos tostados*) were "thrown with an instrument which makes them fly like arrows"

(Pérez de Ribas 1944:2:243). This seems fairly convincing evidence for the use of the atlatl.

No other historic references to the atlatl in the Californias have been identified (Appendix 1). The scarcity of such observations among the fairly numerous pre-1642 references to bows and arrows and other projectiles in the Cape Region calls for explanation. William C. Massey (1957: 59-60) considered three hypotheses. He rejected the suggestion that the atlatl might have been introduced by Spanish early explorers from mainland Mexico, where the Aztecs and others used the atlatl. His preferred explanation was that the device was on the verge of extinction when it was observed in southern Baja California, finally succumbing to cultural pressure from the competing bow-and-arrow weapon system. A third explanation, mentioned by W. Massey only in passing, was that most of the observers simply failed to notice or comment upon the atlatl when it was present. This alternative seems worthy of further consideration, particularly for its implication that the atlatl may also have been in use both in the south after 1642 and in other regions, where explicit testimony is lacking.

Acknowledging the problem of incomplete reporting, W. Massey turned to the slightly less direct evidence provided by early historical references to darts (*dardos*), which the early observers were careful to distinguish from arrows. According to W. Massey's research, "all known references to darts for the entire peninsula for the Spanish period" are six: by Sebastián Vizcaíno at Magdalena Bay and at nearby Santa Marina Bay in 1602, by Antonio de la Ascención at Cabo San Lucas in 1602, by Francisco de Ortega at Cabo San Lucas in 1632 and Isla San Ildefonso in 1636, and as noted previously by Jacinto Cortés near La Paz in 1642 (W. Massey 1961a:85). The chronological and geographical pattern of W. Massey's dart

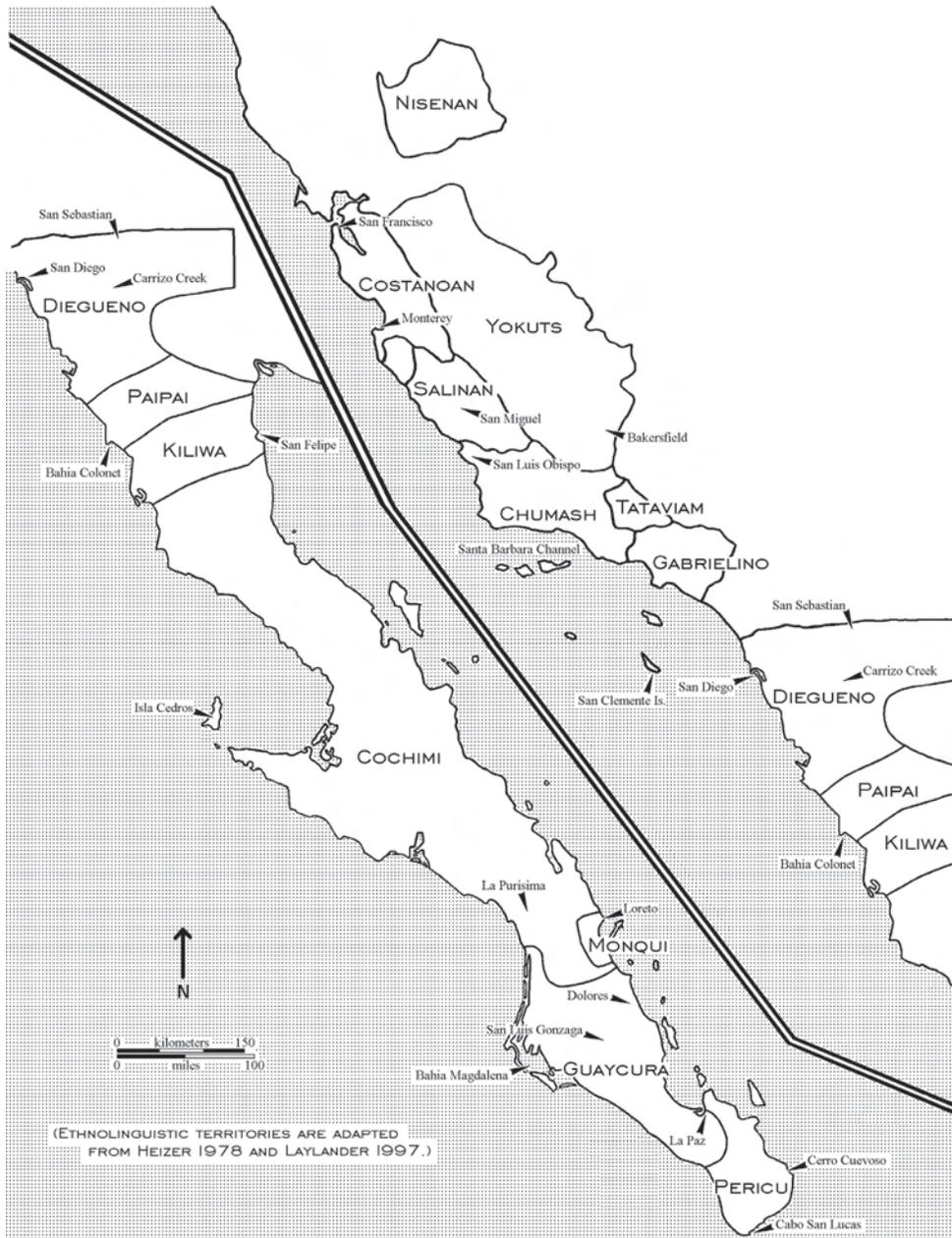


Fig. 1. Ethnolinguistic territories of the Californias.

citations appears significant. All of them predate 1643, and all relate to ethnographic Pericú or Guaycura territory, except Ortega’s 1636 note, which refers to southern Cochimí territory.

However, a further examination of the Spanish-period ethnographic records for Baja and Alta California reveals a number of additional references to darts, as well as to various other projectiles and similar tools, including lances, javelins, and

harpoons, and to their use in fishing, hunting, and warfare. These references are summarized in Appendix 1 and are not limited to the southern peninsula nor to the period prior to 1643, but occur throughout the coastal Californias and throughout the Spanish period (Fig. 1).

The chronological and geographical range of this additional historic evidence gives little support to the “layer cake” model positing delayed replacement of larger projectiles by the bow and arrow in relatively isolated southern Baja California. Instead, it suggests that several different projectile technologies coexisted in the Californias, apparently on a stable basis for centuries, presumably serving complementary rather than redundant functions.

### Conclusions

The early ethnographic record concerning aboriginal projectile technologies in both Californias is tantalizingly incomplete in many respects. Future archaeological studies may be able to fill in many of the gaps. On present evidence, the following conclusions appear warranted: (1) The date of the introduction of the bow and arrow into the Cape Region is unknown. It is possible that this innovation reached the region substantially later than other parts of North America, but as yet there is no persuasive evidence to support that view. Bows and arrows were documented as being in use in the Cape Region from earliest historic times (AD 1535). (2) The atlatl, if its use was

residual in the Cape Region in 1642, had continued alongside of the bow for at least four generations (AD 1535-1642), and perhaps for much longer. Evidence that the atlatl was dropped from the cultural inventory of the Cape Region peoples prior to the cultural extinction of those people in the middle of the eighteenth century is inconclusive. (3) At least to judge from the frequencies of citations in the early historic record, darts and other large projectiles were subordinate in importance to arrows. Nonetheless, they continued to coexist throughout the coastal Californias, and throughout the Spanish period. (4) Some of the large projectiles mentioned in early historic accounts had stone points. Archaeologically, while small stone points may be diagnostic of late prehistoric activity, large points should not necessarily be taken as indicative of an early date in the coastal Californias. (5) To explain the cultural distinctiveness of southern Baja California, at least in the case of the atlatl, the culture-historical “layer cake” model, based on retarded technological diffusion, appears to have less merit than would an alternative, culture-ecological explanation, based on the use of multiple technologies with specialized, complementary functions, perhaps related specifically to coastal adaptations.

### Acknowledgements

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**Appendix 1: References to Aboriginal Projectiles other than Arrows in the Californias, 1533-1821**

The following references are arranged chronologically. Some refer to tools which were evidently thrust or swung rather than being thrown, and many others are ambiguous in this respect. Geographically, the portions of the Californias along the lower Colorado River and north of Cape Mendocino have been excluded from this survey.

Observer, Date, Citation	Ethnic Group, Location	Observations
Anonymous 1535 (López de Gómara 1979:309)	Pericú or Guaycura (La Paz)	pointed shafts ( <i>varas</i> ) used in fishing
Francisco de Ulloa 1539 (Montané 1995:221, 223)	Guaycura (Bahía Magdalena)	lances ( <i>varas</i> ) used as weapons
Francisco de Ulloa 1539 (Montané 1995:237)	Cochimí (Isla Cedros)	two-handed clubs ( <i>palos grandes</i> ) used as weapons
Francisco Preciado 1539 (Ramusio 1550-65(3):343)	Pericú or Guaycura (La Paz)	finely-made sticks ( <i>bastone</i> ) (harpoons?) with a handle ( <i>manico</i> ) and cord to throw them
Francisco Preciado 1539 (Ramusio 1550-65(3):347)	Guaycura (Bahía Magdalena)	sticks ( <i>bastone</i> ) with cords to throw them
Francisco Preciado 1539 (Ramusio 1550-65(3):350-351)	Cochimí (Isla Cedros)	sticks ( <i>bastone</i> ) 3 yards long and thicker than a man's wrist; bastinados thicker than a man's wrist; long sticks like javelins ( <i>zagaglie</i> ), with very sharp points
Pedro de Unamuno 1587 (Wagner 1929:494)	Chumash (San Luis Obispo)	lances ( <i>lanzas</i> ) of elder, with fire-hardened oak tips
Sebastián Vizcaíno 1596 (Mathes 1965:264)	Pericú (Cabo San Lucas)	fire-hardened poles with points in the manner of darts ( <i>dardos</i> )
Lope de Argüelles Quiñones 1596 (Mathes 1965:1242)	(southern Baja California)	fire-hardened poles ( <i>palos</i> ) as weapons
Sebastián Gutiérrez 1596 (Mathes 1970:267)	Pericú	lances ( <i>lanzas</i> ) with stone points
Sebastián Gutiérrez 1596 (Mathes 1970:267)	Monqui	lances ( <i>lanzas</i> )
Sebastián Vizcaíno 1602 (Carrasco 1882:74)	Guaycura (Bahía Magdalena)	small wooden, fire-hardened darts ( <i>dardillos</i> ) used as weapons and for fishing
Sebastián Vizcaíno 1602 (Carrasco 1882:88)	Paipai (Bahía Colonet)	throwing clubs ( <i>garrotillos</i> )
Antonio de la Ascención 1602 (Venegas 1943(3):34)	Pericú (Cabo San Lucas)	darts ( <i>dardos</i> )
Antonio de la Ascención 1602 (Venegas 1943(3):63-64)	Gabrielino (San Clemente Is.)	long, thin elder shafts ( <i>varas</i> ) with a fishbone harpoon ( <i>arpón</i> ) on the end attached to a long cord, used for fishing
Gonzalo de Francia 1602 (Mathes 1965:1218)	Monqui	darts ( <i>dardos</i> ) thrown as weapons
Nicolás de Cardona 1616 (Mathes 1970:60, 258)	Pericú or Guaycura (La Paz)	fire-hardened darts ( <i>estólicas</i> , <i>dardos</i> ); harpoons ( <i>harpones</i> ) from branches
Diego de la Nava 1632 (Mathes 1970:273)	Pericú	darts ( <i>dardos</i> ) of brazilwood and ebony
Esteban Carbonel de Valenzuela 1632 (Mathes 1970:347-348)	Pericú (Cabo San Lucas)	darts ( <i>dardos</i> ) like lances ( <i>lanzas</i> ), made of light wood with heavy, strong wood points; darts and harpoons ( <i>ajarpones</i> ) used in fishing

Observer, Date, Citation	Ethnic Group, Location	Observations
Esteban Carbonel de Valenzuela 1632 (Mathes 1970:352)	Pericú (La Paz)	darts ( <i>dardos</i> )
Francisco de Ortega 1636 (Mathes 1970:451)	Pericú (La Paz)	darts ( <i>dardos</i> ) used in warfare
Francisco de Ortega 1636 (Mathes 1970:462-464)	Cochimí (north of Loreto)	hardwood throwing darts ( <i>dardos</i> ) used as weapons
Jacinto Cortés 1642 (Pérez de Ribas 1944(2):243)	Pericú (La Paz area)	fire-hardened darts ( <i>dardos</i> ) thrown with an instrument making them fly like arrows
Pedro Porter y Casanate 1644 (Mathes 1970:827-892)	Pericú (Cabo San Lucas)	small darts ( <i>dardillos</i> ) thrown; darts ( <i>dardos</i> )
Eusebio Francisco Kino 1683 (Burrus 1954:72)	Cochimí (La Purísima)	large, fine dart ( <i>dardo</i> )
Juan María Salvatierra 1697 (1997:109)	Monqui (Loreto)	a stick ( <i>estoque</i> ) which are used for both fishing and fighting
Francisco María Piccolo 1702 (1962:64)	Monqui or Cochimí	darts ( <i>dardos</i> ) used for hunting and fighting
Edward Cooke 1709 (Andrews 1979:38-43)	Pericú (Cabo San Lucas)	wooden fishing spears (with illustrations)
Woodes Rogers 1709 (Andrews 1979:66)	Pericú (Cabo San Lucas)	wooden fishing spear
Clemente Guillén 1719-21 (León-Portilla 1970:106-109)	Guaycura (San Luis Gonzaga)	small flint-tipped lances ( <i>lancillas</i> )
Jaime Bravo 1720 (León-Portilla 1970:62)	Pericú (islanders at La Paz)	harpoons ( <i>figas</i> )
George Shelvocke 1721 (Andrews 1979:90-98)	Pericú (Cabo San Lucas)	hardwood fishing harpoons (with illustration)
Anonymous 1731 (Venegas 1979)4:434	Guaycura (Dolores)	darts ( <i>dardos</i> ) used as weapons
Anonymous ca. 1730s (Venegas 1979(4):562)	(southern or central Baja California)	darts ( <i>dardos</i> ) and pole lances ( <i>lanzas</i> ) with fire-hardened points used for close combat
Sigismundo Taraval 1737 (1996:145)	Pericú (La Paz area)	darts ( <i>dardos</i> ) used as weapons
William Stratford 1746 (Ramos 1958:61)	Kiliwa (San Felipe)	curved sticks ( <i>palos</i> ) like sythes, sharp at one end, used as weapons
Ferdinand Consag 1751 (Ortega 1944:417-418)	Cochimí	curved, flat hardwood throwing stick ( <i>palo</i> ) for hunting rabbits and jackrabbits and for fighting
Miguel del Barco ca. 1760s (1973:70, 193)	(central or southern Baja California)	harpoon ( <i>figa o arpón</i> ) used in fishing; for close combat, in addition to javelins ( <i>venablos</i> ) or lances ( <i>lanzas</i> ), some use darts ( <i>dardos</i> )
Miguel del Barco ca. 1760s (1973:193, 205, 308)	(northern Baja California)	club, pick, and sword-like weapons; small stick ( <i>palito</i> ) thrown to hunt rabbits
Johann Jakob Baegert 1761 (1982:231)	Guaycura	sharp pointed sticks to pierce and catch fish and turtles
Joaquín Velázquez de León 1768 (1975:24)	(Cape Region)	harpoons ( <i>figas</i> ) used for fishing

Observer, Date, Citation	Ethnic Group, Location	Observations
Juan Vizcaíno 1769(1959:11, 16)	Gabrielino (San Clemente Is.)	shafts with three-barbed harpoon points used for fishing
Juan Crespi 1769 (Vicedo 1994:166, 171)	Diegueño (northwest Baja California, San Diego)	clubs ( <i>macanas</i> ); long harpoons ( <i>figsas</i> ) with bone points
Juan Crespi 1769 (Bolton 1927:39)	Chumash (Santa Barbara Channel)	well-made reed spears used for fishing
Juan Crespi 1769-72 (Bolton 1927:51; Vicedo 1994:228)	Costanoan (Monterey area)	darts or small darts ( <i>banderillas</i> ) used ritually
Observer, Date, Citation	Ethnic Group, Location	Observations
Miguel Costansó 1770 (1910:120-122)	Diegueño (San Diego)	curved hardwood throwing sticks; harpoons ( <i>figsas</i> ) several yards long, with a sharp bone point inserted in the wood, thrown adroitly
Francisco Garcés 1774 (Bolton 1930(2):341-342)	Diegueño (San Sebastian)	sickle-shaped clubs ( <i>macanas</i> ) used to hunt rabbits and deer; lances with good points used as weapons
Francisco Palóu 1774-76 (Bolton 1930(2):415, 424)	Costanoan (San Francisco area)	long poles like lances; short lances with flint points used as weapons
Francisco Palóu 1775 (1926(4):63-71)	Diegueño (San Diego)	clubs ( <i>macanas</i> )
Pedro Fagés 1775(Portolá 1984:157)	Gabrielino or Tataviam	war clubs ( <i>macanas</i> ) in the shape of sabers, thrown in hunting and warfare
Pedro Fagés 1775 (Portolá 1984:174)	Chumash (San Luis Obispo)	barbed bone tridents ( <i>figsas</i> ) used with well-made harpoon ( <i>harpón</i> ) for fishing
Francisco Javier de Rivera y Moncada 1774 (1967:74)	Costanoan (San Francisco vicinity)	darts ( <i>dardos</i> )
Pedro Font 1776 (Bolton 1930(4):131)	Diegueño (San Sebastian)	thin, crescent- or sickle-shaped hardwood throwing sticks ( <i>macanas</i> ) to hunt rabbits
Pedro Font 1776 (Bolton 1930(4):196)	Diegueño (San Diego)	harpoons
José Velásquez 1785 (Ives 1984:196-197)	Diegueño (Carrizo Creek)	lances ( <i>jaras</i> ) used as weapons
Luis Sales 1790 (1794:19-49)	(northern Baja California)	sticks ( <i>palos</i> ) for hunting rabbits and otters, and as weapons; slings ( <i>hondas</i> )
José Longinos Martínez 1791 (Bernabéu 1994:159-163)	(central and southern Baja California)	trident ( <i>figsa</i> ) and harpoon ( <i>arpón</i> ) used for fishing; only bow and arrow used for hunting and war
José Longinos Martínez 1791 (Bernabéu 1994:166)	(northern Baja California)	curved stick used to hunt rabbits
José Longinos Martínez 1791 (Bernabéu 1994:223)	Chumash	curved, flat clubs ( <i>macanas</i> ) used to hunt rabbits and other small game; trident ( <i>figsa</i> ) used for fishing; harpoon ( <i>arpón</i> ) made of shell or flint
José María de Zalvidea 1806 (Cook 1960:246)	Yokuts (Bakersfield area)	spear used as weapon
Gabriel Moraga 1808 (Cutter 1957:19)	Nisenan	stick like a lance ( <i>un palo a modo de lanza</i> ), with a flint blade, is thrown
Juan Martín 1814 (Geiger and Meighan 1976:114)	Salinan (San Miguel)	darts used as weapons

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