

# Nonreturn Boomerangs in Baja California Norte

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## Abstract

Subsistence employment of nonreturn boomerangs is nearing extinction in North America. However, some Paipai (Santa Catarina) and Tipai (La Huerta), continue to carve rabbit sticks and to sell many of them in the tourist/ethnic arts markets. Persons involved in crafting rabbit sticks provided this ethnographic study with traditional knowledge regarding manufacture, use, and belief surrounding the weapon. Ethnographic accounts about this hunting implement indicate an importance that would be difficult to document with the archaeological data.

## Abstracto

El empleo subsistencia de los bumerangs del no retorno está acercando a la extinción en Norteamérica. Sin embargo, algún Paipai (Santa Catarina) y Tipai (la Huerta), continúan a tallar los palillos del conejo y a vender muchos de ellos en los mercados étnicos, en los de artes, y de las turistas. Las personas implicadas en hacer los palillos del conejo a mano proveieron de este estudio etnográfico el conocimiento tradicional con respecto a la fabricación, el uso, y a la creencia que rodeaba la arma. Las cuentas etnográficas sobre este instrumento de la caza indican una importancia que sería difícil de documentar con los datos arqueológicos.

## Introduction

The antiquity of curved throwing weapons extends minimally into the mid-Upper Paleolithic. The oldest example is an ivory specimen recovered at Oblazowa Rock in southern Poland, dated by the AMS radiocarbon technique to around 20,300 years ago (Valde-Nowak et al. 1987; Bahn 1995). Australian boomerangs date minimally to 9,000–10,000 years ago (Luebbers 1975), and are probably much older.

Straight-on boomerangs, or nonreturn boomerangs, have been employed on five continents and by peoples as varied as band level hunters and royalty of ancient state level society (Bahn 1987). This widespread occurrence of archaeological and ethnographic evidence of curved hurling implements, coupled with the evidence of significant time depth, suggests the possibility that throwing sticks wherever documented may have common origins in Pleistocene subsistence practice. Yet, beyond the dynamics of cultural continuity and diffusion, independent invention could account for some amount of multiple occurrence of the trait since the weaponry is not technologically complex.

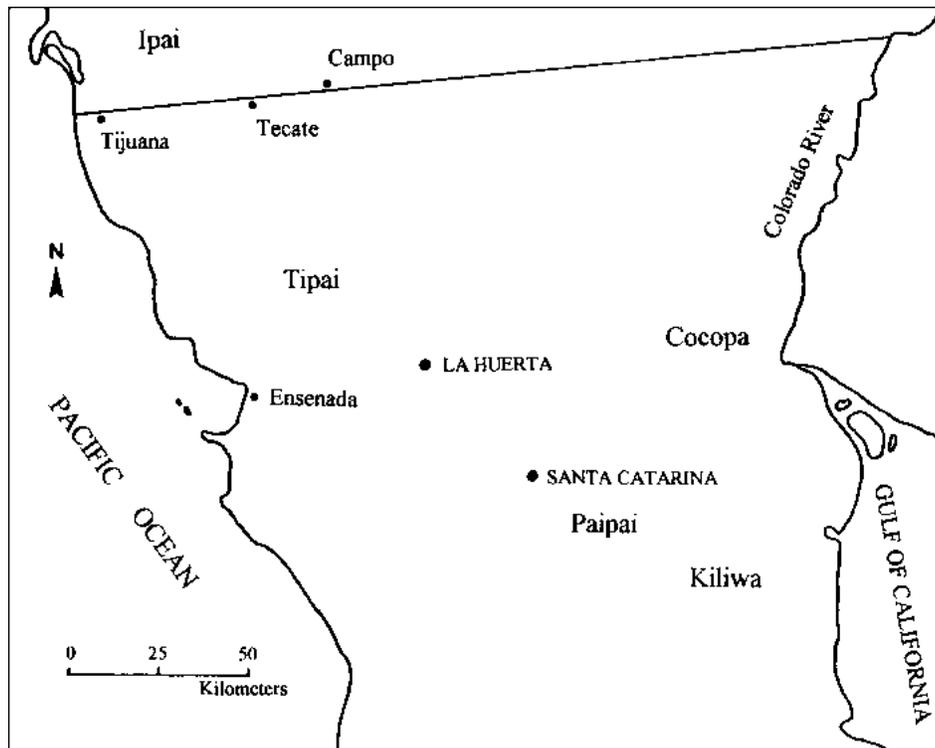


Fig. 1. Location map for Santa Catarina and La Huerta, Baja California.

While origins/occurrence questions intrigue, greater academic urgency is occasioned by the observation that traditional subsistence application of the curved throwing stick, or rabbit stick, is virtually extinct in North America, with a rapidly decreasing number of indigenous persons having any firsthand knowledge regarding manufacture or use of the weapon. It was with this urgency that we first contacted Paipai informants at Santa Catarina, Baja California Norte, and later, informants at La Huerta, a Tipai settlement (Fig. 1). We wanted to obtain a better understanding of a hunting implement rarely given its due in archaeological discussions of subsistence reconstruction.

Rabbit sticks manufactured at Santa Catarina today supply exclusively, or nearly so, a tourist/ethnic arts market. Such commercialism, while yielding decorative wall hangings, seems to have de-emphasized the aerodynamic qualities of design that years ago put rabbits in cooking pots.

Despite the culture change, we anticipated continuity of knowledge regarding the earlier more efficient hunting weaponry and perhaps even a rare instance of the rabbit stick in current use to disable or dispatch prey. Our optimism followed partly from the fact that in 1929, Meigs



Fig. 2. Captain Adolpho Ruiz prepares to hurl a rabbit stick (La Huerta, Baja California, 1926).  
Courtesy San Diego Historical Society Photograph Collection.

(1972:36) documented the then current employment of curved throwing sticks at La Huerta. Photographs of Captain Adolpho Ruiz, taken at La Huerta in 1926, further attest to use of the weapon beyond the first quarter of the century (Figs. 2-4). Meigs (1939:28-29) also contributed notes on Kiliwa killing sticks, but his notes do not indicate explicitly but only imply that Kiliwa continued to capture quarry with the weapon. Further, six straight-on boomerangs collected at Santa Catarina as late as the 1950s (Fig. 5), presumably by Roger Owen, and curated since 1957 at the San Diego Museum of Man, offer far superior templates to those who would live off the land than current production runs.



Fig. 3. Adolpho Ruiz releasing nonreturn boomerang edgewise with a sidearm motion.  
 Courtesy San Diego Historical Society Photograph Collection.

### Background

Ethnohistoric documentation (Sales 1794:49; Konšćak in Krmpotic 1923:126; Clavigero 1937:100, see also Aschmann 1959:67-68) and ethnographic descriptions (e.g., Meigs 1939:28-29, 1972:36) record the manufacture and employment of rabbit sticks for Baja California Norte as far south as the northern Central Desert. Driver and Massey (1957:358) indicated that Baja California Sur generally lacked these weapons, but coastal and desert southern California (e.g., Kroeber 1925; Harrington 1942; Drucker 1937; Tac 1958), the extreme south Great Basin (e.g., Galvin 1967:32), Colorado River Yuman and at least some Upland Yuman peoples (e.g., Stewart 1947; Khera and Mariella 1983:50) as well as Puebloans (e.g., Kennard 1979:556-557) and some Southwestern Athapascan speaking peoples (e.g., Aleshire 1997:11) employed nonreturn boomerangs (see Koerper 1998a).

Recent ethnographic research has provided moderate to abundant detail on aspects of the Paipai material inventory, especially ceramics (Michelsen 1971; Smith 1972; Wilken 1987),



Fig. 4. Adolpho Ruiz throwing rabbit stick. Note second stick tucked under his game string.  
Courtesy San Diego Historical Society Photograph Collection.

cordage/nets (Michelsen 1970a, 1974; Smith 1971:38; Wilken 1987:25), and some detail on subsistence-related techniques and artifacts (Michelsen and Smith 1967; Michelsen 1970b; Michelsen and Michelsen 1979; Joël 1976). Similar enthusiasm has heretofore not translated into any extended discussion of Paipai rabbit sticks, despite the fact that the throwing weapon, along with other native manufactures, has been revived as a craft for the tourist/ethnic arts market.

Through their ethnographic fieldwork, Ralph Michelsen (e.g., 1970a, 1970b, 1971, 1974, 1981) and Roger Owen (e.g., 1962, 1969) popularized the Paipai to an outside world, and later, through Thomas Robertson's influence, certain items of Paipai material culture were continued or revived (Wilken 1987:25). These catalysts joined with Paipai industry to create the present demand for the indigenous crafts.

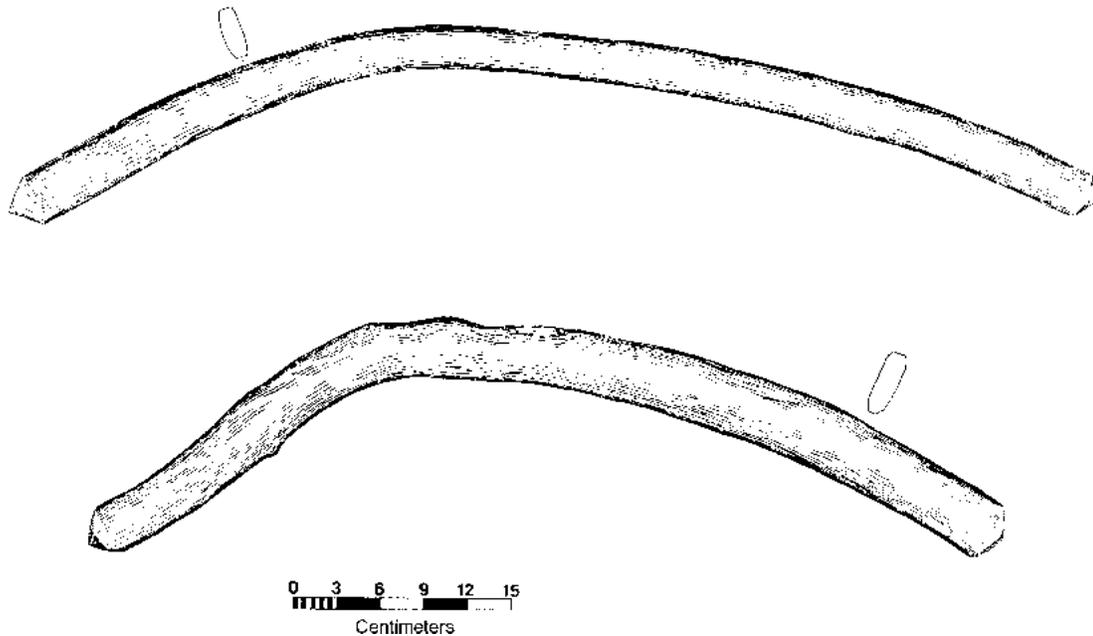


Fig. 5. Rabbit sticks collected by Roger Owen at Santa Catarina and donated to the San Diego Museum of Man.

### Paipai Rabbit Sticks and Subsistence Behavior

#### Andres Albañes

In July, 1995, several informants at Santa Catarina (Fig. 1) provided details relating to the manufacture and use of nonreturn boomerangs as well as more general information on hunting practices and beliefs. Our first discussion was with Andres Albañes who learned the craft of fashioning rabbit sticks from his father, who was once an informant of Ralph Michelsen. He began by explaining the several steps to manufacture the tool. Señor Albañes' son assisted in the discussion.

To begin, the informant looks for wood with a natural bend, and using a machete he might cut as many as five staves at about the same time, all from live trees because green wood is easier to bend than dry wood from a dead tree. Señor Albañes prefers to work with "bitter willow." Each staff is rough cut into a blank and then passed through hot coals in preparation for bending it to correct shape. Andres is careful to avoid scorching the wood whose sap exits the stick as it is heated. With less sap, the rabbit stick is said to last longer.

Staves are cut during a full moon, because there is less sap at night and light of the moon is necessary to accomplish one's work. Once it is supple, pressure is applied to bend the stick by

tying it to a mesquite tree, applying added pressure if need be by cinching the ropes tighter. Additional application of heat, as necessary, may follow applications of pressure. This pressure procedure lasts perhaps two hours. Finer reduction work using a steel knife and file finishes the shaping. Knife cuts follow the wood grain. Señor Albañas does not coat the wood with any substance as a preventative to cracking.

Andres stated that one or two days after manufacture the stick will have dried out sufficiently for use. If the wood is not dry, the rabbit stick may be too pliable, and the bend could be adversely affected. If the stick drops too fast in flight, we were told that further reduction using a knife addresses the issue. There is no problem with excessive lift, according to our informant. This statement is not surprising in light of the fact that Mr. Albañas only makes rabbit sticks to sell, not to hunt. Thus, the morphology of contemporary sticks exhibits little to no consideration for aerodynamics. Rather, arm strength would be the overriding factor in propulsion of Señor Albañas' creations, which trend to round rather than lenticular cross-sections along the majority of their lengths.

Judging by the aerodynamic shapes of the six Paipai specimens (Fig. 5) housed at the San Diego Museum of Man, it is possible that excessive lift occasionally occurred in the past when the airfoil was too much like an airplane wing, forcing the stick to lift more than necessary to counteract the downward pull of gravity. Our informant seemed not to know what solution to apply in such cases, whether adjusting angle of the throw or redesigning the cross-section. Differences in length or weight between weapons was attributed to the varying strengths of the throwers, another indication of the role force plays, from Andres' point of view, in hurling the kinds of sticks that he has fashioned.

The inside curve at the forward wing of many of Señor Albañas sticks is relatively sharp in order to concentrate kinetic energy, thereby maximizing trauma to a target animal. If the prey is not dispatched outright, but only wounded, a smashing blow using the outer edge of the rabbit stick elbow crushes the skull to finish the job.

Rabbit sticks were used only by men, and any male could make a stick. Some persons were known as better rabbit stick makers than others, but each person usually made his own killing stick as well as bow. No stick would have been considered luckier than others.

A boy started using the weapon at around 12 or 13 years of age. The demise of the straight-on boomerang is laid to "bullets," and now no young person cares to employ the weapon.

Both hares and rabbits fell prey. There was no brush clearing by fire to facilitate hunting with either the rabbit stick or bow and arrow. Summer was superior to winter for hunting, owing to the greater numbers of rabbits in the warmer months. Early evening was a good time to hunt because the temperature was relatively comfortable.

No deviation from normal throwing—sidearm motion, distal wing curved inward, projectile low to the ground—was indicated. The throwing arm moved with a broad sweep using the “whole arm” but with some degree of wrist snap at the end of the action.

We were unable to secure any information from Señor Albañes that connected rabbit sticks to religious practice, creation stories, taboos, etc. with the single exception that a boy should eat no meat from his first kill, whether by stick or bow and arrow. It was explained that nearly all such knowledge had been forgotten.

### **Benito Peralta Gonzalez**

Benito Peralta, age 78 at the time of this interview, is a man regarded as one of the best carriers of oral tradition at Santa Catarina. While he had once hunted with bow and arrow and not a rabbit stick, Señor Peralta provided useful knowledge of the latter through a past close association with a maternal uncle who regularly killed game with the weapon. He recalled that his uncle would hunt either in the morning or the late afternoon, all seasons, and when he had a craving for rabbit meat. He recalled his uncle returning home with as many as three hares or rabbits at a time.

When Benito was a boy, many males used rabbit sticks. Around age ten, youngsters using smaller versions of the grown-ups’ killing sticks started their practice in proper hurling techniques. With normal progress, a fifteen year old might become an accomplished thrower. Since boys were allowed to hunt at around age ten, their largely self-directed apprenticeship included live targets.

Whatever the weapon and whatever the prey, it was taboo to consume the meat of one’s first or second kills. Violation of the taboo would cause the hunter to “lose his salt and also to be sensitive to cold.”

The preferred manufacturing material was scrub oak. The manufacturing process employed coals to help bend the stick to proper shape. Señor Peralta recalled that each one he saw had a definite handle and that the forward wing was sharp on the inside of the curve to better break a rabbit’s legs. A man would fashion his own killing sticks and perhaps possess three at any one time. Hunters would take two in pursuit of quarry because it was sometimes possible to get two shots in quick succession at a single rabbit. Nonreturn boomerangs might be propelled 30 to 40 meters. A running animal, he believed, provided a better target than a stationary animal which could more easily dodge the rotating projectile. Señor Peralta recounted the normal sidearm throwing motion. No prayers or songs were associated with pursuit of game using rabbit sticks. He does not recall the weapon being used for fighting.

The informant’s unsolicited commentary on net hunting is instructive, but he cautioned that he had never actually seen nets in use. Long nets were propped upon stakes set upright. Small

paths cleared with hunters' feet would be directed straight to passageways in the netting. Rabbits would follow the lines, enter the staked "door" in the net, and become entangled. Such hunting occurred during a full moon and might typically yield three or four captures.

For the Tipai at La Huerta and for the Paipai, Drucker records pocket nets set across trails to trap rabbits (1941:98). This kind of hunting was borrowed by the Paipai and Tipai relatively recently (Drucker 1941:171).

### **Atanacio Castro Albañes**

The last informant interviewed at Santa Catarina was Atanacio Castro, then 59 years old, who had very intimate knowledge of rabbit sticks. Nearly daily, his father, who possessed two or three sticks at any one time, would hunt at sunrise and/or evening. It was not uncommon for Atanacio's father to return home bearing two or three rabbits/hares and occasionally wood rats. Sometimes Señor Castro would engage his children in fetching the downed animals, and once in hand, his father would, if necessary, dispatch the animal using either the sharp end of the forward wing of the weapon or the outside of the stick elbow.

In his father's generation, each man had his own way of fashioning a stick, and thus there were noticeable size variations, but all had a basic curve. The informant knew of no straight stick being hurled at prey. This accords with Drucker's Tipai and Paipai informants' statements that denied the existence of any straight throwing club (1941:99).

Señor Castro recalled his father selecting cats claw wood with a natural bend, or sometimes scrub oak, but not willow, to make nonreturn boomerangs. Willow, he explained, is not hard and through use will lose the sharp edge which is carved on the inner side of the forward wing. Wood was cut from a tree at full moon when there was no water in the wood. This procedure would prevent cracking, and the desired result was not possible when the moon approached maximum waxing or waning.

Rough-out work was accomplished using a machete, but a knife gave finish to the final form. His father made no effort to bend the stick, and passing the implement through hot coals for only two or three minutes was done only to cure the wood, thus preventing cracking. Once it was quickly cured, the stick was ready for immediate use. Beeswax might be rubbed into the wood to prevent cracking. Atanacio never saw a decorated rabbit stick. Interestingly, Drucker listed rabbit blood smeared on curved throwing sticks as a Paipai trait (1941:99), which he believed was a substitute for painted decoration (1941:171).

Boys might begin to learn, sometimes on their own, to throw at around eight years of age, but instruction from a father or relative in shooting the bow and arrow would begin around age ten. One started off with toy rabbit sticks, which are now an extinct culture trait. Young boys

presently begin to shoot 22 caliber rifles at about eleven years of age. Failure to share one's first kill was believed to cause one to grow old fast.

Sr. Castro's father did not instruct his son in throwing rabbit sticks, but he did teach Atanacio to hunt with bow and arrow. Atanacio was uncertain about causes of the virtual demise of the rabbit stick from his father's generation to his own, but he did offer some speculation related to the notion that skills necessary to use bow and arrow are more easily acquired than those required for employment of the rabbit stick. Believing that rabbit sticks are more productive for close encounters and bow and arrow superior for distance shots, and having observed, as did the other Santa Catarina informants, that rabbit numbers had dwindled in a generation, this informant implied a cause and effect scenario. To wit, as rabbit and hare populations thinned out from his father's to his own generation, culture selection favored the bow and arrow, and rabbit sticks gradually became obsolete.

Rabbits were hunted with curved sticks on foot, not on horseback. An average target was about 25 meters away, but the longer throws extended to around 35 meters. Sitting rabbits, he believed, provided easier targets than running rabbits, but Señor Castro added that running prey proceeding in a straight line would often stop suddenly.

Atanacio volunteered that in his youth he was deadly with a sling, propelling rocks that were smaller than a small orange. His sling was constructed of leather and horsehair. Drucker's informants, Tipai and Paipai, reported slings used by boys for hunting small game (1941:120). Some question arises as to whether the sling was aboriginal or an historic introduction (Drucker 1941:185).

### **Discussion**

The Santa Catarina informants are more or less in accord on the broadest features of rabbit stick manufacture and hunting, but there are unexplained differences of detail. The practices each recounted were essentially those of their fathers' generations, and no informant claimed any significant personal use of the nonreturn boomerang.

With the passage of time, details erode or are transformed, yet descriptions might reflect a traditional latitude of practice and belief. Differences are explained by personal family preference or personal views accounting for such things as selection of construction material, stick size, perceived motivation for placing a stick into hot coals, practices to prevent cracking, the age when one begins to throw, and so on.

Against our informants' recollections are some familiar details elicited by Peveril Meigs (1939:28-29) from a Kiliwa informant, Vicente, who demonstrated the steps to manufacture a rabbit stick from green live oak. The stave was heated over a fire and bent using the crotch of a tree. Repeated heating and then bending with arm strength resulted in shapes that according

to Meig's illustrations (1939:29, Figs. 5a, b) more immediately suggest shepherd's staffs or crooks. Interestingly, Ferdinand Konščak in the mid-18th century, exploring mountainous regions between the 28th and 29th parallels, recorded the use of rabbit sticks which were shaped like an "imperfect ellipse." Elaborating further, he wrote that "when they seize it...in order to throw it, it represents an inverted C" (Krpmotic 1923:126; Aschmann 1959:68).

Apparently, the Kiliwa also attributed a positive role to the full moon in preventing cracking. Cutting the wood from a tree at the new moon was a formula for the stick splitting.

At variance with the above descriptions of the bending process are notes that accompanied the six previously mentioned rabbit sticks (Fig. 5) that had been donated, probably by Roger Owen, to the San Diego Museum of Man. Those notes describe oak branches bent by first placing two heavy rocks so that the fulcrum is at the point where the curve is desired. A fire is built under the branch, or stave, to heat the green wood. By the time the fire has cooled down, the bend is permanent, and subsequently it is carved to specifications.

### **Survival of Traditional Rabbit Sticks at La Huerta**

Our informant at La Huerta was regarded as the "matriarch" of that Tipai (southern Diegueño—see Luomala 1978) community. Doña Teodora Quero, about 81 years old, never made or threw a rabbit stick, for those activities are male occupations. She did, however, receive specific firsthand knowledge as a young girl at the side of her father. She has passed on related lore and manufacturing information to her son, Eugenio Aldama, about 40 years old, who had made the weapon and hunted with it, albeit sporadically. A small number of other men at La Huerta will on rare occasion use the implement, sometimes from horseback, and often occasioned when money is lacking to purchase 22 caliber bullets.

The stick held by Eugenio in Figure 6 was acquired at La Huerta by the senior author and has been donated to the Mission San Juan Capistrano Museum. It is a far superior specimen to any example seen at Santa Catarina. A lenticular cross-section characterizes the entire length. The weapon can easily be made to fly straight, just above the ground at great speed and with rapid rotation, unlike the Santa Catarina examples.

We were shown a second stick, and it was nearly identical to the first. We were informed that there is a definite template followed for correct curvature. When examining the contemporary Paipai sticks with their mishmash of shapes, Doña Teodora and her son agreed that "the Paipais just didn't learn right."

Doña Teodora related that the proper wood was scrub oak. The person who sought and then cut the wood should have first fasted to insure success in the hunt ("to have luck"). At the time of cutting with a machete, the moon should be full.



Fig. 6. Eugenio Aldama holding his rabbit stick. This is the same stick that has been donated to the Mission San Juan Capistrano Museum.

The blank is normally straight; rarely did the maker encounter wood with the right natural bend. The surface is smoothed by machete and knife, and then bent with the application of heat and pressure. Put into coals to make it pliable, the stave is set across two rocks, and a heavy pressure rock is set upon it at the point where the bend develops. Heating hardens the stick while causing water and sap loss according to Doña Teodora's son. Boiling water might also play a role in bending the tool.

Through the bending step, the stick exhibits a round, not a lenticular, cross-section. The finer finish to a lenticular cross-section is accomplished using broken glass. The son added that in shaping a stick, cutting follows the wood grain.

Sticks are tested with the proper sidearm throw with the weapon propelled about two thirds of a meter above the ground. Proper weight and a lenticular cross-section are key requisites for successful hurling. If the stick drops too fast, excess weight is removed. If it rises too fast, the airfoil is made more lenticular.

The owner of a stick should be the only person to use it. If used by another, or even touched by another, it could lose its "luck." The "luck" cannot be brought back, reason enough to toss it away. If it misses its mark several times, it can be thrown out, since it is no good.

The force of the stick can be expected to break legs or crush skulls. A blow to the neck with the outer edge of the elbow kills the animal.

Boys learned about rabbit sticks at about age 12 using either a smaller stick or the adult size stick. The young hunter was not supposed to eat what he had hunted until he one day hit the animal square between the eyes. The first time he does eat meat of an animal he has so killed, he must first be covered head to toe in the evening with white clay. Herbs, such as white sage, are mixed into the clay. The following morning, the youthful hunter cleans off the clay and herb mixture and may then consume the meat of his kill. All of this was necessary for the hunter to grow up strong and not be sickly.

In a final reminiscence, Doña Teodora recalled that her father would depart in the morning with either bow and arrow or straight-on boomerang, and he would return transporting over a dozen rabbits.

### **Concluding Remarks**

The greater resilience of stone over wooden tools holds obvious implications for gauging the relative importance of nonreturn boomerangs vis-a-vis bows and arrows in archaeological reconstructions. Many thousands of arrowheads have been recovered from southern California sites, while no rabbit stick has yet been excavated from a subsurface deposit. Precious few have been retrieved from rock shelters or similar repositories (see Koerper 1998a).

When differential preservation of artifacts complicates interpretations of past behavior, ethnographic and ethnohistoric observations may restore some balance, if only as cautionary tale. Our Paipai and Tipai informants' statements address the refractory evidence of prehistory by supporting the possibility that a rough equivalency may have been obtained between the curved throwing stick and the bow-and-arrow for hunting rabbits/hares, locally the most important category of terrestrial mammal.

Archaeological and ethnographic consideration of the straight-on boomerang has inspired recreational use of this weaponry. The First Annual Rabbit Stick Contest held during the Second Annual [1997] Fall Gathering at Malki Museum on the Morongo Indian Reservation (Koerper 1998b) is a recent example. Similarly, the revival of atlatl use through competitions in North America and Europe draws inspiration from the anthropological literature (see "The Atlatl," newsletter of the World Atlatl Association, P. O. Box 56, Ocotillo, CA 92259).

When Ishi, the so-called "last wild Indian of North America," developed a friendship with Saxton Pope (Kroeber 1962:152-153), their mutual interest in bow-and-arrow technology and subsequently Pope's anthropological writings on archery (e.g., Pope 1962) provided linkage between the traditional knowledge of this famous Yahi Indian and an early century upsurge of archery competitions in the United States. The authors would derive great satisfaction should the traditional knowledge volunteered by informants Andres, Benito, Atonacio, Eugenio, and Teodora, likewise connect with people beyond the scientific community, further encouraging the growing sport of rabbit stick throwing.

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