CHAPTER 19

# Camelid Herders: The Forgotten Specialists in the Coastal Señorío of Chiribaya, Southern Peru

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In his seminal work, *The Maritime Foundations of Andean Civilization* (1975), Michael E. Moseley proposed that coastal environments supplied sufficient caloric intake to support sedentary populations in prehispanic Peru. Moseley also argued that even with population growth and the complex social organization of large communities, as reflected in the presence of monumental architecture, marine resources offered a stable economic base for their successful adaptation in this coastal environment.

Although widely debated by a number of researchers (e.g., Osborn 1977; Raymond 1981; Wilson 1981), the maritime hypothesis is supported not only by recent archaeological and bioarchaeological studies (Benfer 1990; Sandweiss 1992) but also by the vast ethnohistorical research conducted by the Peruvian ethnohistorian María Rostworowski de Diez Canseco. In contrast to Moseley, who focused on the beginnings of Andean civilization during the preceramic periods on the coast, Rostworowski's research is based on Colonial documents, from which she extracted detailed information about late prehispanic coastal societies. Nevertheless, like Moseley, she concludes that populations relying on marine resources were self-sufficient economically and that the numerous river valleys served as independent foci of cultural development (Rostworowski 1970, 1977, 1989). The work of these two researchers taken together offers a powerful theoretical framework within which we can interpret the dynamic relations among the ecological, political, and social forces that shaped past Andean civilizations.

We can study these dynamic relations by focusing on a complex coastal polity. One of these polities was Chiribaya, a powerful *señorío* on the coast of southern Peru. Chiribaya centralized its power in the Osmore Valley during the Middle Horizon and Late Intermediate period, spanning an estimated 500–600 years (Buikstra et al. 1997). As determined from ceramic decorations and radiocarbon dates, Chiribaya was originally considered to be a cultural and biological extension of Tiwanaku highland colonies established in the middle of the Osmore Valley (Stanish 1992; Owen 1993; Sutter 1997).

Beginning in 1989, two of us (Buikstra and Lozada) conducted a series of excavations in the cemeteries at various Chiribaya sites in the Osmore drainage. One goal was to understand the biological and cultural relationships between Tiwanaku colonists and coastal Chiribaya people (Buikstra 1995). Buikstra and colleagues excavated three major Chiribaya sites: Chiribaya Alta, Yaral, and Chiribaya Baja. Although the coastal site of San Gerónimo was excavated before Buikstra's excavations, data from this fourth site were incorporated into the larger Chiribaya project (Figure 19.1).

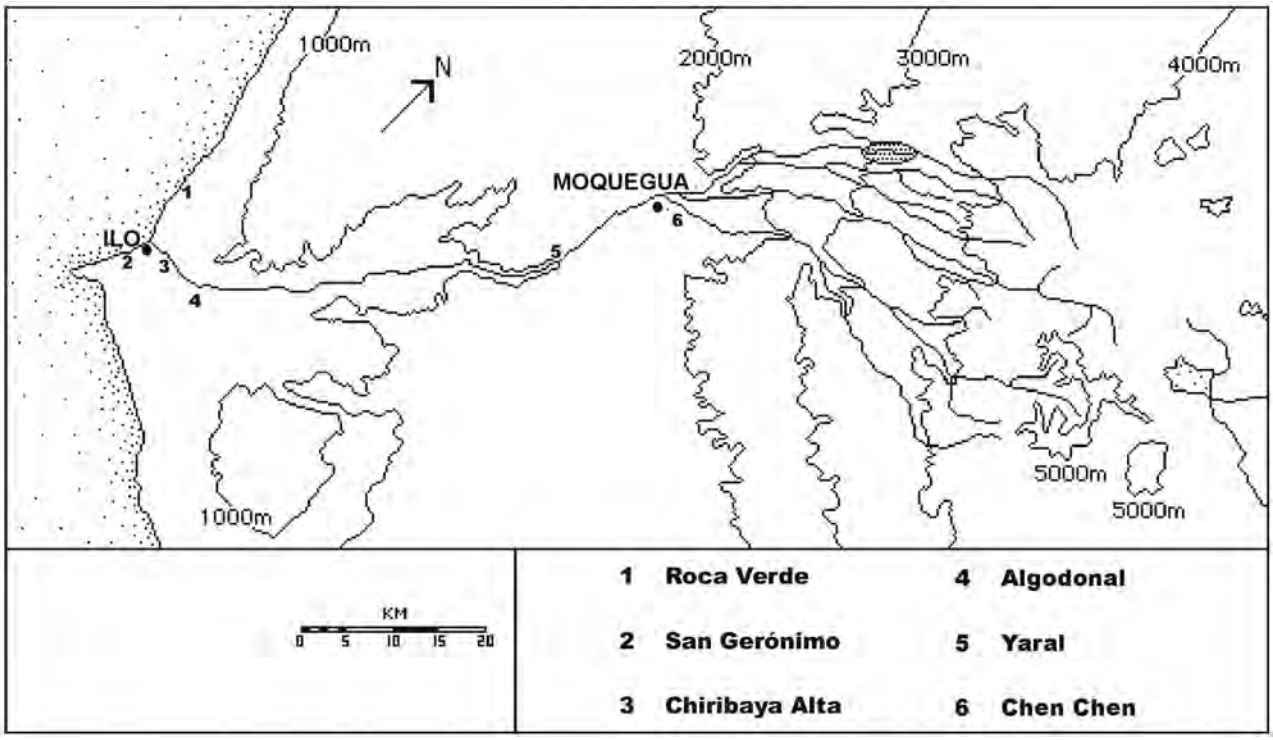


**Figure 19.1.** Location of sites.

While analyzing data derived from these mortuary contexts, we realized that the widely used verticality model (e.g., Murra 1964, 1968, 1972, 1975; Brush 1977; Flores Ochoa 1979; Masuda et al. 1985; Mujica 1985; Stanish 1992) failed to explain key features of this coastal Chiribaya society. Specifically, our thirty-four Chiribaya radiocarbon dates demonstrated that Chiribaya had greater time depth, dating back to the Middle Horizon. Instead of first emerging around AD 1000, Chiribaya seemed to date as early as AD 700, making it contemporaneous with Tiwanaku mid-valley colonies (Table 19.1). Furthermore, we found a remarkable degree of economic specialization, and we were able to distinguish marine-based and non-marine-based subsistence activities (Lozada and Buikstra 2002).

Although archaeologists have used certain aspects of the coastal horizontality model developed by Rostworowski, a detailed assessment of her ethnohistorical research had not been undertaken in archaeological contexts until recently. Specifically, Rostworowski identified a series of coastal señoríos prior to the arrival of the Spaniards in the northern and central river valleys of Peru. The Spanish term *señorío* refers to a polity composed of loosely integrated communities of economic specialists such as *labradores* and *pescadores*. These communities were described as biologically and culturally discrete, resulting in the formation of distinct ethnic groups, or *etnías* (Rostworowski 1975).

Through the Chiribaya project, we extensively tested this model using bioarchaeological data. Our research strongly supported the presence of different communities of labradores and pescadores (Lozada and Buikstra 2002). Differences between these two economically specialized groups characterized nearly every category of cultural behavior, including ceramic styles and cranial modification styles, suggesting a fundamental division within Chiribaya society.

One example that illustrates these cultural divisions emerged in the cranial modification patterns. Cranial molding must be undertaken very early in life, from the birth of a child. Indeed, cranial deformation is an irreversible act that was used to show an individual's ascribed corporate membership, which would then accompany the individual throughout the course of his or her life. Inspection of the Chiribaya skulls that were modified indicated that the annular cranial deformation was characteristic of the pescadores, while the fronto-occipital type of skull deformation was practiced by the labradores of Chiribaya (Figures 19.2, 19.3) (Lozada and Buikstra 2002).

Subsequently, Paula Tomczak expanded this study to include paleodietary analysis among the Chiribaya.

**Table 19.1** Chiribaya radiocarbon dates.

| Date BP | SD | Lab. ID | Site | Abbreviation | Cemetery/ Burial | Context/Assoc. |
|---|---|---|---|---|---|---|
| 1020 | 80 | Beta-51068 | Algodonal | Alg. | –/– | Tumilaca |
| 870 | 60 | Beta-51066 | Algodonal | Alg. | –/– | Post-Algarrobal |
| 800 | 60 | Beta-51067 | Algodonal | Alg. | –/– | Post-Algarrobal |
| 1870 | 50 | Beta-51062 | Algodonal | Alg. | –/– | Early Algodonal |
| 2000 | 60 | Beta-51063 | Algodonal | Alg. | –/– | Early Algodonal |
| 1750 | 60 | Beta-51064 | Algodonal | Alg. | –/– | Early Algodonal |
| 870 | 60 | Beta-51059 | Algodonal | Alg. | –/– | Ilo-Cabuza |
| 960 | 60 | Beta-51060 | Algodonal | Alg. | –/– | Ilo-Cabuza |
| 1040 | 60 | Beta-51061 | Algodonal | Alg. | –/– | Ilo-Tumilaca |
| 1050 | 60 | Beta-51065 | Algodonal | Alg. | –/– | Ilo-Tumilaca |
| 1140 | 95 | Geochron-18677 | Chiribaya Alta | ChA | 1/025 | None |
| 1040 | 44 | Geochron-18799 | Chiribaya Alta | ChA | 1/030 | None |
| 1190 | 150 | Geochron-18678 | Chiribaya Alta | ChA | 1/101 | None |
| 1205 | 95 | Geochron-18676 | Chiribaya Alta | ChA | 2/009 | Ilo-Osmore |
| 1045 | 70 | Geochron-18679 | Chiribaya Alta | ChA | 2/263 | None |
| 1025 | 70 | Geochron-18680 | Chiribaya Alta | ChA | 2/270 | Algarrobal |
| 1130 | 70 | Geochron-18681 | Chiribaya Alta | ChA | 3/304 | Yaral |
| 1345 | 70 | Geochron-18682 | Chiribaya Alta | ChA | 3/324 | Algarrobal |
| 1070 | 70 | Geochron-18683 | Chiribaya Alta | ChA | 4/402 | San Gerónimo |
| 1110 | 80 | Geochron-18684 | Chiribaya Alta | ChA | 4/405 | San Gerónimo |
| 945 | 70 | Geochron-18685 | Chiribaya Alta | ChA | 4/419 | San Gerónimo |
| 1090 | 70 | Geochron-18686 | Chiribaya Alta | ChA | 5/503 | Ilo-Osmore |
| 1350 | 70 | Geochron-18687 | Chiribaya Alta | ChA | 5/506 | Yaral |
| 1085 | 80 | Geochron-18688 | Chiribaya Alta | ChA | 5/517 | Yaral |
| 1050 | 90 | Geochron-18689 | Chiribaya Alta | ChA | 6/608 | Algarrobal/Ilo-Osmore |
| 805 | 80 | Geochron-18690 | Chiribaya Alta | ChA | 6/609 | Tumilaca |
| 1250 | 70 | Geochron-18692 | Chiribaya Alta | ChA | 7/702 | Algarrobal |
| 1365 | 80 | Geochron-18693 | Chiribaya Alta | ChA | 7/703 | Algarrobal |
| 1200 | 70 | Geochron-18694 | Chiribaya Alta | ChA | 7/751 | Algarrobal |
| 985 | 75 | Geochron-18695 | Chiribaya Alta | ChA | 8/805 | None |
| 935 | 95 | Geochron-18696 | Chiribaya Alta | ChA | 8/808 | None |
| 1200 | 90 | Geochron-18697 | Chiribaya Alta | ChA | 9/902 | Algarrobal |
| 1100 | 75 | Geochron-18698 | Chiribaya Alta | ChA | 9/904 | Algarrobal/Tumilaca |
| 1180 | 75 | Geochron-18662 | Chiribaya Baja | ChB | -/113 | None |
| 1110 | 70 | Geochron-18664 | Chiribaya Baja | ChB | -/124 | None |
| 905 | 70 | Geochron-18663 | Chiribaya Baja | ChB | -/143 | None |
| 850 | 70 | Geochron-18665 | Chiribaya Baja | ChB | -/144 | None |
| 1010 | 80 | Geochron-18666 | San Gerónimo | SG | -/009 | San Gerónimo |
| 930 | 110 | Geochron-18669 | San Gerónimo | SG | -/141 | Yaral |
| 1100 | 70 | Geochron-18673 | Yaral | Yar | 1/112 | Yaral |
| 1000 | 70 | Geochron-18671 | Yaral | Yar | 1/130 | Algarrobal |
| 1085 | 90 | Geochron-18672 | Yaral | Yar | 1/136 | Tumilaca |
| 995 | 85 | Geochron-18674 | Yaral | Yar | 2/212 | None |
| 1290 | 80 | Geochron-18675 | Yaral | Yar | 2/233 | Yaral |
| 840 | 50 | Beta-51071 | Loreto Alto | LA | –/– | Ilo-Cabuza |
| 810 | 60 | Beta-51069 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 990 | 50 | Beta-51070 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 950 | 80 | Beta-51072 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 1085 | 90 | ETH-3178 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1180 | 110 | ETH-3179 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 990 | 95 | ETH-3180 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1201 | 96 | SMU-1920 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1090 | 60 | SMU-2117 | Lukurmata | Luk | –/– | Tiwanaku 5 |

**Table 19.1** (continued)

| Date BP | SD | Lab. ID | Site | Abbreviation | Cemetery/ Burial | Context/Assoc. |
|---|---|---|---|---|---|---|
| 1000 | 230 | SMU-2165 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 730 | 60 | Beta-51073 | Loreto Viejo | LV | –/– | Post-Algarrobal |
| 860 | 60 | Beta-51074 | Loreto Viejo | LV | –/– | Post-Algarrobal |
| 1460 | 60 | ETH-6306 | Tiwanaku | Tiw | –/– | Tiwanaku 4 |
| 1390 | 50 | SMU-2468 | Tiwanaku | Tiw | –/– | Tiwanaku 4 (Late) |
| 1170 | 65 | ETH-5680 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1070 | 60 | SMU-2276 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1130 | 60 | SMU-2277 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1185 | 60 | SMU-2289 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1120 | 70 | SMU-2290 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1080 | 210 | SMU-2330 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1150 | 80 | SMU-2367 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1110 | 50 | SMU-2465 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1170 | 60 | SMU-2466 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1130 | 60 | SMU-2467 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1190 | 100 | SMU-2469 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1200 | 115 | SMU-2472 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1170 | 60 | SMU-5639 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 850 | 70 | Geochron-18665 | Chiribaya Baja | ChB | -/144 | None |
| 1010 | 80 | Geochron-18666 | San Gerónimo | SG | -/009 | San Gerónimo |
| 930 | 110 | Geochron-18669 | San Gerónimo | SG | -/141 | Yaral |
| 1100 | 70 | Geochron-18673 | Yaral | Yar | 1/112 | Yaral |
| 1000 | 70 | Geochron-18671 | Yaral | Yar | 1/130 | Algarrobal |
| 1085 | 90 | Geochron-18672 | Yaral | Yar | 1/136 | Tumilaca |
| 995 | 85 | Geochron-18674 | Yaral | Yar | 2/212 | None |
| 1290 | 80 | Geochron-18675 | Yaral | Yar | 2/233 | Yaral |
| 840 | 50 | Beta-51071 | Loreto Alto | LA | –/– | Ilo-Cabuza |
| 810 | 60 | Beta-51069 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 990 | 50 | Beta-51070 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 950 | 80 | Beta-51072 | Loreto Alto | LA | –/– | Ilo-Tumilaca/Cabuza |
| 1085 | 90 | ETH-3178 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1180 | 110 | ETH-3179 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 990 | 95 | ETH-3180 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1201 | 96 | SMU-1920 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1090 | 60 | SMU-2117 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 1000 | 230 | SMU-2165 | Lukurmata | Luk | –/– | Tiwanaku 5 |
| 730 | 60 | Beta-51073 | Loreto Viejo | LV | –/– | Post-Algarrobal |
| 860 | 60 | Beta-51074 | Loreto Viejo | LV | –/– | Post-Algarrobal |
| 1460 | 60 | ETH-6306 | Tiwanaku | Tiw | –/– | Tiwanaku 4 |
| 1390 | 50 | SMU-2468 | Tiwanaku | Tiw | –/– | Tiwanaku 4 (Late) |
| 1170 | 65 | ETH-5680 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1070 | 60 | SMU-2276 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1130 | 60 | SMU-2277 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1185 | 60 | SMU-2289 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1120 | 70 | SMU-2290 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1080 | 210 | SMU-2330 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1150 | 80 | SMU-2367 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1110 | 50 | SMU-2465 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1170 | 60 | SMU-2466 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1130 | 60 | SMU-2467 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1190 | 100 | SMU-2469 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1200 | 115 | SMU-2472 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |
| 1170 | 60 | SMU-5639 | Tiwanaku | Tiw | –/– | Tiwanaku 5 |

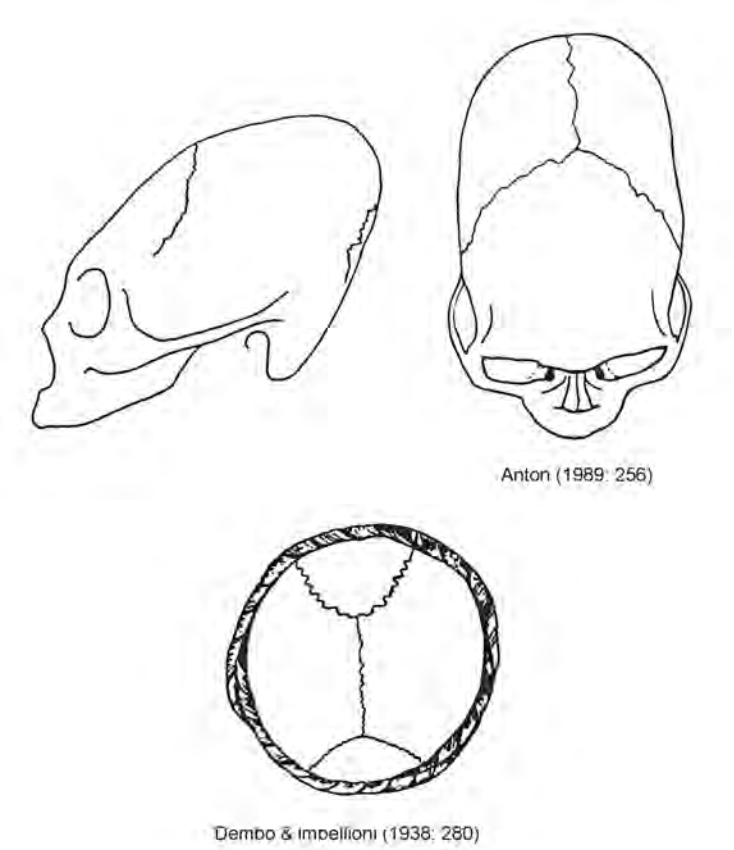


**Figure 19.2.** Chiribaya annular cranial modification style.

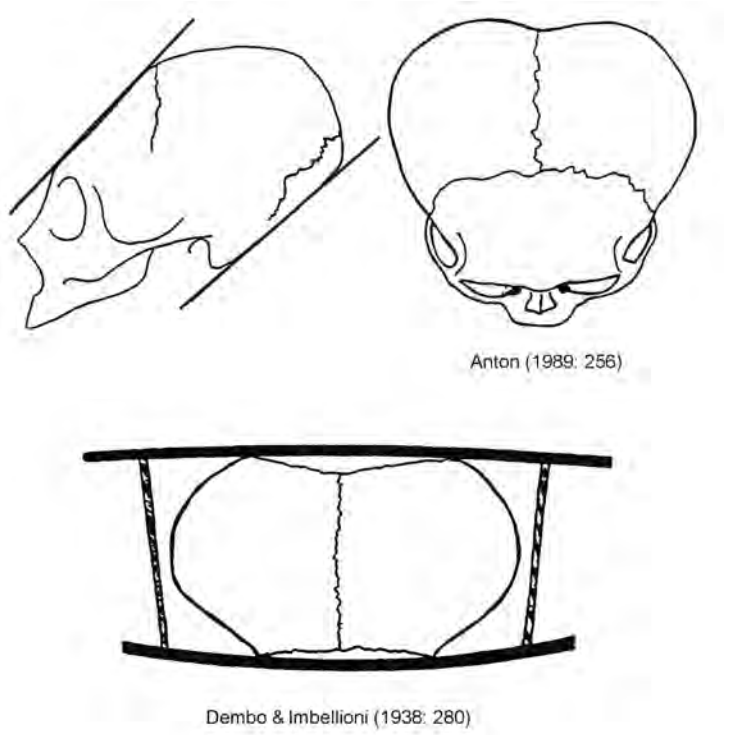


**Figure 19.3.** Chiribaya fronto-occipital modification style.

Based on carbon and nitrogen isotopes of human bone, she found that food consumption also differed between these two groups. Labradores consumed the greatest amount of terrestrial plants such as grasses, fruits, and tubers, and C4 plants such as maize, while the diet of the pescadores was based primarily on marine resources (Tomczak 2002).

Our genetic distance research showed that Chiribaya biological origins are rooted in earlier coastal traditions (Lozada et al. 1997). This study was based on nonmetric cranial traits from skulls recovered in Chiribaya, Tiwanaku, and coastal Formative sites such as Roca Verde in the Osmore drainage. These epigenetic traits, or variations in bone development, have been extremely useful. They are comparable to other methods, such as aDNA, in their ability to estimate genotypic patterning in past populations (Haydon 1993). The two statistical approaches (Manly 1991; Relethford and Harpending 1994) we used in the biological distance analyses provided similar results. As can be seen in Table 19.2 and Figure 19.4, there are genetic differences between Chiribaya and Tiwanaku, while genetically the populations from the Formative coastal site of Roca Verde appear indistinguishable from Chiribaya (Lozada et al. 1997, 2003).

The autochthonous nature of the Chiribaya population on the coast has recently been supported by Knudson, who analyzed the human bone from the same Tiwanaku and Chiribaya sites (Knudson 2004). Knudson's isotopic values for our Chiribaya samples do not cluster with those from mid-valley and highland populations. Instead, those values are similar to those found in the coastal Osmore drainage.

While the testing of Rostworowski's model has been extremely useful to explain key issues regarding Chiribaya, we are also aware that señoríos in the south may have been quite different from those in the northern and central coastal valleys of Peru, as described by Rostworowski. For example, the northern and central coasts have extensive fertile valleys that would have supported large-scale agricultural endeavors. In the south, coastal valleys tend to be narrower, with less arable land. Such differences in both the physical and cultural landscapes may have led to differential access and different priorities in procuring specific subsistence resources. Such differences would likely have left their mark on the socioeconomic composition of southern coastal señoríos.

On the south coast, it is clear that labradores and pescadores were essential to the señorío of Chiribaya; however, it is conceivable that pastoralism, or more specifically the management and exploitation of camelid herds, may have also been of central importance

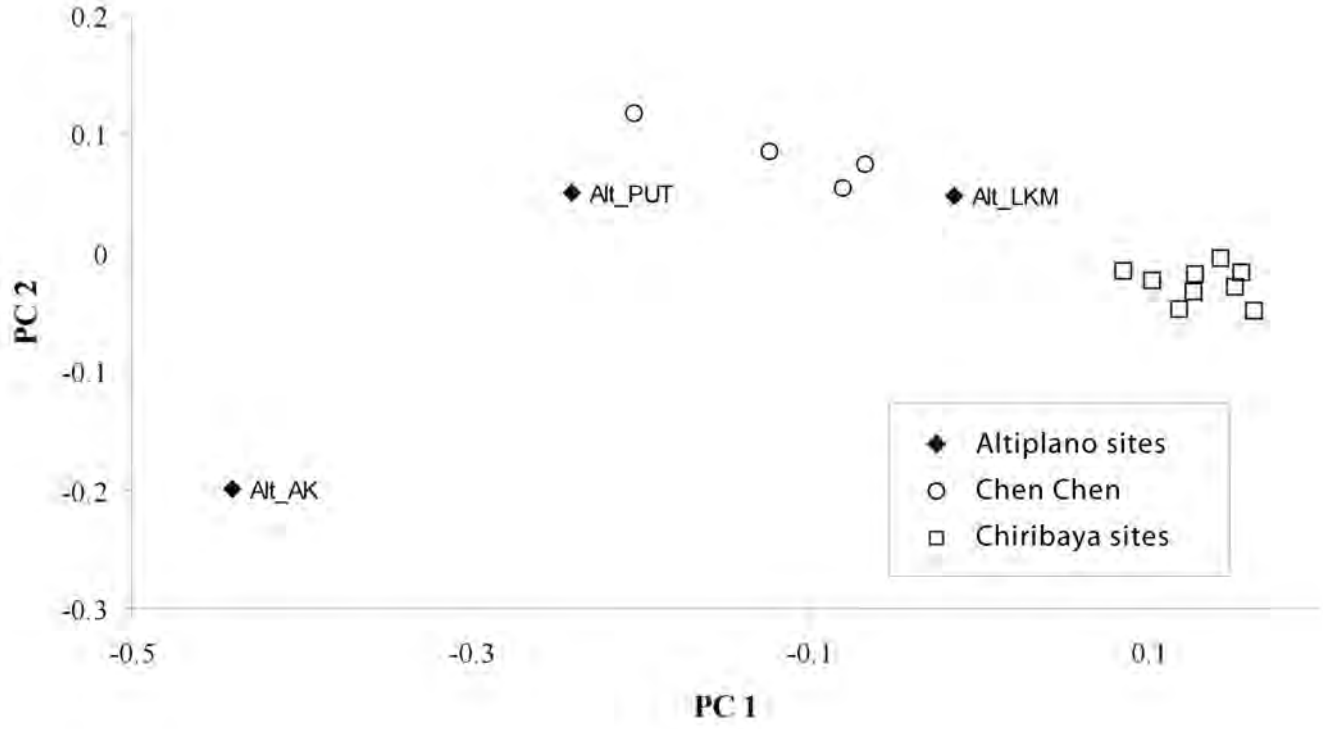


**Figure 19.4.** Distance matrix, genetic distances method (Relethford and Harpending 1994). Notice the clustering of Chiribaya sites identified by squares, in contrast to mid-valley (Chen Chen) and highland (Akapana, Putina, Lukurmata) Tiwanaku sites represented by circles and diamonds. This pattern reflects the biological separation between Chiribaya and Tiwanaku populations.

**Table 19.2** Genetic distance matrix, bootstrap method (Manley 1991).

| | Yaral 1 | Yaral 2 | San Ger. | ChA1 | ChA2 | ChA3 | ChA4 | ChA7 | Chen Chen | RV |
|---|---|---|---|---|---|---|---|---|---|---|
| Algodonal | D=0.131<br>P=0.334 | D=0.106<br>P=0.690 | D=0.079<br>P=0.896 | D=0.087<br>P=0.888 | D=0.134<br>P=0.234 | D=0.084<br>P=0.882 | D=0.095<br>P=0.864 | D=0.100<br>P=0.688 | D=0.152<br>p<0.001 | D=0.119<br>P=0.666 |
| Yaral 1 | | D=0.102<br>P=0.868 | D=0.098<br>P=0.780 | D=0.115<br>P=0.672 | D=0.128<br>P=0.510 | D=0.119<br>P=0.524 | D=0.088<br>P=0.962 | D=0.120<br>P=0.566 | D=0.203<br>p<0.001 | D=0.153<br>P=0.346 |
| Yaral 2 | | | D=0.101<br>P=0.656 | D=0.115<br>P=0.578 | D=0.145<br>P=0.224 | D=0.126<br>P=0.356 | D=0.076<br>P=0.982 | D=0.121<br>P=0.480 | D=0.163<br>p<0.001 | D=0.113<br>P=0.856 |
| San Gerónimo | | | | D=0.103<br>P=0.470 | D=0.105<br>P=0.610 | D=0.102<br>P=0.390 | D=0.089<br>P=0.884 | D=0.094<br>P=0.684 | D=0.155<br>p<0.001 | D=0.134<br>P=0.332 |
| ChA1 | | | | | D=0.130<br>P=0.326 | D=0.111<br>P=0.423 | D=0.110<br>P=0.658 | D=0.120<br>P=0.342 | D=0.149<br>p<0.001 | D=0.137<br>P=0.438 |
| ChA2 | | | | | | D=0.129<br>P=0.25 | D=0.169<br>P=0.044 | D=0.116<br>P=0.556 | D=0.196<br>p<0.001 | D=0.151<br>P=0.330 |
| ChA3 | | | | | | | D=0.119<br>P=0.478 | D=0.138<br>P=0.090 | D=0.149<br>p<0.001 | D=0.103<br>P=0.846 |
| ChA4 | | | | | | | | D=0.101<br>P=0.844 | D=0.134<br>P=0.024 | D=0.122<br>P=0.712 |
| ChA7 | | | | | | | | | D=0.179<br>p<0.001 | D=0.163<br>D=0.147 |
| Chen Chen | | | | | | | | | | D=0.147<br>P=0.060 |

Note: San Ger = San Gerónimo; chA = Chribaya Alta; RV = Roca Verde; D = Distance measurements; P = P-values

in coastal communities in southern Peru. If such a reconstruction is accurate, these practices would have been firmly embedded in the ideological and sociopolitical framework of Chiribaya, and therefore should be apparent through an analysis of mortuary remains.

Camelids played a significant role in Andean societies, as documented by Spanish chroniclers (Cobo 1956 [1653]; Diez de San Miguel 1964 [1567]; Garcilaso de la Vega 1991 [1609]; Polo de Ondegardo 1916 [1559]; Guamán Poma de Ayala 1980 [1614]). Pastoralism and the domestication of animals have been documented in the puna sites of Telarmachay as early as 3500 BC (Wheeler 1984, 1985). Archaeozoological evidence documents the prehispanic use of wild guanaco (*Lama guanicoe)* and vicuña (*Vicugna vicugna*), as well as the domestic llama (*Lama glama)* and alpaca (*Vicugna pacos*) (Wheeler 1995; Kadwell et al. 2001; Gentry et al. 2004; Wheeler et al. 2006) at different sites throughout Peru. As today, camelid products (transport, meat, fiber, etc.) provided an important economic base both at the state and community levels. Furthermore, they are a central fixture in many ritual activities among both highland and coastal societies (Murra 1965; Browman 1974; Flores Ochoa 1977; Pozorski 1979; Shimada and Shimada 1985, 1987; Topic et al. 1987; Flannery et al. 1989; Miller and Burger 1995, 2000; Valdez 2000; Rofes and Wheeler 2003).

We investigated the economic and ritual importance of camelids among the Chiribaya by examining the distribution of faunal remains across Chiribaya cemeteries. Each mortuary site used in this study, including the nine cemeteries of Chiribaya Alta, appears to be associated predominantly either with labradores or with pescadores. We can therefore examine associations between camelid offerings and the occupations of specialists. Furthermore, by examining the correlation between camelid offerings and other variables, such as cranial modification styles and the quantity of grave goods, we aimed to elucidate the symbolic use of camelids in mortuary contexts.

To place these data in context, we first outline aspects of our previous research. San Gerónimo is a site located close to the Pacific Ocean. Individuals recovered from this site are interpreted as the pescadores. In contrast, the mid-valley site of El Yaral was occupied almost exclusively by labradores. As one might expect, Chiribaya Alta, the largest Chiribaya site in the Osmore drainage, displayed a more complex composition. It is located approximately 7 km from the coast and includes at least nine cemeteries. Of these cemeteries, only Cemetery 4 is predominantly occupied by pescadores. Once again, specialists were defined on the basis of mortuary patterns, cranial modification/deformation styles, ceramic types, and dietary reconstruction (Lozada and Buikstra 2002).

Using phenotypic attributes (bone or soft tissue, or both) and dental morphology from twenty-six naturally desiccated animals, Wheeler has identified llamas and

alpacas in the Chiribaya domestic contexts of El Yaral, while studies of household refuse carried out by Rofes confirmed that these two animals were the primary source of animal protein in the diet (Wheeler et al. 1995; Rofes 1998; Rofes and Wheeler 2003). Additional studies by Wheeler involved the analysis of sixty-two tombs containing faunal remains from eight cemeteries at Chiribaya Alta (Wheeler 1993). In contrast to El Yaral, the camelid remains at Chiribaya Alta are mostly llamas. (In this chapter, we do not distinguish between llamas and alpacas.)

Our sample comprised 526 burials from San Gerónimo, Chiribaya Alta, and El Yaral. Since looters do not consider camelid remains to be valuable items and thus leave them in situ, we made no distinctions between disturbed and intact contexts. Heads (skulls only or skulls with mandibles) dominated the mortuary assemblages. Less numerous were offerings of limbs and feet. Only seven contexts in Chiribaya Alta contained complete specimens (Wheeler 1993). Because there was no statistically significant patterning to specific body part offerings, no statistical differences between these categories were made (Table 19.3).

Camelid remains were present in all cemeteries, with Chiribaya Alta having the highest percentages overall (Figure 19.5). In contrast, Yaral and San Gerónimo exhibited lower numbers. The presence of camelid remains with the pescadores of San Gerónimo suggests that fishermen also had access to camelids (as did labradores). Although Rostworowski describes the pescadores as a self-sufficient community, they participated in exchange networks, which would have given them access to terrestrial animals and plants, including camelids and agricultural items. In addition, while camelid offerings may suggest the consumption of these animals by pescadores, dietary analyses of San Gerónimo's bones suggest a diet of mainly marine resources (Sandness 1992; Tomczak 2002). Interestingly, relatively few camelids were found in the two cemeteries at El Yaral, a community of labradores.

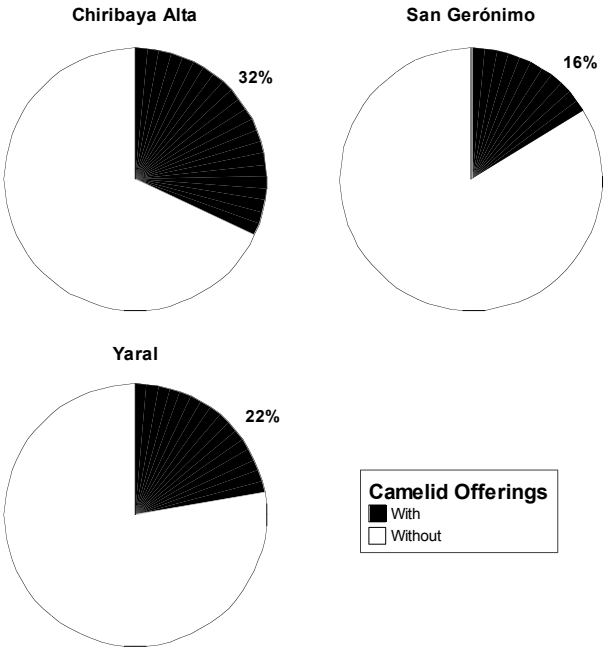


**Figure 19.5.** Distribution of camelid remains at San Gerónimo, Chiribaya Alta, and Yaral.

To interpret these patterns further, we explored in more detail the frequency of camelid remains in the cemeteries of Chiribaya Alta. As can be seen in Figure 19.6, there is a striking pattern in the distribution of camelid remains throughout cemeteries at Chiribaya Alta. Most of the cemeteries, including the pescadores of Cemetery 4, had similar percentages of burials with camelid remains. In contrast, Cemetery 7, which was associated with elite labradores, was unique in its significantly larger proportion of burials interred with camelid remains.

What would account for such a dramatic difference between Cemetery 7 and the other cemeteries at Chiribaya Alta and other sites? With respect to specific bioarchaeological parameters such as the frequency of cranial modification and total number of grave goods, Cemetery 7 stands apart from other cemeteries. It has

**Table 19.3.** Association of camelid body parts: Pearson correlation coefficients between the occurrences of various camelid parts.

| | Feet | Skulls | Limbs | Mandibles |
|---|---|---|---|---|
| Skulls | –.126 | • | • | • |
| Limbs | –.066 | –.061 | • | • |
| Mandibles | –.086 | .361* | –.028 | • |
| Complete Specimen | –.075 | –.069 | –.016 | –.032 |

* Significant at the 0.01 level

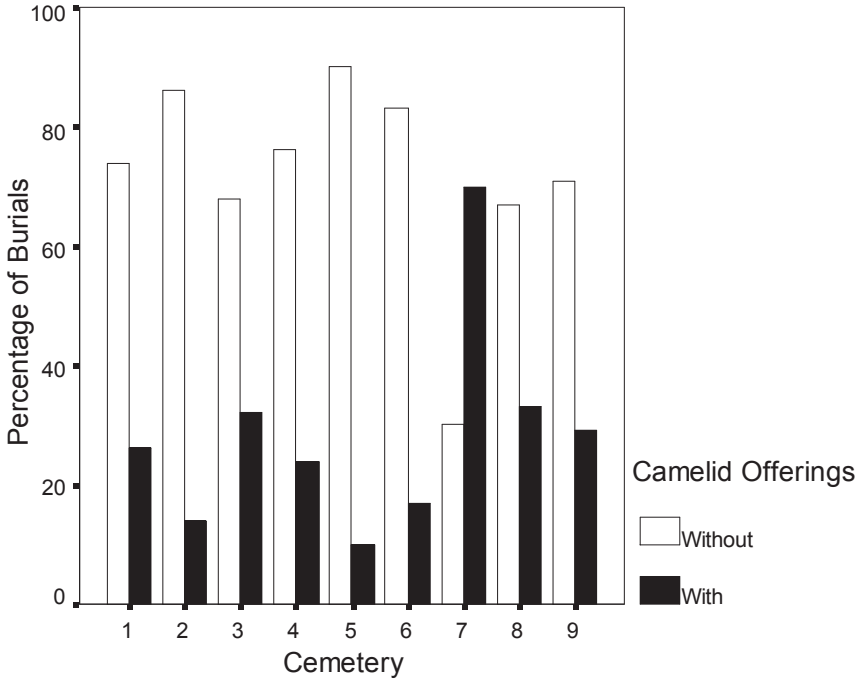


**Figure 19.6.** Distribution of camelid remains in Chiribaya Alta.

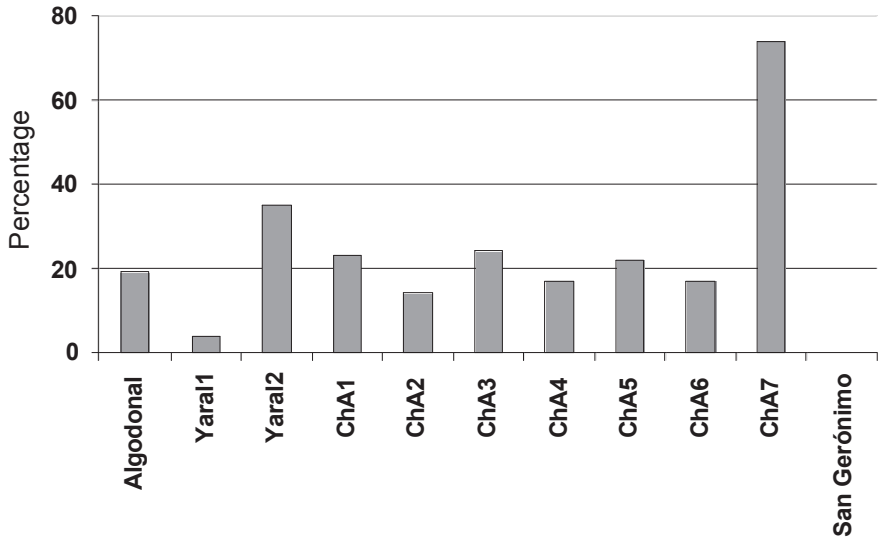


**Figure 19.7.** Distribution of fronto-occipitally deformed skulls in Chiribaya Alta.

the largest percentage of skulls deformed in the fronto-occipital style, a type of body alteration nearly unique to the labradores (Figure 19.7). Cemetery 7 is also notable for the large number of burial offerings with each interment, far above that found at any other Chiribaya cemetery, and orders of magnitude greater that what is encountered in mortuary contexts at El Yaral.

Scattered ethnohistorical accounts provided by Espinoza Soriano (1975) and Galdos Rodríguez (1977) for the south coast indicate that pastoralists were usually associated with the labradores (Rostworowski 1981). This is largely supported by our archaeological observations of the Chiribaya. In fact, Rostworowski (1981) hypothesizes that camelid herds and possibly herders were owned by the *curacas* or *principales*. The elites of the labradores would have maintained special access to camelids, and this would have made camelids a valuable symbol of high status in mortuary contexts. As can be seen in Figures 19.6, 19.7, and 19.8, Cemetery 7 stands apart from the other cemeteries in the quantity

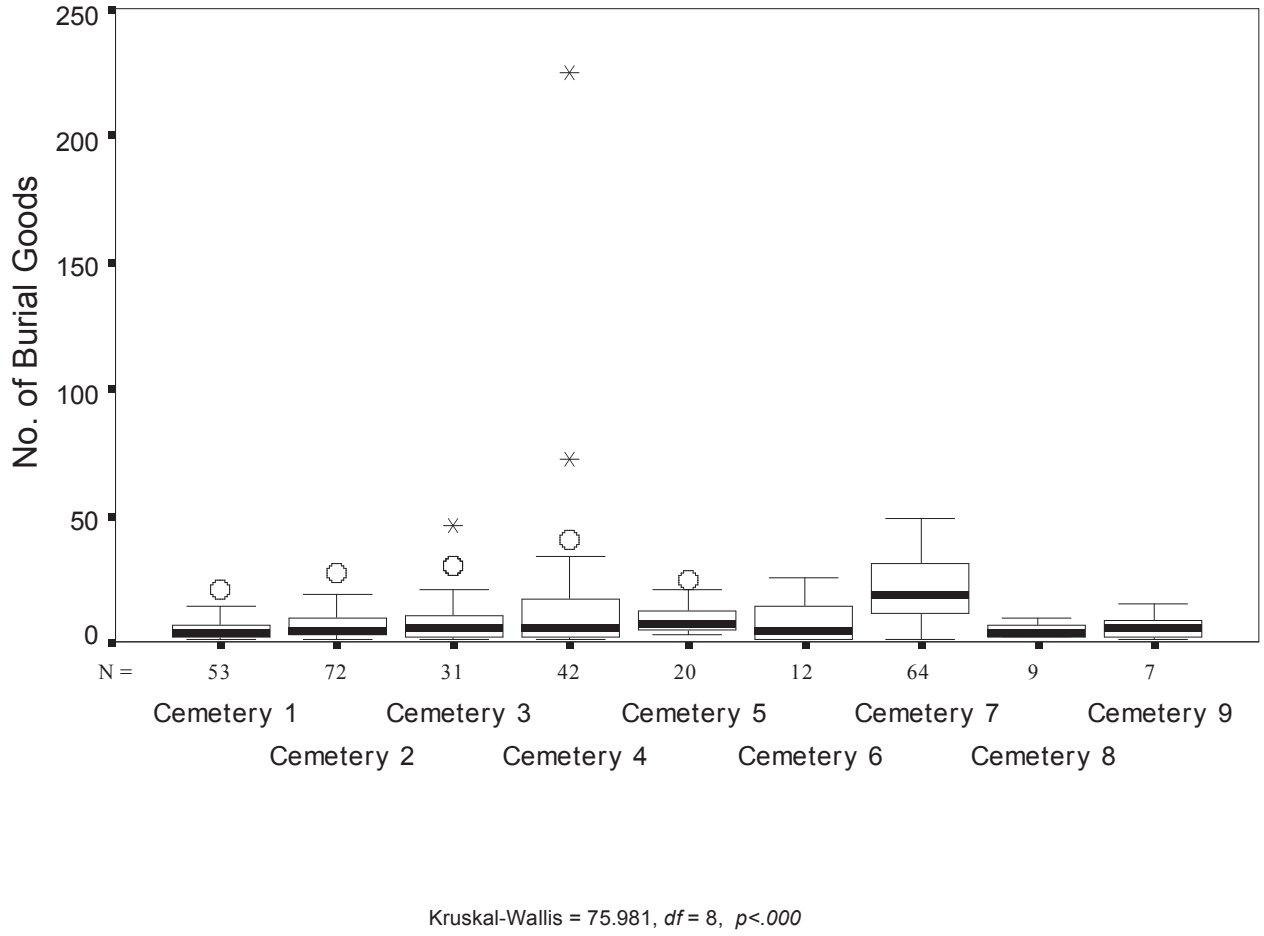


**Figure 19.8.** Box and whisker plot depicting the average number of burial goods in the Chiribaya Alta cemeteries. Cemetery 7 has the highest number of items per grave.

of grave goods and camelid offerings encountered, as well as in the preponderance of fronto-occipital cranial modification. These bioarchaeological patterns suggest that the individuals buried in Cemetery 7 at Chiribaya Alta constituted a privileged cohort of labradores who had unique access to camelids. Cemetery 7 at Chiribaya Alta has also yielded some of the earliest radiocarbon dates, indicating that social stratification existed early in Chiribaya development, and that elite groups with preferential access to strategic resources were present at the inception of Chiribaya.

As demonstrated by the quantities of camelid bones that cover the surface of the cemeteries of Chiribaya Alta, burial rituals may have included specialized feasting in honor of the deceased. In these festivities, consuming meat from the sacrificed camelids may have been an integral part of the Chiribaya mortuary ritual. The incorporation of only selected portions of the carcass, such as the head and lower limbs in burial assemblages, suggests that the rest of the animal may have been consumed during such feasts. It is also conceivable that periodic visits to the deceased occurred, as has been documented today among camelid herders in Puno. Aranguren has reported that on a recurrent basis, on November 1, alpacas are sacrificed and placed on top of the tombs. Relatives and friends then proceed to distribute and consume the alpaca in order to "ayudar a comer al muerto" (Aranguren 1975:125).

To place our findings in a comparative archaeological framework, it is useful to examine the presence of camelid remains in other coastal contexts. Colonial documents describing pastoralism among coastal señoríos are quite rare. Archaeologically, however, there is evidence that camelids were important to northern societies prior to the expansion of the Inca and the arrival of the Spaniards. Seminal research by Shimada and Shimada (1985) on the north coast clearly demonstrates that llamas and perhaps alpacas were successfully bred and maintained on the

north coast from the early Middle Horizon. In addition, examination of carbon and nitrogen stable isotopes of camelid bones from the central coast of Peru by DeNiro demonstrates that prehistoric camelids spent a considerable portion of their lives on the coast, consuming local plants (DeNiro 1988).

In the lower Osmore drainage, where Chiribaya centralized its power, camelids were an important part of the local fauna and appear to have played a central role in Chiribaya society. Direct evidence of specialized herding practices comes from the detailed work of Wheeler. Her analysis of fibers from a sample of twenty-six alpaca and llama mummies from El Yaral indicates that Chiribaya herders bred animals in order to obtain the finest quality fiber from both llamas and alpacas. Furthermore, she performed a detailed demographic analysis of 140 sacrificial camelids from Chiribaya Alta and concluded that coastal Chiribaya herders followed a strictly controlled breeding program directed toward the production and maintenance of highly selected breeds of fine fiber-producing alpacas and llamas that were preserved at El Yaral. Although modern ethnographic data from the central highlands of Peru show that the sacrifice of camelids is done by beheading the animal (Aranguren 1975), the Chiribaya camelid sacrifices were accomplished by a blunt stroke on the head between the ears (Wheeler 1993).

Further evidence of the importance of camelid breeding among the Chiribaya comes from Rofes's (1998) analysis of faunal remains from the domestic refuse at El Yaral. He found that camelid meat was the principal source of protein in the diet, distantly followed by fish. While the latter food was imported from the coast, the presence of fetal, neonatal, juvenile, and adult llamas and alpacas, along with other evidence, makes it clear that these animals were being reared year-round in the immediate vicinity of the site.

Adding further support to the existence of camelid breeding and herding on the south coast by the Chiribaya herders, Knudson compared camelid bone strontium isotopic values from coastal Chiribaya tombs and mid-valley and highland contexts. She found that Chiribaya camelids were raised locally, not imported from the highlands. In fact, coastal Chiribaya camelid values from Chiribaya Alta were different from Osmore mid-valley locations (Knudson 2004:117), suggesting that Chiribaya herds were living year-round on the coast of Ilo.

Although camelid herding has been recognized for some time among the Chiribaya, it was initially interpreted as evidence of contact with highland communities, and therefore an indication of a vertical mode of economic organization. Jessup (1990a, b), for example, proposed that Chiribaya camelids were present on the coast but were maintained by Chiribaya colonies located in the Osmore sierra, perhaps in the Otora Valley. Ethnohistorical accounts indicate that the richest lomas were concentrated in the areas around Ilo (Cobo 1956 [1653]), and, as proposed by Umire and Miranda (2001), these lomas may have been the principal sources of pastures for the Ilo camelids. Archaeological evidence for corrals used by the Chiribaya herders on the coast of Ilo has also been identified by Umire and Miranda (2001).

In conclusion, Rostworowski finds few ethnohistoric accounts describing camelid herding and management in coastal contexts. Archaeological analysis, however, reveals that pastoralism was a widespread practice along the coast prior to Spanish contact and was an important part of coastal economies.

Pastoralism may have assumed special prominence in southern coastal communities, where arable land was scarce compared with northern and central Peru. In this respect, Rostworowski's model of coastal señoríos, based on ethnohistorical sources, must be applied carefully to archaeological contexts. Although certain principles of this model may be generally applicable, independent archaeological investigations will be required to provide insights concerning each geographic, social, and cultural context. With respect to the Chiribaya, our data indicate that pastoralism was closely associated with labradores and may have been directly controlled by elites from within this community. Camelids served as important symbols for the labradores, especially of the power of their elites in the señorío of Chiribaya.

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