**Supplemental Text 1 - The Archaeology of Arequipa**

The earliest human occupations date to the Terminal Pleistocene (11,000 – 9,000 BC) (Rademaker et al. 2014; Sandweiss et. al 1998), and at least some groups were settled agriculturalists by the early third millennium BC in both the coast and highlands (Perry et al. 2006, 2007; Riddell and Valdez 1988; Sandweiss and Rademaker 2013). There are scattered hints of both emerging social complexity and contacts with the Lake Titicaca region, (e.g., Cabrera 2012; McEwan and Haeberli 2000; Ziółkowski and Tunia 2005), but in general it appears that the few people who lived in Arequipa were often part of small, ephemeral communities of hunter-gatherers and agro-pastoralists until at least the Middle Horizon period (600-1000 CE) (Cardona Rosas 2002; Disselhoff 1969; Doutriaux 2004; Jennings 2002; Lozada et al. 2018; Santos Ramírez 1976; Wernke 2003, 2011).

The earliest known burials from the region date to the end of the first millennium BC and consist of subterranean cists that tend to house a single individual who was wrapped in textiles and buried in a flexed position (Biermann 2006; Disselhoff 1969; Haeberli 2002, 2006, 2009; Manrique Valdivia and Cornejo Zegarra 1990; Quequezano Lucano 1997; Ravines 2007; Rosoff 2018; Santos Ramírez 1976, 1980, 1988a). No status differences are readily observable in these burials, but research at the mid-valley sites of Uraca (Scaffidi 2018) and Millo (Lozada et al. 2018) suggests high levels of violence and incipient inequality in these locations by the end of Early Intermediate period (200 BCE – 600 CE). Violent conflict would continue into the Middle Horizon as population increased, agriculture intensified, and social differences widened across much of the region (Chávez Chávez and Salas Hinojoza 1990; Garcia Márquez and Bustamante Montoro 1990; Linares Málaga 1990, 1993; Manrique Valdivia and Cornejo Zegarra 1990; Neira Avendaño 1990, 1998; Owen 2010; Ramos Cuba and Ochoa Peña 2005; Tung 2007a; Tung 2012). These changes are correlated with the spread of Wari influence (Jennings 2014; Jennings 2015 et al.; Tung 2007a; Tung 2012).

Prior to the Middle Horizon, tombs were usually located away from settlements. Mourners traveled to these cemeteries, buried their dead, and then returned to the land of the living. Burial locations began to change during the Middle Horizon, when we also see the first examples of collective tombs in Arequipa (Cruzado Paredes and Fernández Huamán 2018; Jennings and Yépez Álvarez 2015; Tung 2007b). Tomb types proliferated in the Late Intermediate and Late Horizon periods, with individuals buried within and outside of settlements in locations that were often highly visible and frequently visited (Baca et al. 2012; Duchesne 2005; Jennings and Yépez Álvarez 2009; Santos Ramírez 1988b; Sobczyk 2000; Velasco 2014, 2018a, 2018b; Wernke 2013). *Chullpas*—as an overarching category of collective tomb types that includes caves, towers, and any other open sepulchre—were much more common in the highlands, but both single inhumation cists and *chullpas* were used to varying degrees across the Arequipa region.

The Middle Horizon trend of population expansion, agricultural intensification, and social stratification in Arequipa continued into later periods as the coast and highland economies became increasingly intertwined (Burger et al. 2000; Chávez Chávez and Salas Hinojoza 1990; Garcia Márquez and Bustamante Montoro 1990; Jennings and Yépez Álvarez 2009; Linares Málaga 1990, 1993; Manrique Valdivia and Cornejo Zegarra 1990; Neira Avendaño 1990, 1998; Owen 2010; Ramos Cuba and Ochoa Peña 2005; Wernke 2013). Increasing complexity led to the development of a wide variety of valley-based hierarchical and heterachical polities in Arequipa that remain poorly understood in most places (Cardona Rosas 2002; Doutriaux 2004; Engel 1973; Jennings and Yépez Álvarez 2009; Sciscento 1989; Sieczkowska and Sobczyk 2018; Szykulski 2010; Wernke 2013). In general, more complex polities were located in the highlands by the beginning of the Late Intermediate period, with smaller, more independent villages in the coastal valleys.

As aridity began to increase in the highlands by the mid-twelfth century (Schittek et al. 2015), the coast must have seemed like a woefully underused resource zone to those living in the highlands. Quilcapampa and other mid-valley settlements sat amidst highly fertile, low elevation farmlands that were ripe for intensification, and critical marine resources abounded in the Pacific some seventy kilometers away. Many of the coast-highland trails may have been founded in this period (Yépez Álvarez et al. 2018; Cardona Rosas 2008), although connections were already developing by the end of the Middle Horizon (Jennings et al. 2015). The exchange of seaweed, cotton, maize, potatoes, dried meat, and other products would continue to intensify over the course of the Late Intermediate period (Julien 1985; Masuda 1985; Takahashi 1988). By at least the very end of the period, ethnohistoric documents demonstrate that parts of coastal Arequipa were colonized by highland polities structured in a variety of ways by leaders who worked within a social landscape of well-established, nested *ayllus* (Galdos Rodríguez 1985, 1987, 1990).

Some highlanders settled on the coast at the end of vertical archipelagos that connected them to their homelands, while others only visited in the winter months to exploit lowland and marine resources (i.e. Corrales V. 1983; Murra 1956, 1972; Pease 1977). The groups invested in agricultural terracing where possible, developed infrastructure for marine extraction, and appear to have often set themselves apart from the local population (Engel 1973: 277-278; López Hurtado and Yépez Álvarez 2015; Pari Flores and López Hurtado 2018; Rowe 1956:139; Yépez Álvarez 2018). As was the case on the far South Coast (Covey 2000), the Inca Empire then reshaped Arequipa’s pre-existing network to meet their state interests (Riddell 2007; Rowe 1956:140; Trimborn 1988).

The precise timing of these more formal, *ayllu*-based migrations remains unclear. Engel long ago noted that the lomas region that hugs Arequipa’s coast was largely abandoned in the first millennium AD and then re-occupied by groups using the “final Precolumbian pottery” that predated the Inca conquest (1973:278). Subsequent research, although limited, has supported this assertion with radiocarbon samples from Puyenca (Ravines 1982:176) and Quebrada de la Vaca (Ziółkowski et al. 1994:303) dating to the fourteenth century. López Hurtado and Yépez Álvarez also suggest that the *ayllu*-based vertical archipelagos were established around this time (2015:27), an assertion that fits within the timing of this migration as discussed by Linares Málaga (1990:388) and Szykulski (2010:237). We follow these scholars here in tentatively suggesting that the ethnohistorically documented, *ayllu*-based migrations to the coast likely occurred near the end of the Late Intermediate period.

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